NATIONAL HEALTH AND MORBIDITY SURVEY 2014 :
MALAYSIAN ADULT NUTRITION SURVEY (MANS)

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VOLUME II
SURVEY FINDINGS

Institut Kesihatan Umum • Kementerian Kesihatan Malaysia

NATIONAL HEALTH AND MORBIDITY SURVEY 2014: MALAYSIAN ADULT (NMRR-12-815-13100)

VOLUME II
SURVEY FINDINGS

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Disclaimer:

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

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TOPIC 1

FOOD SECURITY STATUS

1. FOOD SECURITY STATUS

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1.1 Findings

The Malaysian Adults Nutrition Survey measured food security at household, adult and child levels using six items which were adapted from the USDA 18-item Household Food Security Survey Module. Valid responses to each item were 'never', 'only one or two months', 'several months, but not every month', and 'almost every month'. Respondents who answered 'never' to an item were considered as having food security in that domain while those with other responses were considered as experiencing food insecurity.

In general, the proportions of respondents from East Malaysia and rural areas reporting food insecurity at household, adult or child level were significantly higher than those from Peninsular Malaysia and urban areas, respectively.

The prevalence of household food insecurity in terms of inadequate quantity of purchased foods were 39.24% (95% CI: 34.52-44.18) in East Malaysia versus 21.13% (95 % CI: 18.42-24.13) in Peninsular Malaysia, and 33.50% (95% CI: 29.90-37.30) in rural areas versus 21.19% (95% CI: 18.18-24.55) in urban areas **(Table 1.1)**. The prevalence of respondents reporting purchased foods lacked variety were higher in East Malaysia (40.77%; 95% CI: 35.76-45.98) and rural areas (33.59%; 95% CI: 29.99-37.38) than in Peninsular Malaysia (21.42%; 95 % CI: 18.65-24.49), and urban areas (21.97%; 95% CI: 18.85-25.44) **(Table 1.2)**.

The prevalence of adult food insecurity in relation to adults having reduced meal size were 31.84% (95% CI: 27.33-36.72) in East Malaysia versus 19.18% (95 % CI: 16.68-21.95) in Peninsular Malaysia, and 28.49% (95% CI: 25.09-32.15) in rural area versus 18.93% (95% CI: 16.16-22.04) in urban area (Table 1.3).The prevalence of adults skipping main meals were 23.29% (95% CI: 19.20-27.94) in East Malaysia versus 13.00% (95 % CI: 10.85 15.51) in Peninsular Malaysia, and 21.02% (95% CI: 17.71-24.76) in rural areas versus 12.61% (95% CI: 10.30-15.35) in urban areas **(Table 1.4)**.

The prevalence of households experiencing child food insecurity in terms of reliance on limited number of cheap food to feed children were 39.58% (95% CI: 34.45-44.96) in East Malaysia versus 19.43% (95 % CI: 16.71-22.47) in Peninsular Malaysia, and 31.31% (95% CI: 27.61-35.27) in rural areas versus 20.11% (95% CI: 17.05-23.56) in urban areas **(Table 1.5)**. The prevalence of respondents reporting inability to feed children with variety of foods were higher in East Malaysia (36.75%; 95% CI: 31.63-42.18) and rural areas (29.81%; 95% CI: 26.03-33.90) than in Peninsular Malaysia (16.53%; 95 % CI: 14.01-19.39) and urban areas (16.57%; 95% CI: 13.77-19.81) **(Table 1.6)**.

1.2   Implications

Food insecurity has adverse effects on health and quality of life. Food insecure individuals are at risk of having inadequate food intake and poor diet quality. These conditions could compromise intake of energy and nutrients, particularly vitamins and minerals. The subsequent low blood nutrient levels, if prolonged, could lead to micronutrient deficiency. Children living in food insecure households have increased risk of stunting and underweight, poor cognitive development that could adversely affect academic performance, and psychological and social problems. In adults, food insecurity is associated with increased risk of overweight and obesity, chronic diseases and poor mental health. Food insecure individuals with chronic diseases may also have difficulties to follow the prescribed diets by medical and health professionals as healthy foods may be relatively expensive.

1.3   Conclusion

Food insecurity occurs at household, adult and child levels in Malaysia. At each level, the different dimensions of food insecurity assessed are consistently associated with similar demographic (zone, strata and ethnicity) and socioeconomic (education, work status and income) factors Food insecurity is more prevalent in East Malaysia, rural areas, Bumiputra Sarawak as well as individuals with low education and income and working in non government sectors. As food insecurity is interrelated with socioeconomic status, the differences in prevalence of food insecurity by zone, strata and ethnicity could well reflect the socioeconomic differentials (ie income, education and work status) of individuals and households in Peninsular Malaysia – East Malaysia, urban-rural areas and of various ethnic groups.

1.4   Recommendations

Several strategies are recommended to prevent food insecurity or reduce the severity of food insecurity. Lack of education, low wages, job insecurity, un- and underemployment and poor living conditions are important underlying causes of food insecurity. These factors should be addressed through programs and policies that could increase economic security and subsequently food security. In addition, life management skills are essential for individuals to cope with the rising standard of living. Nutrition and financial management education are among the life skills that should be made available and accessible to individuals, particularly those who are at risk of food insecurity.

National food or financial assistance programs play an important role in alleviating food insecurity or reducing its severity. The coverage of such programs should be extended to food insecure individuals or households who are not necessarily living in poverty but are experiencing financial constraints. It has also been shown that promoting charity food based assistance programs could also benefit food insecure individuals and households.

Finally, food security should be high on the development agenda. It is important to have comprehensive policies and multisectoral collaborative efforts to promote food security in Malaysia. For example, policies to increase agricultural production and food availability must be allign with public health goals that aim to promote better health and nutrition of population. These policies should also address the multi-dimensions of food security (availability, access, utilization and stability) as increased food availability may not necessarily improve food access and utilization.

Definition of variables : Food security.

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
A201	a201_DICHO	Final_weight	The food that I bought just didn't sufficient and I did not have money to buy more	RECODE a201 (4=2) (1 thru 3=1) (ELSE=Copy) INTO a201_DICHO. VARIABLE LABELS a201_DICHO 'a201_DICHO'. EXECUTE.
A202	a201_DICHO	Final_weight	I couldn't afford to buy types of food which were necessary	RECODE a202 (4=2) (1 thru 3=1) (ELSE=C opy) INTO a202_DICHO. VARIABLE LABELS a202_DICHO 'a202_DICHO'. EXECUTE.
A203	a201_DICHO	Final_weight	In the past twelve month, how often did you or other adults family members REDUCE the size of meals because there was not enough money to buy food?	RECODE a203 (4=2) (1 thru 3=1) (ELSE=Copy) INTO a203_DICHO. VARIABLE LABELS a203_DICHO 'a203_DICHO'. EXECUTE.
A204	a201_DICHO	Final_weight	In the past twelve month, how often did you or other adults family members SKIP main meals because there was not enough money to buy food?	RECODE a204 (4=2) (1 thru 3=1) (ELSE=Copy) INTO a204_DICHO. VARIABLE LABELS a204_DICHO 'a204_DICHO'. EXECUTE.
A205	a201_DICHO	Final_weight	I rely only on the cheap and affordable foods to feed the children.	RECODE a205 (4=2) (1 t hru 3=1) (ELSE=Copy) INTO a205_DICHO. VARIABLE LABELS a205_DICHO 'a205_DICHO'. EXECUTE.
A206	a201_DICHO	Final_weight	I could not afford to feed the children with various foods as I do not have enough money	RECODE a206 (4=2) (1 thru 3=1) (ELSE=Copy) INTO a206_DICHO. VARIABLE LABELS a206_DICHO 'a206_DICHO'. EXECUTE.

Table 1.1: Prevalence of Food Quantity Insufficiency Due To Financial Constraint In The Past 12 Months

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	4876142	848	24.95	22.56	27.50	14466253	2120	75.05	72.50	77.44
Zone										
Peninsular Malaysia	3258070	389	21.13	18.42	24.13	12161020	1453	78.87	75.87	81.58
East Malaysia	1618072	459	39.24	34.52	44.18	2505232	667	60.76	55.82	65.48
Strata										
Urban	2876157	347	21.19	18.18	24.55	10695957	1231	78.81	75.45	81.82
Rural	1999985	501	33.50	29.90	37.30	3970296	889	66.50	62.70	70.10
Sex										
Male	2701305	395	26.44	23.15	30.02	7514621	976	73.56	69.98	76.85
Female	2174837	453	23.32	20.62	26.25	7151632	1144	76.68	73.75	79.38
Age Group										
18 –19	310932	43	27.22	17.85	39.17	831372	88	72.78	60.83	82.15
20–29	1363388	181	25.62	21.21	30.59	3958560	497	74.38	69.41	78.79
30–39	1212302	240	25.01	21.15	29.30	3635586	585	74.99	70.70	78.85
40–49	1120070	216	24.43	20.96	28.28	3464321	534	75.57	71.72	79.04
50–59	869450	168	23.85	19.76	28.48	2776414	416	76.15	71.52	80.24
Ethnicity										
Malay	2373090	349	22.46	19.28	26.00	8191175	1122	77.54	74.00	80.72
Chinese	566495	74	14.84	10.81	20.05	3249708	442	85.16	79.95	89.19
Indian	353359	34	25.97	17.57	36.60	1007328	98	74.03	63.40	82.43
Bumiputera Sarawak	679534	188	64.01	54.99	72.13	382117	106	35.99	27.87	45.01
Bumiputera Sabah	538432	144	36.42	29.98	43.39	939912	221	63.58	56.61	70.02
Others	307924	51	26.52	18.07	37.13	853151	122	73.48	62.87	81.93
Other Bumi	-	8	-	-	-	-	9	-	-	-

Note :
- RSE more than 25%

Table 1.1: Prevalence of Food Quantity Insufficiency Due To Financial Constraint In The Past 12 Months (Cont.)

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Marital status										
Never married	1316305	183	24.00	19.51	29.15	4168308	545	76.00	70.85	80.49
Married/Cohabiting	3260404	596	24.73	22.16	27.48	9925128	1455	75.27	72.52	77.84
Divorced/Separated	195118	44	31.17	21.69	42.54	430884	84	68.83	57.46	78.31
Widow	95205	23	41.77	24.44	61.40	132740	35	58.23	38.60	75.56
Others	-		-			9192	1	100.00	100.00	100.00
Education Level										
Non-formal	340070	88	67.26	55.71	77.03	165542	45	32.74	22.97	44.29
Primary	1634008	310	45.20	40.03	50.49	1980674	307	54.80	49.51	59.97
Secondary	2299053	371	23.65	20.65	26.95	7420061	1074	76.35	73.05	79.35
Tertiary	568476	69	10.19	7.61	13.51	5010151	677	89.81	86.49	92.39
Others	-	7	-	-	-	56920	10	72.33	48.56	87.86
Work status										
Government/Semi-government										
Private	221024	43	9.81	7.26	13.12	2032752	330	90.19	86.88	92.74
Self-employed	1976063	272	24.33	20.89	28.13	6146439	794	75.67	71.87	79.11
Unpaid workers	1342157	288	27.28	23.26	31.69	3578499	538	72.72	68.31	76.74
Not working	-	3	-	-	-	-	5	-	-	-
Retired	1157849	223	36.36	31.07	42.01	2026247	353	63.64	57.99	68.93
Students	-	5	-	-	-	183241	24	87.56	68.07	95.88
Others	-	10	-	-	-	528853	50	85.87	71.49	93.64
Income Group 1										
Less than RM1500	3091955	611	38.77	34.81	42.89	4882993	778	61.23	57.11	65.19
RM1500 – RM3500	1334949	183	21.53	18.00	25.53	4866630	700	78.47	74.47	82.00
More than RM 3500	419977	51	8.18	5.83	11.35	4716312	617	91.82	88.65	94.17

Note :
- RSE more than 25%

Table 1.2: Prevalence of Food Variety Insufficiency Due To Financial Constraint In The Past 12 Months

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	4980615	854	25.52	23.05	28.16	14538280	2108	74.48	71.84	76.95
Zone										
Peninsular Malaysia	3297241	384	21.42	18.65	24.49	12092626	1454	78.58	75.51	81.35
East Malaysia	1683374	470	40.77	35.76	45.98	2445653	654	59.23	54.02	64.24
Strata										
Urban	2978366	359	21.97	18.85	25.44	10579259	1215	78.03	74.56	81.15
Rural	2002249	495	33.59	29.99	37.38	3959020	893	66.41	62.62	70.01
Sex										
Male	2757822	407	27.02	23.75	30.56	7449081	961	72.98	69.44	76.25
Female	2222792	447	23.87	20.90	27.12	7089198	1147	76.13	72.88	79.10
Age Group										
18 –19	305288	42	26.73	18.53	36.90	837016	89	73.27	63.10	81.47
20-29	1381515	187	25.87	21.59	30.66	3959174	493	74.13	69.34	78.41
30-39	1130440	229	23.28	19.51	27.53	3726027	597	76.72	72.47	80.49
40-49	1217841	221	26.72	22.44	31.49	3339756	523	73.28	68.51	77.56
50-59	945531	175	26.11	21.60	31.18	2676306	406	73.89	68.82	78.40
Ethnicity										
Malay	2408815	352	22.84	19.86	26.13	8137271	1116	77.16	73.87	80.14
Chinese	572229	72	15.01	10.52	20.97	3239696	443	84.99	79.03	89.48
Indian	410902	40	30.20	22.18	39.64	949785	92	69.80	60.36	77.82
Bumiputera Sarawak	688042	192	64.81	56.12	72.62	373609	102	35.19	27.38	43.88
Bumiputera Sabah	538960	140	36.42	29.90	43.48	940945	224	63.58	56.52	70.10
Others	315290	50	27.22	18.43	38.22	843180	122	72.78	61.78	81.57
Other Bumi	-	8	-	-	-	-	9	-	-	-

Note :
- RSE more than 25%

Table 1.2: Prevalence of Food Variety Insufficiency Due To Financial Constraint In The Past 12 Months (Cont.)

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Marital status										
Never married	1314590	183	23.90	19.97	28.32	4186159	546	76.10	71.68	80.03
Married/Cohabiting	3333432	603	25.35	22.61	28.30	9816280	1442	74.65	71.70	77.39
Divorced/Separated	223642	43	35.94	25.60	47.79	398543	84	64.06	52.21	74.40
Widow	99839	23	43.80	26.12	63.21	128106	35	56.20	36.79	73.88
Others	-		-	-	-	9192	1	100.00	100.00	100.00
Education Level										
Non-formal	336995	88	66.65	54.99	76.58	168617	45	33.35	23.42	45.01
Primary	1678585	314	46.56	41.08	52.12	1926552	300	53.44	47.88	58.92
Secondary	2314953	368	23.85	20.79	27.20	7390972	1074	76.15	72.80	79.21
Tertiary	614104	74	11.03	8.14	14.78	4954386	671	88.97	85.22	91.86
Others	-	7	-	-	-	64849	11	73.64	49.22	88.95
Work status										
Government/Semi-government	216810	44	9.66	6.70	13.73	2027698	328	90.34	86.27	93.30
Private	2042774	290	25.17	21.75	28.93	6072796	773	74.83	71.07	78.25
Self-employed	1296532	269	26.37	22.17	31.03	3621000	556	73.63	68.97	77.83
Unpaid workers	-	3	-	-	-	-	3	-	-	-
Not working	1217331	223	38.26	32.94	43.88	1964161	352	61.74	56.12	67.06
Retired	16762	4	8.45	2.40	25.72	181568	24	91.55	74.28	97.60
Students	-	13	-	-	-	529550	48	84.69	70.88	92.63
Others										
Income Group										
Less than RM1500	2997225	600	37.75	33.99	41.65	4943461	783	62.25	58.35	66.01
RM1500 – RM3500	1412511	191	22.69	19.04	26.81	4812571	694	77.31	73.19	80.96
More than RM3500	505831	57	9.87	7.12	13.54	4617717	609	90.13	86.46	92.88

Note :
- RSE more than 25%

Table 1.3: Prevalence of Meal Size Reduction Due To Financial Constraint In The Past 12 Months

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	4261932	717	21.86	19.64	24.25	15238303	2244	78.14	75.75	80.36
Zone										
Peninsular Malaysia	2949304	343	19.18	16.68	21.95	12428675	1496	80.82	78.05	83.32
East Malaysia	1312628	374	31.84	27.33	36.72	2809627	748	68.16	63.28	72.67
Strata										
Urban	2561344	289	18.93	16.16	22.04	10969299	1282	81.07	77.96	83.84
Rural	1700589	428	28.49	25.09	32.15	4269003	962	71.51	67.85	74.91
Sex										
Male	2424595	345	23.77	20.75	27.09	7774310	1022	76.23	72.91	79.25
Female	1837337	372	19.75	17.25	22.52	7463992	1222	80.25	77.48	82.75
Age Group										
18 –19	250605	33	22.26	14.37	32.82	875285	97	77.74	67.18	85.63
20-29	1101663	150	20.66	16.99	24.89	4230432	528	79.34	75.11	83.01
30-39	1036782	193	21.37	18.07	25.09	3814475	631	78.63	74.91	81.93
40-49	1126009	194	24.63	20.51	29.26	3445990	554	75.37	70.74	79.49
50-59	746873	147	20.64	16.81	25.07	2872121	434	79.36	74.93	83.19
Ethnicity										
Malay	2005420	295	19.01	16.41	21.92	8542216	1174	80.99	78.08	83.59
Chinese	597617	74	15.71	11.00	21.92	3207534	441	84.29	78.08	89.00
Indian	335700	29	24.67	16.90	34.53	1024987	103	75.33	65.47	83.10
Bumiputera Sarawak	592393	164	56.24	46.49	65.54	460925	128	43.76	34.46	53.51
Bumiputera Sabah	409337	109	27.63	22.48	33.45	1072130	255	72.37	66.55	77.52
Others	282762	41	24.35	15.16	36.71	878312	132	75.65	63.29	84.84
Other Bumi	-	5	-	-	-	52198	11	57.42	32.69	78.93

Note :
- RSE more than 25%

Table 1.3: Prevalence of Meal Size Reduction Due To Financial Constraint In The Past 12 Months (Cont.)

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Marital status										
Never married	1131437	155	20.65	16.97	24.89	4346910	572	79.35	75.11	83.03
Married/Cohabiting	2864378	505	21.78	19.26	24.54	10285261	1540	78.22	75.46	80.74
Divorced/Separated	185207	38	29.59	20.27	40.98	440796	90	70.41	59.02	79.73
Widow	-	17	-	-	-	156144	41	68.50	45.59	84.95
Others	-		-	-	-	9192	1	100.00	100.00	100.00
Education Level										
Non-formal	294348	75	58.22	45.99	69.51	211264	58	41.78	30.49	54.01
Primary	1455511	267	40.34	35.11	45.79	2152924	348	59.66	54.21	64.89
Secondary	1917580	302	19.81	17.19	22.72	7761028	1138	80.19	77.28	82.81
Tertiary	566979	65	10.17	7.63	13.43	5006870	680	89.83	86.57	92.37
Others	-	5	-	-	-	73312	13	83.25	62.05	93.79
Work status										
Government/Semi-government	203612	36	9.06	6.39	12.68	2044955	336	90.94	87.32	93.61
Private	1773115	235	21.89	18.66	25.51	6327120	828	78.11	74.49	81.34
Self-employed	1098947	239	22.34	18.87	26.25	3819279	586	77.66	73.75	81.13
Unpaid workers	-	3	-	-	-	-	-	-	-	-
Not working	956223	182	30.08	25.28	35.36	2222664	392	69.92	64.64	74.72
Retired	-	4	-	-	-	192510	25	91.99	75.58	97.71
Students	-	11	-	-	-	492461	49	80.88	65.44	90.44
Others										
Income Group										
Less than RM1500	2584514	511	32.58	28.98	36.40	5348608	871	67.42	63.60	71.02
RM1500 – RM3500	1203643	158	19.35	15.95	23.27	5017532	726	80.65	76.73	84.05
More than RM 3500	414199	43	8.10	5.71	11.37	4702161	624	91.90	88.63	94.29

Note :
- RSE more than 25%

Table 1.4: Prevalence of Main Meal Skip Due To Financial Constraint In The Past 12 Months

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	Upper	Estimated Population	Unweighted Count	%	95% CI Lower	Upper
Malaysia	2961062	507	15.18	13.24	17.33	16551079	2454	84.82	82.67	86.76
Zone										
Peninsular Malaysia	2001420	229	13.00	10.85	15.51	13389991	1610	87.00	84.49	89.15
East Malaysia	959642	278	23.29	19.20	27.94	3161088	844	76.71	72.06	80.80
Strata										
Urban	1708683	191	12.61	10.30	15.35	11845973	1383	87.39	84.65	89.70
Rural	1252378	316	21.02	17.71	24.76	4705106	1071	78.98	75.24	82.29
Sex										
Male	1698515	243	16.67	13.88	19.89	8489762	1123	83.33	80.11	86.12
Female	1262547	264	13.54	11.47	15.92	8061317	1331	86.46	84.08	88.53
Age Group										
18 –19	193897	30	17.22	11.38	25.21	931994	100	82.78	74.79	88.62
20-29	845356	111	15.90	12.69	19.73	4472878	566	84.10	80.27	87.31
30-39	688156	126	14.18	11.28	17.67	4165706	698	85.82	82.33	88.72
40-49	643681	128	14.08	10.78	18.17	3929295	619	85.92	81.83	89.22
50-59	589972	112	16.20	12.75	20.37	3051206	471	83.80	79.63	87.25
Ethnicity										
Malay	1436443	214	13.61	11.26	16.37	9115356	1254	86.39	83.63	88.74
Chinese	287716	34	7.57	4.81	11.71	3515355	480	92.43	88.29	95.19
Indian	231768	19	17.03	10.56	26.31	1128919	113	82.97	73.69	89.44
Bumiputera Sarawak	467936	132	44.08	34.71	53.88	593715	162	55.92	46.12	65.29
Bumiputera Sabah	269644	74	18.30	13.85	23.77	1204044	289	81.70	76.23	86.15
Others	-	30	-	-	-	929432	143	80.05	66.82	88.88
Other Bumi	-	4	-	-	-	64258	13	64.15	33.86	86.22

Note :
- RSE more than 25%

Table 1.4: Prevalence of Main Meal Skip Due To Financial Constraint In The Past 12 Months (Cont.)

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Marital status										
Never married	905273	122	16.53	13.04	20.72	4572298	606	83.47	79.28	86.96
Married/Cohabiting	1863555	341	14.16	11.99	16.65	11298765	1703	85.84	83.35	88.01
Divorced/Separated	119773	28	19.13	11.98	29.14	506229	100	80.87	70.86	88.02
Widow	-	14	-	-	-	164595	44	72.21	48.38	87.81
Others	-		-	-	-	9192	1	100.00	100.00	100.00
Education Level										
Non-formal	252704	66	49.98	38.54	61.42	252908	67	50.02	38.58	61.46
Primary	1076516	201	29.86	24.86	35.40	2528283	414	70.14	64.60	75.14
Secondary	1214784	192	12.53	10.26	15.21	8482874	1249	87.47	84.79	89.74
Tertiary	396424	42	7.12	4.88	10.28	5173917	702	92.88	89.72	95.12
Others	-	3	-	-	-	80193	15	91.06	73.48	97.40
Work status										
Government/Semi-government	-	22	-	-	-	2110913	350	93.72	89.63	96.27
Private	1173164	157	14.47	11.75	17.69	6934261	906	85.53	82.31	88.25
Self-employed	789821	176	16.10	13.20	19.49	4116267	647	83.90	80.51	86.80
Unpaid workers	-	2	-	-	-	41031	6	81.70	51.30	94.98
Not working	686888	133	21.52	17.09	26.73	2505175	443	78.48	73.27	82.91
Retired	-	3	-	-	-	193644	26	92.53	72.34	98.33
Students	-	10	-	-	-	506269	50	83.15	68.07	91.95
Others										
Income Group										
Less than RM1500	1986364	389	25.01	21.64	28.71	5957168	995	74.99	71.29	78.36
RM1500 – RM3500	711195	93	11.44	8.90	14.60	5503215	790	88.56	85.40	91.10
More than RM 3500	234242	22	4.57	2.90	7.13	4890379	644	95.43	92.87	97.10

Note :
- RSE more than 25%

Table 1.5: Prevalence of Children Feeding With Cheap And Affordable Food

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	4002772	713	23.65	21.21	26.28	12922037	1866	76.35	73.72	78.79
Zone										
Peninsular Malaysia	2599077	315	19.43	16.71	22.47	10779417	1299	80.57	77.53	83.29
East Malaysia	1403695	398	39.58	34.45	44.96	2142620	567	60.42	55.04	65.55
Strata										
Urban	2326836	290	20.11	17.05	23.56	9245559	1043	79.89	76.44	82.95
Rural	1675936	423	31.31	27.61	35.27	3676478	823	68.69	64.73	72.39
Sex										
Male	2078067	312	24.31	21.06	27.89	6468759	829	75.69	72.11	78.94
Female	1924705	401	22.97	19.98	26.27	6453278	1037	77.03	73.73	80.02
Age Group										
18 –19	198849	36	22.01	14.41	32.11	704707	68	77.99	67.89	85.59
20-29	981238	133	24.01	19.18	29.60	3105971	389	75.99	70.40	80.82
30-39	1110902	213	26.05	21.95	30.61	3154060	513	73.95	69.39	78.05
40-49	920234	185	21.66	18.04	25.78	3327806	504	78.34	74.22	81.96
50-59	791548	146	23.14	18.87	28.04	2629493	392	76.86	71.96	81.13
Ethnicity										
Malay	1941924	287	20.88	17.77	24.36	7360210	1022	79.12	75.64	82.23
Chinese	503835	63	15.71	11.02	21.90	2704016	363	84.29	78.10	88.98
Indian	277273	27	22.78	14.79	33.40	939818	88	77.22	66.60	85.21
Bumiputera Sarawak	572955	153	62.65	53.50	70.98	341571	96	37.35	29.02	46.50
Bumiputera Sabah	503695	140	38.69	31.53	46.38	798135	187	61.31	53.62	68.47
Others	172050	38	19.52	13.26	27.80	709157	98	80.48	72.20	86.74
Other Bumi	-	5	-	-	-	-	12	-	-	-

Note :
- RSE more than 25%

Table 1.5: Prevalence of Children Feeding With Cheap And Affordable Food (Cont.)

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	Upper	Estimated Population	Unweighted Count	%	95% CI Lower	Upper
Marital status										
Never married	970692	124	25.23	20.18	31.04	2877181	362	74.77	68.96	79.82
Married/Cohabiting	2742913	525	22.31	19.83	25.01	9550045	1397	77.69	74.99	80.17
Divorced/Separated	175462	40	32.51	22.49	44.44	364178	71	67.49	55.56	77.51
Widow	105896	23	46.85	28.77	65.79	120140	34	53.15	34.21	71.23
Others	-	3	-	-	-	9192	1	100.00	100.00	100.00
Education Level										
Non-formal	297919	76	66.99	54.73	77.31	146775	38	33.01	22.69	45.27
Primary	1352261	261	41.08	36.02	46.34	1939130	290	58.92	53.66	63.98
Secondary	1874107	311	21.97	18.93	25.36	6654525	968	78.03	74.64	81.07
Tertiary	456991	59	9.99	7.29	13.56	4115517	557	90.01	86.44	92.71
Others	-	3	-	-	-	44725	9	83.66	56.56	95.27
Work status										
Government/Semi-government	157688	29	7.81	5.25	11.47	1861483	302	92.19	88.53	94.75
Private	1543476	226	23.60	19.85	27.81	4996417	638	76.40	72.19	80.15
Self-employed	1112230	237	24.82	21.07	29.00	3368430	503	75.18	71.00	78.93
Unpaid workers	-	2	-	-	-	31839	4	83.86	43.55	97.22
Not working	1042077	201	34.48	29.30	40.04	1980534	338	65.52	59.96	70.70
Retired	-	2	-	-	-	185847	25	94.62	74.49	99.06
Students	-	10	-	-	-	368399	35	81.55	63.15	91.94
Others										
Income Group										
Less than RM1500	2454083	511	36.53	32.63	40.63	4263286	682	63.47	59.37	67.37
RM1500 – RM3500	1150798	156	20.85	17.31	24.90	4367974	616	79.15	75.10	82.69
More than RM 3500	367756	43	8.18	5.67	11.66	4127549	549	91.82	88.34	94.33

Note :
- RSE more than 25%

Table 1.6: Prevalence of Children Feeding With Less Food Variety Due To Financial Constraint

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated Population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	3517644	642	20.75	18.46	23.25	13432113	1939	79.25	76.75	81.54
Zone										
Peninsular Malaysia	2215898	276	16.53	14.01	19.39	11191495	1339	83.47	80.61	85.99
East Malaysia	1301746	366	36.75	31.63	42.18	2240619	600	63.25	57.82	68.37
Strata										
Urban	1921741	244	16.57	13.77	19.81	9675301	1091	83.43	80.19	86.23
Rural	1595903	398	29.81	26.03	33.90	3756813	848	70.19	66.10	73.97
Sex										
Male	1816768	279	21.23	18.05	24.79	6741880	861	78.77	75.21	81.95
Female	1700876	363	20.27	17.57	23.27	6690233	1078	79.73	76.73	82.43
Age Group										
18 –19	165632	30	18.33	11.90	27.16	737925	74	81.67	72.84	88.10
20-29	869293	118	21.30	16.55	26.96	3212663	404	78.70	73.04	83.45
30-39	964393	191	22.55	18.76	26.84	3312814	537	77.45	73.16	81.24
40-49	852220	174	20.01	16.57	23.96	3406762	515	79.99	76.04	83.43
50-59	666106	129	19.43	15.65	23.87	2761950	409	80.57	76.13	84.35
Ethnicity										
Malay	1814801	266	19.49	16.34	23.07	7498207	1045	80.51	76.93	83.66
Chinese	358304	48	11.09	7.28	16.54	2871430	379	88.91	83.46	92.72
Indian	177038	20	14.55	8.84	23.00	1040053	95	85.45	77.00	91.16
Bumiputera Sarawak	567882	153	62.10	52.92	70.48	346644	96	37.90	29.52	47.08
Bumiputera Sabah	437783	119	33.83	27.18	41.19	856238	207	66.17	58.81	72.82
Others	135305	32	15.35	9.99	22.86	745902	104	84.65	77.14	90.01
Other Bumi	-	4	-	-	-	73639	13	73.51	32.52	94.11

Note :
- RSE more than 25%

Table 1.6: Prevalence of Children Feeding With Less Food Variety Due To Financial Constraint (Cont.)

Socio-demographic Characteristics	Ever					Never				
	Estimated Population	Unweighted Count	%	95% CI Lower	Upper	Estimated Population	Unweighted Count	%	95% CI Lower	Upper
Marital status										
Never married	825726	106	21.52	16.71	27.26	3012085	378	78.48	72.74	83.29
Married/Cohabiting	2421341	479	19.63	17.32	22.17	9912098	1448	80.37	77.83	82.68
Divorced/Separated	148275	32	27.76	18.47	39.46	385893	78	72.24	60.54	81.53
Widow	114493	24	50.65	32.52	68.62	111543	33	49.35	31.38	67.48
Others	-	4	-	-	-	9192	1	100.00	100.00	100.00
Education Level										
Non-formal	285999	72	64.31	51.79	75.15	158695	42	35.69	24.85	48.21
Primary	1204955	242	36.55	31.54	41.86	2092124	310	63.45	58.14	68.46
Secondary	1629096	279	19.07	16.39	22.07	6914997	1001	80.93	77.93	83.61
Tertiary	372191	42	8.13	5.50	11.87	4204114	574	91.87	88.13	94.50
Others	-	4	-	-	-	40818	8	76.35	47.30	92.07
Work status										
Government/Semi-government	148426	24	7.35	4.83	11.03	1870745	307	92.65	88.97	95.17
Private	1263257	194	19.31	16.10	22.98	5279769	670	80.69	77.02	83.90
Self-employed	1029014	222	22.91	19.38	26.87	3462891	518	77.09	73.13	80.62
Unpaid workers	-	2	-	-	-	31839	4	83.86	43.55	97.22
Not working	946214	185	31.20	25.96	36.96	2086968	356	68.80	63.04	74.04
Retired	-	1	-	-	-	194859	26	99.20	94.17	99.90
Students	-	8	-	-	-	375263	37	83.07	64.31	93.04
Others	-		-	-	-					
Income Group										
Less than RM1500	2287601	482	34.06	30.16	38.18	4429614	712	65.94	61.82	69.84
RM1500 – RM3500	970290	132	17.55	14.33	21.33	4557170	640	82.45	78.67	85.67
More than RM 3500	237211	26	5.28	3.28	8.39	4258093	566	94.72	91.61	96.72

Note :
- RSE more than 25%

TOPIC 2

MEAL PATTERN

2. MEAL PATTERN

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2.1 Findings

This module comprises 17 questions of interest on the usual daily food intakes of the respondents.

2.1.1 Breakfast

Overall, 93.7% (95% CI: 92.4-94.8) reported to take breakfast. Among those who reported, 93.5% (95% CI: 91.9-94.8) were in Peninsular Malaysia and 92.1% (95% CI: 90.2-93.6) in East Malaysia. The proportion of adults in the urban (94.5%, 95% CI: 92.7-95.85) who reported to take breakfast was found to be higher than rural adults (92.1%, 95% CI: 90.2 93.6) **(Table 2.1a).**

About 54.4% (95% CI: 51.6-57.2) reported to take a breakfast at home, while 13.1% (95% CI: 11.2-15.2) at stall and 12.2% (95% CI: 10.4-14.2) at office. Of those who reported to take breakfast at home, the proportion was slightly higher in rural areas [65.1% (95% CI: 62.0-68.5)] compared to urban area [49.7% (95% CI: 46.0-53.4)]. By region, significantly more adults in East Malaysia [70.4%, 95% CI: 66.9-73.8] reported to take breakfast at home compared to those in Peninsular Malaysia [50.0%, 95% CI: 46.6-53.4] **(Table 2.2a).**

Results showed that 50.7% (95% CI: 47.8-53.6) of adults reported that their source of breakfast were home prepared (**(Table 2.6a)**, 24.9% (95% CI: 22.4-27.6) obtained from stall **(Table 2.6b)** while 11.8% (95% CI: 10.2-13.6) from cafeteria **(Table 2.6a)** and 10.1% (95% CI: 8.3-12.1) from restaurant **(Table 2.6b)**. Of those who reported as home prepared, the proportion was higher in rural areas at 61.8% (95% CI: 58.4-65.1) compared to urban area at 46.0% (95% CI: 42.2-49.8). And by region, significantly more adults in East Malaysia [70.3% (95% CI: 66.6-73.6)] reported that their source of breakfast were home prepared compared to those in Peninsular Malaysia [45.4% (95% CI: 41.9-48.9)] **(Table 2.6a)**. However, for those who obtained food from stall, significantly more adults in Peninsular Malaysia (28.5%, 95% CI: 25.4-31.9) compared to East Malaysia [11.7% (95% CI: 9.6-14.0)] **(Table 2.6b).**

About 44.0% (95% CI: 41.4-46.7) reported to have breakfast with their family, while 28.3% (95% CI: 25.7-31.0) eat alone **(Table 2.10a)** and 27.5% (95% CI: 24.9-30.2) with friends **(Table 2.10b)**. Among those who reported to take breakfast with their family, 58.3% (95% CI: 54.4-62.1) were from East Malaysia and 40.1% (95% CI: 37.0-43.3) were from Peninsular Malaysia. There was a higher proportion of rural population (54.7%, 95% CI: 51.1-58.3) taking breakfast with their family as compared to urban population (39.4%, 95% CI: 36.0 42.9) **(Table 2.10a)**. Of those who reported taking breakfast alone and with friends, there was a higher proportion of urban (30.5%, 95% CI: 27.1-34.2; 29.7%, 95% CI: 26.2-33.5) compared to rural (23.0%, 95% CI: 19.9-26.4; 22.2%, 95% CI: 19.5-25.3) **(Table 2.10a & Table 2.10b)**.

2.1.2 Lunch

Overall, 94.5% (95% CI: 93.3-95.4) of adults were reported to take lunch. Among those who took lunch, the prevalence were significantly higher among adults in East Malaysia [97.1% (95% CI: 95.8-98.1)] compared to Peninsular Malaysia [93.8% (95% CI: 92.3-95.0)] **(Table 2.1a).**

More than half of the Malaysian adults [52.7% (95% CI: 49.8-55.5)] had their lunch at home and the prevalence were significantly higher among those who resided in East Malaysia [61.2% (95% CI: 57.5-64.8)] and rural areas [70.1% (95% CI: 66.7-73.2) **(Table 2.3a)**. The other venues where lunch were consumed most, were at restaurant [14.4% (95% CI: 12.5 16.5) and office [12.1% (95% CI: 10.5-14.0)]. Adults who resided in Peninsular Malaysia [16.1% (95% CI: 13.8-18.8)] and urban areas [18.7% (95% CI: 16.1-21.6)] were reported to have higher prevalence of taking lunch at the restaurant **(Table 2.3b)**. Meanwhile, adults who resided in East Malaysia 14.0% (95% CI: 11.2- 17.4) and urban areas [14.0% (95% CI: 11.9-16.5)] were found had higher prevalence of taking lunch at the office **(Table 2.3a)**.

The results showed that 59.8% (95% CI: 52.1-57.5) of adults reported that their source of lunch were home prepared **(Table 2.7a)**, 17.5% (95% CI: 15.4-19.9) obtained from restaurant **(Table 2.7b)**, 14.2% (95% CI: 12.2-16.5) from stall **(Table 2.7b)**, while 11.3% (95% CI: 9.8-13.0) from the cafeteria **(Table 2.7a)**. There were significantly higher prevalence of adults in East Malaysia [71.7% (95% CI: 68.0-75.1)] and in rural areas [74.3% (95% CI: 70.8-77.5) had home prepared lunch **(Table 2.7a)**. Of those who consumed food from restaurant, the higher prevalence were among adults in Peninsular Malaysia [19.5% (95% CI: 16.8-22.4)] and urban areas [22.6% (95% CI: 19.6-25.8)] **(Table 2.7b)**. Significantly more adults in Peninsular Malaysia [16.4% (95% CI: 13.9-19.3)] consumed lunch at stall **(Table 2.7b)**.

The majority of Malaysian adults had their lunch with their family [44.7% (95% CI: 42.0 47.5)] **(Table 2.11a)**, followed by eating with friends [34.3% (95% CI: 31.8-36.9)] **(Table 2.11b)** and eating alone [20.8% (95 CI: 18.7-23.0)] **(Table 2.11a)**. Among those who had lunch with family, the higher prevalence were significantly reported among adults that resided in East Malaysia [51.9% (95% CI: 47.8 56.0)] and rural areas [58.2% (95% CI: 54.4 61.9)] **(Table 2.11a)**. Meanwhile, significant higher proportion of adults in Peninsular Malaysia [35.5% (95% CI: 32.5-38.6) and urban [39.8% (95% CI: 36.5-43.1)] had lunch with friends **(Table 2.11b)**. There were no significant differences by zone and strata for those who ate their lunch alone.

2.1.3 Dinner

Dinner consumption indicated that 96.4% (95% CI: 95.4-97.1) of respondents consumed dinner **(Table 2.1b)**. The percentage of those who took dinner at home was significantly higher among the respondents in East Malaysia [93.7% (95% CI: 91.8-95.2)] and rural areas [92.1% (95% CI: 90.1-93.8)] **(Table 2.4a)**. Meanwhile, significantly more adults in Peninsular Malaysia [6.9% (95% CI: 5.5 – 8.5)] and urban areas [7.3% (95% CI: 5.8 – 9.1)] had dinner at a restaurant **(Table 2.4b)**. In general, 83.2% (95% CI: 81.0-85.2) of adults reported that their dinner was home prepared with significantly more in East Malaysia [93.0% (95% CI: 91.1-94.5)] and rural areas [89.8% (95% CI: 87.4-91.7)] **(Table 2.8a)**. While, 9.3% (95% CI: 7.6-11.2) and 7.5% (95% CI: 6.0-9.3)] of adults in Peninsular Malaysia reported that their sources of dinner were obtained from restaurant and stall, respectively **(Table 2.8b)**. About 79.7% (95% CI: 77.2-82.1) Malaysian adults had their dinner with the family **(Table 2.12a)**. The results showed that higher proportion of adults in

East Malaysia [83.9 (95% CI: 80.8-86.7)] and rural areas [82.0% (95% CI: 78.7-84.9)] had their dinner with their family **(Table 2.12a)**. As for other meal companion for dinner, there were no significant differences among Malaysian adults.

2.1.4 Heavy meal after dinner

A total of 31.9% (95% CI: 29.4-34.5) of adults had the habit of having heavy meal after dinner. Among those who reported, 34.0% (95% CI: 30.9-37.2) were in Peninsular Malaysia and 24.2% (95% CI: 21.2-27.5) were in East Malaysia. Meanwhile, the proportion of adults in the urban [33.8% (95% CI: 30.4-37.3)] who had heavy meal after dinner was also found to be higher than rural adults [(27.7% (95% CI: 24.7-30.9)] **(Table 2.1b).**

About 56.6% (95% CI: 52.1-61.0) reported that they had heavy meal after dinner at home **(Table 2.5a)**, while 21.7% (95% CI: 17.9-26.1) at restaurant **(Table 2.5b)** and 16.5% (95% CI: 13.4-20.2) at stall **(Table 2.5c)**. Of those who had their heavy meal after dinner at home, the proportion was slightly higher in rural areas [66.5% (95% CI: 59.9-72.5)] compared to urban areas [53.0% (95% CI: 47.4 58.5)] **(Table 2.5a)**. And by region, significantly more adults in East Malaysia [74.2% 95% CI: 67.6-79.8)] reported to have their heavy meal after dinner at home compared to those in Peninsular Malaysia [53.2% (95% CI: 48.0 – 58.3)] **(Table 2.5a)**.

The findings revealed that 34.2% (95% CI: 2.1-30.2) of adults reported that their heavy meal after dinner were home prepared **(Table 2.9a)**, 31.3% (95% CI: 2.0-27.5) of them obtained from stall **(Table 2.9b)** while 27.5% (95% CI: 2.3-23.2) from restaurant **(Table 2.9b)**. Of those who reported as home prepared, the proportion was significantly higher in rural areas at 47.6% (95% CI: 41.7 53.6) compared to urban area at [29.3% (95% CI: 24.4 34.8)] **(Table 2.9a)**. Significantly more adults in East Malaysia (56.5% (95% CI: 48.0-64.6)] reported that their source of heavy meal after dinner were home prepared compared to those in Peninsular Malaysia [29.9% (95% CI: 25.5-34.8)] **(Table 2.9a)**. However, for those who obtained food from stall, significantly more adults in Peninsular Malaysia [34.1% (95% CI: 29.6-38.9)] compared to East Malaysia [(16.8% (95% CI: 11.3-24.1)] **(Table 2.9b)**.

Overall, 44.5% (95% CI: 40.0-49.1) reported that they had heavy meal after dinner with their family **(Table 2.10a)**, while 28.7% (95% CI: 24.8-32.9) ate with friends **(Table 2.10b)** and 26.6% (95% CI: 23.0 30.7) were alone **(Table 2.10a)**. Among those who reported to take heavy meal after dinner with their family, 45.2% (95% CI: 40.0-50.5) were in Peninsular Malaysia and 40.6% (95% CI: 34.1 47.4) were in East Malaysia. There also was a higher proportion of urban population (45.1%, 95% CI: 39.5 – 50.9) took heavy meal after dinner with their family as compared to rural population [42.7% (95% CI: 36.3-42.3)] **(Table 2.10a)**.

2.2 Implications

High prevalence of breakfast, lunch and dinner intake among Malaysian adults was reported both in Peninsular Malaysia and East Malaysia, regardless of strata. All these 3 meals were consumed by more than 90% adults in Malaysia at each occasion. This is a good meal consumption practice as it provides energy and nutrients consistently throughout the day.

However, almost half of Malaysian adults obtain food outside home. The prevalence is higher among those who live in Peninsular Malaysia and in urban areas. This could be due to limited time to prepare meals at home and also due to more time spent at workplace compared to home. Furthermore, abundance of eateries in the urban areas may attract this group to consume meals outside home. Hence, it is very important that this group of adults is given access to healthy meals from cafeterias, stalls and restaurants. Lack of such choices may lead to consumption of unhealthy meals which may lead to the development of obesity and non-communicable diseases.

High proportion of urban adults reported to consume meals alone or with friends. In contrasts, high proportion of rural adults consumes meals with family members. The polarization of meal companions between strata should be addressed. Family members and peers play an important role in determining meal intake. Family members should observe meal time as not only an event to consume food but also a time to socialize and strengthen the family bonding. Peers should support each other in motivating to consume healthy meals and not over indulging themselves with high fat and large amount of foods. It is important that each adult equipped with adequate knowledge on healthy food choice as they could use this knowledge on themselves and also to educate and guide other around them.

This survey reported high prevalence of consumption of heavy meal after dinner. As above, it is consistently reported high among adults in Peninsular Malaysia and urban areas. The additional calorie obtained from the heavy meal after dinner may lead to excess energy intake and may lead to chronic disease development. This unhealthy eating behaviour should be addressed to educate adults as not to engage in such eating pattern. Adults should have the knowledge and motivation to replace heavy meals after dinner with light and healthy snacks.

2.3   Conclusion

The findings of this survey showed that there is still a need to promote healthy meal pattern among adults in Malaysia in relation to healthy food choices at home and outside home, as well as avoiding heavy meal after dinner consumption.

2.4   Recommendations

From the findings of this survey, it is recommended that nutrition education programme to be focused on addressing the high prevalence of taking heavy meal after dinner and the practice of eating out from home. Eateries should provide healthy choices in their menu and ensure the cleanliness of food served because almost half of the Malaysian adults obtained food outside home. A friendly and comprehensive nutrition education programme should be provided to create awareness among adults and food handlers for the prevention of non-communicable disease.

Definition of variables: Habits in relation to food consumption.

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C102	C102_newly	Final weight	The proportion of taking breakfast in a typical week (7.00 am to 10.30am)	RECODE C102 (0=0) (1 thru 7=1) INTO C102_newly. EXECUTE. 0 = No 1 = Yes -7 & -9 = Missing
C103	C103	Final weight	Breakfast venue	1 = Home prepared 2 = Buy from cafeteria 3 = Buy from restaurant 4 = Buy from stall 5 = Buy from fast food outlet 6 = Others -7,-8,-9 = Missing
C104	C104	Final weight	The source of food for breakfast	1= At home 2= At office 3= At cafeteria 4 = At restaurant 5= At hotel 6= At stall 7= At fast food outlet 8= Others -7,-8,-9 = Missing
C105	C105	Final weight	Meal companion for breakfast	1= Alone 2= With family 3= With friend 4= Others -7,-8,-9 = Missing

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C106	C106_newly	Final weight	The proportion of taking lunch in a typical week (12.00pm to 2.30pm)	RECODE C106 (0=0) (1 thru 7=1) INTO C106_newly. EXECUTE. 0 = No 1 = Yes -7 & -9 = Missing
C107	C107	Final weight	Lunch venue	1 = Home prepared 2 = Buy from cafeteria 3 = Buy from restaurant 4 = Buy from stall 5 = Buy from fast food outlet 6 = Others -7,-8,-9 = Missing
C108	C108	Final weight	The source of food for lunch	1= At home 2= At office 3= At cafeteria 4 = At restaurant 5= At hotel 6= At stall 7= At fast food outlet 8= Others -7,-8,-9 = Missing
C109	C109	Final weight	Meal companion for lunch	1= Alone 2= With family 3= With friend 4= Others -7,-8,-9 = Missing

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C110	C110_newly	Final weight	The proportion of taking dinner in a typical week (6.00pm to 9.00pm)	RECODE C110 (0=0) (1 thru 7=1) INTO C110_newly. EXECUTE. 0 = No 1 = Yes -7 & -9 = Missing
C111	C111	Final weight	Dinner venue	1 = Home prepared 2 = Buy from cafeteria 3 = Buy from restaurant 4 = Buy from stall 5 = Buy from fast food outlet 6 = Others -7,-8,-9 = Missing
C112	C112	Final weight	The source of food for dinner	1 = At home 2 = At office 3 = At cafeteria 4 = At restaurant 5 = At hotel 6 = At stall 7 = At fast food outlet 8 = Others -7,-8,-9 = Missing
C113	C113	Final weight	Meal companion for dinner	1 = Alone 2 = With family 3 = With fiend 4 = Others -7,-8,-9 = Missing

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C114	C114_newly	Final weight	The proportion of having heavy meals after dinner in the past 7 days (such as nasi lemak, roti canai, fried noodle, burger, fried chicken, etc)	RECODE C110 (0=0) (1 thru 7=1) INTO C110_newly. EXECUTE. 0 = No 1 = Yes -7 & -9 = Missing
C115	C115	Final weight	Heavy meal after dinner venue	1 = Home prepared 2 = Buy from cafeteria 3 = Buy from restaurant 4 = Buy from stall 5 = Buy from fast food outlet 6 = O thers -7,-8,-9 = Missing
C116	C116	Final weight	The source of food for heavy meal after dinner	1 = At home 2 = At office 3 = At cafeteria 4 = At restaurant 5 = At hotel 6 = At stall 7 = At fast food outlet 8 = Others -7,-8,-9 = Missing
C117	C117	Final weight	Meal companion of having heavy meal after dinner	1 = Alone 2 = With family 3 = With friend 4 = Others -7,-8,-9 = Missing

Table 2.1a: Meal pattern by socio-demographic characteristics

Characteristics	Breakfast					Lunch				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	93.74	0.61	92.43	2835	18434274	94.48	93.34	95.44	2842	18585925
Zone										
Peninsular Malaysia	93.52	91.89	94.85	1742	14478444	93.77	92.34	94.95	1723	14517914
East Malaysia	94.56	92.78	95.92	1093	3955830	97.13	95.76	98.07	1119	4068011
Strata										
Urban	94.48	92.71	95.83	1517	12896866	94.90	93.41	96.08	1515	12955456
Rural	92.09	90.17	93.65	1318	5537408	93.53	91.65	95.01	1327	5630469
Sex										
Men	92.68	90.72	94.25	1291	9520863	94.19	92.41	95.58	1318	9680747
Women	94.91	92.99	96.33	1544	8913411	94.80	93.29	95.99	1524	8905178
Age Group										
18-19	88.91	78.78	94.54	118	1017605	94.16	88.34	97.16	123	1077666
20-29	90.05	86.53	92.72	635	4836074	94.37	92.04	96.05	652	5072587
30-39	95.44	93.17	96.98	794	4650600	93.95	91.17	95.89	791	4577892
40-49	96.07	94.27	97.32	721	4440958	94.87	92.60	96.47	718	4385517
50-59	95.49	92.63	97.28	567	3489037	94.98	92.37	96.74	558	3472262
Ethnic Group										
78Malay	93.91	91.86	95.46	1404	9959243	93.61	91.91	94.98	1383	9929984
Chinese	93.09	89.64	95.45	483	3567906	94.33	91.32	96.33	491	3615285
Indian	93.38	85.70	97.08	126	1271854	95.25	91.08	97.53	124	1297303
Bumiputera Sabah	95.38	92.30	97.27	361	1441267	98.96	97.58	99.55	371	1495274
Bumiputera Sarawak	94.13	90.33	96.49	276	996160	95.83	92.53	97.71	282	1018568
Others	92.86	86.18	96.45	170	1109195	94.55	88.73	97.45	174	1129341
Other Bumis	88.50	59.48	97.58	15	88648	100.00	100.00	100.00	17	100170
Marital Status										
Never married	89.70	86.09	92.45	684	4970837	93.62	91.08	95.48	697	5188423
Married/ Cohabiting	95.46	94.18	96.47	1969	12629223	94.83	93.49	95.90	1965	12549565
Divorced/ Separating	91.39	83.62	95.66	119	582031	93.97	88.66	96.88	119	600266
Widow	98.35	92.88	99.63	59	229247	96.41	90.00	98.77	57	224734
Others	100.00	100.00	100.00	1	9192	100.00	100.00	100.00	1	9192

Table 2.1a: Meal pattern by socio-demographic characteristics

Characteristics	Breakfast					Lunch				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	90.77	80.16	95.99	125	461272	91.45	78.13	96.97	129	464702
Primary	92.50	88.69	95.10	589	3351121	93.69	90.28	95.96	588	3395998
Secondary	92.88	90.77	94.53	1367	9093145	94.38	92.87	95.59	1379	9244518
Tertiary	96.30	93.98	97.75	727	5397131	95.32	93.32	96.74	717	5342343
Others	92.32	71.18	98.32	16	81306	100.00	100.00	100.00	18	88065
Work Status										
Government/ Semi-government	97.86	95.56	98.98	363	2206761	94.84	91.51	96.91	357	2138627
Private	93.92	91.60	95.63	1023	7692678	94.48	92.45	95.99	1020	7738760
Self-employed	93.01	90.55	94.86	783	4604309	94.12	91.57	95.93	795	4663728
Unpaid worker	100.00	100.00	100.00	8	50222	90.85	52.62	98.89	7	45627
Not working	92.51	87.61	95.57	545	2953517	94.59	91.79	96.48	548	3021959
Retired	100.00	100.00	100.00	29	209271	97.39	82.75	99.66	28	203800
Student										
Others	84.30	68.35	93.03	54	528210	94.26	84.49	98.02	58	590630
Income Group										
Less than RM1500	92.64	90.40	94.39	1322	7437137	94.75	93.10	96.03	1331	7613114
RM1500-RM3500	92.91	90.35	94.82	839	5811168	94.01	91.53	95.80	848	5880229
More than RM3500	96.73	94.64	98.02	648	4978863	94.48	92.24	96.10	635	4863005

Table 2.1b: Meal pattern by socio-demographic characteristics

Characteristics	Dinner					Supper				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	96.35	95.40	97.11	2997	19662454	31.91	29.38	34.54	839	6244157
Zone										
Peninsular Malaysia	95.75	94.56	96.69	1764	14821109	33.98	30.92	37.18	568	5240728
East Malaysia	98.56	97.65	99.12	1129	4124031	24.19	21.19	27.48	271	1003428
Strata										
Urban	96.43	95.14	97.38	1539	13163248	33.77	30.41	37.29	489	4584413
Rural	96.18	94.82	97.19	1354	5781892	27.69	24.68	30.92	350	1659744
Sex										
Men	96.60	95.18	97.61	1343	9923165	39.33	36.01	42.75	484	4013375
Women	96.08	94.70	97.12	1550	9021975	23.82	20.84	27.07	355	2230781
Age Group										
18-19	96.04	89.90	98.51	127	1099247	49.55	38.03	61.12	61	564422
20-29	96.53	94.42	97.86	662	5184986	43.13	38.28	48.11	264	2306188
30-39	95.15	92.42	96.92	800	4636270	31.06	26.74	35.73	244	1510936
40-49	96.63	94.53	97.95	734	4467012	25.55	21.28	30.34	171	1170558
50-59	97.44	95.72	98.48	570	3557625	19.02	15.01	23.80	99	692052
Ethnic Group										
Malay	95.41	93.91	96.55	1407	10116210	36.90	33.51	40.43	489	3899868
Chinese	98.58	97.01	99.33	510	3778354	28.31	23.53	33.63	141	1079705
Indian	92.54	83.80	96.75	124	1260419	25.65	17.27	36.32	29	346586
Bumiputera Sabah	99.43	98.34	99.80	374	1502375	23.86	18.90	29.65	82	357923
Bumiputera Sarawak	97.47	94.95	98.75	284	1032352	15.63	10.49	22.64	48	164738
Others	97.06	90.01	99.18	179	1159422	29.86	18.94	43.69	43	353389
Other Bumis	95.85	87.13	98.74	15	96008	41.88	25.47	60.30	7	41947
Marital Status										
Never married	95.65	93.36	97.18	709	5300928	46.64	41.92	51.43	299	2565713
Married/ Cohabiting	96.70	95.56	97.56	1996	12789846	26.09	23.20	29.21	495	3437720
Divorced/ Separating	94.28	85.95	97.79	124	602231	34.16	23.93	46.11	37	218201
Widow	98.32	88.73	99.77	60	229197	-	-	-	8	-
Others	100.00	100.00	100.00	1	9192					

Note :
- RSE more than 25%

Table 2.1b: Meal pattern by socio-demographic characteristics (Cont.)

Characteristics	Dinner					Supper				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	96.05	89.92	98.51	129	488075	-	-	-	23	-
Primary	97.26	94.81	98.57	605	3521525	25.82	20.82	31.54	127	930412
Secondary	95.73	94.22	96.87	1401	9372670	36.07	32.83	39.44	462	3520455
Tertiary	96.90	94.95	98.11	730	5430752	29.86	25.67	34.42	223	1660558
Others	92.91	68.16	98.77	17	81818	-	-	-	3	-
Work Status										
Government/ Semi-government	97.77	92.85	99.33	367	2204712	26.47	21.48	32.15	95	596978
Private	95.63	93.92	96.87	1036	7832246	34.09	30.00	38.44	334	2783082
Self-employed	95.88	93.86	97.25	805	4746465	34.53	30.24	39.08	247	1700976
Unpaid worker	100.00	100.00	100.00	8	50222	68.75	35.33	89.85	4	34526
Not working	97.44	95.66	98.51	559	3109262	24.79	19.77	30.60	119	785217
Retired	100.00	100.00	100.00	29	209271	-	-	-	7	-
Student	96.34	88.79	98.87	59	603655	36.21	23.13	51.70	25	220351
Others										
Income Group										
Less than RM1500	96.81	95.50	97.74	1358	7774367	32.45	28.83	36.30	370	2589134
RM1500-RM3500	96.56	94.92	97.68	859	6035304	33.20	29.33	37.30	271	2073004
More than RM3500	95.31	92.69	97.03	648	4905891	30.62	26.55	35.02	196	1568014

Note :
- RSE more than 25%

Table 2.2a: Breakfast venue by socio-demographic characteristics

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Malaysia	54.42	51.61	57.21	1710	9998734	12.15	10.37	14.20	310	2232665
Zone										
Peninsular Malaysia	50.03	46.62	53.44	929	7213160	13.06	10.87	15.60	213	1882543
East Malaysia	70.44	66.87	73.79	781	2785575	8.85	6.98	11.17	97	350122
Strata										
Urban	49.73	46.02	53.45	813	6389616	13.61	11.23	16.40	200	1748128
Rural	65.33	61.98	68.53	897	3609118	8.77	6.96	11.00	110	484537
Sex										
Men	44.35	40.39	48.38	646	4200653	8.66	6.95	10.73	103	820043
Women	65.14	61.62	68.51	1064	5798081	15.87	13.10	19.10	207	1412622
Age Group										
18-19	59.83	47.60	70.94	83	606516	-	-	-	8	-
20-29	50.59	44.96	56.19	355	2431715	16.46	12.66	21.13	90	791452
30-39	48.59	44.37	52.84	436	2259944	14.00	11.24	17.31	110	651164
40-49	55.84	50.89	60.67	433	2468483	10.86	7.96	14.64	70	479957
50-59	64.14	58.92	69.05	403	2232076	6.67	4.55	9.70	32	232248
Ethnic Group										
Malay	52.04	47.96	56.10	791	5170778	15.29	12.61	18.43	185	1519229
Chinese	46.98	41.16	52.89	238	1659066	8.33	6.15	11.20	41	294216
Indian	53.36	43.03	63.40	69	678600	-	-	-	14	-
Bumiputera Sabah	71.04	65.27	76.20	263	1022735	11.06	7.48	16.06	34	159257
Bumiputera Sarawak	75.99	68.85	81.92	217	756957	-	-	-	23	-
Others	57.11	43.59	69.64	120	633407	-	-	-	13	-
Other Bumis	87.08	59.00	96.93	12	77191	-	-	-	1	-
Marital Status										
Never married	49.96	44.75	55.17	375	2469921	12.87	9.61	17.02	79	636279
Married/ Cohabiting	55.41	52.14	58.64	1218	6978846	11.85	9.87	14.17	207	1492488
Divorced/ Separating	62.12	50.26	72.69	73	361565	-	-	-	14	-
Widow	75.58	61.28	85.83	41	173274	-	-	-	10	-
Others	100.00	100.00	100.00	1	9192	-	-	-	10	-

Note :
- RSE more than 25%

Table 2.2a: Breakfast venue by socio-demographic characteristics (Cont.)

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	82.02	67.72	90.84	110	378350	-	-	-	4	-
Primary	60.94	54.12	67.36	420	2029798	4.23	2.61	6.79	27	140883
Secondary	55.66	51.48	59.77	821	5038373	12.06	9.67	14.94	137	1091350
Tertiary	45.81	41.08	50.63	341	2472574	18.11	14.87	21.89	140	9776689
Others	-	-	-	11	-	-	-	-	1	-
Work Status										
Government/ Semi-government	31.00	25.21	37.45	127	684065	27.08	22.35	32.39	95	597570
Private	40.35	36.38	44.45	448	3090915	18.92	15.58	22.77	192	1448890
Self-employed	65.88	60.59	70.79	553	3022286	-	-	-	20	-
Unpaid worker	73.59	34.50	93.65	5	36959	-	-	-		-
Not working	89.03	84.13	92.55	502	2629460	-	-	-	1	-
Retired	53.20	31.82	73.46	21	111332	-	-	-		-
Student	60.24	42.18	75.89	35	315916	-	-	-	1	-
Others										
Income Group										
Less than RM1500	66.52	62.77	70.08	959	4918251	6.98	5.23	9.25	81	515993
RM1500-RM3500	50.33	45.79	54.86	459	2919871	9.74	7.53	12.53	90	565375
More than RM3500	40.69	35.44	46.16	276	2022248	22.74	18.75	27.30	136	1130249

Note :
- RSE more than 25%

Table 2.2b: Breakfast venue by socio-demographic characteristics

Characteristics	Cafeteria					Restaurant				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**9.25**	**7.80**	**10.95**	**229**	**1700157**	**8.46**	**6.98**	**10.22**	**188**	**1554371**
Zone										
Peninsular Malaysia	9.95	8.19	12.03	162	1433894	9.10	7.32	11.26	129	1312036
East Malaysia	6.73	4.91	9.16	67	266263	6.13	4.22	8.81	59	242335
Strata										
Urban	10.66	8.69	13.01	150	1369423	10.70	8.66	13.14	145	1374089
Rural	5.99	4.66	7.66	79	330734	3.26	2.18	4.87	43	180282
Sex										
Men	11.27	9.16	13.79	129	1067027	12.00	9.65	14.83	128	1136682
Women	7.11	5.67	8.89	100	633130	4.69	3.35	6.54	60	417688
Age Group										
18-19	-	-	-	7	-	-	-	-	2	-
20-29	11.21	8.31	14.95	62	538863	6.94	4.68	10.17	38	333631
30-39	11.81	8.95	15.42	81	549156	10.87	7.87	14.83	65	505474
40-49	8.28	6.01	11.30	59	365829	9.18	6.16	13.49	51	405994
50-59	-	-	-	20	-	7.79	5.26	11.39	32	270974
Ethnic Group										
Malay	11.22	9.11	13.74	144	1114415	5.13	3.81	6.87	61	509230
Chinese	8.31	5.52	12.32	41	293474	16.86	12.69	22.07	70	595504
Indian	-	-	-	16	-	14.64	8.83	23.31	15	186208
Bumiputera Sabah	-	-	-	9	-	-	-	-	23	-
Bumiputera Sarawak	-	-	-	15	-	-	-	-	7	-
Others	-	-	-	3	-	-	-	-	11	-
Other Bumis	-	-	-	1	-	-	-	-	1	-
Marital Status										
Never married	10.05	7.26	13.75	61	496890	10.01	7.11	13.90	53	494630
Married/ Cohabiting	9.23	7.54	11.26	155	1162618	8.01	6.37	10.03	126	1009068
Divorced/ Separating	-	-	-	8	-	-	-	-	8	-
Widow	-	-	-	5	-	-	-	-	1	-
Others										

Note :
- RSE more than 25%

Table 2.2b: Breakfast venue by socio-demographic characteristics (Cont.)

Characteristics	Cafeteria					Restaurant				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	1	-	-	-	-	1	-
Primary	5.54	3.38	8.95	26	184481	7.91	5.23	11.80	27	263601
Secondary	6.43	4.94	8.33	84	582022	8.57	6.47	11.27	95	775741
Tertiary	16.81	13.52	20.72	115	907466	9.42	7.16	12.28	64	508141
Others	-	-	-	3	-	-	-	-	-	-
Work Status										
Government/ Semi-government	23.64	18.46	29.74	85	521573	6.15	3.74	9.97	21	135778
Private	12.91	10.20	16.21	118	989052	11.45	8.80	14.76	98	876783
Self-employed	-	-	-	11	-	9.28	6.32	13.43	54	425942
Unpaid worker	-	-	-	1	-	-	-	-	1	-
Not working	-	-	-	3	-	-	-	-	10	-
Retired	-	-	-		-	-	-	-	2	-
Student	-	-	-		-	-	-	-	1	-
Others	-	-	-	8	-	-	-	-	-	-
Income Group										
Less than RM1500	4.76	3.35	6.72	49	351690	5.38	3.51	8.16	43	397932
RM1500-RM3500	10.48	8.04	13.56	79	608219	9.91	7.27	13.38	75	575200
More than RM3500	14.71	11.55	18.56	99	731108	11.03	8.39	14.39	68	548413

Note :
- RSE more than 25%

Table 2.2c: Breakfast venue by socio-demographic characteristics

Characteristics	Hotel					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	1	-	**13.10**	**11.25**	**15.19**	**317**	**2405908**
Zone										
Peninsular Malaysia	-	-	-		-	15.34	13.03	17.98	261	2211782
East Malaysia	-	-	-	1	-	4.91	3.71	6.46	56	194126
Strata										
Urban	-	-	-		-	12.93	10.56	15.74	169	1661435
Rural	-	-	-	1	-	13.48	11.09	16.28	148	744473
Sex										
Men	-	-	-		-	20.70	17.65	24.12	243	1960922
Women	-	-	-	1	-	5.00	3.72	6.69	74	444986
Age Group										
18-19						-	-	-	15	-
20-29	-	-	-	1	-	10.98	8.22	14.52	65	527751
30-39						11.83	9.14	15.19	80	550307
40-49						13.43	9.94	17.90	89	593655
50-59						15.23	11.13	20.48	68	529933
Ethnic Group										
Malay	-	-	-		-	13.97	11.52	16.85	188	1388270
Chinese						16.70	12.29	22.31	77	589875
Indian						-	-	-	12	-
Bumiputera Sabah	-	-	-	1	-	-	-	-	14	-
Bumiputera Sarawak						-	-	-	9	-
Others						-	-	-	7	-
Other Bumis										
Others										
Marital Status										
Never married	-	-	-	1	-	13.01	9.87	16.97	89	643321
Married/ Cohabiting						13.35	11.08	16.01	212	1681634
Divorced/ Separating						-	-	-	14	-
Widow						-	-	-	1	-
Others						-	-	-		-

Note :
- RSE more than 25%

Table 2.2c: Breakfast venue by socio-demographic characteristics (Cont.)

Characteristics	Hotel					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-	6	-
Primary	-	-	-	1	-	18.06	13.52	23.70	70	601586
Secondary						14.95	12.43	17.88	189	1353411
Tertiary						7.25	5.10	10.23	51	391547
Others						-	-	-		-
Work Status										
Government/ Semi-government	0.12	0.02	0.85	1	9192	10.34	6.89	15.24	29	228267
Private						13.19	10.64	16.24	129	1010315
Self-employed						16.73	13.42	20.67	116	767739
Unpaid worker						-	-	-	1	-
Not working						-	-	-	26	-
Retired						-	-	-	6	-
Student						-	-	-	6	-
Others										
Income Group										
Less than RM1500	-	-	-	1	-	13.54	11.13	16.37	145	1001127
RM1500-RM3500						16.50	13.07	20.61	113	957090
More than RM3500						8.92	6.41	12.28	57	443265

Note :
- RSE more than 25%

Table 2.2d: Breakfast venue by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	4	-	**2.35**	**1.61**	**3.42**	**69**	**431922**
Zone										
Peninsular Malaysia	-	-	-	4	-	2.26	1.39	3.63	38	325265
East Malaysia	-	-	-	-	-	2.70	1.76	4.12	31	106657
Strata										
Urban	-	-	-	3	-	2.97	1.87	4.71	32	164335
Rural	-	-	-	1	-	-	-	-	37	-
Sex										
Men	-	-	-	2	-	-	-	-	34	-
Women	-	-	-	2	-	2.10	1.32	3.34	35	187274
Age Group										
18-19	-	-	-	-	-	-	-	-	2	-
20-29	-	-	-	2	-	-	-	-	19	-
30-39	-	-	-	2	-	-	-	-	20	-
40-49	-	-	-	-	-	-	-	-	17	-
50-59	-	-	-	-	-	-	-	-	11	-
Ethnic Group										
Malay	-	-	-	1	-	-	-	-	13	-
Chinese	-	-	-	1	-	-	-	-	12	-
Indian	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	16	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	6	-
Others	-	-	-	2	-	-	-	-	4	-
Other Bumis	-	-	-	-	-	-	-	-	-	-
Marital Status										
Never married	-	-	-	2	-	2.09	1.36	3.21	21	263333
Married/ Cohabiting	-	-	-	2	-	-	-	-	45	-
Divorced/ Separating	-	-	-	-	-	-	-	-	2	-
Widow	-	-	-	-	-	-	-	-	1	-
Others	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.2d: Breakfast venue by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-	3	-
Primary	-	-	-	1	-	-	-	-	16	-
Secondary	-	-	-	1	-	2.17	1.38	3.41	34	196676
Tertiary	-	-	-	2	-	-	-	-	14	-
Others						-	-	-	1	-
Work Status										
Government/ Semi-government	-	-	-		-	-	-	-	6	-
Private				4		2.55	1.60	4.04	30	195448
Self-employed						-	-	-	27	-
Unpaid worker										
Not working						-	-	-	3	-
Retired										
Student						-	-	-	2	-
Others										
Income Group										
Less than RM1500	-	-	-	2	-	2.26	1.39	3.67	37	167287
RM1500-RM3500	-	-	-	1	-	-	-	-	21	-
More than RM3500	-	-	-	1	-	-	-	-	10	-

Note :
- RSE more than 25%

Table 2.3a: Lunch venue by socio-demographic characteristics

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**52.69**	**49.82**	**55.53**	**1672**	**9767796**	**12.12**	**10.49**	**13.97**	**325**	**2247835**
Zone										
Peninsular Malaysia	50.29	46.78	53.79	966	7277052	11.60	9.70	13.81	177	1678283
East Malaysia	61.23	57.51	64.82	706	2490744	14.00	11.20	17.37	148	569552
Strata										
Urban	45.15	41.38	48.98	728	5839830	14.02	11.85	16.50	218	1812908
Rural	70.07	66.69	73.24	944	3927965	7.76	5.95	10.06	107	434927
Sex										
Men	43.44	39.64	47.32	638	4185508	8.37	6.63	10.52	120	806472
Women	62.69	58.97	66.26	1034	5582288	16.19	13.60	19.15	205	1441363
Age Group										
18-19	56.82	45.66	67.33	84	612340	-	-	-	9	-
20-29	41.80	36.87	46.90	324	2104452	15.60	12.29	19.60	91	785512
30-39	51.48	46.80	56.15	445	2356858	14.24	10.97	18.27	106	651674
40-49	56.46	50.87	61.89	438	2476106	9.31	6.76	12.69	69	408271
50-59	64.05	58.43	69.30	381	2218041	9.00	6.56	12.23	50	311784
Ethnic Group										
Malay	55.68	51.54	59.74	855	5517578	11.55	9.57	13.88	136	1144781
Chinese	35.84	30.57	41.47	191	1287755	14.68	10.43	20.28	70	527588
Indian	50.12	39.89	60.33	63	650158	-	-	-	14	-
Bumiputera Sabah	64.27	57.33	70.66	247	958093	12.48	7.94	19.07	42	185995
Bumiputera Sarawak	64.03	56.36	71.04	191	652149	14.37	9.35	21.44	38	146351
Others	56.72	44.69	68.01	114	640603	-	-	-	23	-
Other Bumis	-	-	-	11	-	-	-	-	2	-
Marital Status										
Never married	39.64	34.72	44.77	324	2045112	15.03	11.83	18.91	104	775709
Married/ Cohabiting	57.05	53.75	60.29	1226	7149215	11.14	9.27	13.34	207	1396632
Divorced/ Separating	64.31	52.57	74.56	78	386060	-	-	-	10	-
Widow	76.66	62.12	86.80	41	172279	-	-	-	4	-
Others	100.00	100.00	100.00	1	9192	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.3a: Lunch venue by socio-demographic characteristics (Cont.)

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	82.51	72.76	89.28	105	383422	-	-	-	6	-
Primary	66.31	60.18	71.94	418	2247503	9.26	6.04	13.95	56	313956
Secondary	53.92	49.99	57.80	834	4965391	11.69	9.54	14.23	147	1076164
Tertiary	39.37	34.76	44.18	301	2101560	15.47	12.29	19.28	114	825603
Others	-	-	-	8	-	-	-	-	2	-
Work Status										
Government/ Semi-government	44.34	37.91	50.95	167	946164	19.23	15.26	23.94	67	410376
Private	30.36	26.52	34.50	342	2342860	20.17	17.06	23.69	218	1556746
Self-employed	66.61	62.02	70.90	559	3098851	5.61	3.44	9.02	38	260873
Unpaid worker	95.82	71.72	99.52	6	43718					
Not working	93.89	89.24	96.60	530	2837176					
Retired	72.24	45.42	89.05	24	147222					
Student	42.57	27.42	59.26	29	251428	-	-	-	1	-
Others										
Income Group										
Less than RM1500	66.33	61.98	70.41	960	5031906	7.63	5.77	10.02	104	578901
RM1500-RM3500	47.19	43.13	51.28	432	2769418	14.36	11.81	17.37	119	843003
More than RM3500	38.73	34.13	43.53	267	1879849	16.41	13.20	20.22	99	796452

Note :
- RSE more than 25%

Table 2.3b: Lunch venue by socio-demographic characteristics

Characteristics	Cafeteria					Restaurant				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	8.84	7.49	10.40	214	1638221	14.35	12.46	16.48	301	2660972
Zone										
Peninsular Malaysia	9.48	7.86	11.40	151	1372190	16.10	13.77	18.75	215	2330272
East Malaysia	6.54	4.74	8.97	63	266031	8.13	6.20	10.59	86	330700
Strata										
Urban	10.29	8.47	12.46	147	1331232	18.70	16.09	21.62	246	2418151
Rural	5.48	4.24	7.05	67	306989	4.33	2.97	6.27	55	242821
Sex										
Men	10.60	8.59	13.02	124	1021155	19.87	16.86	23.26	195	1913925
Women	6.93	5.37	8.90	90	617066	8.39	6.65	10.54	106	747047
Age Group										
18-19	-	-	-	10	-	-	-	-	8	-
20-29	10.87	8.32	14.10	67	547549	16.55	13.06	20.75	80	833351
30-39	9.66	7.23	12.80	70	442272	13.56	10.43	17.46	85	620920
40-49	7.56	5.33	10.61	48	331526	15.49	11.70	20.22	81	679398
50-59	-	-	-	19	-	11.33	8.31	15.26	47	392261
Ethnic Group										
Malay	9.95	8.01	12.29	122	985559	11.35	9.16	13.97	114	1124316
Chinese	9.84	7.28	13.18	46	353587	25.04	19.89	31.02	110	899899
Indian	-	-	-	14	-	18.41	11.47	28.22	20	238858
Bumiputera Sabah	-	-	-	6	-	10.73	6.91	16.28	34	159917
Bumiputera Sarawak	-	-	-	19	-	-	-	-	6	-
Others	-	-	-	6	-	-	-	-	14	-
Other Bumis	-	-	-	1	-	-	-	-	3	-
Marital Status										
Never married	11.68	8.96	15.09	75	602711	19.15	15.08	24.01	94	988063
Married/ Cohabiting	7.80	6.33	9.58	128	977382	12.95	10.96	15.24	193	1622365
Divorced/ Separating	-	-	-	7	-	-	-	-	9	-
Widow	-	-	-	4	-	-	-	-	5	-
Others	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.3b: Lunch venue by socio-demographic characteristics (Cont.)

Characteristics	Cafeteria					Restaurant				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-	2	-
Primary	7.26	5.64	9.31	17	-	8.02	5.41	11.73	33	271707
Secondary	15.46	12.36	19.15	85	669024	12.70	10.23	15.67	125	1169705
Tertiary	-	-	-	110	824969	22.27	18.35	26.75	136	1188565
Others	-	-	-	2	-	-	-	-	3	-
Work Status										
Government/ Semi-government	14.41	10.19	20.00	53	307609	14.61	10.51	19.97	42	311882
Private	14.03	11.58	16.89	131	1082344	20.66	17.34	24.43	170	1594484
Self-employed	-	-	-	13	-	12.36	9.37	16.14	70	575214
Unpaid worker	-	-	-		-	-	-	-	1	-
Not working	-	-	-	1		-	-	-	6	-
Retired	-	-	-			-	-	-	2	-
Student	-	-	-			-	-	-	7	-
Others	-	-	-	14	-					
Income Group										
Less than RM1500	5.01	3.52	7.10	44	380174	8.74	6.45	11.75	64	663295
RM1500-RM3500	9.88	7.68	12.62	82	579773	14.30	11.02	18.35	105	839238
More than RM3500	13.48	10.45	17.21	85	654103	22.36	18.38	26.93	124	1085547

Note :
- RSE more than 25%

Table 2.3c: Lunch venue by socio-demographic characteristics

Characteristics	Hotel					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**0.05**	**0.01**	**0.35**	**1**	**9192**	**9.74**	**8.14**	**11.61**	**231**	**1805754**
Zone										
Peninsular Malaysia	-	-	-	1	-	11.33	9.33	13.69	186	1639895
East Malaysia	-	-	-		-	4.08	2.84	5.82	45	165859
Strata										
Urban	-	-	-	1	-	10.40	8.33	12.92	137	1345453
Rural	-	-	-		-	8.21	6.27	10.68	94	460301
Sex										
Men	-	-	-	1	-	15.12	12.48	18.21	183	1456847
Women	-	-	-		-	3.92	2.69	5.67	48	348907
Age Group										
18-19						-	-	-	11	-
20-29	-	-	-	1	-	12.12	9.16	15.87	63	610165
30-39						9.17	6.67	12.50	61	419915
40-49						8.66	5.89	12.56	58	379945
50-59						7.94	5.44	11.47	38	275079
Ethnic Group										
Malay	-	-	-		-	10.27	8.04	13.04	131	1018135
Chinese						13.21	9.70	17.74	63	474795
Indian						-	-	-	12	-
Bumiputera Sabah	-	-	-	1	-	-	-	-	12	-
Bumiputera Sarawak						-	-	-	6	-
Others						-	-	-	7	-
Other Bumis										
Marital Status										
Never married	-	-	-	1	-	11.90	8.66	16.13	77	613894
Married/ Cohabiting						9.06	7.30	11.20	142	1135669
Divorced/ Separating						-	-	-	11	-
Widow										
Others										

Note :
- RSE more than 25%

Table 2.3c: Lunch venue by socio-demographic characteristics (Cont.)

Characteristics	Hotel					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal						-	-	-	3	-
Primary	-	-	-		-	9.65	6.68	13.76	39	327083
Secondary				1		12.20	9.82	15.05	144	1123136
Tertiary						6.27	4.36	8.95	42	334916
Others						-	-	-	1	-
Work Status										
Government/ Semi-government						-	-	-	18	-
Private	-	-	-	1	-	11.66	9.30	14.53	111	899804
Self-employed						10.77	8.17	14.08	79	501204
Unpaid worker										
Not working						-	-	-	10	-
Retired						-	-	-	2	-
Student						-	-	-	6	-
Others										
Income Group										
Less than RM1500	-	-	-	1	-	9.55	7.43	12.20	102	724592
RM1500-RM3500						11.74	9.01	15.16	84	688859
More than RM3500						7.74	5.40	10.98	44	375889

Note :
- RSE more than 25%

Table 2.3d: Lunch venue by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia						**2.21**	**1.67**	**2.91**	**93**	**409487**
Zone										
Peninsular Malaysia						-	-	-	23	-
East Malaysia						5.80	4.36	7.68	70	235934
Strata										
Urban						1.44	0.93	2.22	38	185998
Rural						3.99	2.80	5.64	55	223489
Sex										
Men						2.50	1.74	3.59	52	240980
Women						1.89	1.33	2.68	41	168507
Age Group										
18-19						-	-	-	1	-
20-29						-	-	-	22	-
30-39						1.88	1.18	2.99	24	86253
40-49						2.51	1.59	3.96	24	110272
50-59						-	-	-	22	-
Ethnic Group										
Malay						-	-	-	22	-
Chinese						-	-	-	10	-
Indian						-	-	-	1	-
Bumiputera Sabah						6.51	4.43	9.47	28	97063
Bumiputera Sarawak						-	-	-	22	-
Others						-	-	-	10	-
Other Bumis										
Marital Status										
Never married						-	-	-	20	-
Married/ Cohabiting						2.00	1.49	2.66	66	250276
Divorced/ Separating						-	-	-	4	-
Widow						-	-	-	3	-
Others						-	-	-		-

Note :
- RSE more than 25%

Table 2.3d: Lunch venue by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal						-	-	-	13	-
Primary						2.91	1.79	4.70	24	98639
Secondary						2.13	1.39	3.26	40	196503
Tertiary						1.17	0.63	2.14	13	62222
Others						-	-	-	2	-
Work Status										
Government/ Semi-government						-	-	-	9	-
Private						3.00	2.10	4.28	46	231445
Self-employed						2.83	1.80	4.43	34	131847
Unpaid worker						-	-	-		-
Not working						-	-	-	1	-
Retired										
Student						-	-	-	1	-
Others										
Income Group										
Less than RM1500						2.62	1.81	3.77	54	198663
RM1500-RM3500						2.53	1.60	4.00	24	148672
More than RM3500						-	-	-	15	-

Note :
- RSE more than 25%

Table 2.4a: Dinner venue by socio-demographic characteristics

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**87.18**	**85.03**	**89.06**	**2584**	**16502618**	**-**	**-**	**-**	**27**	**-**
Zone										
Peninsular Malaysia	85.35	82.64	87.70	1521	12636909	-	-	-	19	-
East Malaysia	93.74	91.82	95.23	1063	3865709	-	-	-	8	-
Strata										
Urban	85.01	82.02	87.58	1326	11181219	-	-	-	20	-
Rural	92.11	90.07	93.75	1258	5321400	-	-	-	7	-
Sex										
Men	83.76	80.74	86.38	1145	8298493	-	-	-	16	-
Women	90.93	88.58	92.84	1439	8204125	-	-	-	11	-
Age Group										
18-19	80.33	66.90	89.19	112	883065	-	-	-	3	-
20-29	84.41	79.99	88.00	568	4373015	-	-	-	11	-
30-39	86.56	83.44	89.17	704	4003809	-	-	-	7	-
40-49	90.92	87.48	93.48	674	4061235	-	-	-	1	-
50-59	89.43	85.38	92.45	526	3181495	-	-	-	5	-
Ethnic Group										
Malay	87.34	84.68	89.60	1254	8822008	-	-	-	11	-
Chinese	80.53	74.81	85.20	414	3042670	-	-	-	6	-
Indian	90.56	80.45	95.72	111	1141407	-	-	-	2	-
Bumiputera Sabah	92.34	87.20	95.52	355	1387306	-	-	-	6	-
Bumiputera Sarawak	95.60	91.59	97.74	273	986913	-	-	-	1	-
Others	88.85	79.66	94.19	163	1030123	-	-	-	1	-
Other Bumis	96.02	73.21	99.53	14	92191	-	-	-	-	-
Marital Status										
Never married	81.83	76.47	86.19	601	4337788	-	-	-	12	-
Married/ Cohabiting	89.62	87.60	91.34	1822	11448239	-	-	-	4	-
Divorced/ Separating	78.27	67.70	86.09	99	471344	-	-	-	1	-
Widow	97.00	87.52	99.33	58	222310	-	-	-	-	-
Others	100.00	100.00	100.00	1	9192	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.4a: Dinner venue by socio-demographic characteristics (Cont.)

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	98.10	92.63	99.53	127	478807	-	-	-	-	-
Primary	89.88	85.58	93.01	562	3165205	-	-	-	6	-
Secondary	86.87	84.12	89.20	1241	8132491	-	-	-	14	-
Tertiary	85.02	80.66	88.53	631	4613261	-	-	-	7	-
Others	87.81	61.22	97.04	15	71841					
Work Status										
Government/ Semi-government	87.29	82.27	91.04	327	1914900	-	-	-	2	-
Private	83.96	80.17	87.14	887	6575881	-	-	-	16	-
Self-employed	86.34	82.46	89.48	714	4094431	-	-	-	8	-
Unpaid worker	-	-	-	6	-					
Not working	97.09	94.15	98.58	545	3018820					
Retired	94.77	74.94	99.10	28	198329					
Student	86.86	68.33	95.29	53	524321					
Others										
Income Group										
Less than RM1500	90.72	87.67	93.07	1266	7042953	-	-	-	6	-
RM1500-RM3500	84.72	80.74	87.99	740	5109006	-	-	-	18	-
More than RM3500	84.86	81.02	88.04	555	4163176	-	-	-	2	-

Note :
- RSE more than 25%

Table 2.4b: Dinner venue by socio-demographic characteristics

Characteristics	Cafeteria Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Restaurant Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	22	-	**5.92**	**4.83**	**7.25**	**145**	**1121566**
Zone										
Peninsular Malaysia	-	-	-	18	-	6.86	5.50	8.51	117	1015146
East Malaysia	-	-	-	9	-	2.58	1.62	4.10	28	106419
Strata										
Urban	-	-	-	20	-	7.29	5.80	9.13	106	958543
Rural	-	-	-	7	-	1.93	1.93	4.10	39	163023
Sex										
Men	-	-	-	20	-	7.02	5.38	9.11	85	96509
Women	-	-	-	7	-	4.72	3.56	6.23	60	425995
Age Group										
18-19	-	-	-	2	-	-	-	-	2	-
20-29	-	-	-	9	-	6.62	4.41	9.82	37	342985
30-39	-	-	-	7	-	8.20	6.19	10.79	57	379321
40-49	-	-	-	5	-	4.14	2.64	6.42	29	184838
50-59	-	-	-	4	-	4.93	3.04	7.91	20	175348
Ethnic Group										
Malay	-	-	-	14	-	5.83	4.32	7.84	73	589294
Chinese	-	-	-	8	-	9.73	6.93	13.51	49	367812
Indian	-	-	-	3	-	-	-	-	5	-
Bumiputera Sabah	-	-	-	1	-	-	-	-	9	-
Bumiputera Sarawak	-	-	-	1	-	-	-	-	2	-
Others	-	-	-		-	-	-	-	7	-
Other Bumis	-	-	-		-	-	-	-		-
Marital Status										
Never married	-	-	-	15	-	7.30	5.00	10.53	43	386870
Married/ Cohabiting	-	-	-	11	-	5.28	4.09	6.78	91	673961
Divorced/ Separating	-	-	-	1	-	-	-	-	10	-
Widow	-	-	-		-	-	-	-	1	-
Others	-	-	-		-	-	-	-		-

Note :
- RSE more than 25%

Table 2.4b: Dinner venue by socio-demographic characteristics (Cont.)

Characteristics	Cafeteria					Restaurant				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	-	-	-	-	-	2	-
Primary	-	-	-	2	-	-	-	-	15	-
Secondary	-	-	-	10	-	5.81	4.38	7.67	70	544050
Tertiary	-	-	-	14	-	8.07	5.89	10.96	56	437949
Others	-	-	-	1	-	-	-	-		
Work Status										
Government/ Semi-government	-	-	-	5	-	-	-	-	19	-
Private	-	-	-	18	-	7.98	5.97	10.59	73	624920
Self-employed	-	-	-	1	-	5.81	3.81	8.77	38	275689
Unpaid worker	-	-	-	1	-	-	-	-		
Not working	-	-	-	1	-	-	-	-	8	-
Retired	-	-	-		-	-	-	-	1	-
Student	-	-	-	1	-	-	-	-	1	-
Others	-	-	-		-	-	-	-		
Income Group										
Less than RM1500	-	-	-	8	-	4.08	2.67	6.17	35	316438
RM1500-RM3500	-	-	-	11	-	6.19	4.27	8.88	51	373102
More than RM3500	-	-	-	7	-	8.51	6.33	11.34	56	417286

Note :
- RSE more than 25%

Table 2.4c: Dinner venue by socio-demographic characteristics

Characteristics	Hotel Proportion (%)	Hotel 95% CI Lower	Hotel 95% CI Upper	Hotel Unweighted Count	Hotel Estimated Population	Stall Proportion (%)	Stall 95% CI Lower	Stall 95% CI Upper	Stall Unweighted Count	Stall Estimated Population
Malaysia	-	-	-	-	-	3.71	2.77	4.96	88	702977
Zone										
Peninsular Malaysia	4.43	3.25	6.02	73	656380	-	-	-	14	-
East Malaysia	-	-	-	15	-	-	-	-	6	-
Strata										
Urban	3.92	2.68	5.69	52	515414	-	-	-	14	-
Rural	3.25	2.29	4.58	36	187563	-	-	-	6	-
Sex										
Men	5.16	3.64	7.27	64	511187	-	-	-	11	-
Women	-	-	-	24	-	-	-	-	9	-
Age Group										
18-19	-	-	-	6	-	-	-	-	2	-
20-29	4.72	3.11	7.08	30	244290	-	-	-	6	-
30-39	-	-	-	20	-	-	-	-	4	-
40-49	-	-	-	19	-	-	-	-	6	-
50-59	-	-	-	13	-	-	-	-	2	-
Ethnic Group										
Malay	3.53	2.45	5.07	45	356917	-	-	-	8	-
Chinese	-	-	-	30	-	-	-	-	3	-
Indian	-	-	-	3	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	2	-	-	-	-	2	-
Bumiputera Sarawak	-	-	-	5	-	-	-	-	3	-
Others	-	-	-	3	-	-	-	-	4	-
Other Bumis	-	-	-	-	-	-	-	-	-	-
Marital Status										
Never married	-	-	-	34	-	-	-	-	4	-
Married/ Cohabiting	2.82	1.92	4.12	42	360228	-	-	-	14	-
Divorced/ Separating	-	-	-	12	-	-	-	-	1	-
Widow	-	-	-	-	-	-	-	-	1	-
Others	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.4c: Dinner venue by socio-demographic characteristics (Cont.)

Characteristics	Hotel					Stall					
	Proportion (%)	95% CI		Unweighted Count	Estimated Population	Proportion (%)	95% CI		Unweighted Count	Estimated Population	
		Lower	Upper				Lower	Upper			
Educational Level											
Non-formal		-	-	13	-	-	-	-	7	-	
Primary	4.16	2.81	6.11	54	389124	-	-	-	11	-	
Secondary	-	-	-	21	-	-	-	-	1	-	
Tertiary											
Others											
Work Status											
Government/ Semi-government	-	-	-	11	-	-	-	-	2	-	
Private	5.26	3.52	7.80	32	249507	-	-	-	10	-	
Self-employed	-	-	-	37	-	-	-	-	6	-	
Unpaid worker	-	-	-	1	-						
Not working	-	-	-	4	-	-	-	-	1	-	
Retired											
Student	-	-	-	2	-	-	-	-	1	-	
Others											
Income Group											
Less than RM1500	2.64	1.70	4.06	32	204796	-	-	-	10	-	
RM1500-RM3500	4.92	3.09	7.73	32	296673	-	-	-	6	-	
More than RM3500	-	-	-	24	-	-	-	-	4	-	

Note :
- RSE more than 25%

Table 2.4d: Dinner venue by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia						0.65	0.40	1.05	20	122559
Zone										
Peninsular Malaysia						-	-	-	14	-
East Malaysia						-	-	-	6	-
Strata										
Urban						-	-	-	14	-
Rural						-	-	-	6	-
Sex										
Men						-	-	-	11	-
Women						-	-	-	9	-
Age Group										
18-19						-	-	-	2	-
20-29						-	-	-	6	-
30-39						-	-	-	4	-
40-49						-	-	-	6	-
50-59						-	-	-	2	-
Ethnic Group										
Malay						-	-	-	8	-
Chinese						-	-	-	3	-
Indian										
Bumiputera Sabah						-	-	-	2	-
Bumiputera Sarawak						-	-	-	3	-
Others						-	-	-	4	-
Other Bumis										
Marital Status										
Never married						-	-	-	4	-
Married/ Cohabiting						-	-	-	14	-
Divorced/ Separating						-	-	-	1	-
Widow						-	-	-	1	-
Others						-	-	-		-

Note :
- RSE more than 25%

Table 2.4d: Dinner venue by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal						-	-	-		-
Primary						-	-	-	7	-
Secondary						-	-	-	11	-
Tertiary						-	-	-		-
Others						-	-	-	1	-
Work Status										
Government/ Semi-government						-	-	-	2	-
Private						-	-	-	10	-
Self-employed						-	-	-	6	-
Unpaid worker						-	-	-		-
Not working						-	-	-	1	-
Retired						-	-	-		-
Student						-	-	-	1	-
Others						-	-	-		-
Income Group										
Less than RM1500						-	-	-	10	-
RM1500-RM3500						-	-	-	6	-
More than RM3500						-	-	-	4	-

Note :
- RSE more than 25%

Table 2.5a: Supper venue by socio-demographic characteristics

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**56.58**	**52.11**	**60.95**	**514**	**3501296**	-	-	-	**12**	-
Zone										
Peninsular Malaysia	53.21	48.05	58.29	312	2762795	-	-	-	6	-
East Malaysia	74.19	67.61	79.83	202	738501	-	-	-	6	-
Strata										
Urban	53.00	47.40	58.53	277	2408894	-	-	-	10	-
Rural	66.48	59.85	72.52	237	1092402	-	-	-	2	-
Sex										
Men	51.57	45.92	57.17	269	2054053	-	-	-	9	-
Women	65.64	59.18	71.57	245	1447243	-	-	-	3	-
Age Group										
18-19	44.81	30.73	59.76	34	252894	-	-	-	2	-
20-29	56.99	49.80	63.90	159	1293280	-	-	-	2	-
30-39	62.11	53.38	70.11	162	935941	-	-	-	4	-
40-49	51.70	42.84	60.46	93	597220	-	-	-	2	-
50-59	60.97	49.00	71.76	66	421961	-	-	-	2	-
Ethnic Group										
Malay	57.84	52.19	63.29	295	2240489	-	-	-	4	-
Chinese	35.77	27.37	45.15	58	378381	-	-	-	2	-
Indian	53.05	32.71	72.43	17	183870	-	-	-		-
Bumiputera Sabah	70.33	56.46	81.25	64	249930	-	-	-	2	-
Bumiputera Sarawak	-	-	-	41	-	-	-	-	2	-
Others	82.81	59.15	94.13	35	292655	-	-	-	1	-
Other Bumis	-	-	-	4	-	-	-	-	1	-
Marital Status										
Never married	47.55	40.47	54.72	160	1205602	-	-	-	4	-
Married/ Cohabiting	63.78	57.92	69.26	331	2176104	-	-	-	8	-
Divorced/ Separating	47.43	28.36	67.27	18	103489	-	-	-		-
Widow	71.49	42.52	89.47	5	16101	-	-	-		-
Others	-	-	-		-	-	-	-		-

Note :
- RSE more than 25%

Table 2.5a: Supper venue by socio-demographic characteristics (Cont.)

Characteristics	Home					Office				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	20	-	-	-	-		-
Primary	62.79	52.08	72.38	85	567207	-	-	-	3	-
Secondary	56.84	50.84	62.64	272	1984419	-	-	-	8	-
Tertiary	52.26	43.77	60.61	134	867728	-	-	-	1	-
Others	65.72	51.03	77.90	2	11975					
Work Status										
Government/ Semi-government	61.59	50.97	71.21	60	367673					
Private	49.59	43.01	56.18	184	1369287	-	-	-	10	-
Self-employed	57.94	50.61	64.94	152	980728	-	-	-	2	-
Unpaid worker	-	-	-	1	-					
Not working	71.89	60.29	81.15	88	545702					
Retired	-	-	-	5	-					
Student	72.35	50.49	87.04	18	159424					
Others										
Income Group										
Less than RM1500	63.19	56.43	69.48	248	1607311	-	-	-	4	-
RM1500-RM3500	52.96	45.28	60.49	248	1092113	-	-	-	4	-
More than RM3500	50.84	41.44	60.19	111	797238	-	-	-	3	-

Note :
- RSE more than 25%

Table 2.5b: Supper venue by socio-demographic characteristics

Characteristics	Cafeteria Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Restaurant Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	20	-	**21.72**	**17.87**	**26.14**	**140**	**1344185**
Zone										
Peninsular Malaysia	-	-	-	7	-	23.70	19.22	28.85	113	1230582
East Malaysia	-	-	-	20	-	21.72	17.87	26.14	140	1344185
Strata										
Urban	-	-	-	15	-	25.66	20.69	31.36	101	1166272
Rural	-	-	-	5	-	10.83	6.85	16.71	39	177913
Sex										
Men	-	-	-	12	-	23.17	18.31	28.86	89	922863
Women	65.64	59.18	71.57	245	1447243	-	-	-	3	-
Age Group										
18-19	-	-	-	1	-	-	-	-	8	-
20-29	-	-	-	6	-	21.99	15.82	29.71	46	498915
30-39	-	-	-	5	-	24.77	17.85	33.30	46	373335
40-49	-	-	-	8	-	22.30	15.37	31.20	26	257549
50-59	-	-	-		-	-	-	-	14	-
Ethnic Group										
Malay	-	-	-	9	-	19.39	14.98	24.73	79	751188
Chinese	-	-	-	8	-	37.04	26.30	49.24	37	391860
Indian	-	-	-	1	-	-	-	-	9	-
Bumiputera Sabah	-	-	-	2	-	-	-	-	10	-
Bumiputera Sarawak						-	-	-	2	-
Others						-	-	-	3	-
Other Bumis										
Marital Status										
Never married	-	-	-	7	-	25.75	19.15	33.68	58	652971
Married/ Cohabiting	-	-	-	8	-	18.19	13.75	23.69	72	620735
Divorced/ Separating	-	-	-	2	-	-	-	-	10	-
Widow	-	-	-	3	-					
Others										

Note :
- RSE more than 25%

Table 2.5b: Supper venue by socio-demographic characteristics (Cont.)

Characteristics	Cafeteria					Restaurant				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-	1	-
Primary	-	-	-	3	-	-	-	-	13	-
Secondary	-	-	-	11	-	24.33	19.11	30.44	88	849542
Tertiary	-	-	-	6	-	22.25	15.49	30.88	38	369481
Others						0.00	0.00	0.00		
Work Status										
Government/ Semi-government	-	-	-	4	-	-	-	-	12	-
Private	-	-	-	11	-	27.56	21.09	35.12	69	760873
Self-employed	-	-	-	3	-	17.63	12.18	24.84	36	298475
Unpaid worker						-	-	-	1	-
Not working	-	-	-	2	-	-	-	-	17	-
Retired						-	-	-	2	-
Student						-	-	-	2	-
Others										
Income Group										
Less than RM1500	-	-	-	5	-	15.25	10.56	21.54	45	387960
RM1500-RM3500	-	-	-	5	-	23.51	16.90	31.72	45	484869
More than RM3500	0.43	0.14	1.37	3	6772	29.46	21.96	38.28	44	461985

Note :
- RSE more than 25%

Table 2.5c: Supper venue by socio-demographic characteristics

Characteristics	Hotel Proportion (%)	Hotel 95% CI Lower	Hotel 95% CI Upper	Hotel Unweighted Count	Hotel Estimated Population	Stall Proportion (%)	Stall 95% CI Lower	Stall 95% CI Upper	Stall Unweighted Count	Stall Estimated Population
Malaysia	-	-	-	1	-	**16.54**	**13.40**	**20.23**	**124**	**1023177**
Zone										
Peninsular Malaysia	-	-	-	1	-	18.81	15.10	23.17	111	976572
East Malaysia	-	-	-	1	-	16.54	13.40	20.23	124	1023177
Strata										
Urban	-	-	-	1	-	15.89	12.07	20.63	68	722243
Rural						18.31	13.78	23.93	56	300934
Sex										
Men	-	-	-	1	-	19.68	15.42	24.78	89	784068
Women	-	-	-	1	-	19.11	14.07	25.42	51	421322
Age Group										
18-19						31.93	19.63	47.39	15	180232
20-29						16.68	11.84	22.99	40	378526
30-39						8.57	5.42	13.27	22	129086
40-49						17.38	11.73	24.98	32	200758
50-59	-	-	-	1	-	-	-	-	15	-
Ethnic Group										
Malay	-	-	-	1	-	18.70	14.62	23.62	87	724518
Chinese						-	-	-	1	-
Indian						-	-	-	1	-
Bumiputera Sabah						-	-	-	1	-
Bumiputera Sarawak						-	-	-	1	-
Others						-	-	-	3	-
Other Bumis						-	-	-	2	-
Marital Status										
Never married	-	-	-	1	-	22.38	16.87	29.06	60	567461
Married/ Cohabiting						12.63	9.37	16.80	58	430745
Divorced/ Separating						-	-	-	6	-
Widow						0.00	0.00	0.00		
Others						-	-	-		-

Note :
- RSE more than 25%

Table 2.5c: Supper venue by socio-demographic characteristics (Cont.)

Characteristics	Hotel					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-	2	-
Primary						-	-	-	15	-
Secondary						14.13	10.61	18.58	69	493371
Tertiary		-	-	1	-	19.63	13.65	27.42	37	326041
Others						34.28	22.10	48.97	1	6247
Work Status										
Government/ Semi-government	-	-	-	1	-	20.77	13.22	31.08	16	124005
Private						15.96	11.44	21.82	49	440629
Self-employed						20.17	14.19	27.86	46	341457
Unpaid worker						-	-	-	2	-
Not working						-	-	-	7	-
Retired										
Student						-	-	-	4	-
Others										
Income Group										
Less than RM1500	-	-	-	1	-	17.00	11.94	23.61	53	432279
RM1500-RM3500						17.24	12.39	23.48	53	355531
More than RM3500						-	-	-	28	-

Note :
- RSE more than 25%

Table 2.5d: Supper venue by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	9	-	-	-	-	12	-
Zone										
Peninsular Malaysia	-	-	-	3	-	-	-	-	11	-
East Malaysia	-	-	-	9	-	-	-	-	12	-
Strata										
Urban	-	-	-	8	-	-	-	-	6	-
Rural	-	-	-	1	-	-	-	-	6	-
Sex										
Men	-	-	-	2	-	-	-	-	10	-
Women	-	-	-	7	-	-	-	-	2	-
Age Group										
18-19	-	-	-	1	-	-	-	-	1	-
20-29	-	-	-	6	-	-	-	-	3	-
30-39	-	-	-	1	-	-	-	-	7	-
40-49	-	-	-	1	-	-	-	-	1	-
50-59	-	-	-		-	-	-	-		-
Ethnic Group										
Malay	-	-	-	2	-	-	-	-	10	-
Chinese	-	-	-	5	-	-	-	-		-
Indian	-	-	-	1	-	-	-	-	1	-
Bumiputera Sabah									1	-
Bumiputera Sarawak										
Others	-	-	-	1	-					
Other Bumis										
Marital Status										
Never married	-	-	-	6	-	-	-	-	1	-
Married/ Cohabiting	-	-	-	3	-	-	-	-	10	-
Divorced/ Separating						-	-	-	1	-
Widow										
Others										

Note :
- RSE more than 25%

Table 2.5d: Supper venue by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-		-
Primary	-	-	-	5	-	-	-	-	4	-
Secondary	-	-	-	4	-	-	-	-	5	-
Tertiary									3	-
Others										
Work Status										
Government/ Semi-government	-	-	-	1	-	-	-	-	2	
Private	-	-	-	4	-	-	-	-	5	-
Self-employed	-	-	-	1	-	-	-	-	5	-
Unpaid worker										
Not working	-	-	-	1	-					
Retired										
Student	-	-	-	1	-					
Others										
Income Group										
Less than RM1500	-	-	-	4	-	-	-	-	6	-
RM1500-RM3500	-	-	-	4	-	-	-	-	6	-
More than RM3500	-	-	-	4	-	-	-	-	3	-

Note :
- RSE more than 25%

Table 2.6a: Source of food for breakfast by socio-demographic characteristics

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**50.70**	**47.84**	**53.56**	**1620**	**9338690**	**11.76**	**10.15**	**13.59**	**298**	**2166741**
Zone										
Peninsular Malaysia	45.36	41.88	48.88	831	6559493	12.49	10.54	14.73	208	1806053
East Malaysia	70.26	66.64	73.64	789	2779197	9.12	7.01	11.77	90	360688
Strata										
Urban	45.95	42.17	49.78	757	5921693	13.19	11.05	15.67	193	1699341
Rural	61.78	58.40	65.06	863	3416997	8.45	6.66	10.67	105	467400
Sex										
Men	41.45	37.73	45.27	619	3943803	12.65	10.47	15.20	147	1203502
Women	60.59	57.11	63.96	1001	5394887	10.82	8.85	13.16	151	963239
Age Group										
18-19	55.06	42.81	66.72	75	560268	-	-	-	12	-
20-29	46.73	41.66	51.86	328	2256556	14.79	11.57	18.71	86	714213
30-39	47.36	42.72	52.06	421	2198344	14.85	11.63	18.77	106	689093
40-49	50.22	45.37	55.07	411	2230407	10.70	7.92	14.30	73	475007
50-59	59.99	54.38	65.35	385	2093114	-	-	-	21	-
Ethnic Group										
Malay	46.56	42.72	50.45	713	4634167	14.44	12.12	17.13	190	1437426
Chinese	41.52	35.62	47.68	205	1481517	10.23	6.99	14.74	49	365085
Indian	52.40	42.36	62.26	70	661619	-	-	-	15	-
Bumiputera Sabah	70.86	64.85	76.22	268	1021289	6.72	4.30	10.36	20	96893
Bumiputera Sarawak	79.36	72.17	85.07	226	790512	-	-	-	19	-
Others	61.11	47.24	73.39	128	677863	-	-	-	3	-
Other Bumis	80.91	44.23	95.77	10	71722	-	-	-	2	-
Marital Status										
Never married	47.53	42.51	52.59	349	2359211	14.14	10.92	18.11	86	701697
Married/ Cohabiting	51.43	48.06	54.78	1160	6490227	11.18	9.38	13.28	195	1411244
Divorced/ Separating	55.69	43.91	66.86	67	324125	-	-	-	9	-
Widow	67.45	49.15	81.63	42	154632	-	-	-	8	-
Others	100.00	100.00	100.00	1	9192					

Note :
- RSE more than 25%

Table 2.6a: Source of food for breakfast by socio-demographic characteristics (Cont.)

Characteristics	Home					Cafetaria				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	82.77	67.70	91.67	112	381775	-	-	-	1	-
Primary	55.81	49.33	62.10	401	1866568	5.21	3.10	8.64	24	174250
Secondary	51.73	47.81	55.63	767	4699458	8.57	6.85	10.66	109	778051
Tertiary	43.05	37.82	48.45	325	2323607	21.94	18.23	26.17	160	1184344
Others	-	-	-	9	-	-	-	-	4	-
Work Status										
Government/ Semi-government	30.42	24.84	36.63	129	671212	31.98	25.93	38.70	120	705632
Private	41.91	37.84	46.10	480	3224332	15.99	13.12	19.34	143	1229959
Self-employed	59.07	54.00	63.95	503	2715863	-	-	-	15	-
Unpaid worker	73.59	34.50	93.65	5	36959	-	-	-	1	-
Not working	75.01	68.62	80.47	440	2215396	-	-	-	5	-
Retired	-	-	-	18	-					
Student	55.42	39.39	70.39	32	292716	-	-	-	10	-
Others										
Income Group										
Less than RM1500	59.34	55.32	63.23	900	4413027	6.02	4.44	8.12	59	447623
RM1500-RM3500	46.14	41.66	50.67	420	2673749	11.82	9.30	14.91	100	685113
More than RM3500	42.89	37.55	48.41	285	2135434	20.58	16.98	24.73	137	1024865

Note :
- RSE more than 25%

Table 2.6b: Source of food for breakfast by socio-demographic characteristics

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	10.05	8.33	12.08	231	1851676	24.90	22.37	27.61	613	4585344
Zone										
Peninsular Malaysia	10.65	8.57	13.16	157	1539925	28.51	25.36	31.89	490	4123836
East Malaysia	7.88	5.76	10.69	74	311751	11.67	9.65	14.04	123	461508
Strata										
Urban	12.60	10.24	15.40	179	1623364	25.41	22.08	29.05	339	3274389
Rural	4.13	2.79	6.06	52	228311	23.70	20.67	27.03	274	1310955
Sex										
Men	13.41	10.84	16.48	146	1275643	30.44	26.94	34.19	353	2896162
Women	6.47	4.83	8.62	85	576033	18.97	16.29	21.97	260	1689182
Age Group										
18-19	-	-	-	5	-	27.37	17.43	40.22	24	278503
20-29	9.02	6.45	12.47	49	435715	25.51	21.20	30.35	148	1231817
30-39	13.01	9.76	17.13	82	603744	22.12	18.07	26.77	163	1026431
40-49	10.19	6.91	14.80	56	452681	26.01	21.68	30.87	163	1155244
50-59	8.91	6.14	12.76	39	310931	25.60	20.44	31.55	115	893349
Ethnic Group										
Malay	6.24	4.74	8.17	73	621306	30.13	26.49	34.04	390	2998608
Chinese	20.30	15.85	25.63	91	724329	24.73	19.60	30.69	120	882409
Indian	16.78	10.56	25.63	18	211889	-	-	-	22	-
Bumiputera Sabah	7.84	4.80	12.54	28	112963	13.35	9.65	18.19	40	192425
Bumiputera Sarawak	-	-	-	9	-	-	-	-	18	-
Others	-	-	-	11	-	-	-	-	22	-
Other Bumis	-	-	-	1	-	-	-	-	1	-
Marital Status										
Never married	11.66	8.62	15.59	64	579058	23.98	19.81	28.71	165	1190381
Married/ Cohabiting	9.49	7.61	11.77	154	1197221	25.41	22.57	28.49	412	3207002
Divorced/ Separating	-	-	-	10	-	23.23	14.90	34.35	28	135233
Widow	-	-	-	2	-	-	-	-	7	-
Others	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.6b: Source of food for breakfast by socio-demographic characteristics (Cont.)

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	2	-	-	-	-	9	-
Primary	9.42	6.48	13.52	35	315165	26.71	21.50	32.66	115	893390
Secondary	9.95	7.67	12.81	112	903401	28.18	24.83	31.79	354	2560059
Tertiary	11.41	8.75	14.74	79	615862	19.41	15.20	24.45	132	1047637
Others	-	-	-	1	-	-	-	-	1	-
Work Status										
Government/ Semi-government	6.50	4.02	10.35	24	143430	25.93	20.45	32.27	71	572144
Private	14.01	11.11	17.53	123	1078094	24.65	21.33	28.31	242	1896223
Self-employed	9.79	6.75	14.00	62	450252	28.05	23.67	32.89	189	1289444
Unpaid worker	-	-	-	1	-	13.46	1.71	58.16	1	6759
Not working	-	-	-	14	-	19.68	14.84	25.64	84	581362
Retired	-	-	-	3	-	-	-	-	7	-
Student	-	-	-	2	-	-	-	-	9	-
Others										
Income Group										
Less than RM1500	7.49	5.39	10.32	63	556845	25.33	21.95	29.03	277	1883891
RM1500-RM3500	10.79	7.90	14.58	82	625365	28.72	24.59	33.25	215	1664523
More than RM3500	12.14	9.37	15.59	81	604650	20.52	16.66	25.00	118	1021562

Note :
- RSE more than 25%

Table 2.6c: Source of food for breakfast by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	5	-	**2.31**	**1.55**	**3.41**	**66**	**425033**
Zone										
Peninsular Malaysia	-	-	-	5	-	2.64	1.71	4.06	49	382347
East Malaysia						-	-	-	17	-
Strata										
Urban	-	-	-	3	-	2.54	1.56	4.11	45	326715
Rural	-	-	-	2	-	-	-	-	21	-
Sex										
Men	-	-	-	3	-	-	-	-	22	-
Women	-	-	-	2	-	3.03	1.97	4.63	44	269625
Age Group										
18-19	-	-	-	1	-	-	-	-	1	-
20-29	-	-	-	2	-	-	-	-	21	-
30-39	-	-	-	2	-	-	-	-	19	-
40-49						-	-	-	18	-
50-59						-	-	-	7	-
Ethnic Group										
Malay	-	-	-	1	-	-	-	-	36	-
Chinese	-	-	-	2	-	-	-	-	16	-
Indian										
Bumiputera Sabah	-	-	-	1	-	-	-	-	4	-
Bumiputera Sarawak						-	-	-	4	-
Others	-	-	-	1	-	-	-	-	5	-
Other Bumis						-	-	-	1	-
Marital Status										
Never married	-	-	-	3	-	-	-	-	16	-
Married/ Cohabiting	-	-	-	2	-	2.40	1.57	3.65	45	303083
Divorced/ Separating						-	-	-	5	-
Widow										
Others										

Note :
- RSE more than 25%

Table 2.6c: Source of food for breakfast by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-			-	-	-	1	-
Primary	-	-	-	2	-	-	-	-	11	-
Secondary	-	-	-	3	-	1.57	0.98	2.51	24	142907
Tertiary	-	-	-			-	-	-	28	-
Others	-	-	-			-	-	-	1	-
Work Status										
Government/ Semi-government	-	-	-			-	-	-	19	-
Private	-	-	-	4	-	-	-	-	31	-
Self-employed	-	-	-			-	-	-	13	-
Unpaid worker										
Not working	-	-	-	1	-	-	-	-	1	-
Retired	-	-	-			-	-	-	1	-
Student	-	-	-			-	-	-	1	-
Others										
Income Group										
Less than RM1500	-	-	-	2	-	-	-	-	21	-
RM1500-RM3500	-	-	-	1	-	-	-	-	19	-
More than RM3500	-	-	-	2	-	-	-	-	25	-

Note :
- RSE more than 25%

Table 2.7a: Source of food for lunch by socio-demographic characteristics

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**59.81**	**52.10**	**57.49**	**1781**	**10175276**	**11.31**	**9.83**	**12.98**	**281**	**2099547**
Zone										
Peninsular Malaysia	50.07	46.79	53.34	959	7258888	12.05	10.29	14.07	194	1746797
East Malaysia	71.69	67.96	75.14	822	2916388	8.67	6.51	11.46	87	352750
Strata										
Urban	46.37	42.87	49.92	774	6007765	13.21	11.21	15.50	193	1711688
Rural	74.28	70.81	77.48	1007	4167510	6.91	5.49	8.67	88	387859
Sex										
Men	44.76	41.01	48.57	685	4323676	11.72	9.56	14.29	137	1132397
Women	65.71	62.34	68.93	1096	5851600	10.86	8.88	13.22	144	967149
Age Group										
18-19	60.33	48.74	70.86	88	650110	-	-	-	11	-
20-29	44.74	39.60	49.98	353	2264206	12.79	10.02	16.20	82	647515
30-39	52.46	48.08	56.80	466	2401620	15.51	12.38	19.26	106	710119
40-49	57.31	51.93	62.52	465	2513338	9.67	7.10	13.04	60	424413
50-59	67.74	62.43	72.63	409	2346001	-	-	-	22	-
Ethnic Group										
Malay	55.42	51.37	59.40	854	5494518	13.27	11.28	15.56	165	1315798
Chinese	36.73	31.82	41.94	196	1328052	11.27	7.97	15.72	55	407502
Indian	49.27	38.91	59.70	67	639215	-	-	-	17	-
Bumiputera Sabah	74.56	67.56	80.49	287	1111579	-	-	-	14	-
Bumiputera Sarawak	79.39	70.88	85.91	232	808641	-	-	-	22	-
Others	64.46	52.27	75.03	133	727994	-	-	-	6	-
Other Bumis	65.17	31.90	88.20	12	65277	-	-	-	2	-
Marital Status										
Never married	43.49	38.56	48.56	360	2253720	13.09	10.26	16.56	89	678478
Married/ Cohabiting	58.75	55.69	61.75	1301	7365448	10.79	9.15	12.67	178	1352516
Divorced/ Separating	60.23	48.54	70.86	74	361541	-	-	-	9	-
Widow	79.84	65.70	89.12	43	179438	-	-	-	5	-
Others	100.00	100.00	100.00	1	9192	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.7a: Source of food for lunch by socio-demographic characteristics (Cont.)

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	91.94	84.74	95.90	119	427237	-	-	-		-
Primary	71.83	65.59	77.33	466	2434646	-	-	-	15	-
Secondary	56.43	52.71	60.08	873	5208933	9.57	7.76	11.75	118	883193
Tertiary	37.97	33.25	42.92	307	2028322	20.31	17.04	24.02	146	1084898
Others	-	-	-	10	-	-	-	-	2	-
Work Status										
Government/ Semi-government	44.86	38.45	51.44	176	957343	24.85	19.57	31.01	89	530346
Private	36.53	32.66	40.58	443	2826795	16.54	13.86	19.62	156	1279825
Self-employed	66.05	61.05	70.71	572	3075873	-	-	-	18	-
Unpaid worker	95.82	71.72	99.52	6	43718					
Not working	91.10	86.62	94.18	515	2753066	-	-	-	3	-
Retired	66.75	41.90	84.83	22	136045					
Student	46.24	31.37	61.81	30	273091	-	-	-	13	-
Others										
Income Group										
Less than RM1500	69.06	64.92	72.93	1022	5254810	4.96	3.50	6.98	47	377514
RM1500-RM3500	50.68	46.34	55.02	475	2976938	12.73	10.27	15.68	106	747897
More than RM3500	37.87	33.40	42.56	269	1838367	19.57	16.19	23.46	125	949964

Note :
- RSE more than 25%

Table 2.7b: Source of food for lunch by socio-demographic characteristics

Characteristics	Restaurant Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Stall Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**17.53**	**15.42**	**19.87**	**378**	**3254847**	**14.21**	**12.18**	**16.51**	**335**	**2637841**
Zone										
Peninsular Malaysia	19.45	16.84	22.35	267	2819486	16.41	13.88	19.30	267	2379316
East Malaysia	10.70	8.41	13.52	111	435361	6.36	4.68	8.57	68	258525
Strata										
Urban	22.55	19.62	25.77	302	2921486	15.75	13.05	18.90	211	2040552
Rural	5.94	4.38	8.01	76	333362	10.65	8.50	13.26	124	597288
Sex										
Men	22.04	18.85	25.60	229	2129173	19.37	16.34	22.81	233	1871245
Women	12.64	10.47	15.18	149	1125675	8.61	6.82	10.81	102	766596
Age Group										
18-19	12.72	6.13	24.56	9	137125	-	-	-	14	
20-29	21.81	17.64	26.64	103	1103675	17.78	13.78	22.62	93	899750
30-39	17.12	13.67	21.22	112	783788	13.33	10.29	17.08	86	610082
40-49	17.42	13.44	22.27	93	763819	13.13	9.77	17.41	85	575775
50-59	13.47	10.16	17.65	61	466440	12.03	8.86	16.13	57	416485
Ethnic Group										
Malay	14.60	12.14	17.45	151	1447293	14.06	11.52	17.05	179	1393867
Chinese	28.91	23.60	34.88	133	1045306	22.02	17.14	27.81	99	795960
Indian	23.02	15.13	33.41	24	298652	-	-	-	16	-
Bumiputera Sabah	13.37	8.93	19.56	41	199368	-	-	-	19	-
Bumiputera Sarawak	-	-	-	9	-	-	-	-	8	-
Others	-	-	-	17	-	-	-	-	14	-
Other Bumis	-	-	-	3	-					
Marital Status										
Never married	24.18	19.60	29.43	122	1252717	16.33	12.72	20.71	108	845952
Married/Cohabiting	15.03	12.82	17.53	233	1883716	13.66	11.37	16.33	209	1712419
Divorced/Separating	-	-	-	17	-	-	-	-	16	-
Widow	-	-	-	6	-	-	-	-	1	-
Others	-	-	-			-				

Note :
- RSE more than 25%

Table 2.7b: Source of food for lunch by socio-demographic characteristics (Cont.)

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	2	-	2.21	0.68	6.93	3	10265
Primary	8.62	5.96	12.30	35	292100	14.19	9.42	20.82	58	480890
Secondary	15.46	12.80	18.56	159	1427230	16.28	13.74	19.18	194	1502539
Tertiary	28.09	23.70	32.95	176	1500705	11.86	8.83	15.75	77	633793
Others	-	-	-	4	-	-	-	-	1	-
Work Status										
Government/ Semi-government	16.68	12.26	22.27	48	355870	9.44	6.18	14.16	28	201404
Private	26.19	22.47	30.28	218	2026611	18.08	15.03	21.60	171	1399509
Self-employed	14.16	11.00	18.04	88	659299	14.70	11.07	19.26	99	684609
Unpaid worker	-	-	-	1	-	-	-	-	-	-
Not working	-	-	-	10	-	-	-	-	20	-
Retired	-	-	-	2	-	-	-	-	4	-
Student	-	-	-	8	-	-	-	-	7	-
Others	-	-	-			-	-	-		
Income Group										
Less than RM1500	10.78	8.26	13.96	86	820370	12.81	10.32	15.79	141	974537
RM1500-RM3500	17.14	13.64	21.31	130	1006512	17.96	14.26	22.36	124	1054620
More than RM3500	27.92	23.69	32.57	154	1355073	11.98	9.00	15.77	68	581328

Note :
- RSE more than 25%

Table 2.8a: Source of food for dinner by socio-demographic characteristics

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	83.21	81.04	85.18	2480	15708609	1.47	0.95	2.24	39	276692
Zone										
Peninsular Malaysia	80.48	77.73	82.96	1429	11875548	-	-	-	25	-
East Malaysia	93.00	91.10	94.52	1051	3833061	-	-	-	15	-
Strata										
Urban	80.33	77.33	83.01	1252	10525282	-	-	-	28	-
Rural	89.76	87.44	91.69	1228	5183327	-	-	-	11	-
Sex										
Men	80.53	77.48	83.25	1102	7938666	1.86	1.16	2.97	24	183231
Women	86.15	83.51	88.42	1378	7769942	-	-	-	15	-
Age Group										
18-19	80.18	66.76	89.07	111	881384	-	-	-	3	-
20-29	80.00	75.62	83.77	539	4127036	-	-	-	11	-
30-39	82.94	79.43	85.96	683	3836145	-	-	-	10	-
40-49	85.43	81.55	88.60	637	3813826	-	-	-	7	-
50-59	86.40	82.32	89.66	510	3050217	-	-	-	8	-
Ethnic Group										
Malay	82.69	79.86	85.19	1187	8352336	-	-	-	20	-
Chinese	73.62	67.43	79.00	387	2761348	-	-	-	10	-
Indian	90.90	83.44	95.19	109	1125831	-	-	-	3	-
BumiputeraSabah	92.20	87.27	95.33	354	1385243	-	-	-	2	-
BumiputeraSarawak	93.98	89.54	96.61	267	967824	-	-	-	3	-
Others	87.98	78.60	93.58	161	1020018	-	-	-	1	-
Other Bumis	100.00	100.00	100.00	15	96008	-	-	-		-
Marital Status										
Never married	78.43	73.27	82.82	574	4140203	-	-	-	19	-
Married/ Cohabiting	85.35	83.14	87.31	1750	10877122	-	-	-	19	-
Divorced/ Separating	73.73	63.31	82.03	94	444007	-	-	-	1	-
Widow	97.88	91.60	99.49	58	224339	-	-	-		-
Others	100.00	100.00	100.00	1	9192	-	-	-		-

Note :
- RSE more than 25%

Table 2.8a: Source of food for dinner by socio-demographic characteristics (Cont.)

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	97.30	91.97	99.13	125	472419	-	-	-	1	-
Primary	88.07	83.52	91.50	552	3101575	-	-	-	2	-
Secondary	83.55	80.65	86.09	1196	7798980	-	-	-	5	-
Tertiary	78.14	73.83	81.91	584	4222781	-	-	-	20	-
Others	87.81	61.22	97.04	15	71841	-	-	-	1	-
Work Status										
Government/ Semi-government	79.84	74.75	84.13	302	1751546	-	-	-	11	-
Private	80.09	76.42	83.31	847	6255216	-	-	-	21	-
Self-employed	82.77	78.58	86.29	692	3900260	-	-	-	1	-
Unpaid worker	63.17	20.64	91.87	6	31724	-	-	-	1	-
Not working	94.27	91.11	96.35	531	2931038	-	-	-	2	-
Retired	94.77	74.94	99.10	28	198329					
Student	83.79	65.78	93.29	51	505824	-	-	-	2	-
Others										
Income Group										
Less than RM1500	87.70	84.53	90.29	1231	6805929	-	-	-	11	-
RM1500-RM3500	82.06	78.15	85.40	717	4908381	-	-	-	14	-
More than RM3500	77.93	73.66	81.68	510	3823228	-	-	-	13	-

Note :
- RSE more than 25%

Table 2.8b: Source of food for dinner by socio-demographic characteristics

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**7.91**	**6.60**	**9.45**	**192**	**1492707**	**6.29**	**5.11**	**7.73**	**152**	**1188208**
Zone										
Peninsular Malaysia	9.26	7.63	11.21	159	1367141	7.48	5.99	9.30	129	1103675
East Malaysia	3.05	2.01	4.59	33	125566	2.05	1.30	3.22	23	84533
Strata										
Urban	9.67	7.87	11.83	140	1267187	6.91	5.35	8.87	97	904988
Rural	3.91	2.86	5.31	52	225520	4.90	3.55	6.73	55	283220
Sex										
Men	8.55	6.72	10.81	104	842423	7.79	5.92	10.19	95	768138
Women	7.21	5.64	9.17	88	650283	4.66	3.40	6.35	57	420070
Age Group										
18-19	-	-	-	4	-	-	-	-	7	-
20-29	9.71	6.71	13.84	53	500649	7.26	5.22	10.00	47	374310
30-39	9.67	7.43	12.49	65	447181	5.62	3.82	8.20	37	259978
40-49	6.62	4.67	9.32	45	295759	5.77	3.98	8.29	37	257466
50-59	5.73	3.72	8.72	25	202235	5.46	3.57	8.27	24	192822
Ethnic Group										
Malay	7.69	6.05	9.73	98	777071	6.55	5.09	8.40	88	661652
Chinese	13.51	10.13	17.80	64	506923	10.31	6.97	14.99	44	386718
Indian	-	-	-	6	-	-	-	-	5	-
Bumiputera Sabah	-	-	-	11	-	-	-	-	6	-
Bumiputera Sarawak	-	-	-	4	-	-	-	-	5	-
Others	-	-	-	9	-	-	-	-	4	-
Other Bumis										
Marital Status										
Never married	10.01	6.94	14.23	59	528426	7.40	5.11	10.58	48	390439
Married/ Cohabiting	6.87	5.55	8.48	116	875482	5.76	4.47	7.38	92	733903
Divorced/ Separating	-	-	-	15	-	-	-	-	12	-
Widow	-	-	-	2	-					
Others										

Note :
- RSE more than 25%

Table 2.8b: Source of food for dinner by socio-demographic characteristics (Cont.)

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	2	-	-	-	-		-
Primary	-	-	-	19	-	-	-	-	26	-
Secondary	7.50	5.80	9.65	89	700471	6.59	4.93	8.75	85	614913
Tertiary	11.37	8.73	14.68	80	614706	6.87	4.78	9.78	41	371241
Others										
Work Status										
Government/ Semi-government	8.52	5.84	12.28	30	186993	6.22	3.82	9.98	18	136446
Private	10.61	8.11	13.77	97	828703	5.73	4.09	7.97	56	447471
Self-employed	7.14	4.98	10.16	46	336644	8.75	6.26	12.09	58	412124
Unpaid worker	-	-	-	10	-	-	-	-	1	-
Not working	-	-	-	1	-	-	-	-	15	-
Retired	-	-	-	3	-	-	-	-		-
Student	-	-	-		-	-	-	-	3	
Others										
Income Group										
Less than RM1500	5.57	3.80	8.10	47	432236	4.80	3.49	6.56	57	372549
RM1500-RM3500	7.92	5.72	10.87	63	473663	7.57	5.42	10.48	54	452588
More than RM3500	11.66	9.18	14.70	79	572068	6.84	4.74	9.79	39	335715

Note :
- RSE more than 25%

Table 2.8c: Source of food for dinner by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	2	-	-	-	-	23	-
Zone										
Peninsular Malaysia	-	-	-	2	-	-	-	-	17	-
East Malaysia						-	-	-	6	-
Strata										
Urban	-	-	-	2	-	-	-	-	17	-
Rural						-	-	-	6	-
Sex										
Men						-	-	-	14	-
Women	-	-	-	2	-	-	-	-	9	-
Age Group										
18-19						-	-	-	2	-
20-29	-	-	-	2	-	-	-	-	8	-
30-39						-	-	-	4	-
40-49						-	-	-	7	-
50-59						-	-	-	2	-
Ethnic Group										
Malay	-	-	-	2	-	-	-	-	10	-
Chinese						-	-	-	4	-
Indian										
Bumiputera Sabah						-	-	-	1	-
Bumiputera Sarawak						-	-	-	4	-
Others						-	-	-	4	-
Other Bumis										
Marital Status										
Never married	-	-	-	2	-	-	-	-	6	-
Married/ Cohabiting						-	-	-	15	-
Divorced/ Separating						-	-	-	2	-
Widow										
Others										

Note :
- RSE more than 25%

Table 2.8c: Source of food for dinner by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal						-	-	-		-
Primary	-	-	-		-	-	-	-	6	-
Secondary	-	-	-	1	-	-	-	-	13	-
Tertiary	-	-	-	1	-	-	-	-	2	-
Others	-	-	-		-	-	-	-	1	-
Work Status										
Government/ Semi-government	-	-	-	1	-	-	-	-	4	-
Private	-	-	-	1	-	-	-	-	13	-
Self-employed						-	-	-	5	-
Unpaid worker										
Not working						-	-	-	1	-
Retired										
Student										
Others										
Income Group										
Less than RM1500	-	-	-	1	-	-	-	-	10	-
RM1500-RM3500	-	-	-	1	-	-	-	-	7	-
More than RM3500	-	-	-		-	-	-	-	6	-

Note :
- RSE more than 25%

Table 2.9a: Source of food for supper by socio-demographic characteristics

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	34.21	30.15	38.51	344	2115353	2.57	1.59	4.13	29	158794
Zone										
Peninsular Malaysia	29.94	25.46	34.84	187	1553206	-	-	-	10	-
East Malaysia	56.47	48.00	64.58	157	562147	-	-	-	19	-
Strata										
Urban	29.33	24.40	34.80	167	1329855	-	-	-	23	-
Rural	47.61	41.66	53.63	177	785498	-	-	-	6	-
Sex										
Men	33.05	27.95	38.57	194	1314897	-	-	-	15	-
Women	36.31	30.48	42.56	150	800456	-	-	-	14	-
Age Group										
18-19	24.99	14.84	38.90	21	141033	-	-	-	3	-
20-29	34.33	27.39	42.01	102	781313	-	-	-	9	-
30-39	37.88	30.48	45.90	110	570923	-	-	-	5	-
40-49	31.76	23.46	41.40	62	363340	-	-	-	9	-
50-59	37.39	26.37	49.89	49	258745	-	-	-	3	-
Ethnic Group										
Malay	32.81	27.77	38.29	178	1269670	-	-	-	13	-
Chinese	18.38	12.61	26.00	35	194441	-	-	-	8	-
Indian	-	-	-	11	-	-	-	-	-	-
Bumiputera Sabah	63.24	47.81	76.37	56	224743	-	-	-	2	-
Bumiputera Sarawak	79.48	56.31	92.09	36	126614	-	-	-	2	-
Others	56.00	35.45	74.68	24	197907	-	-	-	4	-
Other Bumis	-	-	-	4	-	-	-	-	-	-
Marital Status										
Never married	29.09	22.94	36.11	106	739506	-	-	-	12	-
Married/ Cohabiting	38.26	32.75	44.09	223	1300969	-	-	-	13	-
Divorced/ Separating	-	-	-	10	-	-	-	-	1	-
Widow	71.49	42.52	89.47	5	16101	-	-	-	3	-
Others	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 2.9a: Source of food for supper by socio-demographic characteristics (Cont.)

Characteristics	Home					Cafeteria				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	19	-	-	-	-		-
Primary	34.18	24.53	45.34	57	311041	-	-	-	4	-
Secondary	33.36	28.04	39.14	182	1164727	-	-	-	15	-
Tertiary	34.84	27.67	42.77	85	574729	-	-	-	10	-
Others										
Work Status										
Government/ Semi-government	42.31	31.08	54.40	40	247963	-	-	-	5	-
Private	32.03	26.43	38.20	126	884296	-	-	-	13	-
Self-employed	38.98	31.34	47.21	114	662480	-	-	-	5	-
Unpaid worker										
Not working	27.63	20.52	36.08	47	209720	-	-	-	4	-
Retired	-	-	-	2	-	-	-	-	1	-
Student	-	-	-	9	-	-	-	-	1	-
Others										
Income Group										
Less than RM1500	40.05	33.96	46.46	173	1018564	-	-	-	7	-
RM1500-RM3500	26.98	21.18	33.69	93	558279	-	-	-	16	-
More than RM3500	34.29	26.20	43.41	77	533876	-	-	-	6	-

Note :
- RSE more than 25%

Table 2.9b: Source of food for supper by socio-demographic characteristics

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**27.47**	**23.21**	**32.18**	**180**	**1698636**	**31.32**	**27.46**	**35.45**	**238**	**1936444**
Zone										
Peninsular Malaysia	29.87	24.93	35.33	143	1549802	34.11	29.65	38.87	197	1769740
East Malaysia	14.95	10.18	21.42	37	148833	16.75	11.29	24.13	41	166704
Strata										
Urban	32.84	27.35	38.84	134	1488899	30.41	25.69	35.59	134	1378757
Rural	12.71	8.38	18.82	46	209737	33.80	27.79	40.39	104	557687
Sex										
Men	27.70	22.61	33.45	109	1102184	33.41	28.34	38.89	146	1329434
Women	27.05	21.27	33.73	71	596451	27.53	22.28	33.49	92	607010
Age Group										
18-19	-	-	-	10	-	44.16	30.01	59.32	22	249231
20-29	25.78	19.24	33.63	54	586855	32.24	25.56	39.73	81	733767
30-39	34.23	26.63	42.73	65	515824	21.10	14.83	29.11	51	317993
40-49	26.71	18.68	36.63	33	305600	33.79	26.13	42.40	56	386587
50-59	22.85	13.94	35.13	18	158146	35.96	23.21	51.05	28	248866
Ethnic Group										
Malay	23.81	18.97	29.43	98	921254	37.25	32.05	42.76	173	1441184
Chinese	43.29	31.23	56.20	47	457917	29.98	21.16	40.58	41	317119
Indian	57.83	35.47	77.38	13	200431	-	-	-	3	-
Bumiputera Sabah	-	-	-	13	-	-	-	-	7	-
Bumiputera Sarawak	-	-	-	2	-	-	-	-	5	-
Others	-	-	-	6	-	-	-	-	7	-
Other Bumis	-	-	-	1	-	-	-	-	2	-
Marital Status										
Never married	30.29	23.34	38.27	71	769939	32.69	26.12	40.02	89	831078
Married/ Cohabiting	24.72	19.31	31.05	96	840503	30.93	26.25	36.03	138	1051725
Divorced/ Separating	-	-	-	13	-	-	-	-	11	-
Widow										
Others										

Note :
- RSE more than 25%

Table 2.9b: Source of food for supper by socio-demographic characteristics (Cont.)

Characteristics	Restaurant					Stall				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	1	-	-	-	-	3	329510
Primary	24.69	15.65	36.68	21	224655	36.21	27.07	46.47	37	1062637
Secondary	29.92	24.09	36.48	107	1044495	30.44	25.36	36.03	135	483660
Tertiary	25.75	19.08	33.79	51	424851	29.32	22.04	37.84	61	15617
Others	-	-	-			85.70	26.69	99.00	2	
Work Status										
Government/ Semi-government	-	-	-	17	-	34.31	22.81	48.00	28	201058
Private	33.07	26.18	40.77	87	913020	27.48	22.14	33.55	89	758652
Self-employed	21.23	15.49	28.40	43	360875	34.76	27.66	42.61	76	590702
Unpaid worker	-	-	-	2	-	-	-	-	2	-
Not working	29.13	19.12	41.69	25	221172	36.07	25.18	48.60	33	273780
Retired	-	-	-	2	-	-	-	-	2	-
Student	-	-	-	3	-	-	-	-	8	-
Others	-	-	-		-	-	-	-		-
Income Group										
Less than RM1500	19.75	14.52	26.30	59	502465	33.97	28.04	40.46	108	864041
RM1500-RM3500	31.33	23.74	40.06	64	648216	33.07	26.11	40.85	85	684178
More than RM3500	34.59	26.26	43.98	56	538584	24.93	17.37	34.42	45	388226

Note :
- RSE more than 25%

Table 2.9c: Source of food for supper by socio-demographic characteristics

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Malaysia	-	-	-	22	-	-	-	-	19	-
Zone										
Peninsular Malaysia	-	-	-	12	-	-	-	-	15	-
East Malaysia	-	-	-	10	-	-	-	-	4	-
Strata										
Urban	-	-	-	17	-	-	-	-	10	-
Rural	-	-	-	5	-	-	-	-	9	-
Sex										
Men	-	-	-	5	-	-	-	-	12	-
Women	-	-	-	17	-	-	-	-	7	-
Age Group										
18-19	-	-	-	3	-	-	-	-	2	-
20-29	-	-	-	11	-	-	-	-	5	-
30-39	-	-	-	6	-	-	-	-	6	-
40-49	-	-	-	1	-	-	-	-	7	-
50-59	-	-	-	1	-	-	-	-		-
Ethnic Group										
Malay	-	-	-	12	-	-	-	-	12	-
Chinese	-	-	-	7	-	-	-	-	2	-
Indian	-	-	-		-	-	-	-	2	-
BumiputeraSabah	-	-	-	1	-	-	-	-	2	-
BumiputeraSarawak	-	-	-	1	-	-	-	-		-
Others	-	-	-	1	-	-	-	-	1	-
Other Bumis										
Marital Status										
Never married	-	-	-	13	-	-	-	-	6	-
Married/ Cohabiting	-	-	-	8	-	-	-	-	12	-
Divorced/ Separating	-	-	-	1	-	-	-	-	1	-
Widow										
Others										

Note :
- RSE more than 25%

Table 2.9c: Source of food for supper by socio-demographic characteristics (Cont.)

Characteristics	Fast Food Outlets					Others				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-		-	-	-	-		-
Primary	-	-	-	12	-	-	-	-	5	-
Secondary	-	-	-	10	-	-	-	-	8	-
Tertiary						14.30	1.00	73.31	5	2605
Others						-	-	-	1	
Work Status										
Government/ Semi-government	-	-	-	2	-	-	-	-	2	-
Private	-	-	-	10	-	-	-	-	8	-
Self-employed	-	-	-	2	-	-	-	-	6	-
Unpaid worker										
Not working	-	-	-	3	-	-	-	-	3	-
Retired										
Student	-	-	-	4	-					
Others										
Income Group										
Less than RM1500	-	-	-	8	-	-	-	-	10	-
RM1500-RM3500	-	-	-	6	-	-	-	-	6	-
More than RM3500	-	-	-	8	-	-	-	-	3	-

Note :
- RSE more than 25%

Table 2.10a: Meal companion for breakfast by socio-demographic characteristics

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**28.28**	**25.68**	**31.03**	**755**	**5194598**	**44.01**	**41.38**	**46.67**	**1378**	**8085035**
Zone										
Peninsular Malaysia	30.28	27.08	33.69	506	4365215	40.10	36.96	43.32	749	5779779
East Malaysia	20.97	18.16	24.08	249	829383	58.27	54.37	62.08	629	2305256
Strata										
Urban	30.54	27.09	34.23	448	3922503	39.40	36.03	42.88	644	5060302
Rural	23.01	19.90	26.44	307	1272095	54.71	51.07	58.31	734	3024733
Sex										
Men	29.90	26.58	33.44	376	2827580	37.71	34.16	41.41	527	3566713
Women	26.56	23.33	30.05	379	2367018	50.69	47.14	54.23	851	4518322
Age Group										
18-19	25.88	17.16	37.04	33	263315	46.25	35.75	57.10	61	470684
20-29	27.29	5.86	8.69	157	1312104	35.83	8.07	10.88	268	1722854
30-39	27.75	23.58	32.35	195	1290698	42.01	38.11	46.01	374	1953629
40-49	28.53	23.80	33.78	200	1266912	48.57	43.48	53.69	366	2157044
50-59	30.75	25.90	36.05	170	1061570	51.58	46.31	56.81	309	1780824
Ethnic Group										
Malay	24.97	21.70	28.55	330	2484320	42.04	38.41	45.77	646	4183516
Chinese	38.64	33.27	44.30	176	1368101	44.05	39.53	48.68	222	1559760
Indian	26.98	17.32	39.46	37	343191	42.01	32.43	52.25	51	534351
Bumiputera Sabah	22.44	17.37	28.49	78	323458	58.35	51.93	64.50	212	840992
Bumiputera Sarawak	19.67	14.07	26.79	62	195935	62.58	54.01	70.43	174	623407
Others	40.83	31.83	50.51	64	441765	27.83	19.75	37.65	68	301040
Other Bumis	-	-	-	8	-	-	-	-	5	-
Marital Status										
Never married	34.33	29.44	39.57	237	1698765	32.46	27.62	37.71	240	1606453
Married/ Cohabiting	25.33	22.53	28.35	456	3188292	48.77	45.72	51.83	1061	6138842
Divorced/ Separating	38.05	28.67	48.42	46	221469	38.09	28.21	49.06	46	221685
Widow	-	-	-	14	-	45.47	29.16	62.80	29	104229
Others	-	-	-		-	100.00	100.00	100.00	1	9192

Note :
- RSE more than 25%

Table 2.10a: Meal companion for breakfast by socio-demographic characteristics (Cont.)

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	20.07	12.50	30.61	30	92557	68.99	56.61	79.15	85	318254
Primary	28.02	23.26	33.33	148	938967	50.88	45.19	56.55	337	1704967
Secondary	28.36	25.15	31.80	380	2568548	45.78	41.86	49.75	670	4146112
Tertiary	29.15	24.52	34.26	190	1565348	34.55	30.07	39.32	273	1855261
Others	-	-	-	3	-	-	-	-	8	-
						100.00	100.00	100.00	1	9192
Work Status										
Government/ Semi-government	16.52	11.83	22.59	61	364508	25.78	20.07	32.45	106	568852
Private	34.45	30.27	38.90	334	2633466	29.83	26.05	33.91	332	2280144
Self-employed	26.85	23.09	30.97	200	1234758	58.30	53.77	62.68	477	2680934
Unpaid worker	70.54	32.22	92.34	4	35427	-	-	-	1	-
Not working	24.05	19.72	28.99	126	710308	72.82	67.45	77.59	410	2150624
Retired	-	-	-	10	-	69.34	48.88	84.26	18	145118
Student	-	-	-	13	-	33.60	20.74	49.46	21	177471
Others										
Income Group										
Less than RM1500	27.14	23.84	30.71	348	2010865	52.07	47.77	56.34	743	3858585
RM1500-RM3500	27.61	23.62	31.99	223	1604411	43.93	39.58	48.38	388	2552731
More than RM3500	30.03	25.17	35.39	172	1492655	31.99	27.73	36.57	237	1589694

Note :
- RSE more than 25%

Table 2.10b: Meal companion for breakfast by socio-demographic characteristics

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**27.48**	**24.87**	**30.25**	**690**	**5048293**	-	-	-	**8**	-
Zone										
Peninsular Malaysia	29.43	26.21	32.87	480	4241923	-	-	-	3	-
East Malaysia	20.38	17.61	23.47	210	806370	-	-	-	5	-
Strata										
Urban	29.73	26.24	33.48	415	3818003	-	-	-	7	-
Rural	22.25	19.47	25.31	275	1230290	-	-	-	1	-
Sex										
Men	32.35	28.67	36.27	383	3059724	-	-	-	1	-
Women	22.31	19.35	25.58	307	1988568	-	-	-	7	-
Age Group										
18-19	27.87	17.90	40.64	24	283607	-	-	-		-
20-29	36.74	31.10	42.77	206	1766730	-	-	-	2	-
30-39	29.78	25.89	33.99	222	1385132	-	-	-	3	-
40-49	22.58	18.57	27.15	152	1002548	-	-	-	3	-
50-59	17.68	13.99	22.08	86	610275	-	-	-		-
Ethnic Group										
Malay	32.72	29.01	36.67	424	3256100	-	-	-	3	-
Chinese	17.23	13.01	22.46	82	610085	-	-	-	1	-
Indian	31.00	23.11	40.18	38	394312	-	-	-		-
BumiputeraSabah	19.21	14.84	24.49	71	276817	-	-	-		-
BumiputeraSarawak	17.75	12.53	24.54	40	176818	-	-	-		-
Others	30.07	19.89	42.68	33	325309	-	-	-	4	-
Other Bumis	-	-	-	2	-	-	-	-		-
Marital Status										
Never married	33.07	27.98	38.60	204	1636704	-	-	-	2	-
Married/ Cohabiting	25.70	22.93	28.67	446	3234474	-	-	-	3	-
Divorced/ Separating	23.06	14.88	33.96	26	134243	-	-	-	1	-
Widow	-	-	-	16	-	-	-	-	2	-
Others	-	-	-		-	-	-	-		-

Note :
- RSE more than 25%

Table 2.10b: Meal companion for breakfast by socio-demographic characteristics (Cont.)

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	9	-	-	-	-	1	-
Primary	20.78	16.35	26.03	101	696248	-	-	-	3	-
Secondary	25.73	22.34	29.43	312	2330243	-	-	-	2	-
Tertiary	35.95	30.99	41.24	261	1930630	-	-	-	2	-
Others	-	-	-	5	-					
Work Status										
Government/ Semi-government	57.07	49.61	64.23	195	1259498	-	-	-	1	-
Private	35.41	31.17	39.90	350	2706834	-	-	-	5	-
Self-employed	14.73	11.31	18.96	103	677417	-	-	-	2	-
Unpaid worker	-	-	-	3	-					
Not working	-	-	-	9	-					
Retired	-	-	-	1	-					
Student	42.84	26.60	60.79	20	226301					
Others										
Income Group										
Less than RM1500	20.60	17.48	24.11	225	1526605	-	-	-	4	-
RM1500-RM3500	28.25	23.96	32.98	226	1641634	-	-	-	2	-
More than RM3500	37.65	32.19	43.43	236	1870994	-	-	-	2	-

Note :
- RSE more than 25%

Table 2.11a: Meal companion for lunch by socio-demographic characteristics

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**20.8**	**18.7**	**23.0**	**595**	**3845779**	**44.7**	**42.0**	**47.5**	**1399**	**8277196**
Zone										
Peninsular Malaysia	21.60	19.06	24.38	369	3120849	42.67	39.39	46.02	817	6165546
East Malaysia	17.82	15.21	20.76	226	724930	51.91	47.77	56.02	582	2111649
Strata										
Urban	21.09	18.42	24.03	328	2720789	38.81	35.30	42.45	613	5007143
Rural	20.03	17.16	23.25	267	1124990	58.23	54.42	61.94	786	3270052
Sex										
Men	22.54	19.56	25.82	311	2167344	36.69	33.10	40.43	530	3528092
Women	18.86	16.47	21.51	284	1678435	53.36	49.74	56.95	869	4749104
Age Group										
18-19	17.46	10.77	27.05	27	188142	44.80	34.57	55.50	63	77224
20-29	18.91	15.08	23.45	118	954001	32.65	27.92	37.77	258	1647450
30-39	19.81	16.44	23.66	154	906699	44.88	40.48	49.36	382	2315892
40-49	24.07	19.58	29.21	171	1055503	50.23	44.77	55.68	383	2202669
50-59	21.62	17.53	26.35	125	741434	55.09	49.49	60.57	313	1889785
Ethnic Group										
Malay	17.61	14.91	20.69	245	1746331	47.51	43.75	51.30	731	4710841
Chinese	27.34	22.39	32.91	132	973322	36.05	31.31	41.07	187	1283576
Indian	-	-	-	24	-	44.96	34.79	55.56	56	583204
Bumiputera Sabah	17.71	13.67	22.63	68	264831	54.34	46.34	62.12	203	812523
Bumiputera Sarawak	17.60	12.30	24.54	56	179271	51.68	42.91	60.35	151	526417
Others	36.19	27.76	45.56	63	408686	28.47	20.23	38.45	65	321547
Other Bumis	-	-	-	7	-	-	-	-	6	-
Marital Status										
Never married	23.34	19.43	27.76	168	1205717	29.62	24.71	35.06	229	1530468
Married/ Cohabiting	19.02	16.69	21.59	372	2377829	50.68	47.39	53.98	1082	6336575
Divorced/ Separating	27.11	19.50	36.36	34	162736	50.39	39.56	61.18	59	302476
Widow	-	-	-	19	-	41.76	25.71	59.77	27	93850
Others						100.00	100.00	100.00	1	9192

Note :
- RSE more than 25%

Table 2.11a: Meal companion for lunch by socio-demographic characteristics (Cont.)

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	19.40	12.22	29.40	30	90163	70.59	60.40	79.06	86	328018
Primary	22.09	17.96	26.87	120	749061	53.39	47.53	59.16	347	1809965
Secondary	20.91	18.33	23.75	305	1919556	46.71	43.03	50.43	700	4288639
Tertiary	19.79	15.99	24.23	133	1057235	33.76	29.45	38.35	256	1803328
Others	-	-	-	3	-	-	-	-	7	-
Work Status										
Government/ Semi-government	10.02	6.58	14.95	41	214223	41.75	35.41	48.38	154	892962
Private	23.79	20.60	27.31	239	1835988	23.27	20.08	26.79	261	1795687
Self-employed	23.98	20.20	28.21	192	1110452	59.78	54.98	64.40	487	2768362
Unpaid worker	-	-	-	3	-	-	-	-	3	-
Not working	18.61	14.80	23.13	102	561267	77.80	72.50	82.33	436	2346684
Retired	-	-	-	5	-	89.73	75.77	96.07	22	182876
Student	-	-	-	7	-	30.10	17.86	46.02	21	177765
Others										
Income Group										
Less than RM1500	21.34	18.14	24.94	297	1617816	53.46	49.13	57.74	770	4052136
RM1500-RM3500	21.48	18.13	25.25	171	1257156	43.25	39.28	47.31	385	2531593
More than RM3500	18.44	14.78	22.78	120	895318	33.32	28.84	38.13	233	1617516

Note :
- RSE more than 25%

Table 2.11b: Meal companion for lunch by socio-demographic characteristics

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	34.29	31.81	36.85	835	6348572	-	-	-	8	-
Zone										
Peninsular Malaysia	35.51	32.52	38.61	528	5130683	-	-	-	4	-
East Malaysia	29.94	26.31	33.83	307	1217889	-	-	-	4	-
Strata										
Urban	39.76	36.49	43.13	564	5663013	-	-	-	7	-
Rural	21.70	18.81	24.91	271	1218781	-	-	-	1	-
Sex										
Men	40.63	36.97	44.40	471	3907522	-	-	-	2	-
Women	27.43	24.47	30.60	364	2441049	-	-	-	6	-
Age Group										
18-19	36.45	25.73	48.71	32	86115	-	-	-	1	-
20-29	48.36	42.59	54.17	273	2439873	-	-	-	1	-
30-39	35.16	30.86	39.71	253	1875518	-	-	-	2	-
40-49	25.50	21.34	30.17	161	1118406	-	-	-	3	-
50-59	22.97	18.83	27.72	116	788008	-	-	-	1	-
Ethnic Group										
Malay	34.86	31.09	38.82	404	3456166	-	-	-	1	-
Chinese	36.15	31.19	41.43	167	1287169	-	-	-	2	-
Indian	36.19	27.97	45.32	44	469554	-	-	-		-
Bumiputera Sabah	27.74	21.62	34.82	99	414796	-	-	-	1	-
Bumiputera Sarawak	30.72	23.14	39.50	75	424580	-	-	-		-
Others	33.27	22.99	45.43	42	375718	-	-	-	4	-
Other Bumis	-	-	-	4	-	-	-	-		-
Marital Status										
Never married	46.70	41.37	52.10	297	2412544	-	-	-	2	-
Married/ Cohabiting	30.15	27.51	32.92	503	3769019	-	-	-	4	-
Divorced/ Separating	21.73	14.13	31.89	25	130419	-	-	-	1	-
Widow	-	-	-	10	-	-	-	-	1	-
Others	-	-	-		-	-	-	-		-

Note :
- RSE more than 25%

Table 2.11b: Meal companion for lunch by socio-demographic characteristics (Cont.)

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	10.01	5.48	17.60	13	46521	-	-	-	2	-
Primary	24.29	19.87	29.33	118	823431	-	-	-	5	-
Secondary	32.02	28.71	35.53	365	2940118	-	-	-	1	-
Tertiary	46.37	41.83	50.96	327	2477146	-	-	-	-	-
Others	-	-	-	8	-					
Work Status										
Government/ Semi-government	48.23	41.46	55.07	162	1031443	-	-	-	4	-
Private	52.64	48.61	56.63	515	4061810	-	-	-	3	-
Self-employed	16.08	12.82	19.97	111	744451					
Unpaid worker	-	-	-	1	-					
Not working	-	-	-	9	-					
Retired	-	-	-	1	-					
Student	56.97	40.71	71.86	29	336497	-	-	-	1	-
Others										
Income Group										
Less than RM1500	24.87	21.46	28.61	256	1884781	-	-	-	5	-
RM1500-RM3500	35.21	31.23	39.42	290	2061002	-	-	-	1	-
More than RM3500	47.89	42.87	52.96	279	2324650	-	-	-	2	-

Note :
- RSE more than 25%

Table 2.12a: Meal companion for dinner by socio-demographic characteristics

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**12.15**	**10.46**	**14.07**	**372**	**2297830**	**79.73**	**77.17**	**82.08**	**2322**	**15077775**
Zone										
Peninsular Malaysia	12.72	10.65	15.12	240	1880803	78.56	75.39	81.43	1386	11616707
East Malaysia	10.11	8.19	12.43	132	417026	83.92	80.75	86.66	936	3461068
Strata										
Urban	12.05	9.88	14.63	202	1582612	78.73	75.29	81.81	1206	10338114
Rural	12.37	10.16	14.99	170	715218	82.00	78.74	84.86	1116	4739661
Sex										
Men	13.87	11.42	16.73	198	1371317	74.93	71.29	78.25	1010	7411099
Women	10.27	8.52	12.33	174	926512	85.00	82.21	87.41	1312	7666676
Age Group										
18-19	16.67	10.29	25.87	23	183227	70.65	58.95	80.14	93	776640
20-29	14.37	10.90	18.73	94	742175	69.58	64.05	74.59	474	3592235
30-39	9.26	7.18	11.85	84	428180	84.74	81.63	87.41	669	3919520
40-49	10.42	7.65	14.02	76	465321	86.21	82.68	89.11	630	3850986
50-59	13.47	10.39	17.29	95	478926	82.64	78.51	86.11	456	2938394
Ethnic Group										
Malay	11.58	9.35	14.26	172	1170409	79.83	76.52	82.78	1136	8065952
Chinese	9.74	7.18	13.10	59	366059	83.05	78.34	86.90	417	3119618
Indian	-	-	-	17	-	83.31	71.76	90.75	98	1050081
Bumiputera Sabah	10.18	6.90	14.76	39	152893	86.08	81.08	89.92	321	1293199
Bumiputera Sarawak	9.10	6.21	13.13	36	93900	85.58	80.63	89.43	232	883511
Others	32.34	22.67	43.80	47	375007	49.77	38.16	61.40	105	577040
Other Bumis	-	-	-	2	-	92.05	77.69	97.47	13	88374
Marital Status										
Never married	19.86	16.03	24.33	154	1048238	62.80	56.98	68.27	445	3315186
Married/ Cohabiting	8.33	6.79	10.19	172	1064168	87.38	85.04	89.40	1750	11164577
Divorced/ Separating	23.40	16.21	32.54	31	140942	65.19	54.66	74.42	79	392612
Widow	-	-	-	14	-	80.18	64.94	89.83	45	183765
Others	100.00	100.00	100.00	1	9192					

Note :
- RSE more than 25%

Table 2.12a: Meal companion for dinner by socio-demographic characteristics (Cont.)

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	9.88	6.04	15.75	18	48207	89.17	82.95	93.31	110	435234
Primary	12.03	9.03	15.83	70	423250	81.20	76.23	85.33	500	2857892
Secondary	11.83	9.74	14.28	188	1104483	80.52	77.41	83.30	1120	7520663
Tertiary	12.67	9.87	16.11	89	687848	77.16	72.71	81.07	577	4190371
Others	-	-	-	4	-	58.41	31.97	80.76	10	47789
Work Status										
Government/ Semi-government	5.34	3.43	8.22	29	117165	85.11	80.21	88.97	307	1867199
Private	15.38	12.42	18.88	162	1201031	73.38	69.04	77.31	765	5731313
Self-employed	12.88	10.11	16.27	110	611308	82.60	78.51	86.05	662	3920417
Unpaid worker	-	-	-	2	-	-	-	-	4	-
Not working	7.46	5.38	10.28	51	232103	90.83	87.66	93.24	500	2824048
Retired	-	-	-	6	-	86.06	71.44	93.84	22	180097
Student	16.40	7.86	31.09	10	99005	65.40	47.89	79.54	40	394765
Others										
Income Group										
Less than RM1500	14.43	11.56	17.87	202	1117176	77.13	72.84	80.93	1070	5969851
RM1500-RM3500	11.56	9.10	14.58	102	697610	80.10	76.21	83.49	689	4834203
More than RM3500	9.36	6.91	12.58	63	459392	82.94	78.62	86.54	541	4069098

Note :
- RSE more than 25%

Table 2.12b: Meal companion for dinner by socio-demographic characteristics

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**8.01**	**6.53**	**9.80**	**191**	**1515059**	-	-	-	5	-
Zone										
Peninsular Malaysia	8.65	6.84	10.87	133	1278759	-	-	-	2	-
East Malaysia	5.73	4.04	8.07	58	236301	-	-	-	3	-
Strata										
Urban	9.06	7.10	11.50	124	1189955	-	-	-	5	-
Rural	5.62	4.03	7.79	67	325104					
Sex										
Men	11.12	8.85	13.87	131	1099328	-	-	-	2	-
Women	4.61	3.17	6.65	60	415732	-	-	-	3	-
Age Group										
18-19	-	-	-	11	-					
20-29	15.97	12.29	20.51	92	824784	-	-	-	1	-
30-39	5.85	4.11	8.25	44	270388	-	-	-	2	-
40-49	3.18	2.02	4.98	26	142111	-	-	-	2	-
50-59	-	-	-	18	-					
Ethnic Group										
Malay	7.06	4.48	10.96	97	866998					
Chinese	-	-	-	32	265322	-	-	-	1	-
Indian	-	-	-	9	-					
Bumiputera Sabah	-	-	-	13	-	-	-	-	1	-
Bumiputera Sarawak	-	-	-	15	-	-	-	-	1	-
Others	17.15	10.39	26.98	25	198833	-	-	-	2	-
Other Bumis										
Marital Status										
Never married	17.17	13.16	22.09	107	906241	-	-	-	2	-
Married/ Cohabiting	4.25	3.11	5.77	70	542522	-	-	-	2	-
Divorced/ Separating	-	-	-	13	-	-	-	-	1	-
Widow	-	-	-	1	-					
Others	-	-	-		-					

Note :
- RSE more than 25%

Table 2.12b: Meal companion for dinner by socio-demographic characteristics (Cont.)

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	1	-					
Primary	6.59	4.26	10.07	32	231962	-	-	-	2	-
Secondary	7.62	5.85	9.87	90	96736	-	-	-	1	-
Tertiary	9.99	7.05	13.96	62	542428	-	-	-	2	-
Others	-	-	-	3	-					
Work Status										
Government/ Semi-government	9.55	6.47	13.86	30	209406					
Private	11.03	8.52	14.17	104	861401	-	-	-	4	-
Self-employed	-	-	-	32	-	-	-	-	1	-
Unpaid worker	-	-	-	2	-					
Not working	-	-	-	8	-					
Retired	-	-	-	1	-					
Student	-	-	-	9	-					
Others	-	-	-		-					
Income Group										
Less than RM1500	8.29	6.12	11.13	80	641459	-	-	-	3	-
RM1500-RM3500	8.29	6.11	11.16	67	500367	-	-	-	1	-
More than RM3500	7.58	5.18	10.96	43	371930	-	-	-	1	-

Note :
- RSE more than 25%

Table 2.13a: Meal companion for supper by socio-demographic characteristics

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	26.64	22.97	30.66	235	1642854	44.47	39.97	49.06	385	2742496
Zone										
Peninsular Malaysia	24.42	20.30	29.08	138	1263114	45.21	40.01	50.53	266	2338343
East Malaysia	38.15	31.69	45.06	97	379740	40.60	34.13	47.41	119	404153
Strata										
Urban	24.04	19.66	29.03	126	1085813	45.13	39.47	50.91	223	2038600
Rural	33.76	27.48	40.68	109	557041	42.66	36.26	49.32	162	703897
Sex										
Men	29.02	24.39	34.13	156	1149996	32.38	27.32	37.90	155	1283221
Women	22.36	17.01	28.80	79	492859	66.19	59.80	72.04	230	1459275
Age Group										
18-19	30.18	18.89	44.52	23	170334	-	-	-	16	-
20-29	28.02	22.39	34.45	74	630175	37.95	31.19	45.23	104	853479
30-39	-	-	-	64	-	48.72	40.52	57.00	126	734294
40-49	24.65	17.12	34.14	45	284791	49.53	39.17	59.93	79	572127
50-59	25.92	17.09	37.26	29	179365	64.38	53.50	73.96	60	445575
Ethnic Group										
Malay	28.36	23.66	33.58	136	1092612	45.46	39.52	51.53	230	1751427
Chinese	16.52	10.81	24.41	29	174728	41.99	32.62	51.99	59	444216
Indian	-	-	-	5	-	59.01	41.12	74.80	17	204529
Bumiputera Sabah	32.30	20.64	46.68	25	114797	36.71	25.79	49.18	38	130448
Bumiputera Sarawak	54.03	39.67	67.76	25	86074	33.93	22.74	47.25	16	54044
Others	-	-	-	12	-	40.86	23.38	61.00	22	144398
Other Bumis	-	-	-	3	-	-	-	-	3	-
Marital Status										
Never married	32.70	26.39	39.71	107	831287	26.20	19.71	33.92	77	666100
Married/ Cohabiting	22.46	18.57	26.90	116	760160	59.05	53.41	64.45	294	1998276
Divorced/ Separating	-	-	-	9	-	-	-	-	11	-
Widow	-	-	-	3	-	-	-	-	3	-
Others	-	-	-		-	-	-	-		-

Note :
- RSE more than 25%

Table 2.13a: Meal companion for supper by socio-demographic characteristics (Cont.)

Characteristics	Alone					Family				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	11	-	-	-	-	10	-
Primary	28.44	20.05	38.64	41	258791	47.69	35.46	60.21	62	434002
Secondary	25.98	20.84	31.88	122	907062	46.38	40.55	52.31	216	1619311
Tertiary	25.64	19.22	33.31	59	418702	39.65	32.31	47.48	96	647516
Others	51.42	31.70	70.71	1	9370	-	-	-	1	-
Work Status										
Government/ Semi-government	22.86	14.62	33.90	22	136447	53.75	40.09	66.86	52	320857
Private	27.53	22.00	33.85	96	752687	33.32	26.94	40.38	121	911033
Self-employed	26.41	20.44	33.40	71	448871	48.73	39.84	57.70	119	828148
Unpaid worker									2	-
Not working	25.50	15.14	39.65	33	193581	69.62	55.63	80.72	75	528474
Retired	-	-	-	3	-	-	-	-	3	-
Student	-	-	-	8	-	-	-	-		-
Others	-	-	-		-	-	-	-	9	-
Income Group										
Less than RM1500	33.85	28.29	39.89	122	861028	40.44	33.86	47.39	165	1028684
RM1500-RM3500	24.08	18.29	31.00	70	498148	44.83	37.14	52.78	123	927623
More than RM3500	18.11	12.45	25.59	42	279045	51.03	42.02	59.98	97	786190

Note :
- RSE more than 25%

Table 2.13b: Meal companion for supper by socio-demographic characteristics

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Malaysia	**28.67**	**24.81**	**32.86**	**210**	**1768041**	-	-	-	**2**	-
Zone										
Peninsular Malaysia	30.10	25.61	35.00	158	1556502	-	-	-	2	-
East Malaysia	21.25	16.55	26.86	52	211540	-	-	-		-
Strata										
Urban	30.53	25.64	35.90	134	1379048	-	-	-	2	-
Rural	23.58	18.56	29.46	76	388993	-	-	-		-
Sex										
Men	38.60	33.28	44.20	170	1529387	-	-	-		-
Women	10.82	7.73	14.97	40	238654	-	-	-	2	-
Age Group										
18-19	45.55	31.11	60.77	22	257067	-	-	-		-
20-29	33.61	26.80	41.17	81	755746	-	-	-	1	-
30-39	-	-	-	52	-	-	-	-	1	-
40-49	25.82	18.62	34.62	45	298206	-	-	-		-
50-59	-	-	-	10	-					
Ethnic Group										
Malay	26.18	21.57	31.39	120	1008846	-	-	-		-
Chinese	40.61	30.95	51.06	51	429609	-	-	-	1	-
Indian	-	-	-	7	-					
Bumiputera Sabah	30.99	20.04	44.59	18	110123	-	-	-		-
Bumiputera Sarawak	-	-	-	5	-					
Others	-	-	-	1	-	-	-	-	1	-
Other Bumis	-	-	-	1	-					
Marital Status										
Never married	41.10	34.31	48.25	113	1044910	-	-	-		-
Married/ Cohabiting	18.22	13.96	23.42	79	616569	-	-	-	1	-
Divorced/ Separating	46.77	27.47	67.09	16	102049	-	-	-	1	-
Widow	-	-	-	2	-					
Others	-	-	-		-					

Note :
- RSE more than 25%

Table 2.13b: Meal companion for supper by socio-demographic characteristics (Cont.)

Characteristics	Friends					Others				
	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population	Proportion (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated Population
Educational Level										
Non-formal	-	-	-	2	-					
Primary	23.87	14.34	37.01	21	217254					
Secondary	27.37	22.47	32.89	120	955671	-	-	-	1	-
Tertiary	34.43	26.88	42.86	66	562350	-	-	-	1	-
Others	34.28	22.10	48.97	1	6247					
Work Status										
Government/ Semi-government	23.40	14.65	35.20	21	139673					
Private	38.63	32.68	44.95	113	1056220	-	-	-	2	-
Self-employed	24.86	18.14	33.06	56	422425					
Unpaid worker	-	-	-	2	-					
Not working	-	-	-	7	-					
Retired	-	-	-	1	-					
Student	-	-	-	8	-					
Others	-	-	-		-					
Income Group										
Less than RM1500	25.16	19.79	31.42	76	639920	-	-	-	2	-
RM1500-RM3500	31.09	24.13	39.03	77	643326					
More than RM3500	30.86	23.00	40.01	56	475424					

Note :
- RSE more than 25%

TOPIC 3

FOOD INTAKE BY FOOD GROUP

3.   FOOD INTAKE BY FOOD GROUP

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3.1   Findings

3.1.1 Frequency of confectionery intake

The intake for confectionery was carried out on all respondents aged 18 years and above using an interview questionnaire. A total of 2169 subjects responded to the confectionery intake questionnaire, based on how many days they took confectionery during the past one week. The mean frequency of intake for confectionery among adults of 18 years and above in this survey was 2.91 days per week (95% CI: 2.80 – 3.02) **(Table 3.1)**.

There was a no significant difference in intake between Peninsular Malaysian and East Malaysia, where adults in Peninsular Malaysia had a lower mean frequency of intake [2.89 days per week (95% CI: 2.76 – 3.03)] compared to East Malaysia [2.95 days per week (95% CI: 2.78 – 3.12)] **(Table 3.1)**.

The mean frequency of intake in the rural areas was 3.08 days per week (95% CI: 2.90 – 3.26) while in urban areas it was 2.82 days per week (95% CI: 2.68 – 2.97), and the difference was not statistically significant **(Table 3.1)**.

3.1.2 Mean serving size of confectionery intake

Subjects in this survey who took confectionery during the previous week were asked about the number of servings of confectionery they took in each day. The mean serving size of confectionery among adults of 18 years and above in this survey was 1.79 (95% CI: 1.72 – 1.86) servings per day **(Table 3.2)**.

There was a no significant difference between Peninsular Malaysian and East Malaysia, where adults in Peninsular Malaysia had a mean serving size of 1.74 (95% CI: 1.66 – 1.83) and adults in East Malaysia had a mean serving size of 1.93 (95% CI: 1.83 – 2.03) of confectionery intake **(Table 3.2)**.

The mean serving in the rural areas was 1.82 (95% CI: 1.73 – 1.90) while in urban areas\ was 1.77 (95% CI: 1.68 – 1.87), and the difference was not statistically significant **(Table 3.2)**.

3.1.3 Frequency of fruits intake

The intake for fruit was asked to all respondents of 18 years old and above. Fruits included 100 percent pure fruit juice. A total of 2477 subjects responded to the fruit intake questionnaire, based on how many days they took fruits during the past one week. The mean frequency of intake for fruits among adults of 18 years and above in this survey was 3.70 days per week (95% CI: 3.58 – 3.81) **(Table 3.3)**.

There was a significant difference in fruits intake between Peninsular Malaysia and East Malaysia, where adults in Peninsular Malaysia had a higher mean frequency of fruit intake [3.79 days per week (95% CI: 3.65 – 3.93)] compared to East Malaysia [3.28 days per week (95% CI: 3.14 – 3.43)] **(Table 3.3)**.

The mean was slightly higher in the urban areas at 3.85 days per week (95% CI: 3.69 – 4.00) compared to rural areas at 3.33 days per week (95% CI: 3.19 – 3.46), and the difference was statistically significant **(Table 3.3)**.

3.1.4 Mean serving size of fruits intake

Subjects in this survey who took fruits during the previous week were asked about the number of servings of fruits they took in each day. The mean serving size of fruits among adults of 18 years and above in this survey was 1.40 (95% CI: 1.35 – 1.44) servings per day **(Table 3.4)**.

There was a significant difference between Peninsular Malaysia and East Malaysia. Mean serving of fruits for adults in Peninsular Malaysia [1.33 (95% CI: 1.28 – 1.38)] was lower than East Malaysia [1.66 (95% CI: 1.56 – 1.76)] **(Table 3.4)**.

Mean serving size of fruits intake between urban and rural areas showed a significant difference, where mean serving size of fruits among adults in urban areas [1.36 (95% CI: 1.30 – 1.41)] was lower compared to adults in rural areas [1.49 (95% CI: 1.42 – 1.56)] **(Table 3.4)**.

3.1.5 Adequacy of fruits intake

In this survey, respondents were asked how many days in a week during the previous week they took fruits as well as the number of servings each time. Adequate frequency of intake means they had been eating fruits for at least seven days during the previous week. Adequate number of servings of fruits is two per day **(Table 3.3)**.

For all Malaysians the intake of fruits is below the frequency that has been recommended in the Malaysian Dietary Guidelines 2010 (3.7 versus 7.0 days per week). The frequency for Peninsular Malaysia was significantly higher compared to East Malaysia (3.79 versus 3.28 days per week). However both intakes were below the recommended frequency. Urban subjects took fruits significantly more frequently than rural subjects (3.85 versus 3.33 days per week). However both intakes were below the recommended frequency **(Table 3.3)**.

Malaysian adults took less serving of fruits per day than recommended in the Malaysia Dietary Guidelines 2010 (1.40 versus 2.00). Adults in Peninsular Malaysia and in urban areas had lower mean serving size of fruits compared to adults in East Malaysia and in rural areas. However, the mean serving sizes for all strata were below the recomended level **(Table 3.4)**.

3.1.6 Frequency of vegetables intake

The intake for vegetables was asked to all respondents of 18 years old and above. A total of 2888 subjects responded to the vegetable intake questionnaire, based on how many days they took vegetables during the past one week. The mean frequency of intake for vegetables among adults of 18 years and above in this survey was 5.90 days per week (95% CI: 5.82– 5.99) **(Table 3.5)**.

There was no significant difference in intake of vegetables between adults in Peninsular Malaysia and in East Malaysia, where adults in Peninsular Malaysia had a mean frequency of 5.88 days per week (95% CI: 5.78 – 5.99) whilst adults in East Malaysia had a mean frequency of 5.98 days per week (95% CI: 5.84 – 6.11) **(Table 3.5)**.

The mean frequency of intake for vegetables in urban areas was 6.00 days per week (95% CI: 5.90 – 6.11), which was slightly higher compared to intake in rural areas at 5.68 days per week (95% CI: 5.55 – 5.82), and the difference was statistically significant **(Table 3.5)**.

3.1.7 Mean serving size of vegetables intake

Subjects in this survey who took vegetables during the previous week were asked about the number of servings of vegetables they took in each day. The mean serving size of vegetables among adults of 18 years and above in this survey was 1.51 (95% CI: 1.45 – 1.57) servings per day **(Table 3.6)**.

The mean serving size for vegetables was lower in Peninsular Malaysia at 1.43 (95% CI: 1.37 – 1.50) compared to East Malaysia at 1.80 (95% CI: 1.66 – 1.93), and the difference was statistically significant **(Table 3.6)**.

There was no significant difference in the mean serving size between adults in urban and rural areas. The mean serving size for vegetables in urban and rural areas were 1.48 (95% CI: 1.41 – 1.55) and 1.59 (95% CI: 1.49 – 1.68) respectively **(Table 3.6)**.

3.1.8 Adequacy of vegetables intake

In this survey, respondents were asked how many days in a week during the previous week they took vegetables as well as the number of servings each day. According to the recommendations in the Malaysian Dietary Guidelines 2010, adequate frequency of intake of vegetables means they had vegetables on at least seven days during the previous week. Adequate number of servings of vegetables is three serving per day.

For all Malaysians, the intake of vegetables is below the recommended frequency (5.9 versus 7.0 days per week). The frequency of intake for Peninsular Malaysia was lower compared to East Malaysia (5.88 versus 5.98 days per week), but there was no significant difference between them. However both intakes were below the recommended frequency. Urban subjects took vegetables significantly more frequently than rural subjects (6.00 versus 5.68 days per week). However both intakes were below the recommended frequency **(Table 3.5)**.

The mean serving size of vegetables among Malaysian adults was lower than the recommended level (1.51 versus 3.00). The mean serving size in East Malaysia was higher compared to Peninsular Malaysia but both were below the recommendations. Mean serving size of vegetables in urban and rural areas was also below the recommended level **(Table 3.6)**.

3.1.9 Frequency of water intake

The questions on intake for water were asked to all respondents of 18 years old and above. A total of 2979 subjects responded to the water intake questionnaire, based on how many days they took water during the past one week. The mean frequency of intake for water among adults of 18 years and above in this survey was 6.94 days per week (95% CI: 6.91 – 6.96) **(Table 3.7)**.

The water intake between adults in Peninsular Malaysia and adults in East Malaysia showed no significant difference. The mean frequency of water intake was 6.93 days per week (95% CI: 6.90 – 6.96) in Peninsular Malaysia and 6.95 days per week (95% CI: 6.92 – 6.99) in East Malaysia **(Table 3.7)**.

There was no significant difference between urban and rural areas, where adults in urban areas had water on 6.95 days per week (95% CI: 6.92 – 6.97) while adults in rural areas had water on 6.91 days per week (95% CI: 6.88 – 6.95) **(Table 3.7)**.

3.1.10 Mean serving size of water intake

Subjects in this survey who took water during the previous week were asked about the number of servings of water they took in each day. The mean serving size of water among adults of 18 years and above in this survey was 7.01 (95% CI: 6.72 – 7.29) servings per day **(Table 3.8)**.

Mean serving size of water intake in Peninsular Malaysia and East Malaysia showed no significant difference. In Peninsular Malaysia, the mean serving size of water intake was 6.86 servings (95% CI: 6.51 – 7.20) whereas in East Malaysia was 7.56 (95% CI: 7.16 – 7.97) **(Table 3.8)**.

The mean serving size was higher in the urban areas at 7.30 (95% CI: 6.91 – 7.68) compared to rural areas at 6.35 (95% CI: 6.01 – 6.70), and the difference was statistically significant **(Table 3.8)**.

3.1.11 Adequacy of water intake

In this survey, respondents were asked how many days in a week during the previous week they drank plain water as well as the number of servings in each day. Adequate intake of water means they had water on at least seven days during the previous week. Adequate number of servings of water is six to eight glasses per day.

The frequency of water intake among Malaysian adults was slightly lower than recommended in the Malaysian Dietary Guidelines 2010 (6.94 days versus 7.00 days). Frequency of water intake in Peninsular Malaysia, East Malaysia, urban and rural areas were slightly lower than recommended levels.

Mean serving size of water intake in a day among adults in Malaysia followed the Malaysian Dietary Guidelines. In Peninsular Malaysia and East Malaysia, they drank water daily as recommended in the guidelines. The mean serving size in urban areas was higher compared rural areas and both met the recommended levels.

3.2 Implications

3.2.1 Fruits and vegetables intake

Fruits and vegetables are rich sources of minerals and vitamins including potassium, fiber, folate (folic acid), and vitamin A, E, and C. These nutrients are vital for health, maintenance of the body and prevention of certain diseases.

Many epidemiological studies have shown a strong association between eating fruits and vegetables and they are protective against cancer. The latest report by the World Cancer Research Fund and the American Institute for Cancer Research has indicated that there is a possible decreased risk of certain types of cancer by eating fruits and vegetables[1]. Non-starchy vegetables such as lettuce, green leafy vegetables, broccoli, Chinese cabbage, cabbage, garlic and onions probably protect against cancer of the mouth, pharynx, larynx, oesophagus, and stomach. Fruits also probably protect against lung cancer besides those cancers mentioned above. Tomatoes may help protect men against prostate cancer[2].

The Nurses' Health Study and Health Professionals follow-up study[3] showed strong evidence that a diet rich in fruits and vegetables can lower the risk of heart disease and stroke. Eating 5 serving of fruits and vegetables per day can lower the risk of coronary heart diseases and stroke by 20 percent, compared to eating less than 3 serving per day[4,5].

Eating fruits and vegetables that are rich in potassium as part of an overall healthy diet may lower blood pressure, and may also reduce the risk of developing kidney stones and help decrease bone loss. Recent studies have shown that consumption of whole fruits, green leafy vegetables are associated with a lower risk of diabetes. Fruits and vegetables are also important for maintenance of gastrointestinal health. The indigestible fiber in fruits and vegetables reduce symptoms of irritable bowel syndrome[6]. Insoluble fiber may help prevent diverticulosis[7]. Eating fruits and vegetable can keep our eyes healthy and may help prevent cataract and macular degeneration[8].

In this survey Malaysian adults on average do not consume enough fruits and vegetable in terms of the frequency and amount. This implies that certain proportions of the population do not benefit from the protective effects of fruits and vegetables against cancer, coronary heart disease, diabetes, high blood pressure, diverticulosis, constipation, cataract and macular degeneration. Promoting the intake of fruits and vegetables according to the recommendations for all Malaysians may help to reduce the increasing prevalence of non-communicable diseases, including type 2 diabetes, cardiovascular disease and cancer among Malaysian adults. This Malaysians will be able to maintain good health status and well being.

3.2.2 Water intake

Our body is composed of about 60 percent water. It is the principal chemical constituent of the human body. The functions of these bodily fluids include digestion, absorption, circulation, creation of saliva, transportation of nutrients, and maintenance of body temperature.

Water is therefore essential for maintenance of health. The following are benefits of adequate water intake:- water can help control calories by substituting it for higher calorie drinks. In a systematic review on the impact of energy intake and health status found that adults drinking sugar-sweetened beverages (SSBs) had a 7.8 percent higher total energy

intake than those who drank plain water[9]. Water helps to energize muscles. Muscle that do not have enough fluids do not function well that can affect performance, 'Water helps keep the skin looking good', dehydration makes our skin look dry and wrinkled, this can be improved by drinking more water, 'Water helps the kidneys to function efficiently. When our body is not getting enough fluids, our urine is concentrated and becomes dark yellow in color. This is because the kidneys trap extra fluid for other bodily functions. People who consistently drink too little, maybe at a higher risk for kidney stones, especially in warm climates such as Malaysia. Water helps to maintain normal bowel functions. If the body is well hydrated, the gastrointestinal tract flows well and this can prevent constipation.

In this survey, adult Malaysians drink enough water daily as recommended in the Malaysian Dietary Guidelines. This is a good habit that should be maintained for the well being of all Malaysians.

3.3   Conclusions

3.3.1 Fruits and vegetables

The findings of this survey showed that Malaysian adults do not meet the recommended intake of fruits and vegetables in terms of its amount and frequency. There were significant differences in the frequency of intake and the amount eaten between Peninsular Malaysia and East Malaysia, and between urban and rural adults.

3.3.2 Water

The findings of this survey showed that Malaysian adults meet the recommended intake of plain water in terms of its amount and frequency. There were no differences in intake between adults in Peninsular Malaysia and East Malaysia as well as between adults in urban and rural areas.

3.4   Recommendations

Knowledge on the health benefits of eating fruits and vegetables is an important factor to encourage Malaysians eating more fruits and vegetables daily as part of their healthy diet. This habit can be developed from childhood. Therefore, promotion and education on eating fruits and vegetables should be given to all Malaysians at all ages, from children, adolescents, and adults. Schools should have programs and activities to encourage children to eat fruits and vegetables, during recess and lunch times.

The cafeterias at workplace should offer fruits and vegetables as an essential part of their menu. These activities create awareness and provide easy access to fruits and vegetables. The "Durian Festival" appears to gain popularity among Malaysians. This activity should also expand to other local fruits such as rambutan, mangoesteen, jackfruit and cempedak. It will encourage children as well as adults to appreciate the local fruits.

Since Malaysian adults are drinking adequate amount of plain water daily, this healthy habit should be acknowledged and conveyed to the population. In order for Malaysians to continue this practice, the massages from the Malaysian Dietary Guideline "Drink six to eight glasses of plain water daily" and the massages on "How to achieve this" should be

part of a continuous education program to the population.

3.5 References

1. Chapter 12: World Cancer Research Fund/ American Institute for Cancer Research. Food,Nutrition, Physical Activity, and the Prevention of cancer: a Global Perspective. Washington, DC: AICR, 2007.

2. Giovannucci, Edward, Yan Liu, Elizabeth A. Platz, Meir J. Stampfer, and Walter C. Willett."Risk factors for prostate cancer incidence and progression in the health professionals follow-up study." International Journal of Cancer 121, no. 7 (2007): 1571 1578.

3. Hung, Hsin-Chia, Kaumudi J. Joshipura, Rui Jiang, Frank B. Hu, David Hunter, Stephanie A. Smith-Warner, Graham A. Colditz, Bernard Rosner, Donna Spiegelman, and Walter C. Willett. "Fruit and vegetable intake and risk of major chronic disease." Journal of the National Cancer Institute 96, no. 21 (2004): 1577-1584.

4. He, F. J., C. A. Nowson, M. Lucas, and G. A. MacGregor. "Increased consumption of fruit and vegetables is related to a reduced risk of coronary heart disease: meta-analysis of cohort studies." Journal of human hypertension 21, no. 9 (2007): 717-728.

5. He, Feng J., Caryl A. Nowson, and Graham A. MacGregor. "Fruit and vegetable consumption and stroke: meta-analysis of cohort studies." The Lancet 367, no. 9507 (2006): 320-326.

6. Lembo, Anthony, and Michael Camilleri. "Chronic constipation." New England Journal of Medicine 349, no. 14 (2003): 1360-1368.

7. Aldoori, Walid H., Edward L. Giovannucci, Helaine R. H. Rockett, Laura Sampson, Eric B. Rimm, and Walter C. Willett. "A prospective study of dietary fiber types and symptomatic diverticular disease in men." The Journal of nutrition 128, no. 4 (1998): 714-719.

8. Christen, William G., Simin Liu, Robert J. Glynn, J. Michael Gaziano, and Julie E. Buring. "Dietary carotenoids, vitamins C and E, and risk of cataract in women: a prospective study." Archives of ophthalmology 126, no. 1 (2008): 102-109.

9. Daniels MC et al   Daniels, Melissa C., and Barry M. Popkin. "Impact of water intake on energy intake and weight status: a systematic review." Nutrition reviews 68, no. 9 (2010): 505-521.

Definition of variables: Food intake by food group.

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C201_new	C301_new	Final_weight	The frequency of respondent taking confectionary in a week. (e.g local cakes, cakes,ice -cream, ABC, jelly snakc)	RECODE C201 (-9=0) (-7=0) (1 thru 6=1) INTO C201_NEW EXECUTE. 0 = No 1 = Yes
C202	C202	Final_weight	Serving intake of confectionery of the respondents .	-6 = Missing -7 = Don't know -8 = Not applicable -9 = Refuse to answer
C203_new	C203_new	Final_weight	The frequency of respondent taking fruits in a week.	RECODE C203 (-9=0) (-7=0) (-6=0) (1 thru 7 =1) INTO C203_new. EXE CUTE. 0 = No 1 = Yes
C204	C204	Final_weight	Serving intake of fruits of the respondents .	-6 = Missing -7 = Don't know -8 = Did not eat fruits -9 = Refuse to answer
C205_new	C205_new	Final_weight	The frequency of respondent taking vegetables in a week.	RECODE C205 (-9=0) (-7=0) (-6=0) (1 thru 7 =1) INTO C203_new. EXECUTE. 0 = No 1 = Yes
C206	C206	Final_weight	Serving intake of vegetables / salads	-6 = Missing -7 = Don't know -8 = Not applicable -9 = Refuse to answer

Definition of variables: Food intake by food group (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C207	C207	Final_weight	The frequency of respondent drinking plain water in a week.	-6 = Missing -7 = Don't know -9 = Refuse to answer
C208	C208	Final_weight	Serving intake (glass) of plain water in a day	-6 = Missing -7 = Don't know -8 = Not apllicable -9 = Refuse to answer

Table 3.1: Confectionery intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2169**	**13856804**	**2.91**	**2.80**	**3.02**	**954**	**6951942**	**2.86**	**2.70**	**3.02**	**1215**	**6904863**	**2.95**	**2.82**	**3.09**
Zone															
Peninsular Malaysia	1332	10754612	2.89	2.76	3.03	590	5381835	2.87	2.68	3.07	742	5372776	2.92	2.75	3.08
East Malaysia	837	3102193	2.95	2.78	3.12	364	1570106	2.82	2.59	3.05	473	1532087	3.09	2.86	3.32
Strata															
Urban	1110	9330304	2.82	2.68	2.97	479	4617614	2.78	2.58	2.99	631	4712691	2.87	2.69	3.04
Rural	1059	4526500	3.08	2.90	3.26	475	2334328	3.01	2.78	3.25	584	2192172	3.15	2.95	3.35
Age Group															
18–19	106	903595	2.71	2.30	3.12	66	668095	2.57	2.10	3.03	40	235500	3.13	2.32	3.94
20-29	521	3915424	2.94	2.73	3.16	227	1832162	2.89	2.55	3.23	294	2083262	2.99	2.73	3.25
30-39	622	3528040	2.93	2.75	3.12	279	1722457	2.81	2.57	3.05	343	1805583	3.05	2.80	3.29
40-49	528	3101570	2.92	2.71	3.13	224	1523326	2.92	2.62	3.21	304	1578244	2.93	2.62	3.24
50-59	392	2408175	2.87	2.60	3.14	158	1205902	2.99	2.54	3.43	234	1202273	2.76	2.43	3.08
Ethnicity Group															
Malay	1152	8066003	3.12	2.97	3.27	499	3932231	3.03	2.81	3.25	653	4133772	3.20	3.02	3.38
Chinese	300	2161781	2.31	2.07	2.54	132	1075610	2.41	2.11	2.71	168	1086171	2.20	1.94	2.47
Indian	87	851034	2.58	2.13	3.02	44	488232	2.72	1.98	3.46	43	362802	2.38	1.95	2.81
Bumiputera Sabah	320	1301610	3.03	2.76	3.29	148	712334	2.87	2.51	3.23	172	589275	3.22	2.89	3.55
Bumiputera Sarawak	182	644458	2.64	2.37	2.91	68	265911	2.69	2.36	3.02	114	378547	2.61	2.21	3.01
Others	117	759150	2.75	2.33	3.18	58	434601	2.60	2.15	3.05	59	324550	2.95	2.23	3.67
Other Bumis	11	72769	3.19	2.30	4.08	5	-	-	-	-	6	29746	2.80	1.49	4.10
Marital status															
Never married	555	4014844	2.89	2.67	3.11	320	2429779	2.85	2.56	3.14	235	1585065	2.96	2.67	3.25
Married/Cohabiting	1482	9229346	2.92	2.79	3.04	607	4373040	2.88	2.69	3.06	875	4856306	2.95	2.79	3.12
Divorced/Separated	84	412322	3.15	2.62	3.68	24	129869	2.66	2.11	3.20	60	282453	3.38	2.68	4.09
Widow	46	183292	2.30	1.74	2.86	1	2253	4.00	4.00	4.00	45	181039	2.28	1.71	2.84
Others	1	9192	2.00	2.00	2.00	1	9192	2.00	2.00	2.00					
Education Level															
Non-formal	83	293758	3.01	2.31	3.71	15	-	-	-	-	68	218931	2.92	2.31	3.52
Primary	399	2220324	2.73	2.51	2.95	165	1032383	2.73	2.41	3.05	234	1187941	2.73	2.45	3.01
Secondary	1069	6926803	2.91	2.77	3.06	505	3644739	2.85	2.66	3.04	564	3282064	2.99	2.77	3.20
Tertiary	599	4325862	2.97	2.77	3.18	260	2155174	2.92	2.58	3.26	339	2170688	3.03	2.80	3.26
Others	10	49862	3.12	1.76	4.48	4	26341	1.88	1.76	2.00	6	23521	4.50	3.01	6.00

Note :
- RSE more than 25%

Table 3.1: Confectionery intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Work status															
Government/ Semi-government	307	1825511	3.01	2.73	3.29	133	887610	2.78	2.40	3.15	174	937901	3.23	2.82	3.64
Private	754	5589715	2.93	2.74	3.12	411	3254734	2.91	2.66	3.16	343	2334980	2.96	2.69	3.24
Self-employed	587	3383071	3.04	2.82	3.25	313	2009202	2.91	2.63	3.20	274	1373869	3.22	2.89	3.55
Unpaid workers	7	36320	1.69	1.09	2.30	5	25143	2.00	1.25	2.75	2	11177	1.00	1.00	1.00
Not working	419	2223968	2.63	2.44	2.82	43	278226	2.70	2.11	2.75	376	1945742	2.62	2.41	2.82
Retired	19	-	-	-	-	12	-	-	-	-	7	38861	1.17	.83	1.50
Students	53	533850	2.76	2.21	3.32	25	316695	2.45	1.75	3.16	28	217156	3.21	2.39	4.03
Others															
Income Group															
Less than RM1500	994	5571874	2.89	2.73	3.05	429	2848964	2.90	2.65	3.15	565	2722910	2.88	2.69	3.07
RM1500 – RM3500	641	4219598	2.83	2.67	3.00	284	2054488	2.70	2.44	2.96	357	216510	2.96	2.75	3.16
More than RM 3500	522	3972469	3.02	2.80	3.23	234	1971308	2.98	2.65	3.30	288	2001162	3.05	2.76	3.35

Note :
- RSE more than 25%

Table 3.2: Mean serving of confectionery intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2160**	**13770000**	**1.79**	**1.72**	**1.86**	**949**	**6896907.7**	**1.86**	**1.76**	**1.97**	**1211**	**6877809**	**1.71**	**1.63**	**1.78**
Zone															
Peninsular Malaysia	1325	10680000	1.74	1.66	1.83	585	5326801.6	1.82	1.69	1.95	740	5349605	1.67	1.58	1.76
East Malaysia	835	3098310	1.93	1.83	2.03	364	1570106.2	2.03	1.88	2.17	471	1528204	1.84	1.73	1.94
Strata															
Urban	1104	9260760	1.77	1.68	1.87	476	4573845.3	1.85	1.70	2.00	628	4686915	1.70	1.60	1.80
Rural	1056	4513957	1.82	1.73	1.90	473	2323062.4	1.90	1.78	2.01	583	2190894	1.73	1.64	1.83
Age Group															
18 –19	104	873279	1.76	1.56	1.97	65	651681.58	1.75	1.49	2.02	39	221597.9	1.79	1.53	2.05
20-29	520	3912819	1.87	1.74	2.01	227	1832162.5	1.99	1.76	2.21	293	2080657	1.77	1.60	1.95
30-39	620	3514266	1.78	1.68	1.87	278	1717951	1.90	1.74	2.06	342	1796315	1.66	1.55	1.76
40-49	525	3067456	1.78	1.66	1.90	221	1489211.1	1.83	1.66	2.00	304	1578244	1.74	1.59	1.90
50-59	391	2406897	1.67	1.54	1.81	158	1205901.6	1.73	1.50	1.95	233	1200996	1.62	1.50	1.73
Ethnicity Group															
Malay	1148	8022620	1.86	1.76	1.96	496	3898116	1.98	1.83	2.14	652	4124503	1.74	1.64	1.85
Chinese	297	2128860	1.43	1.31	1.56	131	1059197	1.42	1.26	1.58	166	1069664	1.45	1.25	1.64
Indian	86	846528	1.73	1.49	1.97	43	483726	1.69	1.38	2.00	43	362802	1.79	1.40	2.17
Bumiputera Sabah	319	1300332	1.88	1.72	2.04	148	712334	1.95	1.75	2.15	171	587998	1.79	1.63	1.94
Bumiputera Sarawak	182	644458	2.05	1.84	2.25	68	265911	2.20	1.85	2.54	114	378547	1.94	1.68	2.20
Others	117	759150	1.64	1.44	1.85	58	434601	1.70	1.38	2.02	59	324550	1.57	1.36	1.78
Other Bumis	11	72769	2.34	1.72	2.96	5	43023	2.03	1.25	2.82	6	29746	2.78	1.95	3.60
Marital Status															
Never married	552	3981924	1.83	1.68	1.98	319	2413366	1.93	1.73	2.14	233	1568558	1.67	1.46	1.88
Married/Cohabiting	1476	9180179	1.77	1.70	1.85	603	4334419	1.84	1.72	1.95	873	4845760	1.72	1.64	1.80
Divorced/Separated	84	412322	1.68	1.44	1.92	24	129869	1.66	1.27	2.04	60	282452.7	1.69	1.39	2.00
Widow	46	183292	1.86	1.53	2.20	1	2253	2.00	2.00	2.00	45	181038.5	1.86	1.52	2.20
Others	1	9192	1.00	1.00	1.00	1	9192	1.00	1.00	1.00					

Table 3.2: Mean serving of confectionery intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Education Level															
Non-formal	82	284490	1.67	1.44	1.90	15	74827	1.69	1.23	2.16	67	209663	1.66	1.40	1.92
Primary	398	2219047	1.74	1.60	1.89	165	1032383	1.87	1.66	2.09	233	1186664	1.63	1.45	1.81
Secondary	1065	6885222	1.81	1.71	1.91	502	3617060	1.87	1.73	2.02	563	3268162	1.75	1.63	1.87
Tertiary	596	4295902	1.77	1.67	1.88	258	2127819	1.84	1.66	2.02	338	2168083	1.71	1.58	1.83
Others	10	49862	2.08	1.57	2.60	4	26341	2.36	1.72	2.99	6	23521	1.78	1.33	2.23
Work Status															
Government/ Semi-government	307	1825511	1.66	1.55	1.78	133	887610	1.66	1.49	1.82	174	937901	1.67	1.52	1.82
Private	751	5571661	1.82	1.72	1.93	409	3239286	1.85	1.70	2.00	342	2332375	1.79	1.63	1.94
Self-employed	584	3350630	1.89	1.75	2.03	311	1986029	2.00	1.79	2.21	273	1364601	1.73	1.60	1.87
Unpaid workers	7	36320	1.59	1.16	2.03	5	25143	1.49	0.90	2.08	2	11177	1.83	1.44	2.22
Not working	418	2222691	1.69	1.56	1.82	43	278226	1.94	1.67	2.22	375	1944465	1.65	1.52	1.79
Retired	19	156131	1.65	1.27	2.02	12	117270	1.73	1.23	2.22	7	38861	1.41	1.10	1.72
Students	51	503534	1.66	1.33	2.00	24	300281	1.77	1.27	2.27	27	203253	1.51	1.20	1.82
Others															
Income Group															
Less than RM1500	989	5535551	1.74	1.65	1.83	427	2825792	1.85	1.72	1.98	562	2709759	1.63	1.53	1.72
RM1500 – RM3500	640	4215092	1.82	1.70	1.95	283	2049982	1.80	1.62	1.98	357	2165110	1.85	1.68	2.01
More than RM 3500	519	3931212	1.83	1.69	1.96	232	1943953	1.98	1.77	2.20	287	1987259	1.67	1.56	1.79

Table 3.3: Fruit intake by socio-demographic characteristics

Characteristics	Total Unweighted Count	Total Estimated population	Total %	Total 95% CI Lower	Total 95% CI Upper	Men Unweighted Count	Men Estimated population	Men %	Men 95% CI Lower	Men 95% CI Upper	Women Unweighted Count	Women Estimated population	Women %	Women 95% CI Lower	Women 95% CI Upper
Malaysia	**2477**	**16660000**	**3.70**	**3.58**	**3.81**	**1089**	**8393681**	**3.51**	**3.35**	**3.68**	**1388**	**8271246**	**3.88**	**3.74**	**4.03**
Zone															
Peninsular Malaysia	1598	13470000	3.79	3.65	3.93	717	6814635	3.61	3.41	3.80	881	6651014	3.99	3.81	4.16
East Malaysia	879	3199277	3.28	3.14	3.43	372	1579046	3.12	2.92	3.31	507	1620231	3.45	3.21	3.68
Strata															
Urban	1361	11830000	3.85	3.69	4.00	590	5910282	3.63	3.42	3.85	771	5923761	4.06	3.87	4.24
Rural	1116	4830883	3.33	3.19	3.46	499	2483398	3.23	3.03	3.42	617	2347485	3.43	3.24	3.63
Age Group															
18 –19	104	878918	3.02	2.53	3.50	61	629239	2.90	2.33	3.48	43	249678	3.31	2.48	4.13
20-29	537	4307355	3.33	3.15	3.51	238	2134794	3.11	2.82	3.41	299	2172561	3.54	3.29	3.80
30-39	693	4183256	3.72	3.53	3.92	306	2046610	3.50	3.21	3.78	387	2136645	3.94	3.68	4.20
40-49	648	4095196	3.87	3.65	4.08	286	2042887	3.77	3.45	4.10	362	2052309	3.96	3.64	4.27
50-59	495	3200201	4.12	3.85	4.39	198	1540150	4.00	3.60	4.40	297	1660052	4.24	3.89	4.58
Ethnicity Group															
Malay	1242	8932675	3.62	3.46	3.78	539	4424646	3.37	3.13	3.61	703	4508029	3.87	3.68	4.06
Chinese	465	3457161	4.21	3.95	4.48	215	1765992	4.10	3.69	4.51	250	1691169	4.34	4.03	4.65
Indian	116	1248010	3.78	3.36	4.20	61	706109	4.08	3.55	4.62	55	541901	3.38	2.75	4.01
Bumiputera Sabah	297	1209836	3.12	2.89	3.35	131	635289	3.00	2.61	3.38	166	574546	3.26	2.9	3.61
Bumiputera Sarawak	199	736337	3.07	2.79	3.34	72	300021	2.92	2.55	3.30	127	436316	3.16	2.81	3.52
Others	145	996351	3.67	3.10	4.23	65	512354	2.96	2.50	3.41	80	483997	4.42	3.55	5.29
Other Bumis	13	84557	3.28	1.86	4.69	6	-	-	-	-	7	-	-	-	-
Marital Status															
Never married	578	4351689	3.31	3.09	3.52	337	2687995	3.03	2.75	3.32	241	1663694	3.75	3.43	4.06
Married/Cohabiting	1743	11570000	3.84	3.71	3.97	713	5486349	3.75	3.56	3.94	1030	6083780	3.92	3.75	4.09
Divorced/Separated	108	538849	3.89	3.41	4.36	36	200083	3.55	2.83	4.26	72	338767	4.09	3.50	4.68
Widow	46	187258	3.41	2.77	4.05	1	2253	7.00	7.00	7.00	45	185004	3.37	2.74	4.00
Others	1	9192	2.00	2.00	2.00	1	9192	2.00	2.00	2.00	NIL	-	-	-	-

Note :
- RSE more than 25%

Table 3.3: Fruit intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level															
Non-formal	83	337469	2.45	1.98	2.93	16	83253	1.96	1.51	2.42	67	254217	2.61	2.02	3.21
Primary	461	2759974	3.37	3.08	3.67	193	1290148	3.28	2.85	3.70	268	1469826	3.46	3.06	3.86
Secondary	1211	8251406	3.58	3.44	3.73	557	4246567	3.29	3.07	3.52	654	4004840	3.89	3.71	4.08
Tertiary	700	5212023	4.14	3.93	4.34	312	2725378	4.04	3.75	4.32	388	2486645	4.24	3.97	4.52
Others	13	63859	2.84	2.14	3.54	6	29858	2.13	1.44	2.83	7	34001	3.46	2.48	4.43
Work Status															
Government/ Semi-government	347	2116002	4.07	3.78	4.36	156	1077173	3.79	3.40	4.17	191	1038829	4.36	3.97	4.75
Private	877	6857078	3.58	3.40	3.77	483	4093837	3.32	3.11	3.53	394	2763240	3.98	3.72	4.25
Self-employed	665	4127812	3.83	3.62	4.05	357	2424071	3.83	3.55	4.11	308	1703741	3.84	3.56	4.12
Unpaid workers	6	28660	4.18	2.42	5.94	4	17483	5.16	2.98	7.34	2	11177	2.66	1.87	3.45
Not working	482	2704068	3.53	3.26	3.79	44	308178	2.68	2.09	3.27	438	2395890	3.64	3.35	3.92
Retired	24	189446	3.97	2.85	5.09	13	126232	3.38	1.97	4.79	11	63214	5.15	3.37	6.93
Students	53	510687	3.48	2.81	4.14	21	265302	3.69	2.58	4.80	32	245385	3.24	2.67	3.82
Others															
Income Group															
Less than RM1500	1074	6303389	3.38	3.21	3.54	451	3149772	3.07	2.83	3.31	623	3153617	3.68	3.48	3.89
RM1500 – RM3500	753	5337392	3.70	3.50	3.89	346	2730386	3.63	3.33	3.92	407	2607007	3.77	3.51	4.03
More than RM 3500	623	4803989	4.09	3.88	4.31	281	2387102	3.95	3.63	4.27	342	2416886	4.23	3.95	4.51

Table 3.4: Mean serving of fruit intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2470**	**16690000**	**1.40**	**1.35**	**1.44**	**1086**	**8349912**	**1.44**	**1.37**	**1.52**	**1384**	**8241653**	**1.35**	**1.30**	**1.39**
Zone															
Peninsular Malaysia	1592	13390000	1.33	1.28	1.38	714	6770866	1.38	1.30	1.45	878	6624026	1.29	1.24	1.33
East Malaysia	878	3196672	1.66	1.56	1.76	372	1579046	1.73	1.55	1.90	506	1617627	1.59	1.49	1.70
Strata															
Urban	1355	11760000	1.36	1.30	1.41	587	5866514	1.40	1.31	1.49	768	5897985	1.31	1.26	1.37
Rural	1115	4827066	1.49	1.42	1.56	499	2483398	1.55	1.44	1.65	616	2343668	1.43	1.35	1.50
Age Group															
18 –19	102	848602	1.42	1.23	1.60	60	612826	1.47	1.23	1.71	42	235776	1.27	1.07	1.48
20-29	537	4307355	1.42	1.33	1.51	238	2134794	1.46	1.30	1.61	299	2172561	1.37	1.29	1.46
30-39	692	4172314	1.34	1.27	1.41	305	2035668	1.41	1.28	1.53	387	2136645	1.27	1.21	1.34
40-49	647	4078783	1.44	1.35	1.52	285	2026474	1.51	1.36	1.66	362	2052309	1.37	1.29	1.45
50-59	492	3184511	1.38	1.30	1.46	198	1540150	1.38	1.27	1.48	294	1644362	1.39	1.27	1.50
Ethnicity Group															
Malay	1238	8892234	1.41	1.35	1.47	537	4397290	1.49	1.40	1.58	701	4494944	1.33	1.27	1.39
Chinese	463	3426845	1.30	1.21	1.38	214	1749579	1.29	1.14	1.44	249	1677266	1.30	1.20	1.40
Indian	116	1248010	1.20	1.10	1.30	61	706109	1.21	1.09	1.33	55	541901	1.18	1.03	1.33
Bumiputera Sabah	297	1209836	1.68	1.55	1.82	131	635289	1.65	1.46	1.84	166	574546	1.72	1.55	1.89
Bumiputera Sarawak	198	733732	1.63	1.33	1.93	72	300021	1.85	1.19	2.51	126	433711	1.48	1.28	1.68
Others	145	996351	1.35	1.17	1.53	65	512354	1.43	1.14	1.73	80	483997	1.26	1.09	1.43
Other Bumis	13	84557	1.30	0.88	1.73	6	49270	1.13	0.88	1.38	7	35288	1.55	0.80	2.29
Marital Status															
Never married	576	4321374	1.38	1.30	1.47	336	2671582	1.42	1.29	1.54	240	1649792	1.33	1.23	1.43
Married/Cohabiting	1738	11530000	1.40	1.35	1.45	711	5458994	1.45	1.37	1.54	1027	6068090	1.35	1.30	1.40
Divorced/Separated	108	538849	1.49	1.31	1.66	36	200083	1.66	1.33	1.98	72	338767	1.38	1.20	1.57
Widow	46	187258	1.16	0.99	1.33	1	2253	1.00	1.00	1.00	45	185004	1.16	0.99	1.33
Others	1	9192	1.00	1.00	1.00	1	9192	1.00	1.00	1.00					

Table 3.4: Mean serving of fruit intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Education Level															
Non-formal	83	337469	1.42	1.22	1.61	16	83253	1.53	0.90	2.17	67	254217	1.38	1.19	1.56
Primary	460	2757369	1.39	1.29	1.49	193	1290148	1.46	1.28	1.65	267	1467221	1.32	1.22	1.41
Secondary	1208	8217274	1.39	1.33	1.45	556	4230154	1.46	1.37	1.55	652	3987120	1.31	1.25	1.38
Tertiary	697	5175399	1.41	1.34	1.49	310	2698023	1.41	1.29	1.53	387	2477377	1.42	1.34	1.50
Others	13	63859	1.20	0.96	1.43	6	29858	1.21	0.80	1.61	7	34001	1.19	0.92	1.46
Work Status															
Government/ Semi-government	347	2116002	1.35	1.26	1.43	156	1077173	1.34	1.21	1.48	191	1038829	1.35	1.23	1.47
Private	875	6842319	1.35	1.28	1.41	482	4082895	1.38	1.29	1.48	393	2759423	1.29	1.22	1.37
Self-employed	664	4111399	1.50	1.40	1.59	356	2407658	1.56	1.43	1.69	308	1703741	1.41	1.31	1.51
Unpaid workers	6	28660	2.07	1.14	3.01	4	17483	1.26	0.81	1.72	2	11177	3.34	2.55	4.13
Not working	480	2692194	1.38	1.30	1.46	44	308178	1.47	1.19	1.75	436	2384016	1.37	1.29	1.44
Retired	24	189446	1.44	1.14	1.74	13	126232	1.50	1.16	1.84	11	63214	1.32	0.93	1.71
Students	51	480371	1.49	1.09	1.90	20	248889	1.73	1.02	2.45	31	231483	1.24	1.02	1.46
Others															
Income Group															
Less than RM1500	1071	6273890	1.43	1.36	1.51	450	3133359	1.54	1.41	1.67	621	3140531	1.33	1.26	1.39
RM1500 – RM3500	753	5337392	1.36	1.29	1.43	346	2730386	1.39	1.28	1.49	407	2607007	1.33	1.26	1.41
More than RM 3500	619	4760126	1.39	1.32	1.46	279	2359747	1.40	1.30	1.50	340	2400379	1.39	1.30	1.48

Table 3.5: Vegetables intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia	2888	18733202	5.90	5.82	5.99	1320	9644995	5.73	5.61	5.86	1568	9088207	6.09	5.98	6.19
Zone															
Peninsular Malaysia	1761	14649311	5.88	5.78	5.99	809	7525591	5.74	5.60	5.89	952	7123720	6.03	5.90	6.16
East Malaysia	1127	4083891	5.98	5.84	6.11	511	2119405	5.68	5.48	5.89	616	1964486	6.29	6.15	6.44
Strata															
Urban	1531	12975526	6.00	5.90	6.11	681	6544725	5.86	5.70	6.02	850	6430800	6.15	6.01	6.28
Rural	1357	5757676	5.68	5.55	5.82	639	3100270	5.46	5.26	5.66	718	2657406	5.95	5.79	6.10
Age Group															
18 –19	119	977734	5.31	4.84	5.77	73	712163	5.30	4.71	5.89	46	265571	5.32	4.65	5.99
20-29	646	4981988	5.67	5.47	5.86	305	2582874	5.55	5.27	5.84	341	239914	5.79	5.52	6.06
30-39	808	4689047	5.98	5.82	6.14	364	2288932	5.71	5.46	5.96	444	2400115	6.25	6.08	6.41
40-49	739	4499258	6.04	5.89	6.19	338	2286653	5.84	5.59	6.08	401	2212605	6.25	6.06	6.44
50-59	576	3585175	6.13	5.96	6.30	240	1774374	6.06	5.79	6.33	336	1810801	6.20	5.99	6.41
Ethnicity Group															
Malay	1399	9898199	5.69	5.57	5.81	631	5015161	5.51	5.33	5.68	768	4883038	5.88	5.73	6.04
Chinese	511	3781294	6.33	6.15	6.51	241	1966372	6.28	6.03	6.52	270	1814922	6.39	6.13	6.66
Indian	126	1309059	6.01	5.65	6.37	64	735076	6.01	5.56	6.46	62	573983	6.02	5.45	6.59
Bumiputera Sabah	368	1457392	5.71	5.47	5.96	172	792741	5.46	5.11	5.81	196	664651	6.02	5.68	6.35
Bumiputera Sarawak	293	1055239	6.26	6.08	6.44	123	487637	5.97	5.66	6.29	170	567603	6.50	6.31	6.70
Others	174	1131849	6.08	5.68	6.48	82	596485	5.56	4.88	6.23	92	535364	6.65	6.45	6.86
Other Bumis	17	100170	6.55	6.17	6.93	7	51523	6.83	6.45	7.20	10	48647	6.25	5.46	7.04
Marital status															
Never married	692	5004182	5.59	5.40	5.78	421	3143080	5.45	5.19	5.71	271	1861102	5.83	5.55	6.11
Married/Cohabiting	2007	12862240	6.03	5.94	6.13	854	6258277	5.87	5.73	6.02	1153	6603963	6.18	6.07	6.30
Divorced/Separated	126	621098	5.84	5.42	6.27	41	221321	5.84	5.04	6.64	85	399778	5.84	5.39	6.29
Widow	60	227379	5.89	5.27	6.51	2	5317	7.00	7.00	7.00	58	222062	5.86	5.23	6.49
Others	1	9192	1.00	1.00	1.00	1	9192	1.00	1.00	1.00	NIL				
Education Level															
Non-formal	131	490123	5.78	5.27	6.29	33	154354	5.35	4.26	6.45	98	335769	5.98	5.49	6.46
Primary	596	3421967	5.94	5.73	6.15	266	1696776	5.74	5.41	6.06	330	1725192	6.14	5.91	6.37
Secondary	1402	9269980	5.78	5.65	5.90	670	4820956	5.64	5.47	5.81	732	4449023	5.93	5.76	6.10
Tertiary	731	5417401	6.10	5.96	6.24	335	2897502	5.89	5.65	6.12	396	2519899	6.35	6.19	6.51
Others	18	88065	6.74	6.37	7.12	10	51459	6.56	5.89	7.22	8	36606	7.00	7.00	7.00

Table 3.5: Vegetables intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Work status															
Government/ Semi-government	368	2200839	6.04	5.82	6.26	169	1139778	5.76	5.42	6.09	199	1061061	6.35	6.09	6.60
Private	1034	7769251	5.85	5.71	5.99	594	4737767	5.71	5.53	5.90	440	3031484	6.06	5.85	6.26
Self-employed	803	4748789	5.91	5.73	6.08	440	2821070	5.77	5.54	6.00	363	1927719	6.10	5.87	6.34
Unpaid workers	8	50222	4.14	2.63	5.65	5	25143	3.57	2.22	4.93	3	-	-	-	-
Not working	560	3002970	5.99	5.80	6.17	55	330148	5.42	4.81	6.02	505	2672822	6.06	5.87	6.24
Retired	28	206148	5.96	5.28	6.65	17	142934	5.90	4.94	6.86	11	63214	6.11	5.39	6.82
Students	59	603123	5.89	5.38	6.41	27	357738	5.93	5.25	6.60	32	245385	5.85	5.11	6.58
Others															
Income Group															
Less than RM1500	1343	7521002	5.63	5.48	5.78	591	3780639	5.36	5.13	5.58	752	3740364	5.90	5.73	6.07
RM1500 – RM3500	858	5958141	5.99	5.85	6.13	413	3206415	5.85	5.65	6.05	445	2751726	6.15	5.95	6.35
More than RM 3500	659	5029306	6.19	6.05	6.33	304	2526925	6.11	5.91	6.30	355	2502381	6.27	6.07	6.47

Note :
- RSE more than 25%

Table 3.6: Mean serving of vegetables intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia	2880	18640000	1.51	1.45	1.57	1315	9587221	1.51	1.43	1.58	1565	9055494	1.52	1.44	1.60
Zone															
Peninsular Malaysia	1754	14560000	1.43	1.37	1.50	805	7470880	1.40	1.32	1.48	949	7091007	1.46	1.37	1.56
East Malaysia	1126	4080827	1.80	1.66	1.93	510	2116341	1.87	1.70	2.04	616	1964486	1.71	1.57	1.85
Strata															
Urban	1525	12900000	1.48	1.41	1.55	677	6490015	1.48	1.38	1.57	848	6407629	1.48	1.39	1.58
Rural	1355	5745070	1.59	1.49	1.68	638	3097206	1.57	1.46	1.69	717	2647864	1.60	1.47	1.73
Age Group															
18–19	117	947418	1.39	1.20	1.57	72	695750	1.35	1.13	1.58	45	251668	1.48	1.18	1.78
20-29	645	4972719	1.45	1.35	1.55	305	2582874	1.45	1.32	1.58	340	2389846	1.45	1.30	1.60
30-39	806	4675041	1.59	1.50	1.69	362	2274926	1.59	1.47	1.71	444	2400115	1.60	1.47	1.72
40-49	737	4471903	1.51	1.41	1.61	336	2259297	1.48	1.36	1.60	401	2212605	1.53	1.38	1.69
50-59	575	3575633	1.53	1.43	1.64	240	1774374	1.58	1.42	1.74	335	1801259	1.49	1.38	1.61
Ethnicity Group															
Malay	1394	9847296	1.39	1.33	1.46	627	4973800	1.39	1.31	1.47	767	4873495	1.40	1.31	1.49
Chinese	508	3741710	1.67	1.56	1.79	240	1949959	1.61	1.45	1.77	268	1791751	1.75	1.58	1.91
Indian	126	1309059	1.21	1.04	1.37	64	735076	1.23	0.99	1.48	62	573983	1.17	0.99	1.35
Bumiputera Sabah	368	1457392	1.71	1.53	1.90	172	792741	1.74	1.52	1.95	196	664651	1.68	1.41	1.96
Bumiputera Sarawak	293	1055239	2.13	1.82	2.43	123	487637	2.24	1.80	2.68	170	567603	2.03	1.71	2.34
Others	174	1131849	1.53	1.31	1.76	82	596485	1.58	1.24	1.93	92	535364	1.48	1.23	1.73
Other Bumis	17	100170	1.43	0.98	1.88	7	51523	1.37	1.15	1.60	10	-	-	-	-
Marital Status															
Never married	690	4973866	1.48	1.38	1.58	420	3126667	1.48	1.36	1.60	270	1847199	1.49	1.32	1.65
Married/Cohabiting	2001	12800000	1.53	1.47	1.60	850	6216916	1.52	1.44	1.61	1151	6585152	1.54	1.45	1.63
Divorced/Separated	126	621098	1.38	1.19	1.58	41	221321	1.42	1.08	1.76	85	399778	1.36	1.14	1.59
Widow	60	227379	1.42	1.18	1.67	2	-	-	-	-	58	222062	1.39	1.15	1.64
Others	1	9192	1.00	1.00	1.00	1	9192	1.00	1.00	1.00					

Note :
- RSE more than 25%

Table 3.6: Mean serving of vegetables intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level															
Non-formal	131	490123	1.71	1.45	1.96	33	154354	1.75	1.46	2.03	98	335769	1.69	1.39	2.00
Primary	595	3412425	1.61	1.47	1.75	266	1696776	1.63	1.43	1.83	329	1715649	1.59	1.44	1.74
Secondary	1399	9230396	1.46	1.38	1.53	669	4804543	1.46	1.37	1.55	730	4425852	1.45	1.35	1.56
Tertiary	728	5379104	1.53	1.43	1.62	332	2859205	1.49	1.38	1.60	396	2519899	1.56	1.42	1.70
Others	17	85001	1.60	1.28	1.92	9	48395	1.71	1.27	2.15	8	36606	1.45	1.04	1.86
Work Status															
Government/ Semi-government	368	2200839	1.54	1.42	1.66	169	1139778	1.63	1.45	1.80	199	1061061	1.44	1.31	1.57
Private	1032	7749041	1.49	1.40	1.58	593	4726825	1.45	1.35	1.55	439	3022215	1.54	1.41	1.67
Self-employed	799	4708828	1.60	1.49	1.72	437	2790651	1.56	1.42	1.69	362	1918177	1.67	1.50	1.84
Unpaid workers	8	-	-	-	-	5	-	-	-	-	3	-	-	-	-
Not working	560	3002970	1.43	1.34	1.52	55	330148	1.46	1.26	1.66	505	2672822	1.42	1.33	1.52
Retired	28	206148	1.50	1.08	1.92	17	142934	1.56	0.96	2.15	11	63214	1.36	0.98	1.74
Students	57	572807	1.28	1.09	1.48	26	341325	1.26	1.03	1.50	31	231483	1.32	0.95	1.68
Others															
Income Group															
Less than RM1500	1339	7481315	1.52	1.44	1.59	588	3750219	1.57	1.45	1.68	751	3731095	1.46	1.38	1.55
RM1500 – RM3500	857	5948599	1.50	1.41	1.60	413	3206415	1.44	1.34	1.55	444	2742184	1.58	1.43	1.73
More than RM 3500	656	4988048	1.52	1.42	1.62	302	2499569	1.51	1.37	1.65	354	2488479	1.54	1.40	1.68

Note :
- RSE more than 25%

Table 3.7: Water intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2979**	**19507180**	**6.94**	**6.91**	**6.96**	**1378**	**10194824**	**6.94**	**6.91**	**6.97**	**1601**	**9312356**	**6.93**	**6.90**	**6.97**
Zone															
Peninsular Malaysia	1835	15335497	6.93	6.90	6.96	853	7998046	6.93	6.90	6.97	982	7337450	6.93	6.89	6.97
East Malaysia	1144	4171683	6.95	6.92	6.99	525	2196777	6.96	6.94	6.99	619	1974906	6.94	6.88	7.00
Strata															
Urban	1579	13522868	6.95	6.92	6.97	715	6951890	6.95	6.92	6.99	864	6570977	6.94	6.89	6.98
Rural	1400	5984312	6.91	6.88	6.95	663	3242933	6.91	6.86	6.96	737	2741379	6.92	6.87	6.98
Age Group															
18 –19	131	1130654	6.93	6.86	7.00	85	873261	6.98	6.94	7.01	46	257394	6.77	6.49	7.05
20-29	683	5296194	6.92	6.87	6.97	324	2743903	6.94	6.90	6.99	359	2552290	6.89	6.81	6.97
30-39	826	4852750	6.91	6.86	6.96	374	2400900	6.90	6.82	6.98	452	2451850	6.93	6.86	6.99
40-49	753	4593488	6.96	6.92	7.00	347	2360860	6.96	6.93	7.00	406	2232628	6.95	6.87	7.02
50-59	586	3634093	6.97	6.92	7.02	248	1815900	6.94	6.85	7.03	338	1818194	7.00	7.00	7.00
Ethnicity Group															
Malay	1464	10497511	6.90	6.86	6.94	668	5395898	6.90	6.85	6.96	796	5101613	6.90	6.84	6.96
Chinese	517	3810843	6.97	6.94	7.00	248	2014458	6.98	6.95	7.00	269	1796385	6.96	6.91	7.01
Indian	130	1337937	7.00	7.00	7.00	66	752777	7.00	7.00	7.00	64	585160	7.00	7.00	7.00
Bumiputera Sabah	376	1507994	6.98	6.96	7.01	179	840739	6.98	6.94	7.02	197	667256	6.99	6.97	7.01
Bumiputera Sarawak	293	1058244	6.96	6.92	7.01	123	490641	6.95	6.88	7.01	170	567603	6.98	6.93	7.02
Others	182	1194482	6.98	6.95	7.02	87	648789	7.00	7.00	7.00	95	545693	6.96	6.89	7.04
Other Bumis	17	100170	7.00	7.00	7.00	7	51523	7.00	7.00	7.00	10	48647	7.00	7.00	7.00
Marital Status															
Never married	735	5462740	6.90	6.84	6.95	451	3489991	6.95	6.91	6.98	284	1972750	6.80	6.68	6.93
Married/Cohabiting	2050	13154233	6.95	6.93	6.98	878	6443493	6.94	6.90	6.98	1172	6710739	6.97	6.94	7.00
Divorced/Separated	130	638800	6.91	6.79	7.04	45	239022	6.85	6.56	7.14	85	399778	6.95	6.86	7.04
Widow	61	233105	6.92	6.75	7.08	2	5317	7.00	7.00	7.00	59	227788	6.91	6.74	7.08
Others	1	9192	7.00	7.00	7.00	1	9192	7.00	7.00	7.00					

Table 3.7: Water intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Education Level															
Non-formal	135	508167	7.00	7.00	7.00	34	159039	7.00	7.00	7.00	101	349129	7.00	7.00	7.00
Primary	618	3596279	6.98	6.97	7.00	277	1810778	6.98	6.96	7.01	341	1785501	6.98	6.96	7.01
Secondary	1449	9710644	6.91	6.87	6.95	705	5172960	6.92	6.88	6.96	744	4537684	6.90	6.83	6.96
Tertiary	750	5567627	6.95	6.91	6.99	346	2976639	6.94	6.87	7.01	404	2590988	6.96	6.92	6.99
Others	18	88065	6.87	6.61	7.13	10	51459	7.00	7.00	7.00	8	36606	6.69	6.08	7.29
Work Status															
Government/ Semi-government	372	2250887	6.95	6.92	6.99	171	1170078	6.97	6.92	7.01	201	1080809	6.94	6.88	7.00
Private	1070	8126844	6.94	6.90	6.97	618	4993798	6.95	6.91	6.99	452	3133046	6.92	6.85	6.99
Self-employed	832	4920338	6.94	6.90	6.97	462	2966597	6.93	6.89	6.97	370	1953741	6.94	6.89	7.00
Unpaid workers	8	50222	6.17	4.86	7.48	5	25143	7.00	7.00	7.00	3	25079	5.34	3.42	7.26
Not working	577	3150976	6.96	6.91	7.01	59	387435	6.91	6.79	7.04	518	2763542	6.96	6.91	7.02
Retired	29	209271	6.61	5.87	7.35	18	146058	6.44	5.41	7.47	11	63214	7.00	7.00	7.00
Students	61	612666	6.90	6.78	7.02	30	381184	7.00	7.00	7.00	31	231483	6.74	6.42	7.06
Others															
Income Group															
Less than RM1500	1399	7939329	6.95	6.93	6.97	625	4107545	6.96	6.93	6.98	774	3831784	6.95	6.92	6.98
RM1500 – RM3500	881	6192438	6.95	6.91	6.98	427	3321189	6.95	6.91	6.99	454	2871249	6.94	6.88	7.00
More than RM 3500	670	5144532	6.90	6.84	6.96	313	2628945	6.90	6.81	6.98	357	2515588	6.90	6.81	6.99

Table 3.8: Mean serving of water intake by socio-demographic characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2975**	**19440000**	**7.01**	**6.72**	**7.29**	**1374**	**10160000**	**7.51**	**7.12**	**7.91**	**1601**	**9288368**	**6.45**	**6.16**	**6.75**
Zone															
Peninsular Malaysia	1833	15290000	6.86	6.51	7.20	851	7972944	7.29	6.81	7.77	982	7313462	6.38	6.02	6.74
East Malaysia	1142	4157777	7.56	7.16	7.97	523	2182871	8.33	7.78	8.88	619	1974906	6.72	6.29	7.14
Strata															
Urban	1575	13460000	7.30	6.91	7.68	713	6918288	7.73	7.19	8.28	862	6543172	6.84	6.45	7.22
Rural	1400	5982723	6.35	6.01	6.70	661	3237527	7.05	6.62	7.49	739	2745196	5.53	5.17	5.89
Age Group															
18 –19	129	1100339	5.61	4.76	6.46	84	856847	5.93	4.91	6.94	45	243491	4.48	3.46	5.51
20-29	682	5289926	7.37	6.80	7.93	324	2751538	7.71	6.89	8.53	358	2538388	6.99	6.34	7.65
30-39	825	4848304	7.18	6.72	7.63	373	2396453	7.85	7.09	8.61	452	2451850	6.52	6.13	6.90
40-49	751	4567705	7.12	6.65	7.59	345	2335076	8.11	7.49	8.74	406	2232628	6.08	5.59	6.58
50-59	588	3637910	6.54	6.10	6.99	248	1815900	6.76	6.12	7.40	340	1822011	6.33	5.76	6.90
Ethnicity Group															
Malay	1464	10480000	6.51	6.12	6.91	666	5372367	6.82	6.31	7.32	798	5105430	6.20	5.74	6.65
Chinese	515	3780527	7.86	7.37	8.36	247	1998045	8.55	7.70	9.39	268	1782482	7.10	6.55	7.65
Indian	130	1343408	7.27	6.39	8.15	66	758248	8.05	6.87	9.23	64	585160	6.26	5.35	7.18
Bumiputera Sabah	375	1494092	7.31	6.71	7.92	179	840739	7.67	6.91	8.43	196	653353	6.86	6.13	7.58
Bumiputera Sarawak	292	1053707	7.86	7.02	8.69	122	486105	9.28	7.91	10.64	170	567603	6.64	5.99	7.30
Others	182	1194482	7.33	6.33	8.33	87	648789	8.22	6.56	9.88	95	545693	6.27	5.49	7.05
Other Bumis	17	100170	5.24	3.27	7.21	7	51523	4.46	2.34	6.58	10	48647	6.06	3.37	8.75
Marital Status															
Never married	733	5433159	6.88	6.35	7.41	451	3488215	7.03	6.37	7.70	282	1944944	6.60	5.83	7.37
Married/Cohabiting	2048	13120000	7.11	6.81	7.41	874	6406260	7.79	7.36	8.22	1174	6714556	6.46	6.15	6.77
Divorced/Separated	130	638800	6.19	5.49	6.88	45	239022	6.98	5.82	8.13	85	399778	5.71	4.92	6.50
Widow	61	233105	6.42	5.39	7.45	2	5317	8.00	8.00	8.00	59	227788	6.38	5.33	7.44
Others	1	9192	12.00	12.00	12.00	1	9192	12.00	12.00	12.00					

Table 3.8: Mean serving of water intake by socio-demographic characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level															
Non-formal	134	503571	6.32	5.10	7.55	33	154443	6.31	4.48	8.14	101	349129	6.33	4.75	7.91
Primary	619	3599403	6.75	6.22	7.28	278	1813902	7.60	6.73	8.46	341	1785501	5.89	5.40	6.38
Secondary	1448	9683941	6.89	6.56	7.22	703	5156343	7.34	6.88	7.79	745	4527598	6.38	6.00	6.77
Tertiary	747	5532805	7.47	6.95	8.00	344	2955720	7.86	7.12	8.59	403	2577085	7.03	6.48	7.57
Others	18	88065	5.83	4.23	7.43	10	51459	7.03	5.15	8.92	8	36606	4.13	1.88	6.39
Work Status															
Government/ Semi-government	371	2246381	6.79	6.30	7.28	170	1165572	7.31	6.62	8.00	201	1080809	6.23	5.59	6.88
Private	1073	8136644	7.52	7.10	7.95	619	4999782	7.90	7.35	8.45	454	3136863	6.92	6.36	7.49
Self-employed	829	4896265	7.00	6.55	7.46	459	2942524	7.45	6.82	8.08	370	1953741	6.34	5.79	6.89
Unpaid workers	8	50222	8.11	4.65	11.58	5	25143	5.66	3.33	7.98	3	25079	10.58	5.58	15.57
Not working	577	3150976	6.01	5.57	6.45	59	387435	5.56	4.13	6.99	518	2763542	6.07	5.66	6.48
Retired	29	209271	6.85	5.07	8.62	18	146058	6.70	4.49	8.91	11	63214	7.18	6.07	8.29
Students	58	568448	6.62	5.53	7.70	29	364771	6.55	5.21	7.88	29	203677	6.75	5.01	8.49
Others															
Income Group															
Less than RM1500	1396	7905989	6.37	6.00	6.73	623	4088108	6.83	6.30	7.35	773	3817881	5.87	5.49	6.25
RM1500 – RM3500	882	6193097	7.08	6.68	7.47	426	3318030	7.71	7.09	8.33	456	2875066	6.34	5.94	6.75
More than RM 3500	668	5114217	7.87	7.37	8.38	312	2612532	8.29	7.54	9.03	356	2501685	7.44	6.82	8.06

TOPIC 4

HABITS IN RELATION TO FOOD CONSUMPTION

4.   HABITS IN RELATION TO FOOD CONSUMPTION

Contributors to this section: Yaw Siew Lian, Khairiyah Abdul Muttalib, Nurrul Ashikin Abdullah, Mohamad Fuad Mohamad Anuar, Hasmila Mat Hassan, Hamizatul Akmal Abd Hamid, Lim Kuang Hock.

4.1 Findings

This module comprises seven questions of interest on habits in relation to usual food intake of the respondents.

4.1.1 Consumption of plain water in relation to main meals

About 99.0% (95% CI: 98.5 – 99.3) reported drinking plain water either before, during or after meals while 1.0% (95% CI: 0.7 – 1.5) did not drink any water before, during or after meals **(Table 4.1)**. Among those who reported consuming water either before, during or after meals, about 22.2% (95% CI: 19.9 – 24.6) reported consuming plain water within thirty minutes before meals **(Table 4.2)**, 18.8% (95% CI: 16.6 – 21.3) during meals and 59.0% (95% CI: 56.6 - 61.4) after meals. Significantly less Bumiputera Sarawak adults (9.8%, 95% CI: 6.8 – 14.1) consumed plain water before meals compared to other ethnic groups **(Table 4.2)**.

4.1.2 Consumption of fruits in relation to main meals

About 89.0% (95% CI: 87.2 – 90.7) reported eating fruits either within thirty minutes before meals **(Table 4.3)**, during or after meals, while 11.0% (95% CI: 9.3 – 12.8) reported not consuming any fruits. Among those who reported eating fruits either within thirty minutes before meals, during or after meals, about 23.2% (95% CI: 21.2 – 25.3) reported they had eaten fruits within thirty minutes before meals, 4.9% (95% CI: 3.7 - 6.5) during meals and 72.0% (95% CI: 69.7 – 74.1) after meals **(Table 4.4)**. The prevalence of adults who reported eating fruits within thirty minutes before meals was significantly higher (30.2%, 95% CI: 26.4 – 34.4) among those with tertiary education compared to those who had no formal education (16.2%, 95% CI: 10.1 – 25.0) and, those whose education level was at primary level (16.9%, 95% CI: 13.2 – 21.5) and also those whose education level was at secondary level only (20.9%, 95% CI: 18.5 – 23.7). Significantly more government/semi-government employees (35.5%, 95% CI: 29.4 – 42.1) consumed fruits before main meals compared to private employees (20.6%, 95% CI: 17.5 – 24.0) and, those who were self-employed (23.0%, 95% CI: 19.2 – 27.3) and adults who were not working (21.9%, 95% CI: 17.6 – 26.9) **(Table 4.4)**.

4.1.3 Number of times food was chewed before swallowing

About 88.6% (95% CI: 85.2 – 91.3) reported on the number of times they had chewed their food before swallowing while 11.4% (95% CI: 8.7 – 14.8) did not know the number of times concerned **(Table 4.5)**. Among those who knew the number of times they had chewed their food before swallowing, about 73.8% (95% CI: 70.9 - 76.5) reported they had chewed their food less than 20 times, 23.9% (95% CI: 21.4 - 26.5) had chewed 20-40 times and 2.3% (95% CI: 1.6 – 3.3) more than 40 times **(Table 4.6)**. The prevalence of adults who chewed their food between twenty to forty times was significantly lower among 'Bumiputera Sarawak' adults (14.2%, 95% CI: 10.5 – 18.9) compared to Malays (26.0%, 95% CI: 22.8 – 29.5) **(Table 4.6)**.

4.1.4 Use of straw when consuming carbonated drinks

About 80.8% (95% CI: 78.7 – 82.7) reported they had either used a straw or not used a straw when drinking carbonated beverages while 19.2% (95% CI: 17.3 – 21.3) had not consumed carbonated beverages at all **(Table 4.7)**. Among the former group, about 28.0% (95% CI: 25.4 – 30.9) reported they had always used a straw, 20.4% (95% CI: 18.2 – 22.6) only used a straw sometimes and 51.6% (95% CI: 48.8 – 54.4) never at used a straw when drinking carbonated beverages **(Table 4.8)**. Significantly less adults in Peninsular Malaysia (26.1%, 95% CI: 22.9 – 29.6) always use straw when consuming carbonated beverages compared to those in East Malaysia (34.4%, 95% CI: 30.5 – 38.5) **(Table 4.8)**. Less adults aged 50-59 (18.8%, 95% CI: 14.3 – 24.3) always use straw when consuming carbonated beverages compared to those in the age group of 20-29 (34.8%, 95% CI: 29.8 – 40.1) and 30-39 (28.8%, 95% CI: 24.6 – 33.4). . Significantly less Bumiputera Sarawak adults (24.4%, 95% CI: 18.8 – 31.2) always use straw when consuming carbonated beverages compared to Bumiputera Sabah adults (39.0%, 95% CI: 32.1 – 46.4) **(Table 4.8)**.

4.1.5 Mouth rinsing after consuming sugary food

About 62.5% (95% CI: 59.8 – 65.0) reported they had rinsed their mouth after taking sugary food while 37.5% (95% CI: 35.0 – 40.2) had not rinsed their mouth **(Table 4.9)**. Significantly more males (44.5%, 95% CI: 40.7 – 48.3) than females (30.0%, 95% CI: 26.7 – 33.4) reported not rinsing their mouth after taking sugary food **(Table 4.9)**. By age group, more adults in the youngest age group of 18-19 years (51.3%, 95% CI: 39.6 – 62.8) do not rinse their mouth after taking sugary food compared to older adults in the age group of 30-39 (35.5%, 95% CI: 31.8 – 39.4) and 50-59 years (31.1%, 95% CI: 26.4 – 36.2) **(Table 4.9)**. The prevalence of adults of Chinese ethnicity (47.8%, 95% CI: 42.1 – 53.6) who do not rinse their mouth after taking sugary food was significantly higher compared to other ethnic groups; Malays (34.6%, 95% CI: 31.1 – 38.3), Indians (29.8%, 95% CI: 21.2 – 40.0) and 'Bumiputera Sarawak' (33.5%, 95% CI: 26.1 – 41.8) **(Table 4.9)**. By marital status, significantly more adults who were never married (47.0%, 95% CI: 41.4 – 52.6) had not rinsed their mouth after taking sugary food compared to the other groups; married (34.2%, 95% CI: 31.7 – 36.8) and separated/divorced (26.4%, 95% CI: 18.9 – 35.5) adults. By employment status, more adults who were self-employed (40.1%, 95% CI: 35.9 – 44.5) reported not rinsing their mouth after taking sugary food compared to government/semi-government employees (25.8%, 95% CI: 20.7 – 31.6) **(Table 4.9)**. Of those who had rinsed their mouth after taking sugary food, about 61.7% (95% CI: 58.6 – 64.8) reported they had always rinse their mouth after taking sugary food while 38.3% (95% CI: 35.2 – 41.4) had only sometimes rinsed their mouth after taking sugary food **(Table 4.10)**. Significantly less adults with a monthly income below RM1500 (57.4%, 95% CI: 53.0 – 61.7) had always rinse their mouth after taking sugary food compared to those with those with a monthly income of more than RM3500 (68.1%, 95% CI: 62.4 – 73.4) **(Table 4.10)**.

4.1.6 Brushing teeth before breakfast

About 95.6% (95% CI: 94.4 - 96.6) reported they had brushed their teeth before breakfast while 4.4% (95% CI: 3.4 – 5.6) had not **(Table 4.11)**. Significantly more males (5.7%, 95% CI: 4.2 – 7.8) than females (2.9%, 95% CI: 2.1 - 4.0) reported not brushing their teeth before breakfast **(Table 4.11)**. Of those who reported brushing their teeth before breakfast, about 94.7% (95% CI: 93.4 – 95.7) reported they had always brushed their teeth before breakfast and 5.3% (95% CI: 4.3 - 6.6) had only sometimes brushed their teeth before

breakfast **(Table 4.12)**.
4.1.7 Brushing teeth after main meals

About 52.4% (95% CI: 49.4 – 55.4) reported they had brushed their teeth after the main meals while 47.6% (95% CI: 44.6 – 50.6) had not. By region, significantly more adults in East Malaysia (64.3%, 95% CI: 60.0 – 68.4) reported brushing their teeth after main meals compared to those in Peninsular Malaysia (49.1%, 95% CI: 45.5 – 52.8). More adults in the rural (59.0%, 95% CI: 55.0 – 63.0) reported brushing their teeth after main meals compared to urban adults (49.5%, 95% CI: 45.5 – 53.4). Significantly more females (57.4%, 95% CI: 54.2 – 60.6) than males (47.7%, 95% CI: 43.4 – 51.7) reported brushing their teeth after main meals. Comparing ethnic groups, more adults of 'Other Bumiputera' (66.5%, 95% CI: 61.3 – 71.3) reported brushing their teeth after main meals compared to major ethnic groups; Malays (54.7%, 95% CI: 50.5 – 58.8), Indian (50.0%, 95% CI: 38.8 – 61.1), and Chinese ethnicity (32.9%, 95% CI: 27.4 – 38.8). Comparing educational status, there seems to be significantly more adults with no formal education (69.5%, 95% CI: 57.8 – 79.2) who brushed their teeth after the main meals than adults with secondary education (51.1%, 95% CI: 47.1 – 55.2) and tertiary education (51.2%, 95% CI: 46.3 – 56.1). By employment status, significantly more government/semi-government employees (65.8%, 95% CI: 59.0 – 72.0) reported brushing their teeth after main meals compared to private sector employees (48.3%, 95% CI: 43.9 – 52.7) **(Table 4.13)**. Of those who had brushed their teeth after the main meals, about 38.2% (95% CI: 34.8 – 41.8) had always brushed their teeth after main meals while 61.8% (95% CI: 58.2 - 65.2) had only sometimes brushed their teeth after their main meals. Significantly less males (31.7%, 95% CI: 27.1 – 36.7) reported that they had always brushed their teeth after main meals compared to females (44.2%, 95% CI: 39.6 – 48.8) **(Table 4.14)**.

4.2   Implications

It is equally important to study how food/drinks are consumed in addition to what is consumed. Proper consumptions of food/drinks in relation to main meals can contribute to better health. A good oral hygiene habit in relation to main meals promotes good oral health.

Among those who had consumed water in relation to main meals, only about 1 in 5 adults had consumed plain water within 30 minutes before their meals. Drinking water contribute to a feeling of fullness so that less food is eaten and, over time, promote weight loss.[1] However, the findings showed that about 6 in 10 adults had consumed water after meals and about 2 in 10 during meals. This habit may actually be beneficial as it has been reported that drinking water during and after meals can aid the digestion of foods.[2]

Intake of fruits and vegetables decreases risks of major chronic diseases like heart disease. There is an increased uptake of nutrients into the body when fruits are taken on an empty stomach.[3,4,5] Alternatively, fruits can be taken an hour to two after meals.[3,5] Among those who had consumed fruits in relation to main meals, only about 1 in 5 had ate fruits within half an hour before their main meals but majority had ate fruits after meals.

Majority of adults (3 in 4) in this survey reported chewing their food less than twenty times before swallowing their food. Chewing food for a longer period before swallowing reduces obesity.[6,7] There is evidence that the chewing food for as long as forty times reduces food

intake by 12% compared to a chewing of 15 times before food is swallowed.[4]
Among adults who reported consuming carbonated beverages, about 1 in 2 had not used a straw during their consumption. Carbonated drinks contain a high level of acid which can contribute to dental erosion.[8] Long term erosion of this outer layer of teeth causes tooth sensitivity and may also result in dental caries.[9] The use of straw can reduce the direct contact between teeth especially the anterior teeth and carbonated drinks.[8,9]

Only 4 in 10 adults reported not rinsing their mouth after consuming sugary food. Mouth rinsing after food consumption removes food remnants which bacteria can feed on in the process of weakening the tooth surface.[10,11,12] Rinsing can therefore help reduce the occurrence of dental caries. Besides this, it will also reduce the formation of dental plaque which causes periodontal disease.

Bacterial activity in the mouth is increased during sleep because of decreased salivary flow.[13] It is recommended we brush at least twice a day; before breakfast and before sleep at night. Brushing before breakfast neutralizers the acidic pH of the oral cavity after a night's sleep.[14,15] Almost all adults in this survey reported brushing their teeth before breakfast.

About 1 in 2 adults had brushed their teeth after main meals. Brushing of teeth immediately after the main meals can damage the tooth surface especially when the food consumed is acidic.[16]

4.3   Conclusion

The findings of this survey showed that only 1 in 5 adults consume plain water before main meals, only 1 in 5 adults take fruits before main meals, less than 1 in 20 adults chew their food longer than forty times before swallowing their food, only about half of the adults use a straw when drinking carbonated drinks, more than a third of adults don't rinse their mouth after sugary meals, majority brush their teeth before breakfast and slightly more than half of the adults brush their teeth after main meals.

In light of these findings, there is a need to promote healthy food consumption habits among adults in Malaysia in relation to fruit consumption, chewing of food, use of straw when consuming carbonated beverages, mouth rinsing after taking sugary food and tooth brushing after main meals.

4.4   Recommendations

From the findings of this survey, it is recommended that awareness of healthy food habits be further strengthened in health promotion messages towards better health, including oral health. There is a need to promote the following messages:

- Consumption of water and fruits about half an hour before meals
- Chewing food for a longer period (chewing more than twenty times) before swallowing
- Use of a straw when consuming carbonated beverages
- Mouth rinsing after taking sugary food to reduce the occurrence of dental caries and periodontal disease.
- Brushing of teeth be carried out only about thirty minutes after main meals.[17,18]

4.5 References

1.   http://www.livestrong.com/article/52767-drink-hot-water-weight-loss/ (accessed on 03 September 2014)
2.   http://www.mayoclinic.org/healthy-living/nutrition-and-healthy-eating/expert answers/digestion/faq-20058348 (accessed on 03 September 2014)
3.   http://arabia.msn.com/lifestyle/health-fitness/22742/eid-adha-4/ (accessed on 03 February 2014)
4.   Ella Leche. http://www.mindbodygreen.com (accessed on 03 February 2014)
5.   Sumitra Nair. The right way to eat fruits, Health Me Up Jul 12, 2013. http://articles.timesofindia.indiatimes.com/2013-07-12/diet/fruits-right-way-meal (accessed on 03 February 2014)
6.   Jie Li, et al. Improvement in chewing activity reduces energy intake in one meal and modulates plasma gut hormone concentrations in obese and lean young Chinese men. The American Journal of Clinical Nutrition August 2011. http://ajcn.nutrition.org/content/early/2011/07/20 (accessed on 03 February 2014)
7.   Zilstra N. et al. American Journal of Clinical Nutrition 2009;90:269-75
8.   http://www.medicalnewstoday.com/releases/75300.php (accessed on 05 February 2014)
9.   Bartlett D. Acid Erosion-Why is it important to My Patients?. Academy of General Dentistry's 55th Annual Meeting, San Diego. http://www.dental-professional.com/conditions AcidErosion.aspx (accessed on 05 February 2014)
10. Brushing your teeth. American Dental Association. http://www.mouthhealthy.org/en/az topics/b/brushing-your-teeth.aspx. (accessed on 05 February 2014)
11. http://www.mayoclinic.org/brushing-your-teeth/expert-answers/faq-20058193 (accessed on 05 February 2014)
12. http://www.dentalhealth.ie/dentalhealth/teeth/effectivetoothb.html (accessed on 05 February 2014)
13. Loesche WJ, Kazor C. Microbiology and treatment of halitosis. Periodontology 2000. 2002;28:256–79
14. Brushing your teeth. American Dental Association. http://www.mouthhealthy.org/en/az topics/b/brushing-your-teeth.aspx. (accessed on 05 February 2014)
15. http://www.mayoclinic.org/brushing-your-teeth/expert-answers/faq-20058193 (accessed on 05 February 2014)
16. Brushing your teeth. American Dental Association. http://www.mouthhealthy.org/en/az topics/b/brushing-your-teeth.aspx. (accessed on 06 February 2014)
17. http://www.mayoclinic.org/brushing-your-teeth/expert-answers/faq-20058193 (accessed on 06 February 2014)
18. http://www.dentalhealth.ie/dentalhealth/teeth/effectivetoothb.html (accessed on 06 February 2014)

Table 4.1: Prevalence of plain water consumption in relation to main meals

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2,959**	**19,468,528**	**99.0**	**98.5**	**99.3**	**40**	**198,932**	**1.0**	**0.7**	**1.5**
Region										
Peninsular Malaysia	1,826	15,334,070	99.1	98.5	99.4	23	144,063	0.9	0.6	1.5
East Malaysia	1,133	4,134,458	98.7	97.9	99.2	17	54,870	1.3	0.8	2.1
Location										
Urban	1,563	13,507,356	99.0	98.4	99.4	27	140,310	1.0	0.6	1.6
Rural	1,396	5,961,172	99.0	98.2	99.5	13	58,623	1.0	0.5	1.8
Sex										
Male	1,367	10,180,300	99.1	98.5	99.4	21	97,082	0.9	0.6	1.5
Female	1,592	9,288,228	98.9	98.2	99.4	19	101,851	1.1	0.6	1.8
Age Group										
18-19	130	1,132,417	98.9	95.6	99.7	2	12,140	1.1	0.3	4.4
20-29	680	5,331,304	99.2	98.3	99.6	9	43,847	0.8	0.4	1.7
30-39	821	4,841,923	99.4	98.8	99.7	11	30,886	0.6	0.3	1.2
40-49	746	4,551,649	98.5	9 7.1	99.3	10	67,666	1.5	0.7	2.9
50-59	582	3,611,235	98.8	97.3	99.4	8	44,395	1.2	0.6	2.7
Ethnicity										
Malay	1,455	10,485,296	98.8	98.1	99.3	22	122,183	1.2	0.7	1.9
Chinese	507	3,782,397	98.8	97.5	99.4	11	46,982	1.2	0.6	2.5
Indian	132	1,352,696	99.3	95.5	99.9	1	9,268	0.7	0.1	4.5
Bumiputera Sabah	376	1,505,848	99.7	97.6	100.0	1	5,210	0.3	0.0	2.4
Bumiputera Sarawak	292	1,052,849	99.1	96.8	99.7	3	10,080	0.9	0.3	3.2
Others	180	1,189,272	99.6	97.9	99.9	2	5,210	0.4	0.1	2.1
Other Bumiputera	17	100,170	100.0	100.0	100.0	0	0	0	0.0	0.0

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C303_proportion	C303_proportion	Final_weight	The proportion of respondent who know how long they chew their food before swallowing.	RECODE C303 (-7=0) (-6=-6) (1 thru 3=1) INTO C303_proportion. EXECUTE. 0 = Don't know 1 = Yes -6 = Missing
C303	C303	Final_weight	Number of times food is chewed before swallowing	1 = Less than 20 times 2 = 20 – 40 times 3 = More than 40 times -9 = Refuse to answer -7 = Don't know
C304_proportion	C304_proportion	Final_weight	The proportion of respondent taking carbonated drinks.	RECODE C304 (-8=0) (-6=-6) (1 thru 3=1) INTO C304_proportion. EXECUTE. 0 = Do not take carbonated drinks 1 = Yes, taking carbonated drinks -6 = Missing
C304	C304	Final_weight	Use a straw when drinking carbonated beverages	1 = Yes, always 2 = Yes, sometimes 3 = No -8 = Did not take carbonated beverages -9 = Refuse to answer
C305_proportion	C305_proportion	Final_weight	The proportion of respondent who rinse their mouth after taking sugary food.	RECODE C305 (3=0) (-6=-6) (-9=-6) (1 thru 2=1) INTO C305_pr oportion. EXECUTE. 0 = No, do not rinse the mouth 1 = Yes, rinse the mouth -6 = Missing

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C303_proportion	C303_proportion	Final_weight	The proportion of respondent who know how long they chew their food before swallowing.	RECODE C303 (-7=0) (-6=-6) (1 thru 3=1) INTO C303_proportion. EXECUTE. 0 = Don't know 1 = Yes -6 = Missing
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C304	C304	Final_weight	Use a straw when drinking carbonated beverages	1 = Yes, always 2 = Yes, sometimes 3 = No -8 = Did not take carbonated beverages -9 = Refuse to answer
C305_proportion	C305_proportion	Final_weight	The proportion of respondent who rinse their mouth after taking sugary food.	RECODE C305 (3=0) (-6=-6) (-9=-6) (1 thru 2=1) INTO C305_pr oportion. EXECUTE. 0 = No, do not rinse the mouth 1 = Yes, rinse the mouth -6 = Missing

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C305_yesproportion	C305_yesproportion	Final_weight	The proportion of respondent who always/sometimes rinse their mouth after taking sugary food.	REC ODE C305 (1=1) (2=2) (3=-6) -(6=-6) (-9=-9) INTO C305_yesproportion. EXECUTE. 1 = Yes, always 2 = Yes, sometimes -6 = Missing
C306_proportion	C306_proportion	Final_weight	The proportion of respondent brushing their teeth before breakfas t.	RECODE C306 (3=0) (-6=-6) (1 thru 2=1) INTO C306_proportion. EXECUTE. 0 = No, do not brush the teeth 1 = Yes, brush the teeth -6 = Missing
C306_yesproportion	C306_yesproportion	Final_weight	The proportion of respondent who always/someti mes brush their teeth before breakfast.	RECODE C306 (1=1) (2=2) (3=-6) (-6=-6) INTO C306_yesproportion. EXECUTE. 1 = Yes, always 2 = Yes, sometimes -6 = Missing
C307_proportion	C307_proportion	Final_weight	The proportion of respondent brushing their teeth after main meals.	RECODE C307 (3=0) (-9=-6) (SYSMIS=-6) (MISSING=-6) (1 thru 2= 1) INTO C307_proportion. EXECUTE. 0 = No, do not brush the teeth 1 = Yes, brush the teeth -6 = Missing

Definition of variables: Habits in relation to food consumption (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
C307_yesproportion	C307_yesproportion	Final_weight	The proportion of respondent who always/sometimes brush their teeth after main meals.	RECODE C307 (1=1) (2=2) (-6=-6) (3= -6) (-9=-6) (SYSMIS=-6) (MISSING=-6) INTO C307_yesproportion. EXECUTE. 1 = Yes, always 2 = Yes, sometimes -6 = Missing

Table 4.1: Prevalence of plain water consumption in relation to main meals

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**2,959**	**19,468,528**	**99.0**	**98.5**	**99.3**	**40**	**198,932**	**1.0**	**0.7**	**1.5**
Region										
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East Malaysia	1,133	4,134,458	98.7	97.9	99.2	17	54,870	1.3	0.8	2.1
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Male	1,367	10,180,300	99.1	98.5	99.4	21	97,082	0.9	0.6	1.5
Female	1,592	9,288,228	98.9	98.2	99.4	19	101,851	1.1	0.6	1.8
Age Group										
18-19	130	1,132,417	98.9	95.6	99.7	2	12,140	1.1	0.3	4.4
20-29	680	5,331,304	99.2	98.3	99.6	9	43,847	0.8	0.4	1.7
30-39	821	4,841,923	99.4	98.8	99.7	11	30,886	0.6	0.3	1.2
40-49	746	4,551,649	98.5	97.1	99.3	10	67,666	1.5	0.7	2.9
50-59	582	3,611,235	98.8	97.3	99.4	8	44,395	1.2	0.6	2.7
Ethnicity										
Malay	1,455	10,485,296	98.8	98.1	99.3	22	122,183	1.2	0.7	1.9
Chinese	507	3,782,397	98.8	97.5	99.4	11	46,982	1.2	0.6	2.5
Indian	132	1,352,696	99.3	95.5	99.9	1	9,268	0.7	0.1	4.5
Bumiputera Sabah	376	1,505,848	99.7	97.6	100.0	1	5,210	0.3	0.0	2.4
Bumiputera Sarawak	292	1,052,849	99.1	96.8	99.7	3	10,080	0.9	0.3	3.2
Others	180	1,189,272	99.6	97.9	99.9	2	5,210	0.4	0.1	2.1
Other Bumiputera	17	100,170	100.0	100.0	100.0	0	0	0	0.0	0.0

Table 4.1: Prevalence of plain water consumption in relation to main meals (Cont.)

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Marital status										
Never married	729	5,491,822	99.1	98.2	99.5	13	51,311	0.9	0.5	1.8
Married/Cohabiting	2,037	13,090,406	98.9	98.3	99.3	26	143,715	1.1	0.7	1.7
Divorced/Separated	130	638,800	100.0	100.0	100.0	0	0	0	0	0
Widow	60	229,197	98.3	88.7	99.8	1	3,907	1.7	0.2	11.3
Others	1	9,192	100.0	100.0	100.0					
Education Level										
Non-formal	135	508,167	100.0	100.0	100.0					
Primary	617	3,586,224	98.9	97.2	99.6	6	38,468	1.1	0.4%	2.8
Secondary	1,438	9,674,329	98.8	97.9	99.3	24	121,911	1.2	0.7%	2.1
Tertiary	741	5,566,076	99.3	98.7	99.6	10	38,554	0.7	0.4%	1.3
Others	18	88,065	100.0	100.0	100.0					
Work status										
Government/ Semi-government	369	2,236,307	99.2	97.9	99.7	5	18,747	0.8	0.3	2.1
Private	1,063	8,079,046	98.6	97.7	99.2	18	111,504	1.4	0.8	2.3
Self-employed	825	4,907,673	99.0	97.9	99.6	12	47,505	1.0	0.4	2.1
Unpaid workers	8	50,222	100.0	100.0	100.0					
Not working										
Retired	575	3,184,223	99.7	98.9	99.9	3	10,420	0.3	0.1	1.1
Students	28	206,148	98.5	89.6	99.8	1	3,123	1.5	0.2	10.4
Others	61	618,935	98.8	91.7	99.8	1	7,634	1.2	0.2	8.3
Income Group										
Less than RM1500	1,390	7,951,575	99.0	98.1	99.4	18	83,040	1.0	0.6	1.9
RM1500– RM3500	878	6,181,665	98.8	97.8	99.4	13	73,164	1.2	0.6	2.2
More than RM 3500	662	5,104,408	99.2	98.2	99.6	9	42,729	0.8	0.4	1.8

Table 4.2 : Prevalence of plain water drinking habit among adults consuming plain water either before, during or after the main meals

Socio-demographic Characteristics	Before					During					After				
	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	**4,318,977**	**653**	**22.2**	**19.9**	**24.6**	**3,666,732**	**566**	**18.8**	**16.6**	**21.3**	**11,482,819**	**1,740**	**59.0**	**56.6**	**61.4**
Region															
Peninsular Malaysia	3,452,025	408	22.5	19.8	25.5	2,847,389	341	18.6	15.9	21.5	9,034,655	1,077	58.9	56.0	61.7
East Malaysia	866,951	245	21.0	18.0	24.3	819,343	225	19.8	16.0	24.2	2,448,164	663	59.2	55.2	63.1
Location															
Urban	3,004,856	343	22.2	19.3	25.5	2,663,609	337	19.7	16.8	23.0	7,838,891	883	58.0	54.9	61.1
Rural	1,314,121	310	22.0	19.1	25.3	1,003,123	229	16.8	13.7	20.4	3,643,928	857	61.1	57.8	64.4
Sex															
Male	2,031,270	288	20.0	17.1	23.1	2,022,574	258	19.9	17.0	23.0	6,126,457	821	60.2	56.8	63.5
Female	2,287,707	365	24.6	21.6	27.9	1,644,158	308	17.7	14.9	20.8	5,356,362	919	57.7	54.4	60.8
Age Group															
18-19	209,672	27	18.5	11.7	28.1	259,010	30	22.9	14.7	33.7	663,735	73	58.6	47.1	69.2
20-29	1,145,076	137	21.5	17.6	26.0	929,687	124	17.4	13.8	21.8	3,256,542	419	61.1	56.5	65.5
30-39	1,180,604	201	24.4	20.7	28.5	867,126	153	17.9	14.7	21.6	2,794,192	467	57.7	53.4	61.9
40-49	1,007,424	164	22.1	18.4	26.4	943,586	149	20.7	17.1	24.9	2,600,639	433	57.1	52.1	62.0
50-59	776,201	124	21.5	17.1	26.6	667,324	110	18.5	14.3	23.5	2,167,711	348	60.0	54.4	65.4
Ethnicity															
Malay	2,397,317	325	22.9	19.6	26.5	1,774,784	253	16.9	14.1	20.1	6,313,195	877	60.2	56.7	63.6
Chinese	863,285	122	22.8	19.1	27.1	752,448	97	19.9	15.1	25.7	2166,664	288	57.3	51.9	62.5
Indian	249,535	23	18.4	10.9	29.5	387,688	39	28.7	19.8	39.5	715,473	70	52.9	42.6	62.9
Bumiputera Sarawak	103,661	35	9.8	6.8	14.1	237,505	69	22.6	16.4	30.2	711,683	188	67.6	60.4	74.1
Bumiputera Sabah	389,425	98	25.9	20.8	31.7	285,814	70	19.0	13.7	25.7	830,609	208	55.2	49.0	61.2
Others	302,559	48	25.4	17.3	35.7	216,692	34	18.2	10.9	28.9	670,021	98	56.3	45.9	66.3
Other Bumiputera	13,195	2	13.2	2.6	45.9	11,801	4	11.8	4.5	27.4	75,174	11	75.0	56.0	87.7

Table 4.2 : Prevalence of plain water drinking habit among adults consuming plain water either before, during or after the main meals (Cont.)

Socio-demographic Characteristics	Before Estimated population	Before Unweighted Count	Before %	Before 95% CI Lower	Before 95% CI Upper	During Estimated population	During Unweighted Count	During %	During 95% CI Lower	During 95% CI Upper	After Estimated population	After Unweighted Count	After %	After 95% CI Lower	After 95% CI Upper
Marital status															
Never married	1,257,689	158	22.9	19.0	27.4	1,009,636	138	18.4	14.7	22.7	3,224,497	433	58.7	53.8	63.5
Married/ Cohabiting	2,891,067	449	22.1	19.8	24.6	2,417,466	385	18.5	16.0	21.2	7,781,872	1,203	59.4	56.6	62.3
Divorced/ Separated	119,645	29	18.7	12.3	27.4	161,986	27	25.4	16.4	37.0	357,168	74	55.9	45.0	66.2
Widow	41,383	16	18.1	10.3	29.7	69,835	15	30.5	16.3	49.6	117,979	29	51.5	32.4	70.1
Others	9,192	1	100.0	100.0	100.										
Education Level															
Non-formal	79,190	20	15.6	8.7	26.4	162,693	45	32.0	22.0	44.0	266,284	70	52.4	40.4	64.2
Primary	838,937	142	23.4	19.4	28.0	687807	123	19.2	15.4	23.6	2,059,480	352	57.4	52.5	62.3
Secondary	2,080,841	307	21.5	18.5	24.8	1,848,977	268	19.1	16.2	22.4	5,744,512	863	59.4	56.1	62.6
Tertiary	1,285,389	176	23.1	19.3	27.4	951,551	126	17.1	13.6	21.3	3,329,136	439	59.8	55.1	64.3
Others	20,717	6	23.5	8.8	49.5	3,907	1	4.4	0.6	26.7	63,440	11	72.0	45.8	88.7
Work status															
Government/Semi-government	510,567	84	22.8	17.5	29.3	283,786	44	12.7	8.9	17.8	1,441,954	241	64.5	57.5	70.9
Private	1,673,098	218	20.7	17.4	24.5	1,470,685	208	18.2	15.2	21.7	4,935,263	637	61.1	57.5	64.6
Self-employed	1,012,638	183	20.6	17.5	24.2	1,046,321	155	21.3	17.5	25.7	2,848,713	487	58.0	53.8	62.2
Unpaid workers	6,759	1	13.5	1.7	58.2	1,908	1	3.8	0.5	25.7	41,555	6	82.7	42.3	96.9
Not working	881,778	144	27.7	22.6	33.4	617,382	126	19.4	15.2	24.3	1,685,063	305	52.9	47.4	58.4
Retired	36,666	4	17.8	4.2	51.9	22,906	4	11.1	3.3	31.3	146,575	20	71.1	42.4	89.2
Students	175,135	14	28.3	16.4	44.3	161,696	15	26.1	15.1	41.2	282,104	32	45.6	30.1	62.0
Others															
Income Group															
Less than RM1500	1,774,672	300	22.3	19.3	25.6	1,562,842	285	19.7	16.7	23.0	4,614,061	805	58.0	54.4	61.6
RM1500-RM3500	1,335,682	198	21.6	17.8	25.9	1,218,055	168	19.7	16.1	23.9	3,627,928	512	58.7	54.5	62.8
More than RM 3500	1,144,732	148	22.4	18.3	27.2	817,120	107	16.0	12.5	20.3	3,142,556	407	61.6	56.4	66.5

Table 4.3: Prevalence of fruit consumption in relation to main meals

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia	2,646	17,483,850	89.0	87.2	90.7	346	2,155,130	11.0	9.3	12.8
Region										
Peninsular Malaysia	1,649	13,886,684	89.8	87.6	91.7	195	1,569,480	10.2	8.3	12.4
East Malaysia	997	3,597,166	86.0	82.7	88.7	151	585,649	14.0	11.3	17.3
Location										
Urban	1,438	12,344,273	90.5	88.1	92.5	149	1,292,247	9.5	7.5	11.9
Rural	1,208	5,139,577	85.6	82.7	88.1	197	862,882	14.4	11.9	17.3
Sex										
Male	1,176	8,813,263	85.9	82.8	88.4	209	1,450,601	14.1	11.6	17.2
Female	1,470	8,670,587	92.5	90.8	93.9	137	704,528	7.5	6.1	9.2
Age Group										
18-19	104	858,556	75.5	63.7	84.3	27	279,241	24.5	15.7	36.3
20-29	592	4,675,454	87.1	83.3	90.1	96	695,062	12.9	9.9	16.7
30-39	741	4,395,972	90.5	87.8	92.6	87	463,655	9.5	7.4	12.2
40-49	677	4,221,646	91.4	88.8	93.4	79	397,669	8.6	6.6	11.2
50-59	532	3,332,222	91.3	88.0	93.7	57	319,501	8.7	6.3	12.0
Ethnicity										
Malay	1,307	9,389,475	88.7	85.7	91.1	165	1,200,188	11.3	8.9	14.3
Chinese	479	3,541,587	92.6	89.1	95.0	38	283,885	7.4	5.0	10.9
Indian	117	1,224,619	90.4	81.5	95.2	15	130,586	9.6	4.8	18.5
Bumiputera Sabah	339	1,347,777	89.2	83.6	93.0	38	163,282	10.8	7.0	16.4
Bumiputera Sarawak	238	858,965	80.8	74.6	85.8	57	203,964	19.2	14.2	25.4
Other Bumiputera	13	82,649	82.5	53.1	95.2	4	17,521	17.5	4.8	46.9
Others	153	1,038,778	87.0	77.9	92.7	29	155,703	13.0	7.3	22.1

Table 4.3: Prevalence of fruit consumption in relation to main meals (Cont.)

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Marital status										
Never married	625	4,628,354	83.6	79.2	87.3	115	905,767	16.4	12.7	20.8
Married/Cohabiting	1,858	12,093,893	91.5	89.9	92.9	201	1,124,665	8.5	7.1	10.1
Divorced/Separated	110	541,687	85.3	76.2	91.4	19	93,205	14.7	8.6	23.8
Widow	51	202,914	87.0	75.2	93.7	10	30,191	13.0	6.3	24.8
Others	1	9,192	100.0	100.0	100.0					
Education Level										
Non-formal	103	393,353	77.4	67.3	85.1	32	114,814	22.6	14.9	32.7
Primary	518	3,018,058	83.4	79.3	86.8	104	602,727	16.6	13.2	20.7
Secondary	1285	8,653,447	88.5	86.2	90.5	173	1,125,458	11.5	9.5	13.8
Tertiary	715	5,298,808	94.7	91.2	96.8	34	298,583	5.3	3.2	8.8
Others	16	79,989	90.8	66.6	98.0	2	8,076	9.2	2.0	33.4
Work status										
Government/ Semi-government	352	2,130,087	94.8	91.3	96.9	20	117,728	5.2	3.1	8.7
Private	944	7,289,023	89.0	86.5	91.1	136	897,710	11.0	8.9	13.5
Self-employed	717	4,342,222	87.7	84.5	90.4	118	606,197	12.3	9.6	15.5
Unpaid workers	7	36,320	72.3	22.7	95.9	1	13,903	27.7	4.1	77.3
Not working	515	2,802,249	87.8	82.6	91.7	62	388,486	12.2	8.3	17.4
Retired	27	197,195	94.2	75.9	98.8	2	12,076	5.8	1.2	24.1
Students	57	541,653	86.4	66.7	95.3	5	84,916	13.6	4.7	33.3
Others										
Income Group										
Less than RM1500	1,178	6,780,725	84.5	81.1	87.4	227	1,241,060	15.5	12.6	18.9
RM1500 – RM3500	803	5,584,830	89.3	86.3	91.7	87	666,091	10.7	8.3	13.7
More than RM 3500	637	4,892,010	95.3	92.6	97.0	31	243,382	4.7	3.0	7.4

Table 4.4: Prevalence of fruit consumption habit among adults who had either ate fruits before, during or after the main meals

Socio-demographic Characteristics	Before					During					After				
	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	**4,050,983**	**625**	**23.2**	**21.2**	**25.3**	**852,326**	**101**	**4.9**	**3.7**	**6.5**	**12,580,541**	**1,920**	**72.0**	**69.7**	**74.1**
Region															
Peninsular Malaysia	3,245,797	395	23.4	21.0	25.9	739,758	73	5.3	3.9	7.3	9,901,129	1,181	71.3	68.6	73.9
East Malaysia	805,186	230	22.4	19.4	25.7	112568	28	3.1	2.0	4.8	2,679,412	739	74.5	71.0	77.7
Location															
Urban	2,821,318	341	22.9	20.3	25.6	660,052	59	5.3	3.8	7.6	8,862,903	1,038	71.8	68.8	74.6
Rural	1,229,665	284	23.9	21.0	27.1	192,274	42	3.7	2.5	5.5	3,717,638	882	72.3	69.1	75.3
Sex															
Male	1,857,391	263	21.1	18.4	24.0	456,317	44	5.2	3.5	7.7	6,499,555	869	73.7	70.4	76.8
Female	2,193,592	362	25.3	22.6	28.2	396,009	57	4.6	3.3	6.3	6,080,986	1,051	70.1	67.1	73.0
Age Group															
18 – 19	166,369	26	19.4	11.9	29.9	28,347	4	3.3	0.9	10.9	663,840	74	77.3	66.3	85.5
20 –29	1,117,458	148	23.9	20.0	28.3	259,528	25	5.6	3.3	9.2	3,298,468	419	70.5	65.9	74.8
30 –39	1,043,359	175	23.7	20.1	27.8	124,663	20	2.8	1.7	4.6	3,227,950	546	473.	69.2	77.2
40 –49	920,663	148	21.8	18.7	25.3	201,060	24	4.8	2.7	8.1	3,099,922	505	73.4	69.4	77.1
50 –59	803,134	128	24.1	19.6	29.3	238,728	28	7.2	4.6	11.1	2,290,360	376	68.7	63.2	73.8
Ethnicity															
Malay	2448490	337	26.1	23.1	29.3	471,504	57	5.0	3.6	7.0	6,469,481	913	68.9	65.7	71.9
Chinese	681,645	99	19.2	15.3	23.9	241,226	21	6.8	3.8	11.8	2,618,716	359	73.9	67.6	79.4
Indian	200,420	21	16.4	10.3	25.1	26,518	2	2.2	0.4	9.8	997,681	94	81.5	70.5	89.0
Bumiputera Sarawak	175,810	49	20.5	14.5	28.1	49,768	12	5.8	3.2	10.4	633,387	177	73.7	66.3	80.0
Bumiputera Sabah	328,915	88	24.4	19.6	29.9	26,429	5	2.0	0.7	5.3	992,433	246	73.6	67.7	78.8
Others	211,796	30	20.4	13.4	29.7	36,881	4	3.6	1.0	12.0	790,101	119	76.1	65.7	84.0
Other Bumiputera	3,907	1	4.7	0.7	26.7						78,742	12	95.3	73.3	99.3

Table 4.4: Prevalence of fruit consumption habit among adults who had either ate fruits before, during or after the main meals (Cont.)

Socio-demographic Characteristics	Before					During					After				
	Estimated population	Unweighted Count	%	95% CI Lower	Upper	Estimated population	Unweighted Count	%	95% CI Lower	Upper	Estimated population	Unweighted Count	%	95% CI Lower	Upper
Marital status															
Never married	1,110,909	158	24.0	19.9	28.7	236,404	23	5.1	3.0	8.6	3,281,040	444	70.9	65.9	75.5
Married/Cohabiting	2,771,145	428	22.9	20.6	25.4	577,393	72	4.8	3.5	6.5	8,745,357	1358	72.3	69.6	74.9
Divorced/Separated	137,294	31	25.3	17.5	35.3	38,529	6	7.1	2.5	18.4	365,864	73	67.5	56.6	76.9
Widow	31,635	8	15.6	6.6	32.5						171,279	43	84.4	67.5	93.4
Others											9,192	1	100.0	100.0	100.0
Education Level															
Non-formal	63,786	18	16.2	10.1	25.0	28,463	5	7.2	2.9	17.0	301,104	80	76.5	66.1	84.6
Primary	511,274	99	16.9	13.2	21.5	243,782	26	8.1	4.9	12.9	2,263,002	393	75.0	69.6	79.7
Secondary	1,812,149	275	20.9	18.5	23.7	35451	43	4.1	2.7	6.1	6,489,848	967	75.0	72.1	77.7
Tertiary	1,601,988	220	30.2	26.4	34.4	228,631	27	4.3	2.7	6.8	3,468,189	468	65.5	61.1	69.5
Others	35,942	7	44.9	18.7	74.4						44,047	9	55.1	25.6	81.3
Work status															
Government/Semi-government	755,901	114	35.5	29.4	42.1	130,722	17	6.1	3.6	10.4	1,243,464	221	58.4	51.4	65.0
Private	1,499,116	197	20.6	17.5	24.0	300,422	28	4.1	2.4	6.9	5,489,485	719	75.3	71.5	78.8
Self-employed	998,290	174	23.0	19.2	27.3	205,016	25	4.7	2.9	6.7	3,138,915	518	72.3	67.6	76.5
Unpaid workers	1,532	1	4.2	0.5	28.8						34,788	6	95.8	71.2	99.5
Not working	613,646	113	21.9	17.6	26.9	124,831	25	4.5	2.7	7.2	2,063,772	377	73.6	68.3	78.4
Retired	33,266	5	16.9	6.8	35.9	25,682	3	13.0	4.6	32.0	138,248	19	70.1	45.9	86.7
Students	134,657	15	24.9	13.2	41.8	38,297	2	7.1	1.8	23.5	368,699	40	68.1	52.1	80.7
Others															
Income Group															
Less than RM1500	1,368,500	241	20.2	17.2	23.5	408,261	46	6.0	3.9	9.2	5,003,964	891	73.8	70.0	77.3
RM1500-RM3500	1,240,095	191	22.2	19.1	25.7	240,770	32	4.3	2.8	6.7	4,103,965	580	73.5	69.6	77.1
More than RM3500	1,387,176	183	28.4	24.3	32.8	203,294	23	4.2	2.5	6.7	3,301,540	431	67.5	63.1	71.6

Table 4.5: Prevalence of length of chewing food before swallowing

Socio-demographic Characteristics	No (don't know)					Yes				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia	**2,221,954**	**319**	**11.4**	**8.7**	**14.8**	**17,238,569**	**2,658**	**88.6**	**85.2**	**91.3**
Region										
Peninsular Malaysia	1,799,314	197	11.8	8.6	15.9	13,471,882	1,630	88.2	84.1	91.4
East Malaysia	422,640	122	10.1	6.2	16.0	3,766,687	1,028	89.9	84.0	93.8
Location										
Urban	1,692,090	195	12.5	9.0	17.1	11,811,593	1,384	87.5	82.9	91.0
Rural	529,864	124	8.9	5.8	13.5	5,426,977	1,274	91.1	86.5	94.2
Sex										
Male	1,339,877	158	13.2	9.9	17.4	8,819,714	1,219	86.8	82.6	90.1
Female	882,078	161	9.5	6.8	13.1	8,418,856	1,439	90.5	86.9	93.2
Age Group										
18–19	216,525	24	18.9	10.5	31.8	928,032	108	81.1	68.2	89.5
20–29	605,764	75	11.5	7.9	16.4	4,661,648	604	88.5	83.6	92.1
30–39	530,880	80	11.0	7.8	15.2	4,314,958	747	89.0	84.8	92.2
40–49	468,932	77	10.2	6.7	15.1	4,131,974	677	89.8	84.9	93.3
50–59	399,854	63	11.1	7.7	15.8	3,201,957	522	88.9	84.2	92.3
Ethnicity										
Malay	1,069,333	129	10.2	7.0	14.5	9,434,443	1,336	89.8	85.5	93.0
Chinese	663,156	90	17.6	11.6	25.7	3,105,103	422	82.4	74.3	88.4
Indian	138,513	15	10.5	5.5	19.2	1,185,155	115	89.5	80.8	94.5
Bumiputera Sabah	140,363	37	9.3	4.6	17.9	1,370,695	340	90.7	82.1	95.4
Bumiputera Sarawak	18,438	7	1.7	0.6	4.7	1,044,491	288	98.3	95.3	99.4
Others	192,151	41	16.1	8.8	27.7	998,513	140	83.9	72.3	91.2
Other Bumiputera						100,170	17	100.0	100.0	100.0

Table 4.5: Prevalence of length of chewing food before swallowing (Cont.)

Socio-demographic Characteristics	No (don't know)					Yes				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Marital status										
Never married	766,949	97	14.1	10.0	19.5	4,677,987	637	85.9	80.5	90.0
Married/Cohabiting	1,360,792	199	10.4	7.6	13.9	11,770,314	1851	89.6	86.1	92.4
Divorced/Separated	68,849	13	10.8	5.1	21.3	569,950	117	89.2	78.7	94.9
Widow	24,061	9	10.6	4.7	22.0	203,318	51	89.4	78.0	95.3
Others						9,192	1	100.0	100.0	100.0
Education Level										
Non-formal	61,166	16	12.0	5.8	23.3	447,001	119	88.0	76.7	94.2
Primary	554,458	85	15.4	10.3	22.4	3,050,460	535	84.6	77.6	89.7
Secondary	1,132,621	151	11.7	8.6	15.7	8,565,403	1300	88.3	84.3	91.4
Tertiary	463,731	65	8.4	5.8	12.1	5,051,952	678	91.6	87.9	94.2
Others	4,506	1	5.1	0.7	29.7	83,559	17	94.9	70.3	99.3
Work status										
Government/ Semi-government	178,893	30	8.0	5.2	12.2	2,055,951	341	92.0	87.8	94.8
Private	919,542	132	11.4	8.2	15.5	7,176,482	939	88.6	84.5	91.8
Self-employed	474,022	70	9.7	6.6	13.9	4,419,236	763	90.3	86.1	93.4
Unpaid workers	31,462	4	62.6	22.0	90.9	18,760	4	37.4	9.1	78.0
Not working	413,697	66	13.0	8.8	18.9	2,758,044	509	87.0	81.1	91.2
Retired	12,851	2	6.3	1.1	29.0	190,950	26	93.7	71.0	98.9
Students	126,463	11	20.2	10.4	35.5	500,106	51	79.8	64.5	89.6
Others										
Income Group 1										
Less than RM1500	1,169,422	171	14.7	10.7	19.8	6,800,346	1,227	85.3	80.2	89.3
RM1500– RM3500	602,039	86	9.8	6.9	13.6	5,567,185	798	90.2	86.4	93.1
More than RM 3500	377,973	55	7.4	4.9	11.1	4,712,678	611	92.6	88.9	95.1

Table 4.6: Prevalence of chewing habits before swallowing among adults who were aware of the length of chewing

| Socio-demographic Characteristics | Less than 20 times | | | | | 20– 40 times | | | | | More than 40 times | | | | |
	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper
Malaysia	12,717,503	1,967	73.8	70.9	76.5	4,116,926	628	23.9	21.4	26.5	404,141	63	2.3	1.6	3.3
Region															
Peninsular Malaysia	9,735,861	1,149	72.3	68.8	75.5	3,392,422	436	25.2	22.3	28.3	343,600	45	2.6	1.7	3.8
East Malaysia	2,981,642	818	79.2	74.4	83.3	724,505	192	19.2	15.5	23.7	60,541	18	1.6	0.9	3.0
Location															
Urban	8,881,443	1,057	75.2	71.5	78.6	2,685,366	299	22.7	19.6	26.2	244,783	28	2.1	1.3	3.4
Rural	3,836,059	910	70.7	66.2	74.8	1,431,560	329	26.4	22.8	30.4	159,358	35	2.9	1.8	4.8
Sex															
Male	6,648,788	919	75.4	71.8	78.6	2,036,242	278	23.1	20.0	26.5	134,683	22	1.5	0.8	2.8
Female	6,068,715	1,048	72.1	68.5	75.4	2,080,684	350	24.7	21.5	28.2	269,458	41	3.2	2.2	4.7
Age Group															
18–19	693,287	79	74.7	63.1	83.6	207,738	26	22.4	14.0	33.9	27,007	3	2.9	0.8	9.5
20–29	3,518,111	448	75.5	71.0	79.5	1,050,243	142	22.5	18.7	26.9	93,294	14	2.0	1.1	3.6
30–39	3,274,208	561	75.9	71.3	80.0	951,392	170	22.0	18.3	26.4	89,358	16	2.1	1.0	4.2
40–49	3,019,670	519	73.1	67.8	77.8	995,378	144	24.1	19.7	29.1	116,926	14	2.8	1.4	5.5
50–59	2,212,226	360	69.1	63.4	74.2	912174	146	28.5	23.6	33.9	77,556	16	2.4	1.4	4.3
Ethnicity															
Malay	6,696,096	946	71.0	67.0	74.6	2,455,406	351	26.0	22.8	29.5	282,941	39	3.0	1.9	4.6
Chinese	2,305,100	321	74.2	67.7	79.8	735,863	90	23.7	18.4	30.0	64,139	11	2.1	0.9	4.6
Indian	979,894	93	82.7	73.5	89.1	195,992	21	16.5	10.1	25.8	9,268	1	0.8	0.1	5.3
Bumiputera	872,056	242	83.5	77.7	88.0	148,219	41	14.2	10.5	18.9	24,216	5	2.3	0.8	6.6
Sarawak Bumiputera	1,037,539	250	75.7	66.2	83.2	321,403	85	23.4	16.4	32.4	11,753	5	0.9	0.4	2.1
Sabah Others	766,799	104	76.8	65.1	85.4	219,891	34	22.0	13.5	33.8	11,824	2	1.2	0.2	5.7
Other Bumiputera	60,018	11	59.9	29.9	83.9	40,152	6	40.1	16.1	70.1					

Table 4.6: Prevalence of chewing habits before swallowing among adults who were aware of the length of chewing (Cont.)

Socio-demographic Characteristics	Less than 20 times					20–40 times					More than 40 times				
	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	%	95% CI Lower	95% CI Upper
Marital status															
Never married	3,527,712	463	75.4	71.0	79.4	1,047,466	158	22.4	18.6	26.7	102,808	16	2.2	1.2	4.1
Married/ Cohabiting	8,579,620	1382	72.9	69.6	76.0	2,909,708	429	24.7	22.0	27.7	280,985	40	2.4	1.6	3.6
Divorced/ Separated	436,534	83	76.6	67.4	83.8	114,977	28	20.2	13.6	28.9	18,439	6	3.2	1.3	8.0
Widow	165,827	38	81.6	66.9	90.6	35,583	12	17.5	8.7	32.1	1,908	1	0.9	0.1	6.6
Others						9,192	1	100.0	100.0	100.0					
Education Level															
Non-formal	343,704	98	76.9	63.3	86.5	98,833	19	22.1	12.7	35.7	4,464	2	1.0	0.2	4.1
Primary	2,270,225	396	74.4	68.9	79.2	710,540	125	23.3	18.6	28.7	69,695	14	2.3	1.2	4.4
Secondary	6,187,154	944	72.2	68.3	75.8	2,180,900	326	25.5	22.1	29.2	197,349	30	2.3	1.5	3.6
Tertiary	3,813,834	509	75.5	70.8	79.7	1,105,485	152	21.9	18.1	26.2	132,633	17	2.6	1.5	4.7
Others	64,643	12	77.4	50.4	92.0	18,916	5	22.6	8.0	49.6					
Work status															
Government/ Semi-government	1,322,486	239	64.3	56.8	71.2	659,107	94	32.1	25.6	39.2	74,358	8	3.6	1.5	8.5
Private	5,484,793	704	76.4	72.6	79.9	1,589,095	219	22.1	18.8	25.9	102,594	16	1.4	0.8	2.6
Self-employed	3,306,924	572	74.8	69.9	79.2	979,993	170	22.2	18.1	26.9	132,319	21	3.0	1.6	5.5
Unpaid workers	18,760	4	100	100.0	100.0										
Not working	2,016,805	374	73.1	67.7	78.0	673,377	120	24.4	19.9	29.6	67,862	15	2.5	1.3	4.5
Retired	130,646	19	68.4	45.5	84.9	60,304	7	31.6	15.1	54.5					
Students	377,010	39	75.4	57.0	87.6	96,089	9	19.2	8.1	39.2	27,007	3	5.4	1.6	6.71
Others															
Income Group															
Less than RM1500	5,101,051	912	75.0	70.8	78.8	1,583,637	285	23.3	19.6	27.4	115,658	30	1.7	1.1	2.7
RM1500-RM3500	4,065,538	588	73.0	68.7	76.9	1,397,362	195	25.1	21.4	29.2	104,286	15	1.9	1.1	3.2
More than RM 3500	3,441,278	452	73.0	68.1	77.4	1,091,709	142	23.2	19.6	27.2	179,691	17	3.8	2.2	6.0

Table 4.7: Prevalence of drinking carbonated beverages among adults

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia	**2,398**	**15,886,633**	**80.8**	**78.7**	**82.7**	**599**	**3,772,497**	**19.2**	**17.3**	**21.3**
Region										
Peninsular Malaysia	1,413	12,231,020	79.1	76.6	81.3	435	3,241,388	20.9	18.7	23.4
East Malaysia	985	3,655,613	87.3	84.1	89.9	164	531,109	12.7	10.1	15.9
Location										
Urban	1,317	11,247,341	82.4	79.8	84.8	272	2,397,721	17.6	15.2	20.2
Rural	1,081	4,639,293	77.1	73.7	80.2	327	1,374,776	22.9	19.8	26.3
Sex										
Male	1,162	8,671,482	84.4	81.6	86.8	226	1,605,900	15.6	13.2	18.4
Female	1,236	7,215,151	76.9	74.0	79.6	373	2,166,597	23.1	20.4	26.0
Age Group										
18–19	125	1,083,329	94.7	87.9	97.7	7	61,228	5.3	2.3	12.1
20-29	615	4,787,715	89.1	85.3	92.0	74	587,436	10.9	8.0	14.7
30-39	677	3,925,985	80.6	77.1	83.6	155	946,823	19.4	16.4	22.9
40-49	583	3,582,131	77.6	73.4	81.3	172	1,034,578	22.4	18.7	26.6
50-59	398	2,507,472	68.7	63.6	73.4	191	1,142,432	31.3	26.6	36.4
Ethnicity										
Malay	1,115	8,180,980	77.2	74.3	79.8	361	2,420,773	22.8	20.2	25.7
Chinese	436	3,280,866	85.7	81.8	88.9	81	545,908	14.3	11.1	18.2
Indian	94	1,002,493	73.6	63.9	81.5	39	359,471	26.4	18.5	36.1
Bumiputera Sabah	350	1,414,552	93.6	90.4	95.8	27	96,506	6.4	4.2	9.6
Bumiputera Sarawak	228	865,883	81.5	73.3	87.6	67	197,045	18.5	12.4	26.7
Other bumis	13	75,868	75.7	54.3	89.2	4	24,301	24.3	10.8	45.7

Table 4.7: Prevalence of drinking carbonated beverages among adults (Cont.)

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Marital status										
Never married	162	1,065,989	89.2	82.7	93.5	20	128,492	10.8	6.5	17.3
Married/Cohabiting	664	5,022,125	90.6	87.5	93.0	78	521,008	9.4	7.0	12.5
Divorced/Separated	1,599	10,226,054	77.3	74.7	79.7	463	3,005,461	22.7	20.3	25.3
Widow	92	457,327	71.6	61.4	80.0	38	181,472	28.4	20.0	38.6
Others	41	170,632	75.0	58.5	86.5	19	56,747	25.0	13.5	41.5
	1	9,192	100.0	100.0	100.0					
Education Level										
Non-formal	93	326,195	64.2	50.6	75.9	42	181,973	35.8	24.1	49.4
Primary	479	2,821,202	77.8	73.1	82.0	144	803,490	22.2	18.0	26.9
Secondary	1,177	7,943,979	81.1	78.4	83.6	284	1,846,535	18.9	16.4	21.6
Tertiary	625	4,685,482	83.6	80.1	86.7	125	916,543	16.4	13.3	19.9
Others	16	75,631	85.9	57.5	96.5	2	12,434	14.1	3.5	42.5
Work status										
Government/ Semi-government	297	1,785,015	79.2	72.9	84.5	76	467,434	20.8	15.5	27.1
Private	915	6,923,558	84.6	81.6	87.2	165	1,261,267	15.4	12.8	18.4
Self-employed	646	3,871,309	78.1	73.8	81.9	191	1,083,868	21.9	18.1	26.2
Unpaid workers	8	50,222	100.0	100.0	100.0					
Not working	434	2,369,274	74.2	69.0	78.7	144	825,368	25.8	21.3	31.0
Retired	20	156,453	74.8	55.9	87.4	9	52,818	25.2	12.6	44.1
Students	58	594,060	94.8	86.3	98.2	4	32,509	5.2	1.8	13.7
Others										
Income Group										
Less than RM1500	1119	6,496,092	80.9	77.6	83.7	289	1,538,522	19.1	16.3	22.4
RM1500–RM3500	730	5,173,872	82.8	79.4	85.8	160	1,075,231	17.2	14.2	20.6
More than RM 3500	530	4,039,995	78.5	74.5	82.1	140	11,045,373	21.5	17.9	25.5

Table 4.8: Prevalence of using straw among adults who drink carbonated beverages

Socio-demographic Characteristics	Yes, always					Yes, sometimes					No				
	Estimated population	Unweighted Count	%	95% CI Lower	Upper	Estimated population	Unweighted Count	%	95% CI Lower	Upper	Estimated population	Unweighted Count	%	95% CI Lower	Upper
Malaysia	**4,454,036**	**669**	**28.0**	**25.4**	**30.9**	**3,233,141**	**518**	**20.4**	**18.2**	**22.6**	**8,199,456**	**1,211**	**51.6**	**48.8**	**54.4**
Region															
Peninsular Malaysia	3,196,566	336	26.1	22.9	29.6	2,375,863	271	19.4	16.9	22.2	6,658,590	806	54.4	51.0	57.8
East Malaysia	1,257,469	333	34.4	30.5	38.5	857,278	247	23.5	20.2	27.0	1,540,866	405	42.2	38.3	46.1
Location															
Urban	3,375,838	412	30.0	26.5	33.7	2,259,608	276	20.1	17.3	23.1	5,611,894	629	49.9	46.3	53.5
Rural	1,078,197	257	23.2	20.0	26.8	973,533	242	21.0	18.4	23.9	2,587,562	582	55.8	51.7	59.8
Sex															
Male	2,162,746	270	24.9	21.6	28.7	1,799,561	238	20.8	17.7	24.2	4,709,175	654	54.3	50.6	58.0
Female	2,291,290	399	31.8	28.4	35.3	1,433,580	280	19.9	17.2	22.8	3,490,281	557	48.4	44.8	52.0
Age Group															
18-19	324,021	40	29.9	21.2	40.4	167,108	24	15.4	9.6	23.9	592,200	61	54.7	44.5	64.5
20-29	1,666,201	213	34.8	29.8	40.1	981,855	126	20.5	16.4	25.3	2,139,658	276	44.7	39.8	49.7
30-39	1,129,669	198	28.8	24.6	33.4	826,109	153	21.0	17.7	24.9	1,970,207	326	50.2	45.4	55.0
40-49	863,684	146	24.1	19.3	29.7	783,425	134	21.9	17.6	26.8	1,935,023	303	54.0	48.3	59.7
50-59	470,46	72	18.8	14.3	24.3	474,645	81	18.9	14.5	24.4	1,562,368	245	62.3	55.9	68.3
Ethnicity															
Malay	2,109,007	273	25.8	22.6	29.3	1,538,750	222	18.8	16.0	22.0	4,533,223	620	55.4	51.7	59.1
Chinese	1,029,575	125	31.4	25.4	38.1	662,031	91	20.2	16.5	24.4	1,589,260	220	48.4	42.7	54.2
Indian	280,570	28	28.0	18.2	40.4	218,101	20	21.8	13.4	33.3	503,823	46	50.3	38.6	61.9
Bumiputera Sarawak	211,704	57	24.4	18.8	31.2	246,494	67	28.5	21.7	36.4	407,685	104	47.1	39.7	54.6
Bumiputera Sabah	1,659	135	39.0	32.1	46.4	296,731	84	21.0	16.7	26.1	566,162	131	40.0	33.6	46.8
Others	245,417	45	23.0	15.9	32.1	248,246	32	23.3	13.6	36.9	572,327	85	53.7	42.0	65.0
Other Bumiputera	26,104	6	34.4	14.5	61.9	22,787	2	30.0	9.8	63.0	26,978	5	35.6	14.6	64.1

Table 4.8: Prevalence of using straw among adults who drink carbonated beverages (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					No				
	Estimated population	Unweighted Count	%	95% CI Lower	Upper	Estimated population	Unweighted Count	%	95% CI Lower	Upper	Estimated population	Unweighted Count	%	95% CI Lower	Upper
Marital status															
Never married	1,689,928	218	33.6	28.7	39.0	836,295	120	16.7	13.1	21.0	2,495,902	326	49.7	44.7	54.7
Married/Cohabiting	2,652,533	425	25.9	23.0	29.1	2,254,519	363	22.0	19.5	24.8	5,319,001	811	52.0	48.8	55.2
Divorced/Separated	89,326	18	19.5	11.4	31.3	97,229	21	21.3	12.5	33.9	270,773	53	59.2	46.7	70.7
Widow	22,249	8	13.0	4.7	31.2	43,796	13	25.7	12.7	45.0	104,588	20	61.3	39.9	79.0
Others											9,192	1	100.0	100.0	100.0
Education Level															
Non-formal	102,686	30	31.5	20.7	44.8	70,637	19	21.7	13.3	33.3	152,872	44	46.9	32.8	61.4
Primary	717,954	123	25.4	20.7	30.8	580,947	106	20.6	16.3	25.7	1,522,302	250	54.0	47.9	59.9
Secondary	2,098,195	295	26.4	22.9	30.2	1,582,314	255	19.9	17.2	22.9	4,263,470	627	53.7	49.8	57.5
Tertiary	1,518,609	216	32.4	27.6	37.7	980,963	135	20.9	17.0	25.5	2,185,911	274	46.7	41.9	51.5
Others	16,592	5	21.9	8.0	47.6	13,775	2	18.2	4.4	52.1	45,264	9	59.8	32.7	82.1
Work status															
Government/Semi-government	499,423	92	28.0	22.7	34.0	429,197	74	24.0	18.4	30.8	856,394	131	48.0	41.0	55.0
Private	2,107,892	283	30.4	26.6	34.6	1,39	194	20.1	16.8	24.0	3,420,970	438	49.4	45.3	53.5
Self-employed	949,585	155	24.5	20.3	29.3	769,804	126	19.9	16.5	23.7	2,151,920	365	55.6	50.8	60.3
Unpaid workers	14,796	4	29.5	9.6	62.1	13,864	2	27.6	5.8	70.4	21,562	2	42.9	13.3	78.6
Not working	632,209	103	26.7	20.9	33.4	497,345	108	21.0	16.5	26.3	1,239,721	223	52.3	45.8	58.7
Retired	1,458	5	32.9	10.9	66.3	19,955	2	12.8	3.4	37.9	85,041	13	54.4	28.4	78.1
Students	173,038	20	29.1	17.2	44.8	88,131	9	14.8	7.1	28.3	332,891	29	56.0	41.1	69.9
Others															
Income Group															
Less than RM1 500	1,592,348	274	24.5	21.0	28.4	1,338,760	248	20.6	17.7	23.9	3,564,984	597	54.9	50.8	58.9
RM1500-RM3500	1,484,018	207	28.7	24.6	33.2	980,045	147	18.9	15.9	22.4	2,709,809	376	52.4	48.0	56.7
More than RM 3500	1,322,494	182	32.7	27.8	38.1	855,956	118	21.2	16.6	26.6	1,861,545	230	46.1	41.2	51.0

Table 4.9: Prevalence of mouth rinsing after taking sugary food

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia	**7,368,602**	**1,077**	**37.5**	**35.0**	**40.2**	**12,260,819**	**1,915**	**62.5**	**59.8**	**65.0**
Region										
Peninsular Malaysia	5,755,609	649	37.3	34.2	40.5	9,689,140	1,195	62.7	59.5	65.8
East Malaysia	1,612,993	428	38.5	35.0	42.3	2,571,679	720	61.5	57.7	65.0
Location										
Urban	5,117,961	585	37.6	34.2	41.1	8,506,372	1,002	62.4	58.9	65.8
Rural	2,250,641	492	37.5	34.2	40.9	3,754,448	913	62.5	59.1	65.8
Sex										
Male	4,558,026	594	44.5	40.7	48.3	5,692,493	789	55.5	51.7	59.3
Female	2,810,575	483	30.0	26.7	33.4	6,568,327	1,126	70.0	66.6	73.3
Age Group										
18-19	587,288	60	51.3	39.6	62.8	557,269	72	48.7	37.2	60.4
20-29	2,302,074	290	42.9	37.8	48.1	3,066,318	398	57.1	51.9	62.2
30-39	1,723,684	296	35.5	31.8	39.4	3,132,226	533	64.5	60.6	68.2
40-49	1,620,326	246	35.2	30.6	40.0	2,986,515	508	64.8	60.0	69.4
50-59	1,135,230	185	31.1	26.4	36.2	2,518,491	404	68.9	63.8	73.6
Ethnicity										
Malay	3,664,082	502	34.6	31.1	38.3	6,919,657	971	65.4	61.7	68.9
Chinese	1,825,666	233	47.8	42.1	53.6	1,992,537	283	52.2	46.4	57.9
Indian	405,314	33	29.8	21.2	40.0	956,651	100	70.2	60.0	78.8
Bumiputera Sarawak	354,716	95	33.5	26.1	41.8	705,089	199	66.5	58.2	73.9
Bumiputera Sabah	600,178	133	39.7	33.1	46.7	910,880	244	60.3	53.3	66.9
Others	479,697	74	40.2	30.8	50.3	714,785	108	59.8	49.7	69.2
Other Bumis	38,949	7	38.9	13.1	72.9	61,220	10	61.1	27.1	86.9

Table 4.9: Prevalence of mouth rinsing after taking sugary food (Cont.)

Socio-demographic Characteristics	Yes					No				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Marital status										
Never married	2,599,446	327	47.0	41.4	52.6	2,933,805	413	53.0	47.4	58.6
Married/Cohabiting	4,512,654	690	34.2	31.7	36.8	8,693,309	1,368	65.8	63.2	68.3
Divorced/Separated	168,499	40	26.4	18.9	35.5	470,301	90	73.6	64.5	81.1
Widow	86,701	19	37.2	19.6	58.9	146,404	42	62.8	41.1	80.4
Others						9,192	1	100.0	100.0	100.0
Education Level										
Non-formal	181,116	52	35.6	26.2	46.3	327,052	83	64.4	53.7	73.8
Primary	1,407,339	216	38.9	34.0	44.0	2,210,939	405	61.1	56.0	66.0
Secondary	3,640,567	526	37.2	33.8	40.8	6,134,990	932	62.8	59.2	66.2
Tertiary	2,075,537	271	37.1	32.5	41.9	3,518,151	479	62.9	58.1	67.5
Others	41,566	7	47.2	25.9%	69.5	46,499	11	52.8	30.5	74.1
Work status										
Government/ Semi-government	580,979	106	25.8	20.7	31.6	1,672,543	267	74.2	68.4	79.3
Private	3,193,529	415	39.1	35.3	43.0	4,980,123	663	60.9	57.0	64.7
Self-employed	1,980,359	322	40.1	35.9	44.5	2,957,117	513	59.9	55.5	64.1
Unpaid workers	13,264	3	26.4	6.4	65.5	36,959	5	73.6	34.5	93.6
Not working	1,085,390	183	34.0	28.3	40.2	2,107,344	394	66.0	59.8	71.7
Retired	75,737	9	36.2	19.2	57.5	133,535	20	63.8	42.5	80.8
Students	358,762	32	57.3	42.5	70.8	267,807	30	42.7	29.2	57.5
Others										
Income Group										
Less than RM1500	3,011,926	501	37.6	34.0	41.4	4,995,449	902	62.4	58.6	66.0
RM1500 – RM3500	2,638,186	351	42.2	37.9	46.7	3,607,375	539	57.8	53.3	62.1
More than RM 3500	1,656,169	217	32.2	27.5	37.2	3,489,437	453	67.8	62.8	72.5

Table 4.10: Frequency of mouth rinsing among adults who rinse their mouth after taking sugary food

Socio-demographic Characteristics	Yes, always					Yes, sometimes				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**7,570,803**	**1182**	**61.7**	**58.6**	**64.8**	**4,690,016**	**733**	**38.3**	**35.2**	**41.4**
Region										
Peninsular Malaysia	6,009,704	739	62.0	58.1	65.8	3,679,436	456	38.0	34.2	41.9
East Malaysia	1,561,099	443	60.7	56.4	64.9	1,010,580	277	39.3	35.1	43.6
Location										
Urban	5,382,253	642	63.	59.1	67.3	3,124,119	360	36.7	32.7	40.9
Rural	2,188,550	540	58.3	53.9	62.5	1,565,898	373	41.7	37.5	46.1
Sex										
Male	3,379,303	462	59.4	54.8	63.8	2,313,189	327	40.6	36.2	45.2
Female	4,191,499	720	63.8	59.8	67.6	2,376,827	406	36.2	32.4	40.2
Age Group										
18–19	342,104	41	61.4	47.1	74.0	215,165	31	38.6	26.0	52.9
20–29	1,816,207	228	59.2	52.7	65.5	1,250,111	170	40.8	34.5	47.3
30–39	2,055,445	343	65.6	60.4	70.5	1,076,780	190	34.4	29.5	39.6
40–49	1,750,205	306	58.6	52.6	64.4	1,236,310	202	41.4	35.6	47.4
50–59	1,606,841	264	63.8	57.6	69.6	911,650	140	36.2	30.4	42.4
Ethnicity										
Malay	4,342,574	606	62.8	58.4	66.9	2,577,083	365	37.2	33.1	41.6
Chinese	1,118,465	165	56.1	49.4	62.7	874,072	118	43.9	37.3	50.6
Indian	651,046	69	68.1	57.8	76.8	305,604	31	31.9	23.2	42.2
Bumiputera Sarawak	410,163	120	58.2	47.4	68.2	294,926	79	41.8	31.8	52.6
Bumiputera Sabah	528,331	143	58.0	51.5	64.3	382,549	101	42.0	35.7	48.5
Others	498,031	75	69.7	55.3	81.0	216,753	33	30.3	19.0	44.7
Other Bumis	22,191	4	36.2	13.9	66.7	39,029	6	63.8	33.3	86.1

Table 4.10: Frequency of mouth rinsing among adults who rinse their mouth after taking sugary food (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Marital status										
Never married	1,805,571	240	61.5	55.0	67.7	1,128,234	173	38.5	32.3	45.0
Married/Cohabiting	5,365,506	858	61.7	58.3	65.1	3,327,803	510	38.3	34.9	41.7
Divorced/Separated	287491	53	61.1	48.5	72.4	182,810	37	38.9	27.6	51.5
Widow	95,235	29	65.0	44.2	81.4	51,169	13	35.0	18.6	55.8
Others	9,192	1	100.0	100.0	100.0					
Education Level										
Non-formal	197,314	50	60.3	45.2	73.7	129,737	33	39.7	26.3	54.8
Primary	1,243,668	234	56.3	49.4	62.8	967,271	171	43.7	37.2	50.6
Secondary	3,764,051	572	61.4	57.2	65.4	2,370,939	360	38.6	34.6	42.8
Tertiary	2,337,096	318	66.4	61.2	71.3	1,181,055	161	33.6	28.7	38.8
Others	20,224	5	43.5	16.0	75.6	26,275	6	56.5	24.4	84.0
Work status										
Government/ Semi-government	1,159,641	187	69.3	62.5	75.4	512,902	80	30.7	24.6	37.5
Private	2,955,220	391	59.3	54.4	64.1	2,024,903	272	40.7	35.9	45.6
Self -employed	1,776,339	304	60.1	54.0	65.8	1,180,778	209	39.9	34.2	46.0
Unpaid workers	16,928	2	45.8	12.2	83.7	20,030	3	54.2	16.3	87.8
Not working	1,328,470	252	63.0	56.4	69.2	778,874	142	37.0	30.8	43.6
Retired	80,135	11	60.0	27.7	85.4	53,400	9	40.0	14.6	72.3
Students	179,300	17	67.0	44.4	83.7	88,508	13	33.0	16.3	55.6
Others										
Income Group										
Less than RM1500	2,867,951	526	57.4	53.0	61.7	2,127,498	376	42.6	38.3	47.0
RM1500– RM3500	2,223,590	332	61.6	55.4	67.5	1,383,784	207	38.4	32.5	44.6
More than RM 3500	2,377,306	311	68.1	62.4	73.4	1,112,131	142	31.9	26.6	37.6

Table 4.11: Prevalence of brushing teeth before breakfast

Socio-demographic Characteristics	No					Yes					
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	
Malaysia	**856,062**	**130**	**4.4**	**3.4**	**5.6**	**18,785,783**	**2,863**	**95.6**	**94.4**	**96.6**	
Region											
Peninsular Malaysia	608,085	65	3.9	2.8	5.4	14,852,241	1,780	96.1	94.6	97.2	
East Malaysia	247,977	65	5.9	4.4	8.0	3,933,542	1,083	94.1	92.0	95.6	
Location											
Urban	541,449	62	4.0	2.8	5.6	13,093,775	1,525	96.0	94.4	97.2	
Rural	314,613	68	5.2	3.9	7.0	5,692,008	1,338	94.8	93.0	96.1	
Sex											
Male	586,747	77	5.7	4.2	7.8	9,671,561	1,307	94.3	92.2	95.8	
Female	269,315	53	2.9	2.1	4.0	9,114,221	1,556	97.1	96.0	97.9	
Age Group											
18–19	155,815	12	13.6	7.0	24.7	988,742	120	86.4	75.3	93.0	
20–29	172,842	31	3.2	2.1	4.9	5,190,916	656	96.8	95.1	97.9	
30–39	135,404	26	2.8	1.7	4.5	729,775	804	97.2	95.5	98.3	
40–49	207,132	32	4.5	2.7	7.5	4,412,183	724	95.5	92.5	97.3	
50–59	184,870	29	5.1	3.3	7.7	3,464,167	559	94.9	92.3	96.7	
Ethnicity											
Malay	403,593	52	3.8	2.6	5.7	10,187,986	1,422	96.2	94.3	97.4	
Chinese	165,044	23	4.3	2.6	7.0	3,662,427	494	95.7	93.0	97.4	
Indian	21,884	2	1.6	0.4	6.4	1,340,080	131	98.4	93.6	99.6	
Bumiputera Sarawak	49,597	15	4.7	2.8	7.6	1,010,208	279	95.3	92.4	97.2	
Bumiputera Sabah	130,096	27	8.6	5.4	13.5	1,376,277	349	91.4	86.5	94.6	
Others	8,214	9	6.5	2.1	18.9	1,116,268	173	93.5	81.1	97.9	
Other Bumiputera	7,634	2	7.6	2.5	21.3	92,536	15	92.4	78.7	97.5	

Table 4.11: Prevalence of brushing teeth before breakfast (Cont.)

Socio-demographic Characteristics	No					Yes				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Marital status										
Never married	327,145	44	5.9	3.9	8.8	5,209,229	697	94.1	91.2	96.1
Married/Cohabiting	505,176	80	3.8	2.9	5.0	12,710,087	1,978	96.2	95.0	97.1
Divorced/Separated	19,883	4	3.1	0.9	10.1	618,916	126	96.9	89.9	99.1
Widow	3,858	2	1.7	0.4	7.1	229,247	59	98.3	92.9	99.6
Others						9,192	1	100.0	100.0	100.0
Education Level										
Non-formal	14,93	6	2.9	1.2	6.8	493,234	129	97.1	93.2	98.8
Primary	203,042	33	5.6	3.7	8.3	3,415,235	588	94.4	91.7	96.3
Secondary	509,194	71	5.2	3.8	7.1	9,272,479	1,388	94.8	92.9	96.2
Tertiary	125,828	19	2.2	1.1	4.4	5,474,167	731	97.8	95.6	98.9
Others	3,064	19	3.5	0.5	22.0	85,001	17	96.5	78.0	99.5
Work status										
Government/ Semi-government	58,322	11	2.6	1.3	4.9	2,192,098	362	97.4	95.1	98.7
Private	257,863	32	3.2	2.0	5.0	7,920,372	1,046	96.8	95.0	98.0
Self-employed	339,172	56	6.9	4.9	9.4	4,609,246	780	93.1	90.6	95.1
Unpaid workers						50,222	8	100.0	100.0	100.0
Not working	121,796	23	3.8	2.4	6.0	3,070,938	554	96.2	94.0	97.6
Retired	18,639	2	8.9	2.1	30.6	190,633	27	91.1	69.4	97.9
Students	56,412	4	9.0	2.3	29.2	570,157	58	91.0	70.8	97.7
Others										
Income Group										
Less than RM1500	473,733	77	5.9	4.2	8.2	7,539,899	1,326	94.1	91.8	95.8
RM1500 – RM3500	222,406	30	3.6	2.2	5.7	6,032,422	861	96.4	94.3	97.8
More than RM 3500	159,922	23	3.1	1.9	5.1	4,982,581	647	96.9	94.9	98.1

Table 4.12: Prevalence of brushing habits among adults who brush their teeth before breakfast

Socio-demographic Characteristics	Yes, always					Yes, sometimes				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	**17,788,401**	**2,698**	**94.7**	**93.4**	**95.7**	**997,382**	**165**	**5.3**	**4.3**	**6.6**
Region										
Peninsular Malaysia	14,130,119	1,689	95.1	93.6	96.3	722,122	91	4.9	3.7	6.4
East Malaysia	3,658,282	1,009	93.0	90.6	94.8	275,260	74	7.0	5.2	9.4
Location										
Urban	12,497,278	1,450	95.4	93.8	96.7	596,497	75	4.6	3.3	6.2
Rural	5,291,123	1,248	93.0	90.8	94.6	400,885	90	7.0	5.4	9.2
Sex										
Male	9,025,066	1,210	93.3	91.3	94.9	6405	97	6.7	5.1	8.7
Female	8,763,335	1,488	96.2	94.4	97.4	350,887	68	3.8	2.6	5.6
Age Group										
18-19	868,256	104	87.8	80.1	92.8	120,486	16	12.2	7.2	19.9
20-29	4,925,064	619	94.9	92.4	96.6	265,851	37	5.1	3.4	7.6
30-39	4,486,303	760	4.9	92.7	96.4	243,472	44	5.1	3.6	7.3
40-49	4,184,564	681	94.8	92.4	96.5	227,618	43	5.2	3.5	7.6
50-59	3,324,213	534	96.0	93.2	97.6	139,953	25	4.0	2.4	6.8
Ethnicity										
Malay	9,671,644	1,346	94.9	93.1	96.3	516,342	76	5.1	3.7	6.9
Chinese	3,507,416	472	95.8	93.0	97.5	155,011	22	4.2	2.5	7.0
Indian	1,255,569	123	93.7	87.3	97.0	84,511	8	6.3	3.0	12.7
Bumiputera Sarawak	950,812	262	94.1	90.0	96.6	59,396	17	5.9	3.4	10.0
Bumiputera Sabah	1,257,827	320	91.4	86.5	94.6	118,451	29	8.6	5.4	13.5
Others	1,068,284	164	95.7	90.6	98.1	47,984	9	4.3	1.9	9.4
Other Bumis	76,848	11	83.0	48.8	96.2	15,688	4	17.0	3.8	51.2

Table 4.12: Prevalence of brushing habits among adults who brush their teeth before breakfast (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Marital status										
Never married	4,897,819	643	94.0	91.7	95.7	311,410	54	6.0	4.3	8.3
Married/Cohabiting	12,106,109	,881	95.2	93.7	96.4	603,978	97	4.8	3.6	6.3
Divorced/Separated	547,298	116	88.4	77.7	94.4	71,618	10	11.6	5.6	22.3
Widow	218,871	55	95.5	86.7	98.6	10,376	4	4.5	1.4	13.3
Others	9,192	1	100.0	100.0	100.0					
Education Level										
Non-formal	442,050	119	89.6	76.8	95.8	51,184	10	10.4	4.2	23.2
Primary	3,198,527	546	93.7	90.5	95.8	216,708	42	6.3	4.2	9.5
Secondary	8,730,260	1,301	94.2	92.5	95.5	542,219	87	5.8	4.5	7.5
Tertiary	5,303,825	707	96.9	94.6	98.2	170,343	24	3.1	1.8	5.4
Others	68,073	15	80.1	46.2	95.0	16,928	2	19.9	5.0	53.8
Work status										
Government/ Semi-government	2,116,821	350	96.6	93.1	98.3	75,276	12	3.4	1.7	6.9
Private	7,588,663	995	95.8	94.1	97.0	331,709	51	4.2	3.0	5.9
Self-employed	4,199,769	711	91.1	87.9	93.5	409,477	69	8.9	6.5	12.1
Unpaid workers	42,563	7	84.7	43.9	97.5	7,660	1	15.3	2.5	56.1
Not working	2,931,878	527	95.5	93.0	97.1	139,060	27	4.5	2.9	7.0
Retired	187,509	26	98.4	88.6	99.8	3,123	1	1.6	0.2	11.4
Students	549,911	56	96.4	83.5	99.3	20,246	2	3.6	0.7	16.5
Others										
Income Group										
Less than RM1500	7,030,656	1,227	93.2	91.3	94.8	509,242	99	6.8	5.2	8.7
RM1500-RM3500	5,755,611	816	95.4	93.5	96.8	276,811	45	4.6	3.2	6.5
More than RM 3500	4,772,530	627	95.8	93.1	97.5	210,051	20	4.2	2.5	6.9

Table 4.13: Prevalence of brushing teeth after main meals

Socio-demographic Characteristics	Do not brush teeth after main meals					Brush teeth after main meals				
	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	95% CI Upper	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	95% CI Upper
Malaysia	9,350,310	1297	47.6	44.6	50.6	10,280,716	1,695	52.4	49.4	55.4
Region										
Peninsular Malaysia	7,859,092	903	50.9	47.2	54.5	7,594,129	941	49.1	45.5	52.8
East Malaysia	1,491,217	394	35.7	31.6	40.0	2,686,587	754	64.3	60.0	68.4
Location										
Urban	6,895,893	761	50.5	46.6	54.5	6,745,837	827	49.5	45.5	53.4
Rural	2,454,416	536	41.0	37.0	45.0	3,534,879	868	59.0	55.0	63.0
Sex										
Male	5,360,318	675	52.3	48.3	56.2	4,896,786	709	47.7	43.8	51.7
Female	3,989,991	622	42.6	39.4	45.8	5,383,930	986	57.4	54.2	60.6
Age Group										
18–19	582,188	59	50.9	39.4	62.2	562,369	73	49.1	37.8	60.6
20–29	2,589,645	299	48.3	43.1	53.6	2,769,606	387	51.7	46.4	56.9
30–39	2,339,560	353	48.1	42.9	53.30	2,528,742	478	51.9	46.7	57.1
40–49	2,232,374	336	48.4	43.3	53.6	2,376,720	419	51.6	46.4	56.7
50–59	1,606,543	250	44.0	38.3	49.9	2,043,279	338	56.0	50.1	61.7
Ethnicity										
Malay	4,791,802	614	45.3	41.2	49.5	5,790,764	858	54.7	50.5	58.8
Chinese	2,569,547	334	67.1	61.2	72.6	1,258,530	183	32.9	27.4	38.8
Indian	681,344	71	50.0	38.9	61.2	680,621	62	50.0	38.8	61.1
Bumiputera Sarawak	332,789	87	31.3	23.9	39.8	730,140	208	68.	60.2	76.1
Bumiputera Sabah	533,907	121	35.6	28.8	42.9	966,930	255	64.4%	57.1	71.2
Others	413,883	66	34.6	26.1	44.3	780,598	116	65.4	55.7	73.9
Other Bumiputera	27,037	4	27.0	8.9	58.4	73,133	13	73.0	41.6	91.1

Table 4.13: Prevalence of brushing teeth after main meals (Cont.)

Socio-demographic Characteristics	Do not brush teeth after main meals					Brush teeth after main meals				
	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	95% CI Upper	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	95% CI Upper
Marital status										
Never married	2,796,267	345	50.5	45.4	55.7	2,735,601	395	49.5	44.3	54.6
Married/Cohabiting	6,159,233	872	46.6	43.2	50.0	7,049,718	1186	53.4	50.0	56.8
Divorced/Separated	271,204	57	42.5	31.9	53.7	367,596	73	57.5	46.3	68.1
Widow	123,606	23	53.0	6	69.7	109,498	38	47.0	30.3	64.4
Others						9,192	1	100.0	100.0	100.0
Education Level										
Non-formal	151,658	38	30.5	20.8	42.2	346,288	96	69.5	57.8	79.2
Primary	1,616,622	257	44.7	39.0	50.5	1,999,058	364	55.3	49.5	61.0
Secondary	783042	652	48.9	44.8	52.9	5,006,439	809	51.1	47.1	55.2
Tertiary	2,728,683	336	48.8	43.9	53.7	2,865,504	412	51.2	46.3	56.1
Others	34,744	6	39.5	19.7	63.4	53,321	12	60.5	36.6	80.3
Work status										
Government/Semi-government	768,061	117	34.2	28.0	41.0	1,477,852	255	65.8	59.0	72.0
Private	4,235,294	514	51.7	47.3	56.1	3,950,750	566	48.3	43.9	52.7
Self-employed	2,204,914	367	44.6	40.0	49.3	2,738,998	468	55.4	50.7	60.0
Unpaid workers	22,532	4	44.9	15.8	77.9	27,690	4	55.1	22.1	84.2
Not working	1,491,732	230	46.8	41.9	51.9	1,692,690	347	53.2	48.1	58.1
Retired	147,893	17	71.1	51.8	85.0	60,076	11	28.9	15.0	48.2
Students	386,661	35	61.7	47.4	74.3	239,908	27	38.3	25.7	52.6
Others										
Income Group										
Less than RM1500	3,495,951	555	43.7	39.7	47.7	4,512,670	849	56.3	52.3	60.3
RM1500– RM3500	3,244,168	427	51.9	47.0	56.7	3,006,155	463	48.1	43.3	53.0
More than RM 3500	2,478,562	302	48.2	43.2	53.3	2,662,639	367	51.8	46.7	56.8

Table 4.14: Frequency of tooth brushing among adults who brush their teeth after main meal

Socio-demographic Characteristics	Yes, always					Yes, sometimes				
	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	Upper	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	Upper
Malaysia	**3,931,632**	**653**	**38.2**	**34.8**	**41.8**	**6,349,083**	**1042**	**61.8**	**58.2**	**65.2**
Region										
Peninsular Malaysia	2,999,980	380	39.5	35.1	44.1	4,594,148	561	60.5	55.9	64.9
East Malaysia	931,652	273	34.7	30.4	39.2	1,754,935	481	65.3	60.8	69.6
Location										
Urban	2,577,767	306	38.2	33.5	43.2	4,168,070	521	61.8	56.8	66.5
Rural	1,353,865	347	38.3	34.1	42.7	2,181,014	521	61.7	57.3	65.9
Sex										
Male	1,554,433	229	31.7	27.1	36.7	3,342,352	480	68.3	63.3	72.9
Female	2,377,199	424	44.2	39.6	48.8	3,006,731	562	55.8	51.2	60.4
Age Group										
18–19	246,511	33	43.8	28.6	60.3	315,858	40	56.2	39.7	71.4
20–29	1,040,535	151	37.6	31.2	44.5	1,729,071	236	62.4	55.5	68.8
30–39	907,755	169	35.9	30.6	41.6	1,620,987	309	64.1	58.4	69.4
40–49	911,627	160	38.4	32.4	44.7	1,465,094	259	61.6	55.3	67.6
50–59	825,205	140	40.4	33.9	47.2	1,218,074	198	59.6	52.8	66.1
Ethnicity										
Malay	2,259,807	338	39.0	34.4	43.8	3,530,958	520	61.0	56.2	65.6
Chinese	482,306	57	38.3	28.8	48.9	776,224	126	61.7	51.1	71.2
Indian	208,596	23	30.6	19.4	44.7	472,024	39	69.4	55.3	80.6
Bumiputera Sarawak	257,454	78	35.3	28.3	42.9	472,686	130	64.7	57.1	71.7
Bumiputera Sabah	332,825	88	34.4	26.7	43.1	634,105	167	65.6	56.9	73.3
Others	364,796	62	46.7	32.2	61.8	415,802	54	53.3	38.2	67.8
Other Bumiputera	25,849	7	35.3	16.3	60.5	47,284	6	64.7	39.5	83.7

Table 4.14: Frequency of tooth brushing among adults who brush their teeth after main meal (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes				
	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	95% CI Upper	Unweighted Count (n)	Estimated population	Prevalence %	95% CI Lower	95% CI Upper
Marital status										
Never married	1,078,801	158	39.4	32.6	46.7	1,656,800	237	60.6	53.3	67.4
Married/Cohabiting	2,623,655	444	37.2	33.7	40.9	4,426,063	742	62.8	59.1	66.3
Divorced/Separated	159,267	31	43.3	30.0	57.7	208,329	42	56.7	42.3	70.0
Widow	51,606	17	47.1	29.3	65.7	57,892	21	52.9	34.3	70.7
Others	9,192	1	100.0	100.0	100.0					
Education Level										
Non-formal	166,836	45	48.2	36.2	60.4	179,452	51	51.8	39.6	63.8
Primary	888,813	165	44.5	37.6	51.6	1,110,245	199	55.5	48.4	62.4
Secondary	1,751,269	278	35.0	30.6	39.6	3,255,170	531	65.0	60.4	69.4
Tertiary	1,095,675	158	38.2	32.2	44.6	1,769,829	254	61.8	55.4	67.8
Others	24,406	6	45.8	18.8	75.4	28,915	6	54.2	24.6	81.2
Work status										
Government/ Semi-government	612,394	105	41.4	34.3	49.0	865,458	150	58.6	51.0	65.7
Private	1,426,847	206	36.1	30.6	42.0	2,523,902	360	63.9	58.0	69.4
Self-employed	956,721	170	34.9	28.8	41.6	1,782,277	298	65.1	58.4	71.2
Unpaid workers	13,903	1	50.2	8.8	91.3	13,788	3	49.8	8.7	91.2
Not working	740,178	146	43.7	37.3	50.4	952,511	201	56.3	49.6	62.7
Retired	14,006	2	23.3	4.8	64.5	46,070	9	76.7	35.5	95.2
Students	117,840	12	49.1	27.6	71.0	122,067	15	50.9	29.0	72.4
Others										
Income Group										
Less than RM1500	1,754,950	339	38.9	34.7	43.2	2,757,720	510	61.1	56.8	65.3
RM1500– RM3500	1,068,407	170	35.5	30.0	41.5	1,937,748	293	64.5	58.5	70.0
More than RM 3500	1,086,152	138	40.8	34.0	48.0	1,576,487	229	59.2	52.0	66.0

TOPIC 5

FOOD LABEL READING AND UNDERSTANDING

5. FOOD LABEL READING AND UNDERSTANDING

Contributors to this section: Rashidah Ambak, Leni Tupang, Mohd Hazrin Hasim, Natifah Che Salleh, Norlida Zulkafly.

5.1 Findings

5.1.1 Practise of Reading Food Label Every Time Buying or Receiving Food from Others

Overall, 23.0% (95% CI: 20.8 – 25.4) of adult respondents in Malaysia reported as 'always reading' food label when buying or receiving food from others. Another 22.0% (95% CI: 19.8 – 24.4) of respondent reported as 'sometimes reading' food label, while 55.0% (95% CI: 52.1 – 58.0) reported as 'not reading' food label **(Table 5.1)**. By zone, respondents in Peninsular Malaysia, 23.9% (95% CI: 21.2 – 26.8) showed a slightly higher prevalence in 'always reading' food label compared to those living in East Malaysia, 19.7% (95% CI: 16.9 – 22.9). Those living in Peninsular Malaysia reported an almost similar prevalence 21.9% (95% CI: 19.2 – 24.8) of 'sometimes reading' food label compared to those in East Malaysia 22.7% (95% CI: 19.6 – 26.1) **(Table 5.1)**. Prevalence of 'not reading' label was slightly higher among respondents living in East Malaysia 57.7% (95% CI: 53.7 – 61.5), compared to those in Peninsular Malaysia 54.3% (95% CI: 50.7 – 57.8) **(Table 5.1)**. By strata, respondents living in the urban area 24.8% (95% CI: 21.9 – 28.0) reported 'always reading' food label, significantly higher than those living in the rural areas 18.8% (95% CI: 16.2 – 21.8) **(Table 5.1)**. Both respondents living in the urban area, 22.3% (95% CI: 19.3 – 25.6) and rural area 21.4% (95% CI: 18.9 – 24.0) reported an almost similar prevalence of 'sometimes reading' food label. Prevalence of 'not reading food' label was higher among those living in the rural area 60.0% (95% CI: 56.2 – 63.3) compared to those in the urban area 52.9% (95% CI: 49.0 – 56.7) **(Table 5.1)**.

5.1.2 Prevalence of Reading Nutrition Information in Food Label Every Time Buying or Receiving Food

Among those who read ('always reading' and 'sometimes reading') the nutrition label when buying or receiving food (45.0%, n=1299), the three most common types of nutritional information being read were carbohydrate (including sugar) 21.6% (95% CI: 19.44 – 24.0), fat 19.9% (95% CI: 17.9 – 22.1) and total energy 14.5% (95% CI: 12.9 - 16.2) **(Table 5.2a)**. It was followed by vitamin 9.1% (95% CI: 7.8 – 10.6), salt/sodium 6.7% (95% CI: 5.6 - 7.9), food additive 6.2% (95% CI: 5.0 – 7.5), mineral content 5.6% (95% CI: 4.6 - 6.7) and fibre 3.3% (95% CI: 2.6 – 4.2) **(Table 5.2a & Table 5.2b)**.

5.1.3 Pravalence of Understanding the Information in Nutrition Labesls

Pertaining to understanding of the food label, the prevalence of respondents who responded as 'always understand' the information in food label every time when buying or receiving food was 48.7% (95% CI: 44.7-52.7), 'sometimes understand' the information was 40.8% (95% CI: 37.0-44.7) and 'did not understand' the information was 10.5% (95% CI: 8.5-12.9) **(Table 5.3)**. By zone, the prevalence of respondents from Peninsular Malaysia who 'always understand' the information was slightly higher 49.5% (95% CI: 44.7-54.3) than the respondents from East Malaysia 45.5% (95% CI: 39.4-51.8). Whereas the prevalence of the respondents from East Malaysia was slightly higher in 'sometimes understand' the information 42.3% (95% CI: 36.3-48.6) and 'did not understand' the

information 12.2% (95% CI: 9.2-15.9) compared to respondents from Peninsular Malaysia 40.4% (95% CI: 35.9-45.0) and 10.1% (95% CI: 7.7-13.0) **(Table 5.3)**. By strata, the prevalence of respondents who lived in the urban area who 'always understand' the information was significantly higher 51.7% (46.5-57.0) compared to the respondents in the rural area 40.6% (95% CI: 35.9-45.5). But the prevalence of the respondents in the rural area showed significantly higher in 'sometimes understand' the information 45.6% (95% CI: 41.0-50.2) and 'did not understand' the information 13.8% (95% CI: 10.8-17.4) compared to the respondents in the urban area 39.0% (95% CI: 34.1-44.1) and 9.3% (95% CI: 6.8-12.5), respectively **(Table 5.3)**.

5.1.4 Practise of Reading Expiry Date Label Every Time Buying or Receiving Food

In general, the prevalence of respondents who stated that they 'always read' the expiry date in the survey was 82.2% (95% CI: 80.0 – 84.2) **(Table 5.4)**. The prevalence was significantly higher in Peninsular Malaysia, 84.2% (95% CI: 81.5 – 86.5) compared to East Malaysia at 75.0% (95% CI: 71.1 – 78.5). The prevalence was also significantly higher among the respondents living in the urban area 84.6% (95% CI: 81.8 – 87.0) compared to their counterpart in the rural at 76.8% (95% CI: 72.9 – 80.3) **(Table 5.4)**.

5.1.5 Practise of Reading Precautionary Label Every Time Buying or Receiving Food

The national prevalence of Malaysian adults who stated that they 'always read' the precautionary food label was high 44.7% (95% CI: 42.1 – 47.4), while 'sometimes read' the precautionary food label was 21.2% (95% CI: 19.0 – 23.4) and 'never read' the precautionary food label was 34.2 (95% CI: 31.6 – 36.9) **(Table 5.5)**. By zone, the respondents from Peninsular Malaysia showed a higher prevalence 47.0% (95% CI: 43.9 – 50.2) of 'always read' the precautionary food label, as compared to the respondents from East Malaysia 36.3% (95% CI: 31.9 – 40.9). By strata, the urban respondents showed significantly higher prevalence in 'always read' the precautionary food label 48.2% (95% CI: 44.8 - 51.6) as compared to the rural counterpart 36.9% (95% CI: 33.1 – 40.9) **(Table 5.5)**.

5.2   Implication

Overall, the Malaysian adult population showed a significant increase in the prevalence of 'not reading' food label (55.0%), compared to NHMS 2006 (19.3%).1 Pertaining to strata, MANS 2014 reported a big decline in the prevalence of reading food label compared to NHMS 2006 (Urbanite respondents: 24.8% vs 57.2% and rural respondents 18.8% vs 49.8%).1 Almost half of the Malaysian adult population reported as not reading the food label when buying or receiving food from others. Information on the food label was not used in choosing appropriate food and managing their health conditions. Unfamiliarity to the technical terms and negligence of certain nutrient information that they perceived as not important to their health also contributed to the low prevalence of reading food label.[2]

Pertaining to the types of label been read, expiry date was the most popular information been read by the adult population in Malaysia and other countries.[3,4] They put less attention in reading carbohydrate, fat and total energy, which contributed to energy for the body. Further, only 7.0% and 3.0% of the respondents reported reading sodium content and fiber information, respectively. A study on the understanding of the Malaysian Dietary Guidelines (MDG)[5] in 2010 showed that more than half of the respondents were not aware

on the health messages in the MDG. Unfamiliarity with the key messages in the MDG indicated that respondents were not aware of the basic nutrition information that had been disseminated by the Ministry of Health. In this situation, the respondents will not be able to examine the right nutrient information on the label and apply it to their own health condition. Thus, the food label was not fully used by the respondents in aiding them to choose appropriate healthy foods for their families and themselves. This situation was in contrast with the European consumers who looked in detail for calories, fat and sugar information before choosing packaged food.[6]

5.3   Conclusion

This study showed that only half of the Malaysian adult population reported reading the food label when buying or receiving food from others. Most of the respondents reported as understanding the food label. Types of labels read have not been prioritized to the macronutrients that contribute calories.

5.4   Recommendation

The information provides useful information for the policymaker and health authority to plan for the future nutrition information program in instilling awareness and planning obesity intervention programs among the relevant target groups. Hence awareness on the importance of reading labels can help in providing informed food choices and guiding in selecting appropriate foods related to their health condition. More nutrition research projects implementing an objective approach are needed to discover the actual readers and their level of understanding of the food label.

5.5   References

1.   Institute for Public Health. The Third National Health and Morbidity Survey 2006: Nutritional Survey (NHMS III). Kuala Lumpur: Ministry of Health; 2008

2.   Ollberding NJ, Wolf RL, and Contento I. Food label use and its relation to dietary intake among US adults. J Am Diet Assoc. 2010, 1233-1237. doi: 10.1016/j.jada.2010.15.007.

3.   Klaus GG, Josephine MW, Laura FC. Nutrition knowledge, and use and understanding of nutrition information on food labels among consumers in the UK. Appetite. 2010; 55: 177–189.

4.   Klaus GG, Laura FC, Josephine MV, Stefan S, Genannt B, Liliya N. Use and Understanding of Nutrition Information on Food Labels in Six European Countries. J Public Health. 2010; 18:261 – 277. doi: 10.1007/s10389-009-0307-0. Online 6 January 2010.

5.   Norimah AK et al. Messages of the newly proposed Malaysian Dietary Guidelines (MDG): Do adults in Kuala Lumpur understand them? Mal J Nutr. 2010; 16(1):113 – 123.

6.   Delvina G, Cliona NM, Mei HC, Robyn D. Public Health Nutr. 2009;12(9): 1359–1365. Nutrition labels: a survey of use, understanding and preferences among ethnically diverse shoppers in New Zealand.

Definition of variables: Food labelling

Variable name	Variable in SPSS	Weight	variable definition	Syntax
Read the nutrition label	Item1_d101	Final weight	-9 = "Refuse to answer" 1 = "Yes, always" 2 = "Yes, sometimes" 3 = "No"	CSTABULATE /PLAN FILE='E:\WORKSHOP MANS\mans2014_csplan.csaplan' /TABLES VARIABLES=Zone strata sex Agegp Ethnicity_1 Ethnicity_2 Marital_status Education Work_Status Income_gp income_epu BY d101 /CELLS POPSIZE ROW PCT /STATISTICS SE CV CIN(95) COUNT /MISSING SCOPE=TABLE CLASSMISSING=EXCLUDE.
Total Energy	Item1_d102	Final weight	0 = "No" 1 = "Yes"	CSTABULATE /PLAN FILE='E:\WORKSHOP MANS\mans2014_csplan.csaplan' /TABLES VARIABLES=Zone strata sex Agegp Ethnicity_1 Ethnicity_2 Marital_status Education Work_Status Income_gp income_epu BY Item1_d102 /CELLS POPSIZE ROWPCT /STATISTICS SE CV CIN(95) COUNT /MISSING SCOPE=TABLE CLASSMISSING=EXCLUDE.
Carbohdyrate contain including sugar	Item2_d102	Final weight	0 = "No" 1 = "Yes"	
Fat Content	Item3_d102	Final weight	0 = "No" 1 = "Yes"	
Salt Sodium Content	Item4_d102	Final weight	0 = "No" 1 = "Yes"	
Vitamin Content	Item5_d102	Final weight	0 = "No" 1 = "Yes"	
Mineral Content	Item6_d102	Final weight	0 = "No" 1 = "Yes"	
Food Additives	Item8_d102	Final weight	0 = "No" 1 = "Yes"	
Fibre	Item9_d102	Final weight	0 = "No" 1 = "Yes"	
Others	Item10_d102	Final weight	0 = "No" 1 = "Yes"	

Definition of variables: Food labelling (Cont.)

Variable name	Variable in SPSS	Weight	variable definition	Syntax
Understanding the information in the nutrition label when buy or receive food	d103	Final weight	-9 = "Refuse to answer" 1 = "Yes, always" 2 = "Yes, sometimes" 3 = "No"	CSTABULATE /PLAN FILE='E:\WORKSHOP MANSmans2014_csplan.csaplan' /TABLES VARIABLES=Zone strata sex Agegp Ethnicity_1 Ethnicity_2 Marital_status Education Work_Status Income_gp income_epu BY d103 /CELLS POPSIZE ROWPCT /STATISTICS SE CV CIN(95) COUNT /MISSING SCOPE=TABLE CLASSMISSING=EXCLUDE.
Reading the expiring date on the label when buy or receive food	d104	Final weight	-9 = "Refuse to answer" 1 = "Yes, always" 2 = "Yes, sometimes" 3 = "No"	CSTABULATE /PLAN FILE='E:\WORKSHOP MANSmans2014_csplan.csaplan' /TABLES VARIABLES=Zone strata sex Agegp Ethnicity_1 Ethnicity_2 Marital_status Education Work_Status Income_gp income_epu BY d104 /CELLS POPSIZE ROWPCT /STATISTICS SE CV CIN(95) COUNT /MISSING SCOPE=TABLE CLASSMISSING=EXCLUDE.
Reading the precautionary food label when buying or receiving food	d105	Final weight	-9 = "Refuse to answer" 1 = "Yes, always" 2 = "Yes, sometimes" 3 = "No"	CSTABULATE /PLAN FILE='E:\WORKSHOP MANSmans2014_csplan.csaplan' /TABLES VARIABLES=Zone strata sex Agegp Ethnicity_1 Ethnicity_2 Marital_status Education Work_Status Income_gp income_epu BY d105 /CELLS POPSIZE ROWPCT /STATISTICS SE CV CIN(95) COUNT /MISSING SCOPE=TABLE CLASSMISSING=EXCLUDE.

Table 5.1: Prevalence of practise of reading nutrition labels every time buying or receiving food (where applicable)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia															
Overall	655	4500978	23.0	20.75	25.36	644	4316421	22.0	19.80	24.43	1693	10774945	55.0	52.09	57.87
Zone															
Peninsular Malaysia	424	3675741	23.9	21.16	26.80	400	3367506	21.9	19.19	24.80	1018	8359771	54.3	50.73	57.77
East Malaysia	231	825237	19.7	16.87	22.87	244	948916	22.7	19.55	26.09	675	2415175	57.7	53.67	61.54
Strata															
Urban	388	3371497	24.8	21.85	28.03	348	3033819	22.3	19.34	25.62	849	7183006	52.9	48.97	56.72
Rural	267	1129481	18.8	16.15	21.80	296	1282602	21.4	18.91	24.03	844	3591939	59.8	56.23	63.31
Sex															
Male	259	1984074	19.4	16.57	22.67	272	2135212	20.9	18.05	24.11	851	6087614	59.6	55.82	63.35
Female	396	2516904	26.8	23.95	29.89	372	2181209	23.2	20.50	26.23	842	4687331	49.9	46.65	53.23
Age Group															
18 –19	19	-	-	-	-	37	258314	22.6	15.57	31.55	76	737637	64.5	53.85	73.80
20-29	150	1228093	22.9	19.09	27.15	178	1417403	26.4	22.22	31.05	360	2724184	50.7	45.64	55.81
30-39	213	1296364	26.8	22.91	31.03	194	1080743	22.3	19.29	25.68	421	2464677	50.9	46.24	55.55
40-49	158	1076123	23.3	19.38	27.73	146	968394	21.0	17.34	25.11	452	2574798	55.7	50.97	60.40
50-59	115	751792	20.8	16.54	25.78	89	591568	16.4	12.20	21.57	384	2273649	62.9	56.82	68.52
Ethnicity Group															
Malay	335	2458546	23.3	20.34	26.62	344	2544228	24.2	20.96	27.65	792	5534223	52.5	48.87	56.15
Chinese	109	814617	21.3	16.33	27.23	97	756663	19.8	15.61	24.69	312	2258100	59.0	52.92	64.76
Indian	41	401446	29.5	21.94	38.32	24	214268	15.7	10.44	23.02	68	746251	54.8	44.69	64.52
Bumiputera Sabah	92	357890	23.7	18.64	29.59	100	409790	27.1	21.92	33.03	185	743378	49.2	42.73	55.69
Bumiputera Sarawak	41	166786	15.7	10.40	22.98	56	210176	19.8	14.87	25.81	198	685967	64.5	56.55	71.78
Other Bumiputera	4	-	-	-	-	2	-	-	-	-	110	52287	52.2	33.29	70.49
Others	33	278272	23.4	15.50	33.69	21	-	-	-	-	127	754739	63.4	52.78	72.92
Marital Status															
Never married	138	1042616	18.8	15.26	23.00	171	1212403	21.9	17.96	26.42	432	3282643	59.3	54.30	64.08
Married/Cohabiting	483	3292331	25.0	22.42	27.80	444	2955330	22.5	19.97	25.14	1130	6916814	52.5	49.29	55.78
Divorced/Separated	23	101272	15.9	10.07	24.06	19	-	-	-	-	88	442529	69.3	59.15	77.83
Widow	10	-	-	-	-	9	-	-	-	-	42	131657	56.5	37.21	73.97
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 5.1: Prevalence of reading nutrition labels every time when buying or receiving food (where applicable) (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level															
Non-formal	8	-	-	-	-	5	-	-	-	-	122	463858	91.3	84.08	95.40
Primary	80	427569	12.0	9.13	15.57	85	510715	14.3	11.14	18.19	455	2631374	73.7	69.05	77.90
Secondary	307	2153318	22.0	19.20	25.14	339	2243822	23.0	19.97	26.24	812	5379018	55.0	51.10	58.88
Tertiary	253	1863463	33.3	28.79	38.03	206	1491788	26.6	22.34	31.38	292	2249379	40.1	35.59	44.85
Others	500	-	-	-	-	800	42946	48.8	27.28	70.71	500	-	-	-	-
Work Status															
Government/ Semi-government	143	925630	41.2	34.93	47.66	88	502249	22.3	17.02	28.72	142	821704	36.5	30.68	42.80
Private	217	1744143	21.4	17.99	25.15	238	1886739	23.1	19.74	26.83	624	4538621	55.6	51.25	59.78
Self-employed	156	985715	20.0	16.29	24.26	155	970847	19.7	16.02	23.93	523	2977373	60.3	55.40	65.09
Unpaid workers	1	-	-	-	-	2	-	-	-	-	5	-	-	-	-
Not working	119	685139	21.5	17.26	26.33	128	690426	21.6	17.61	26.23	331	1819078	56.9	51.67	62.06
Retired	5	-	-	-	-	8	-	-	-	-	16	-	-	-	-
Students	9	-	-	-	-	20	183074	29.2	17.69	44.22	33	374390	59.8	45.24	72.74
Others															
Income Group															
Less than RM1500	226	1341837	16.8	14.04	19.99	277	1672011	20.9	17.95	24.27	901	4972041	62.3	58.28	66.08
RM1500 – RM3500	192	1324920	21.3	17.84	25.16	202	1447409	23.2	19.52	27.42	494	3456109	55.5	50.73	60.15
More than RM 3500	229	1776420	34.5	29.57	39.82	158	1132928	22.0	17.79	26.90	284	2237789	43.5	38.30	48.80

Note :
- RSE more than 25%

Table 5.2a: Prevalence of reading nutrition information in food labels

Socio-demographic Characteristics	Total energy Unweighted Count	Total energy Estimated population	Total energy %	Total energy 95% CI Lower	Total energy 95% CI Upper	Carbohydrate content including sugar Unweighted Count	Carbohydrate Estimated population	Carbohydrate %	Carbohydrate 95% CI Lower	Carbohydrate 95% CI Upper	Fat content Unweighted Count	Fat Estimated population	Fat %	Fat 95% CI Lower	Fat 95% CI Upper	Salt/sodium content Unweighted Count	Salt Estimated population	Salt %	Salt 95% CI Lower	Salt 95% CI Upper
Malaysia	**419**	**2847866**	**14.5**	**12.90**	**16.21**	**623**	**4245443**	**21.6**	**19.44**	**23.89**	**590**	**3920335**	**19.9**	**17.91**	**22.11**	**220**	**1316016**	**6.7**	**5.64**	**7.92**
Zone																				
Peninsular Malaysia	258	2234444	14.4	12.56	16.53	402	3429566	22.1	19.57	24.97	374	3137281	20.3	17.82	22.94	122	976534	6.31	5.09	7.79
East Malaysia	161	613422	14.6	12.23	17.44	221	815877	19.5	16.60	22.71	216	783054	18.7	16.01	21.70	98	339482	8.1	6.31	10.34
Strata																				
Urban	237	2051314	15.0	12.96	17.35	351	3052270	22.4	19.56	25.43	346	2886542	21.1	18.47	24.08	122	917043	6.7	5.40	8.33
Rural	182	796553	13.2	11.25	15.50	272	1193172	19.8	17.04	22.93	244	1033792	17.2	14.72	19.94	98	398974	6.6	5.11	8.55
Sex																				
Male	174	1364759	13.3	11.28	15.57	243	1928967	18.8	16.18	21.67	207	1599483	15.6	13.09	18.41	79	495752	4.8	3.66	6.33
Female	245	1483107	15.8	13.77	18.04	380	2316476	24.7	21.80	27.75	383	2320851	24.7	21.93	27.70	141	820264	8.7	7.11	10.68
Age Group																				
18 –19	21	106332	9.3	5.62	14.99	24	159788	14.0	8.74	21.57	22	128779	11.2	17.67	23.75	7	-	-	-	-
20-29	118	982646	18.3	14.89	22.24	149	1242522	23.1	19.22	27.53	152	1204339	22.4	18.55	26.80	43	262701	4.9	3.41	6.95
30-39	143	798233	16.4	13.41	19.85	209	1224213	25.1	21.57	29.04	196	1122495	23.0	19.43	27.08	80	461988	9.5	7.21	12.36
40-49	99	705589	15.7	12.24	18.87	152	1021807	22.1	18.21	26.55	134	920423	19.9	16.63	23.65	50	316298	6.8	4.88	9.50
50-59	38	255066	7.00	4.73	10.19	89	597113	16.3	12.66	20.82	86	544299	14.9	11.53	19.02	40	218111	6.0	4.06	8.68
Ethnicity Group																				
Malay	225	1717425	16.2	14.00	18.65	313	2336587	22.0	19.14	25.22	302	2164750	20.4	17.65	23.47	96	682002	6.4	5.07	8.13
Chinese	58	423706	11.0	7.77	15.49	99	732913	19.1	15.31	23.61	91	678317	17.7	13.84	22.34	39	272873	7.1	4.89	10.26
Indian	22	215203	15.8	10.22	23.63	36	322843	23.7	17.07	31.92	34	324367	23.8	16.70	32.78	9	-	-	-	-
Bumiputera Sabah	54	224466	14.8	10.83	20.04	96	379408	25.1	20.08	30.91	88	341048	22.6	18.32	27.48	45	150812	10.0	7.11	13.85
Bumiputera Sarawak	43	171744	16.2	22.83	11.15	48	201460	18.9	13.05	26.71	48	164457	15.5	11.68	20.22	18	-	-	-	-
Others	14	-	-	-	-	27	241349	20.2	12.75	30.50	24	-	-	-	-	12	-	-	-	-
Others Bumis	3	-	-	-	-	4	-	-	-	-	3	-	-	-	-	1	-	-	-	-
Marital Status																				
Never married	119	819174	14.8	11.77	18.40	134	925945	16.7	13.67	20.26	131	951350	17.2	13.58	21.46	42	252210	4.5	3.11	6.62
Married/Cohabiting	283	1943557	14.7	12.84	16.74	457	3137199	23.7	21.20	26.41	430	2837470	21.4	19.14	23.93	168	1020781	7.7	6.35	9.34
Divorced/Separated	9	-	-	-	-	22	110390	17.3	10.51	27.10	18	86784	13.6	8.43	21.16	5	-	-	-	-
Widow	7	-	-	-	-	9	-	-	-	-	11	-	-	-	-	5	-	-	-	-
Others	1	9192	100.0	100.00	100.00	1	9192	100.0	100.00	100.00	-	-	-	-	-	-	-	-	-	-
Education Level																				
Non-formal	2	-	-	-	-	4	-	-	-	-	3	-	-	-	-	1	-	-	-	-
Primary	25	147738	4.1	2.49	6.60	73	416672	11.5	8.65	15.12	57	-	-	-	-	24	-	-	-	-
Secondary	197	1308857	13.4	11.31	15.72	304	2039089	20.8	17.86	24.12	304	2054302	21.0	18.19	24.04	121	711251	7.2	5.81	9.03
Tertiary	189	1353342	24.1	20.78	27.87	232	1722729	30.7	26.52	35.31	217	1528874	27.3	23.28	31.68	68	437964	7.8	5.76	10.53
Others	5	-	-	-	-	7	-	-	-	-	7	-	-	-	-	4	-	-	-	-

Note :
- RSE more than 25%

Table 5.2a: Prevalence of reading nutrition information in food labels (Cont.)

Socio-demographic Characteristics	Total energy					Carbohydrate content including sugar					Fat content					Salt/ sodium content				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Work Status																				
Government/ Semi-government	86	492570	21.8	17.03	27.57	105	658196	29.2	23.59	35.50	109	637527	28.3	23.00	34.21	38	237887	10.5	6.98	15.63
Private	155	1197057	14.6	12.05	17.61	219	1764426	21.5	18.25	25.24	210	1645034	20.1	16.92	23.68	64	429824	5.2	3.82	7.16
Self-employed	88	615858	12.4	9.65	15.86	153	972360	19.6	16.10	23.70	124	799888	16.1	13.23	19.55	61	312010	6.3	4.55	8.64
Unpaid workers	1	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1	-	-	-	-
Not working	72	381801	11.9	9.17	15.43	124	715672	22.4	18.31	27.10	123	667820	20.9	17.24	25.11	48	266876	8.3	6.04	11.45
Retired	3	-	-	-	-	4	-	-	-	-	5	-	-	-	-	2	-	-	-	-
Students	10	-	-	-	-	10	-	-	-	-						3	-	-	-	-
Others											11	-	-	-	-					
Income Group																				
Less than RM1500	141	774931	9.6	7.66	12.08	237	1373249	17.1	14.45	20.10	214	1221446	15.2	12.69	18.11	94	482060	6.0	4.60	7.79
RM1500 – RM3500	117	861441	13.8	10.98	17.13	181	1228499	19.6	16.69	22.97	173	1172107	18.7	15.61	22.33	63	393016	8.7	6.28	4.53
More than RM 3500	157	1179505	22.9	19.23	27.08	196	1560248	30.3	25.46	35.65	193	1423590	27.7	23.74	31.95	59	413120	8.0	5.73	11.14

Note :
- RSE more than 25%

Table 5.2b: Prevalence of reading nutrition information in food labels every time buying or receiving foods

Socio-demographic Characteristics	Vitamin content					Mineral content					Fibre					Food additives				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia	274	1798600	9.1	7.84	10.63	166	1097390	5.6	4.62	6.72	101	648963	3.3	2.58	4.21	179	1210127	6.1	5.01	7.53
Zone																				
Peninsular Malaysia	153	1350719	8.7	7.23	10.50	98	842883	5.4	4.36	6.78	60	488360	3.1	2.33	4.25	115	976144	6.3	4.95	8.00
East Malaysia	121	447881	10.7	8.44	13.46	68	254507	6.1	4.35	8.43	41	160603	3.8	2.64	5.53	64	233983	5.6	4.05	7.66
Strata																				
Urban	152	1285438	9.4	7.74	11.41	98	809621	5.9	4.72	7.43	57	458266	3.4	2.47	4.55	108	891742	6.5	5.07	8.37
Rural	122	513162	8.5	6.82	10.60	68	287768	4.8	3.47	6.56	44	190697	3.2	2.14	4.66	71	318385	5.3	3.81	7.29
Sex																				
Male	109	791618	7.7	6.07	9.72	61	442896	4.3	3.10	5.97	35	252357	2.5	1.59	3.77	75	559239	5.4	4.13	7.13
Female	165	1006981	10.7	8.81	12.98	105	654494	7.0	5.57	8.69	66	396606	4.2	3.20	5.55	104	650887	6.9	5.37	8.90
Age Group																				
18–19	13	-	-	-	-	3	-	-	-	-	4	-	-	-	-	6	-	-	-	-
20-29	68	490765	9.1	6.80	12.15	33	241647	4.5	2.98	6.74	23	129180	2.4	1.49	3.86	39	262443	4.9	3.27	7.23
30-39	100	588007	12.0	9.59	15.07	68	418621	8.6	6.53	11.22	35	204385	4.2	2.78	6.29	60	392498	8.0	5.86	10.97
40-49	58	385859	8.3	6.12	11.29	38	257611	5.6	3.87	7.95	21	168024	3.6	2.28	5.73	45	316767	6.8	4.97	9.37
50-59	35	250055	6.8	4.48	10.31	24	163192	4.5	2.74	7.19	18	-	-	-	-	29	206818	5.7	3.58	8.82
Ethnicity Group																				
Malay	117	900202	8.5	6.78	10.58	70	529076	5.0	3.90	6.37	49	341915	3.2	2.31	4.49	91	734931	6.9	5.32	8.98
Chinese	41	333527	8.7	5.68	13.11	27	242012	6.3	3.86	10.16	21	-	-	-	-	33	212249	5.5	3.45	8.76
Indian	17	-	-	-	-	12	-	-	-	-	3	-	-	-	-	8	-	-	-	11.88
Bumiputera Sabah	57	213138	14.1	10.33	18.97	30	111835	7.4	4.58	11.75	14	-	-	-	-	28	94563	6.3	3.99	9.69
Bumiputera Sarawak	31	114793	10.8	6.58	17.22	19	-	-	-	-	11	-	-	-	-	13	-	-	-	-
Others	11	-	-	-	-	8	-	-	-	-	3	-	-	-	-	5	-	-	-	-
Others Bumis																1	-	-	-	-
Marital Status																				
Never married	63	405204	7.3	5.32	9.96	31	196949	3.5	2.22	5.63	18	-	-	-	-	40	222255	4.0	2.76	5.80
Married/Cohabiting	197	1345929	10.2	8.60	11.99	129	870510	6.6	5.39	8.00	79	519552	3.9	3.01	5.10	128	917476	6.9	5.54	8.64
Divorced/Separated	9	-	-	-	-	2	-	-	-	-	2	-	-	-	-	10	-	-	-	-
Widow	5	-	-	-	-	4	-	-	-	-	2	-	-	-	-	1	-	-	-	-
Others																				

Note :
- RSE more than 25%

Table 5.2b: Prevalence of reading nutrition information in food labels every time buying or receiving foods (Cont.)

Socio-demographic Characteristics	Vitamin content					Mineral content					Fibre					Food additives				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level																				
Non-formal	3	-	-	-	-	12	-	-	-	-	6	-	-	-	-	13	-	-	-	-
Primary	25	121529	3.3	2.07	5.39															
Secondary	146	931503	9.5	7.80	11.54	83	531226	5.4	4.21	6.96	48	308031	3.1	2.22	4.44	80	512584	5.2	3.91	6.96
Tertiary	93	696404	12.4	9.74	15.72	66	489095	8.7	6.57	11.50	43	299664	5.3	3.76	7.55	83	623492	11.1	8.43	14.55
Others	6	-	-	-	-	4	-	-	-	-	3	-	-	-	-	3	-	-	-	-
Work Status																				
Government/ Semi-government	40	267981	11.9	8.31	16.71	30	206541	9.2	6.03	13.67	19	-	-	-	-	41	298780	13.2	9.40	18.35
Private	94	677380	8.3	6.46	10.53	56	383156	4.7	3.32	6.55	34	240220	2.9	1.89	4.53	59	380186	4.6	3.39	6.32
Self-employed	70	457289	9.2	6.76	12.47	43	274046	5.5	3.78	8.02	23	-	-	-	-	48	313220	6.3	4.43	8.94
Unpaid workers	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-	1	-	-	-	-
Not working	58	312702	9.8	7.08	13.38	30	172205	5.4	3.59	8.01	19	105507	3.3	2.04	5.30	23	143657	4.5	2.90	6.91
Retired	2	-	-	-	-	3	-	-	-	-	1	-	-	-	-	2	-	-	-	-
Students	5	-	-	-	-	3	-	-	-	-	2	-	-	-	-	5	-	-	-	-
Others																				
Income Group																				
Less than RM1500	122	620791	7.7	6.12	9.71	61	312315	3.9	2.82	5.33	34	198967	2.5	1.55	3.92	54	300013	3.7	2.59	5.35
RM1500 – RM3500	66	493052	7.9	5.92	10.42	43	61615	5.1	3.56	7.32	27	-	-	-	-	51	342363	5.5	3.61	8.21
More than RM3500	82	647667	12.6	9.51	16.47	59	441415	8.6	6.30	11.56	38	277624	5.4	3.74	7.72	71	534925	10.4	7.87	13.60

Note :
- RSE more than 25%

Table 5.3: Prevalence of understanding the information in nutrition labels every time buying or receiving foods

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper	Unweighted Count	Estimated population	%	95% CI Lower	Upper
Malaysia															
Overall	596	4235322	48.7	44.70	52.74	526	3546515	40.8	37.01	44.68	156	913551	10.5	8.49	12.93
Zone															
Peninsular Malaysia	381	3434013	49.5	44.73	54.30	332	2801985	40.4	35.93	45.03	96	699440	10.1	7.74	13.05
East Malaysia	215	801310	45.5	39.36	51.84	194	744530	42.3	36.29	48.55	60	214111	12.2	9.20	15.92
Strata															
Urban	369	3272833	51.7	46.48	56.95	281	2466601	39.0	34.13	44.09	75	586495	9.3	6.84	12.46
Rural	227	962490	40.6	35.93	45.49	245	1079914	45.6	41.02	50.21	81	327056	13.8	10.82	17.45
Sex															
Male	252	2092000	51.6	45.74	57.50	192	1505038	37.2	31.61	43.06	79	453695	11.2	8.43	14.73
Female	344	2143322	46.1	41.29	51.07	334	2041477	44.0	39.25	48.76	77	459856	9.9	7.49	12.97
Age Group															
18 –19	21	191199	47.0	31.24	63.36	30	180466	44.3	29.61	60.15	5	-	-	-	-
20-29	144	1197276	45.4	38.51	52.55	146	1217517	46.2	39.18	53.39	35	220036	8.4	5.42	12.65
30-39	179	1044243	45.1	38.65	51.65	171	1019473	44.0	38.06	50.11	46	253374	10.9	7.84	15.05
40-49	153	1086810	53.7	45.72	61.52	1090	710550	35.1	28.46	42.41	38	225993	11.2	7.64	16.04
50-59	99	715794	54.5	44.78	63.91	70	418509	31.9	23.30	41.87	32	178893	13.6	8.58	20.94
Ethnicity Group															
Malay	297	2186736	44.6	39.43	49.88	283	2156887	44.0	39.09	49.01	84	559679	11.4	8.47	15.21
Chinese	103	820936	52.7	43.20	62.01	82	628873	40.4	31.50	49.92	18	-	-	-	-
Indian	44	425550	69.1	54.04	80.98	14	-	-	-	-	7	-	-	-	-
Bumiputera Sabah	81	328000	43.2	33.95	53.02	80	326752	43.1	33.88	52.76	28	103935	13.7	8.88	20.54
Bumiputera Sarawak	39	160249	42.5	29.43	56.73	48	183060	48.6	34.94	62.40	10	-	-	-	-
Other Bumis	4	-	-	-	-	2	-	-	-	-		-	-	-	-
Others	28	283305	65.1	48.72	78.57	17	-	-	-	-	9	-	-	-	-

Note :
- RSE more than 25%

Table 5.3: Prevalence of understanding the information in nutrition labels every time when buying or receiving food (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Marital Status															
Never married	132	1003696	44.7	37.43	52.23	138	1051868	46.9	39.56	54.30	36	189140	8.4	5.71	12.27
Married/Cohabiting	432	3103675	50.5	46.14	54.89	367	2367639	38.5	34.43	42.82	112	672285	10.9	8.63	13.78
Divorced/Separated	23	95566	49.2	31.03	67.53	13	-	-	-	-	5	-	-	-	-
Widow	8	-	-	-	-	7	-	-	-	-	3	-	-	-	-
Others	1	9192	100.0	100.00	100.00										
Education Level															
Non-formal	3	-	-	-	-	6	-	-	-	-	4	-	-	-	-
Primary	58	356001	38.2	29.09	48.22	64	336171	36.1	27.50	45.64	41	239740	25.7	18.06	35.24
Secondary	271	1885115	43.7	38.81	48.73	291	2025554	47.0	41.82	52.16	72	402688	9.3	7.13	12.14
Tertiary	257	1955233	58.8	52.59	64.80	157	1112092	33.5	28.04	39.36	38	256071	7.7	5.10	11.47
Others	4	-	-	-	-	8	47765	72.1	48.37	87.69	1	-	-	-	-
Work Status															
Government/ Semi-government	121	746414	53.5	44.20	62.56	80	494331	35.4	27.57	44.16	24	154550	11.1	6.85	17.42
Private	202	1739236	48.4	42.15	54.67	191	1503336	41.8	35.73	48.18	56	352053	9.8	7.21	13.18
Self-employed	143	924108	48.4	40.77	56.07	114	742921	38.9	31.28	47.10	47	242904	12.7	9.23	17.28
Unpaid workers	2	13864	90.0	43.52	99.07	1	-	-	-	-					
Not working	102	551600	40.3	32.76	48.31	119	689683	50.4	42.58	58.16	24	127739	9.3	5.88	14.48
Retired	6	-	-	-	-	5	-	-	-	-	2	-	-	-	-
Students	16	178823	70.9	51.33	84.93	11	-	-	-	-	2	-	-	-	-
Others															
Income Group															
Less than RM1500	189	1191241	40.2	34.67	46.03	236	1408659	47.6	41.37	53.82	71	362087	12.2	9.03	16.34
RM1500 – RM3500	169	1252575	45.8	39.08	52.69	161	1121622	41.0	34.48	47.88	56	360566	13.2	9.87	17.40
More than RM 3500	228	1701716	59.1	52.73	65.28	124	984149	34.2	28.16	40.82	29	190898	6.6	4.30	10.10

Note :
- RSE more than 25%

Table 5.4: Prevalence of reading the expiry date label every time you buy or receive food (where applicable)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia															
Overall	2418	16084604	82.2	79.97	84.22	280	1872186	9.6	8.09	11.29	287	1611452	8.2	6.91	9.79
Zone															
Peninsular Malaysia	1562	12,952,011	84.	81.48	86.50	153	1,379,004	9.0	7.21	11.08	124	1060160	6.9	5.44	8.69
East Malaysia	856	3,132,593	75.00	71.09	78.53	127	493,181	11.8	9.66	14.35	163	551292	13.2	10.36	16.67
Strata															
Urban	1338	11,500,109	84.6	81.81	86.98	145	1,247,100	9.2	7.29	11.48	103	850768	6.3	4.80	8.11
Rural	1080	4,584,495	76.8	72.90	80.27	135	625086	10.5	8.48	12.86	184	760683	12.7	10.15	15.88
Sex															
Male	1066	7,947,586	77.8	74.41	80.80	155	1236217	12.1	9.77	14.88	160	1035555	10.1	8.19	12.47
Female	1352	8,137,017	87.0	84.76	89.01	125	635968	6.8	5.48	8.42	127	575897	6.2	4.71	8.01
Age Group															
18 –19	94	791,634	69.2	57.90	78.53	26	228785	20.0	11.92	31.56	12	-	-	-	-
20–29	563	4,407,411	82.6	78.29	86.14	69	502690	9.4	6.74	13.00	54	428172	8.0	5.66	11.26
30–39	705	4,171,512	86.0	82.71	88.79	68	430207	8.9	6.50	12.00	53	247736	5.1	3.69	7.03
40–49	616	3,832,130	83.0	79.26	86.26	71	448382	9.7	7.22	12.95	67	333995	7.2	5.29	9.83
50–59	440	2,881,917	79.6	74.85	83.61	46	262123	7.2	5.05	10.28	101	477410	13.2	9.94	17.28
Ethnicity Group															
Malay	1271	9,116,155	86.3	83.69	88.64	120	869,635	8.2	6.37	10.58	80	571480	5.4	4.14	7.05
Chinese	39	2,895,675	76.2	69.20	81.96	68	512,548	13.5	9.48	18.83	49	393547	10.3	7.19	14.69
Indian	12,0	1,225,481	90.0	82.93	94.32	6	-	-	-	-	7	-	-	-	-
Bumiputera Sabah	302	1,221,422	81.2	75.13	86.13	35	160,063	10.6	7.08	15.71	37	121907	8.1	5.13	12.60
Bumiputera Sarawak	185	675,595	63.8	54.33	72.37	3,200	140,177	13.2	8.89	19.28	77	242560	22.9	15.37	32.75
Others	127	865,444	73.0	62.31	81.57	19	-	-	-	-	34	-	-	-	-
Marital Status															
Never married	567	4,238,714	76.9	72.43	80.81	94	732593	13.3	10.17	17.17	78	541963	9.8	7.38	12.98
Married/Cohabiting	1702	11,159,254	84.8	82.38	86.88	175	1083890	8.2	6.71	10.06	175	921619	7.0	5.65	8.65
Divorced/Separated	101	476,019	74.5	62.38	83.76	9	-	-	-	-	20	110895	17.3	10.52	27.28
Widow	46	193,617	83.0	69.16	91.47	2	-	-	-	-	13	-	-	-	-
Others	1	9191	100.0	100.00	100.00										

Note :
- RSE more than 25%

Table 5.4: Prevalence of reading the expiry date label every time you buy or receive food (where applicable) (Cont.)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level															
Non-formal	47	165,469	32.8	22.88	44.56	14	-	-	-	-	72	263250	52.2	39.74	64.39
Primary	423	2,466,662	68.4	62.68	73.65	76	464171	12.9	9.68	16.93	121	674255	18.7	14.22	24.21
Secondary	1253	8,356,968	85.7	82.78	88.24	136	908801	9.3	7.40	11.69	67	482367	4.9	3.60	6.77
Tertiary	674	5,002,174	89.7	86.53	92.18	52	407469	7.3	5.08	10.40	22	-	-	-	-
Others	12	53,135	60.3	36.55	80.07	2	-	-	-	-	4	-	-	-	-
Work Status															
Government/ Semi-government	345	2,105,115	93.3	89.34	95.92	21	-	-	-	-	8	-	-	-	-
Private	864	6,490,795	79.8	76.28	82.95	115	997924	12.3	9.74	15.35	96	643039	7.9	6.05	10.27
Self-employed	647	3,968,159	80.6	76.12	84.35	71	402501	8.2	5.99	11.05	114	554925	11.3	8.26	15.18
Unpaid workers	5	-	-	-	-	1	-	-	-	-	2	-	-	-	-
Not working	455	2,646,233	83.1	78.90	86.63	59	248687	7.8	5.68	10.66	61	288887	9.1	6.68	12.21
Retired	23	173,820	83.1	65.49	92.68	3	-	-	-	-	3	-	-	-	-
Students	50	496,690	79.3	64.50	88.95	9	-	-	-	-	3	-	-	-	-
Others															
Income Group															
Less than RM1500	1052	6,171,821	77.4	73.93	80.56	148	846066	10.6	8.45	13.25	198	954198	12.0	9.70	14.68
RM1500 – RM3500	748	5,181,465	83.0	78.96	86.33	79	607279	9.7	7.32	12.81	63	456816	7.3	5.32	9.98
More than RM 3500	591	4,506,311	88.0	84.45	90.86	53	418841	8.2	5.79	11.44	24	194564	3.8	2.43	5.89

Note :
- RSE more than 25%

Table 5.5: Prevalence of practise of reading the precautionary food label everytime when buying or receiving food (where applicable)

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Malaysia															
Overall	1274	8739043	44.7	42.11	47.37	623	4126101	21.1	19.03	23.37	1082	6672824	34.1	31.58	36.82
Zone															
Peninsular Malaysia	847	7226245	47.0	43.91	50.16	408	3309930	21.5	19.01	24.31	579	4830813	31.4	28.45	34.59
East Malaysia	427	1512798	36.3	31.91	40.86	215	816171	19.6	16.87	22.58	503	1842011	44.2	39.53	48.90
Strata															
Urban	743	6543084	48.2	44.76	51.56	321	2838627	20.9	18.17	23.90	519	4206355	31.0	27.79	34.32
Rural	531	2195958	36.9	33.13	40.85	302	1287474	21.6	18.91	24.65	563	2466469	41.4	37.25	45.79
Sex															
Male	475	3819238	37.6	34.12	41.17	299	2153410	21.2	18.45	24.21	599	4190851	41.2	37.91	44.64
Female	799	4919805	52.5	48.96	55.97	324	1972691	21.0	18.47	23.86	483	2481973	26.5	23.36	29.84
Age Group															
18–19	48	336144	29.5	20.51	40.53	29	309718	27.2	18.75	37.74	54	491936	43.2	32.96	54.13
20–29	295	2363563	44.3	39.62	49.01	154	1134883	21.2	17.67	25.34	237	1841302	34.5	29.93	39.34
30–39	412	2512119	52.0	47.61	56.32	169	987741	20.4	17.33	23.94	245	1332821	27.5	24.04	31.43
40–49	303	1998272	43.4	38.61	48.28	163	1039063	22.6	18.73	26.92	285	1568406	34.0	29.91	38.46
50–59	216	1528944	42.2	36.76	47.87	108	654696	18.0	14.31	22.57	261	1438358	39.7	34.78	44.86
Ethnicity Group															
Malay	678	4937650	46.8	43.26	50.42	344	2343982	22.2	19.50	25.21	445	3263427	30.9	27.76	34.33
Chinese	229	1746715	46.2	40.49	52.01	92	716471	18.9	14.95	23.72	191	1317663	34.8	29.56	40.54
Indian	70	722353	53.3	43.29	63.05	30	324131	23.9	16.15	33.91	32	308721	22.8	15.14	32.79
Bumiputera Sabah	155	592405	39.3	32.41	46.58	71	299690	19.9	15.90	24.53	150	616408	40.9	33.3	48.88
Bumiputera Sarawak	78	275454	26.0	18.62	35.10	47	164536	15.5	10.92	21.66	169	618342	58.4	48.74	67.50
Other Bumiputera	-	-	-	-	-	3	-	-	-	-	6	-	-	-	-
Others	56	414930	34.9	25.11	46.09	36	254733	21.4	13.00	33.19	89	520185	43.7	32.37	55.76
Marital Status															
Never married	274	1985397	36.1	31.55	40.94	154	1199483	21.8	18.08	26.09	308	2312535	42.0	37.23	47.05
Married/Cohabiting	928	6427193	48.9	45.75	52.01	430	2737696	20.8	18.52	23.32	691	3985545	30.3	27.58	33.18
Divorced/Separated	51	231615	36.3	26.42	47.40	27	144602	22.6	14.36	33.79	52	262583	41.1	31.20	51.79
Widow	19	77836	33.4	19.44	51.01	12	-	-	-	-	30	110948	47.6	30.38	65.40
Others	1	9192	100.0	100.00	100.00	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 5.5: Prevalence of reading the precautionary food label everytime when buying or receiving food (where applicable (Cont.))

Socio-demographic Characteristics	Yes, always					Yes, sometimes					Never				
	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	%	95% CI Lower	95% CI Upper
Education Level															
Non-formal	12	-	-	-	-	8	-	-	-	-	114	427245	84.5	74.05	91.24
Primary	166	1093699	30.5	25.44	35.99	121	737209	20.5	16.71	24.96	330	1759450	49.0	43.90	54.13
Secondary	639	4238308	43.6	40.16	47.09	344	2321545	23.9	20.97	27.06	469	3161485	32.5	29.07	36.18
Tertiary	447	3318087	59.4	55.09	63.55	144	1000996	17.9	14.58	21.82	157	1267846	22.7	19.00	26.87
Others	6	-	-	-	-	6	-	-	-	-	6	-	-	-	-
Work Status															
Government/ Semi-government	231	1396978	62.4	56.56	67.98	64	355964	15.9	11.87	20.99	77	484411	21.6	17.20	26.89
Private	444	3605320	44.3	40.33	48.35	234	1729691	21.3	18.07	24.83	397	2802217	34.4	30.80	38.26
Self-employed	294	1864310	38.0	33.31	42.83	179	1105806	22.5	18.41	27.22	356	1941771	39.5	34.62	44.66
Unpaid workers	3	-	-	-	-	1	-	-	-	-	4	-	-	-	-
Not working	258	1475603	46.3	40.86	51.82	119	691515	21.7	17.41	26.69	199	1020406	32.0	27.26	37.17
Retired	9	-	-	-	-	5	-	-	-	-	15	95015	45.4	26.15	66.13
Students	22	202575	32.7	20.59	47.61	18	182126	29.4	18.42	43.41	21	235109	37.93	23.40	55.00
Others															
Income Group															
Less than RM1500	471	2849860	35.8	31.84	40.02	298	1826744	23.0	19.98	26.25	627	3277694	41.2	37.20	45.33
RM1500 – RM3500	384	2688252	43.1	38.97	47.32	201	1454609	23.3	19.61	27.48	303	2095313	33.6	29.60	37.83
More than RM 3500	401	3051187	59.6	54.38	64.51	121	814331	15.9	12.96	19.4	145	1250399	24.4	20.06	29.43

Note :
- RSE more than 25%

TOPIC 6

VITAMIN, MINERAL AND FOOD SUPPLEMENT INTAKE

6. VITAMIN, MINERAL AND FOOD SUPPLEMENT INTAKE

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6.1 Findings

The total number of respondents who took part in this survey was 3,000. The number of respondents who answered questions on vitamin and mineral supplements was 2991 (99.7%) and respondents who answered questions on food supplement were 2995 (99.8%).

6.1.1 Overall prevalence of vitamin and mineral supplement users

Vitamin and mineral (VM) supplements are defined as mineral, synthetic nutrients, and vitamins sold singly or in mixtures in controlled dosages form such as sachets, capsules, liquids, lozenges, powders or tablet. This includes multivitamin and multimineral, Vitamin A/Carotenoids, Vitamin B complex, Vitamin B12, Vitamin C, Folic Acid (B6), Iron, Calcium, Vitamin E and Zinc.

The national prevalence of VM supplement users was 28.05% (95% CI: 25.70- 30.50). The prevalence in Peninsular Malaysia was 28.57% (95% CI: 25.75-31.56) and 26.10% (95% CI: 22.78-29.71) in East Malaysia. The prevalence of VM supplement users was significantly high among the urban population at 30.93% (95% CI: 27.83-34.21) compared to rural at 21.51% (95% CI: 18.62-24.71). More women took VM supplements [32.12% (95% CI: 29.26-35.12)] compared to men [24.30% (95% CI: 21.24-27.65)]. Significantly, more urban men [27.42% (95% CI: 23.28-31.98)] used VM supplement compared to rural men [17.66% (95% CI: 14.07-21.93)]. This finding was also similar among female **(Table 6.1)**.

6.1.2 Prevalence of most commonly taken vitamin and mineral supplement

In this survey, five most commonly taken VM supplements were Vitamin C [15.68% (95% CI: 13.92-17.61)] followed by Multivitamins [8.87% (95% CI: 7.49-10.47)], Calcium [5.84% (95% CI: 4.84-7.04)], Vitamin B complex [5.62% (95% CI: 4.70-6.71)] and Folic Acid [9.63% (95% CI: 717-12.82)] **(Table 6.2)**.

Among who where VMS user, [55.92% (95% CI: 51.10-60-62)] took Vitamin C followed by Multivitamins [31.63% (95% CI: 27.56-33.99)], **(Table 6.3a)** Calcium [20.83% (95% CI: 17.56-24.53)], **(Table 6.3c)** Vitamin B complex [20.60% (95% CI: 17.45-23.31)] and Folic Acid [9.63% (95% CI: 717-12.82)] **(Table 6.3d)**.

The users of Vitamin C were significantly higher among East Malaysia population at 71.06% (95% CI: 65.16- 76.32) than Peninsular Malaysia at 52.17% (95% CI: 46.46 - 57.82). The prevalence of vitamin C user among urban population was 54.54 (95% CI: 48.57-60.38) and 60.40% (95% CI: 54.29 -66.21) among rural population. Among those who took multivitamins, the prevalence was 33.10% (95% CI: 28.29-38.28) among population in Peninsular Malaysia and 25.69% (95%CI: 19.82-32.58) among population in East Malaysia.The prevalence of calcium users in Peninsular Malaysia was 21.98% (95%CI: 18.08-26.45) and 16.19% (95%CI: 11.99-21.52) in East Malaysia. The prevalence among urban population was 22.01% (95% CI: 18.00-26.62) and rural population was 17.00% (95% CI: 12.72-22.35). The prevalence of Vitamin B Complex users in Peninsular Malaysia were 19.15 (95% CI: 15.81-23.01) and East Malaysia were 13.71 (95% CI: 18.73-29.52). The users of Vitamin B Complex were significantly higher among rural population with the prevalence of 28.18% (95% CI: 23.03-33.98) compared to the urban population;

17.56% (95% CI: 14.20-21.52). Among those who took folic acid, the prevalence among the rural population was 13.19% (95% CI: 9.77-17.57) and 8.54% (95% CI: 5.67-12.68) among the urban population.

6.1.3 Frequency of vitamin and mineral supplement intake

Most of the users took VM supplements daily. The highest was the Folic Acid intake (75.10%) followed by the Zinc intake (75.09%), with the estimated population of 393,281 and 194,323. In addition, among the five commonly taken VM supplements, the intake frequency for these supplements daily was more than 50% **(Table 6.4)**.

The proportion of a single user VM supplements was 61.97% (95% CI: 57.40-66.35) **(Table 6.5)**, while the proportion of multiple users supplements were 38.03% (95% CI: 33.65-42.60). The proportion of multiple users among Peninsular Malaysia and East Malaysia was 37.53% (95% CI: 32.39-42.98) and 40.01% (95% CI: 33.23-47.20), respectively **(Table 6.6)**.

The three main reasons for taking VM supplements among adults population were for health, followed by the doctor's prescription and to get extra energy.

6.1.4 Overall prevalence of Food Supplements Users

In this survey, food supplements (FS) are defined as non-vitamin and non-mineral supplement products with health claim that are made from natural food or food derivatives, for examples fish oil, essence of chicken, sea cucumber products and traditional herbs.

Traditional herbs are defined as natural remedies from herbs and food, which includes botanical or animal derived extracts (Traditional & Complementary Medicine, MOH 2011)

The national prevalence of FS users was 34.02 (95%CI: 31.37-36.77). The prevalence was higher in Peninsular Malaysia (35.85%; 95% CI: 32.66-39.17) compared to East Malaysia (27.24%; 95%CI: 23.41-31.44). The prevalence of 37.89% was significantly higher among urban population (95%CI: 34.34- 41.58) compared to rural [25.24 % (95% CI: 22.08-28.68)]. The FS intake among female was 38.37% (95% CI: 35.06- 41.78) and among male was 30.03(95% CI: 26.68- 33.60). The prevalence of FS users was high among urban women [42.66% (95% CI: 38.36- 47.07) compared to rural women [27.98% (95% CI: 23.96-32.39) **(Table 6.8)**.

6.1.5 Prevalence of most commonly taken food supplement

The top five most commonly taken FS were fish oil (10.58%;95% CI: 9.08- 12.29), royal jelly [6.15% (95% CI: 4.88- 7.71)], spirulina [3.39 % CI: 2.67- 4.31)], collagen [2.92% CI: 2.26-3.77)] and traditional herbs [2.76% CI: 2.06-3.70] **(Table 6.9)**.

Among who took supplements [26.24% (95% CI: 22.41-30.46)] took fish oil **(Table 6.10a)**, [18.07% (95% CI: 14.67-22.06)] took royal jelly **(Table 6.10b)**, [9.99% (95% CI: 7.88-12.59)] took spirulina **(Table 6.10c)**, [8.60% (95% CI: 6.76-10.89)] took collagen **(Table 6.10d)**, and [8.14% (95% CI: 6.12-10.75)] took traditional herbs **(Table 6.10e)**.

The users of fish oil were higher among urban population at 29.28% (95% CI: 24.55-34.51) than rural population [15.88% (95% CI: 11.34-21.78)]. Among those who took the royal jelly, the prevalence among Peninsular Malaysia was 18.85% (95% CI: 14.91-23.53) and among East Malaysia was 14.30% (95% CI: 9.72-20.55).The prevalence of spirulina users among urban population was 8.60% (95% CI: 6.21-11.80) and rural population was 14.68% (95% CI: 10.97-19.39).The users of Collagen among Peninsular Malaysia population was 8.06%

(95% CI: 6.00-10.75) and East Malaysia was 11.22% (95% CI: 7.91-15.68). Among those who took the traditional herb, the prevalence among the urban population was 8.29% (95% CI: 5.87-11.57) and the user among the rural population was 7.62% (95% CI: 4.98-11.48).

6.1.6 Frequency of food supplement intake

The highest frequency of intake for the FS supplement was every day for Berry Essence (83.30%) with the estimated population at 110,388. Among the five commonly taken FS, the intake frequency for these supplements taken every day was more than 50% **(Table 6.11)**.

The proportion of a single user for FS was 68.46% (95% CI: 64.39-72.27) **(Table 6.12)**, while, the proportion of multiple users for FS was 31.54% (95% CI: 27.73-35.61) **(Table 6.13)**. For a single user, 66.80% (95% CI: 61.85-71.41) were urban population and 74.13% (95% CI: 68.18-79.30) were rural population. For multiple users, 33.20% (95% CI: 28.59-38.15) were urban population and 25.87% (95% CI: 20.70-31.82) were rural population.

The main reasons for taking FS among adults population were health, followed by boosting their energy. Among those who took collagen, it was reported that the main reason of the consumption was for beauty **(Table 6.14)**.

6.2 Implications

This is the second national survey conducted in Malaysia. In the first MANS (2003), the prevalence of vitamin and mineral supplements intake among the adult population was 23.94%, and the prevalence of non-vitamin and non-mineral was 24.79%. The prevalence of the present survey was higher than the previous survey (28.05% and 34.02%). There was an increase trend of both VM and FS intake between year 2003 and 2014. The prevalence of VM and FS supplements users were higher among adults living in urban areas. These findings were similar to the previous MANS 2003.

6.3 Conclusion

In conclusion, the results of the Malaysian Adults Nutrition Survey 2014 found that the prevalence of VM and FS users has increased tremendously from the earlier survey especially in urban population. The main reason for VM and FS intake was for health claim. Most of the users used supplements daily of a single type of VM or FS.

6.4 Recommendation

The increasing trend of VM and FS user in Malaysia needs further research to provide scientific evidence of each type of supplement especially FS. It is likely that most of the users took the FS based on the health claim of the particular product.

The related authorities should establish regulation, policy and guidelines on the usage and distribution of supplements in Malaysia. This is important in ensuring people to practise the recommended dietary habits and not to be influenced by the marketing strategy on health claim of the product.

Those who plan to take supplements should consult healthcare professionals regarding their health status, dietary practices and the need for certain supplements. Health care professionals should be aware of the scientific evidence of each product before giving advice on the use of supplements.

DEFINITION OF VARIABLES: VITAMIN AND MINERAL SUPPLEMENT

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Vitamin/ mineral supplement	e1100	Final_weight	Vitamin and mineral supplement (VM) supplements were defined as mineral, synthetic nutrients, and vitamins sold singly or in mixtures in controlled dosages form such as sachets, capsules, liquids, lozenges, powders or tablet This includes: • Multivitamin and multimineral • Vitamin A/Carotenoids • Vitamin B complex • Vitamin B12 • Vitamin C • Folic Acid (B6) • Iron • Calcium • Vitamin E • Zinc • Others	Value labels e1100 1 = Yes 2 = No -7 = Don't know -9 = Refuse to answer
Multivitamin and Multimineral, Vitamin A/ Carotenoids, B complex vitamin, Vitamin B12, Vitamin C, Folic Acid/B6, Iron, Calcium, Vitamin E, Zinc, Others	e1201 – e 1211	Final_weight	Type of vitamin/mineral taken	Value labels e1201, e1202, e1203, e1204, e1205, e1206,e1207, e1208, e1209, e1210, e1211 1 = Yes 2 = No -9 = Refuse to answer

Definition of variables : Reason of intake: Doctor's prescription

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: doctor's prescription	reason_ multivit_doc (e1301) reason_ vit_A _doc (e1302) reason_ vit_B _doc (e1303) reason_ B12_doc (e1304) reason_ vit_C _doc (e1305) reason_ folic_doc (e1306) reason_ iron_doc (e1307) reason_ calcium _doc (e1308) reason_ vit_E _doc (e1309) reason_zink_doc (e13 10)	Final_weight	Reason for taking vitamin/mineral supplement for doctor's prescription	DO IF (e13xxa > 0). COUNT reason_(vitamin/mineral)_doc=e13xxa e13xxb e13xxc(1). VARIABLE LABELS reason_(vitamin/mineral)_doc 'reason for taking (vitamin/mineral) (do ctor prescription)'. END IF. EXECUTE.

*(vitamin/mineral)=type of vitamin/mineral taken

Definition of variables : Reason of intake: health

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: health	reason_multivi t_health (e1301) reason_ vit_A_health (e1302) reason_ vit_B_health (e1303) reason_ B12_health (e1304) reason_ vit_C_health (e1305) reason_ folic_health (e1306) reason_iron_health (e1307) reason_calcium_health (e1308) reason_vit_E_health (e1309) reason_zin k_health (e1310)	Final_weight	Reason for taking vitamin/mineral supplement for health	DO IF (e13xxa > 0). COUNT reason_(vitamin/mineral)_health=e13xxa e13xxb(2). VARIABLE LABELS reason_(vitamin/mineral)_health 'reason for taking (vitamin/mineral) (healt h)'. END IF. EXECUTE.

*(vitamin/mineral)=type of vitamin/mineral taken

Definition of variables : Reason of intake: for increased energy

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: for increased energy	reason_multivit_energy (e1301) reason_ vit_A_energy (e1302) reason_ vit_B_energy (e1303) reason_ B12_energy (e1304) reason_ vit_C_energy (e1305) reason_ folic_energy (e1306) reason_iron_energy (e1307) reason_calcium_energy (e1308) reason_ vit_E_energy (e1309) reason_zink_energy (e1310)	Final_weight	Reason for taking vitamin/mineral supplement for increased energy	DO IF (e13xxa > 0). COUNT reason_(vitamin/mineral)_energy=e13xxa e13xxb e13xxc(3). VARIABLE LABELS reason_(vitamin/mineral)_energy 'reason for taking (vitamin/mineral) (for increased energy)'. END IF. EXECUTE.

*(vitamin/mineral)=type of vitamin/mineral taken

Definition of variables : Reason of intake: beauty

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake e: beauty	reason_multivit_beauty (e1301) reason_ vit_A_beauty (e1302) reason_ vit_B_beauty (e1303) reason_ B12_beauty (e1304) reason_ vit_C_beauty (e1305) reason_ folic_beauty (e1306) reason_ iron_beauty (e1307) reason_calcium_beauty (e1308) reason_ vit_E _beauty (e1309) reason_zink_beauty (e1310)	Final_weight	Reason for taking vitamin/mineral supplement for beauty	DO IF (e13xxa > 0). COUNT reason_(vitamin/mineral)_beauty=e13xxa e13xxb(4). VARIABLE LABELS reason_(vitamin/mineral)_beauty 'reason for taking (vitamin/mineral) (beauty)'. END IF. EXECUTE.

*(vitamin/mineral)=type of vitamin/mineral taken

Definition of variables : Reason of intake: improves memory

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: improves memory	reason_multivit_memory (e1301) reason_ vit_A_memory (e1302) reason_ vit_B_memory (e1303) reason_ B12_memory (e1304) reason_ vit_C_memory (e1305) reason_ folic_memory (e1306) reason_ iron_memory (e1307) reason_calcium_memory (e1308) reason_ vit_E_memory (e1309) reason_zink_memory (e1310)	Final_weight	Reason for taking vitamin/mineral supplement: to improves memory	DO IF (e13xxa > 0). COUNT reason_(vitamin/mineral)_memory=e13xxa e13xxb e13xxc(5). VARIABLE LABELS (vitamin/mineral)_memory 'reas on for taking (vitamin/mineral) (improves memory)' . END IF. EXECUTE.

*(vitamin/mineral)=type of vitamin/mineral taken

Definition of variables : Reason of intake: not sure/ no answer

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definiti on
Reason of intake: not sure/ no answer	reason_multivit_not (e1301) reason_ vit_A_not (e1302) reason_ vit_B_not (e1303) reason_ B12_not (e1304) reason_ vit_C_not (e1305) reason_ folic_not (e1306) reason_ iron_not (e1307) reason_calcium_not (e1308) reaso n_ vit_E_not (e1309) reason_zink_not (e1310)	Final_weight	Reason for taking vitamin/mineral supplement: not sure	DO IF (e13xxa > 0). COUNT reason_(vitamin/mineral)_not=e13xxa e13xxb e13xxc(6). VARIABLE LABELS reason_(vitamin/mineral)_not 'reason for taking (vitamin/mineral) (not sure)' . END IF. EXECUTE.

*(vitamin/mineral)=type of vitamin/mineral taken

Definition of variables : Frequency

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Frequency for Multivitamin and Multimineral, Vitamin A/ Carotenoids, B complex vitamin, Vitamin B12, Vitamin C, Folic Acid/B6, Iron, Calcium, Vitamin E, Zinc, Others	e1401, e1402, e1403, e1404, e1405, e1406, e1407, e1408, e1409, e1410, e1411	Final_weight	Frequency of vitamin/mineral taken	Value labels e1100 1 = Everyday 2 = More than once a week 3 = Once a week 4 = 1 to 3 times per month 5 = Occasionally

Frequency of single or multiple user	user_new	Final_weight	Frequency of multiple user or single user for vitamin and mineral taken	COUNT count_user=e1201 e1202 e1203 e1204 e1205 e1206 e1207 e1208 e1209 e1210 e1211(1).
				EXECUTE.
				IF (count_user > 1) user_new=0.
				EXECUTE.
				
				IF (count_user = 1) user_new=1.
				EXECUTE.
				
				Value labels user_new
				
				0 = multiple user
				1 = single user

Definition of Variables : Food Supplement Intake

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Food supplement	e2100	Final_weight	Food supplement (FS) was defined as non - vitamin and non-mineral supplement (NVNM) products with health claim that are made from natural food or food derivatives This includes: • Fish oil • Essence of Chicken • Haruan Fish Stock • Garlic Pill • Bird's nest stock • Royal Jelly • Evening Primrose Oil • Collagen • Spriluna • Gingko Biloba • Mangosteen Extract • Sea Cucumber Products • Slimming Products • Prune Essence • Berry Essence • Health powder (not include slimming product) • Traditional herbs	Value labels e1100 1 = Yes 2 = No -6 = Missing -7 = Don't know -9 = Refuse to answer
Fish oil, Essence of Chicken, Haruan Fish Stock, Garlic Pill, Bird's nest stock, Royal Jelly, Evening Primrose Oil, Collagen, Spriluna, Gingko Biloba, Mangosteen Extract, Sea Cucumber Products, Slimming Products, Prune Essence, Berry Essence, Health powder, Traditional herbs,	e2201 – e 2218	Final_weight	Type of food supplement taken	Value labels e2201, e2202, e2203, e2204, e2205, e2206, e2207, e2208, e2209, e2210, e2211, e2212, e2213, e2214, e2215, e2216, e2217, e2218 1 = Yes 2 = No -6 = Missing -9 = Refuse to answer

Definition of variables : Reason of intake: Doctor's prescription

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: doctor's prescription	reason_fish_doc (e2301), reason_chicken_doc (2302), reason_haruan_doc (2303), reason_garlic_doc (2304), reason_nest_doc (2305), reason_madu_doc (2306), reason_primrose_doc (2307), reason_collagen_doc (2308), reason_spirulina_doc (2309), reason_gingko_doc (2310), reason_mangosteen_doc (2311), reason_gamat_doc (2312), reason_slimming_doc (2313), reason_prune_doc (2314), reason_berry_doc (2315), reason_powder_doc (2316)reason_herbs_doc (2318)	Final_weight	Reason for taking food supplement: doctor's prescription	DO IF (e23xxa > 0). COUNT reason_(food supplement)_doc=e23xxa e23xxb e23xxc(1). VARIABLE LAB ELS reason_(food supplement)_doc 'reason for taking (food supplement) (doctor prescription)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: Health

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: Health	reason_fish_health (2301), reason_chicken_health (2302), reason_haruan_health (2303), reason_garlic_health (2304), reason_nest_health (2305), reason_madu_health (2306), reason_primrose_health (2307), reason_collagen_health (2308), reason_spirulina_health (2309), reason_gingko_health (2310), reason_mangosteen_health (2311), reason_gamat_health (2312), reason_slimming_health (2313), reason_prune_health (2314), reason_berry_health (2315), reason_powder_health (2316), reason_herbs_health (2318)	Final_weight	Reason for taking food supplement: health	DO IF (e23xxa > 0). COUNT reason_(food supplement)_health=e23xxa e23xxbe23xxc(2). VARIABLE LABELS reason_(food supplement)_health 'reason for taking (food supplement) (health)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: For increased energy

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: for increased energy	reason_fish_energy (2301) reason_chicken_energy (2302), reason_haruan_energy (2303), reason_garlic_energy (2304), reason_nest_energy (2305), reason_madu_energy (2306), reason_primrose_energy (2307), reason_collagen_energy (2308), reason_spirulina_energy (2309), reason_gingko_energy (2310), reason_mangosteen_energy (2311), reason_gamat_energy (2312), reason_slimming_energy (2313), reason_prune_energy (2314), reason_berry_energy (2315), reason_powder_energy (2316), reason_herbs_energy (2318)	Final_weight	Rea son for taking food supplement: for increased energy	DO IF (e23xxa > 0). COUNT reason_(food supplement)_energy=e23xxa e23xxb e23xxc(3). VARIABLE LABELS reason_(food supplement)_energy 'reason for taking (food supplement) (energy)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: Beauty

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: beauty	reason_fish_beauty (2301), reason_chicken_beauty (2302), reason_haruan_beauty (2303), reason_garlic_beauty (2304), reason_nest_beauty (2305), reason_madu_beauty (2306), reason_primrose_beauty (2307), reason_collagen_beauty (2308), reason_spirulina_beauty (2309), reason_gingko_beauty (2310), reason_mangosteen_beauty (2311), reason_gamat_beauty (2312), reason_slimming_beauty (2313), reason_prune_beauty (2314), reason_berry_beauty (2315) reason_powder_beauty (2316), reason_herbs_beauty (2318)	Final_weight	Reason for taking food supplement: beauty	DO IF (e23xxa > 0). CO UNT reason_(food supplement)_beauty=e23xxa e23xxb e23xxc(4). VARIABLE LABELS reason_(food supplement)_beauty 'reason for taking (food supplement) (beauty)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: Weight reduction

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: weight reduction	reason_fish_weight (2301), reason_chicken_weight (2302), reason_haruan_weight (2303), reason_garlic_weight (2304), reason_nest_weight (2305), reason_madu_weight (2306), reason_primrose_weight (2307), reason_collagen_weight (2308), reason_spirulina_weight (2309), reason_gingko_weight (2310), reason_mangosteen_weight (2311), reason_gamat_weight (2312), reason_slimming_weight (2313), reason_prune_weight (2314), reason_berry_weight (2315), reason_powder_weight (2316), reason_herbs_weight (2318)	Final_weight	Reason for taking food supplement: weight reduction	DO IF (e23xxa > 0). COUNT reason_(food supplement) _weight=e23xxa e23xx b e23xxc(5). VARIABLE LABELS reason_(food supplement) _weight 'reason for taking (food supplement) (weight reduction)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: Beauty

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: beauty	reason_fish_beauty (2301), reason_chicken_beauty (2302), reason_haruan_beauty (2303), reason_garlic_beauty (2304), reason_nest_beauty (2305), reason_madu_beauty (2306), reason_primrose_beauty (2307), reason_collagen_beauty (2308)reason_spirulina_beauty (2309), reason_gingko_beauty (2310), reason_mangosteen_beauty (2311), reason_gamat_beauty (2312), reason_slimming_beauty (2313), reason_prune_beauty (2314), reason_berry_beauty (2315), reason_powder_beauty (2316), reason_herbs_beauty (2318)	Final_weight	Reason for taking food supplement: beauty	DO IF (e23xxa > 0). CO UNT reason_(food supplement)_beauty=e23xxa e23xxb e23xxc(4). VARIABLE LABELS reason_(food supplement)_beauty 'reason for taking (food supplement) (beauty)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: cholesterol reduction

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Reason of intake: cholesterol reduction	reason_fish_cholestrol (2301), reason_chicken_cholestrol (2302)reason_haruan_cholestrol (2303), reason_garlic_cholestrol (2304), reason_nest_cholestrol (2305), reason_madu_cholestrol (2306), reason_primrose_cholestrol (2307), reason_collagen_cholestrol (2308), reason_spirulina_cholestrol (2309), reason_gingko_cholestrol (2310), reason_mangosteen_cholestrol (2311) reason_gamat_cholestrol (2312), reason_slimming_cholestrol (2313), reason_prune_cholestrol (2314), reason_berry_cholestrol (2315), reason_powder_cholestrol (2316), reason_herbs_cholestrol (2318)	Final_weight	Reason for taking food supplement: cholesterol reduction	DO IF (e23xxa > 0). COUNT reason_(food supplement) _cholestrol=e23xxa e23x xb e23xxc(7). VARIABLE LABELS reason_fish_cholestrol 'reason for taking (food supplement) (cholestrol)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Reason of intake: Not sure

Variable Name	Variable in SPSS	Weight	Definition	S PSS Variable Definition
Reason of intake: not sure	reason_fish_not (2301), reason_chicken_not (2302), reason_haruan_not (2303), reason_garlic_not (2304), reason_nest_not (2305), reason_madu_not (2306), reason_primrose_not (2307), reason_collagen_not (2308), reason_spirulina_not (2309), reason_gingko_not (2310), reason_mangosteen_not (2311), reason_gamat_not (2312) reason_slimming_not (2313), reason_prune_not (2314), reason_berry_not (2315), reason_powder_not (2316), reason_herbs_not (2318)	Final_weight	Reason for taking food supplement: not sure	DO IF (e23xxa > 0). COUNT reason_(food supplement) _not=e23xxa e23xxb e23xxc(8). VARIABLE LABELS reason_fish_not 'reason for taking (food supplement) (not sure)'. END IF. EXECUTE.

* (food supplement) = type of food supplement taken

Definition of variables : Frequency

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Frequency forFish oil, Essence of Chicken, Haruan Fish Stock, Garlic Pill, Bird's nest stock, Royal Jelly,Evening Primrose Oil, Collagen,Spriluna, Gingko Biloba, Mangosteen Extract,Sea Cucumber Products, Slimming Products, Prune Essence, Berry Essence, Health powder,Traditional herbs,	e2401, e2402, e2403, e2404, e2405, e2406, e2407, e2408, e2409, e2410, e2411, e2412, e2413, e2414, e2415, e2416, e2417, e2418	Final_weight	Frequency of food supplement taken	Value labels e2401, e2402, e2403, e2404, e2405, e2406, e2407, e2408, e2409, e2410, e2411, e2412, e2413, e2414, e2415, e2416, e2417, e2418 1 = Everyday 2 = More than once a week 3 = Once a week 4 = 1 to 3 times per month 5 = Occasionally

Frequency of single atau multiple user	user_new_nv	Final_weight	Frequency of multiple user or single user for food supplement taken	COUNT count_user_nv=e2201 e2202 e2203 e2204 e2205 e2206 e2207 e2208 e2209 e2210 e2211 e2212 e2213 e2214 e2215 e2216 e2217 e2218(1).
				EXECUTE.
				
				IF (count_user_nv > 1) user_new_nv=0.
				EXECUTE.
				
				IF (count_user_nv = 1) user_new_nv=1.
				EXECUTE
				Value labels user_new_nv
				
				0 = multiple user
				1 = single user

Table 6.1: Prevalence of vitamins and mineral user by socio-demographic characteristics

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Malaysia	**28.05**	**25.70**	**30.50**	**5,495,783**	**813**	**24.29**	**21.23**	**27.64**	**2,483,675**	**301**	**32.12**	**29.26**	**35.12**	**3,012,109**	**512**
Zone															
Peninsular Malaysia	28.57	25.75	31.56	4,405,421	508	25.19	21.49	29.27	2,019,840	199	32.22	28.82	35.83	2,385,582	309
East Malaysia	26.10	22.78	29.71	1,090,362	305	21.06	16.75	26.11	463,835	102	31.72	27.36	36.46	626,527	203
Strata															
Urban	30.93	27.83	34.21	4,203,864	507	27.42	23.28	31.98	1,905,993	194	34.60	30.92	38.48	2,297,872	313
Rural	21.51	18.62	24.71	1,291,919	306	17.66	14.07	21.93	577,682	107	26.10	22.39	30.19	714,237	199
Sex															
Male	24.30	21.24	27.65	2,483,675	301										
Female	32.12	29.26	35.12	3,012,108	512										
Age Group															
18 –19	15.41	9.41	24.22	1,176,093	25	-	-	-	-	15	-	-	-	-	10
20-29	27.10	23.20	31.4	1,449,830	180	22.82	17.57	29.08	635,045	70	31.76	26.33	37.72	814,785	110
30-39	31.83	27.55	36.44	1,549,718	253	25.83	20.42	32.09	624,633	90	37.75	32.58	43.20	925,085	163
40-49	29.66	24.84	34.97	1,359.95	207	27.40	20.58	35.47	639,010	73	31.98	26.00	38.62	720,942	134
50-59	26.28	21.82	31.29	960,189	148	24.68	18.46	32.19	448,260	53	27.85	22.21	34.30	511,930	95
Ethnicity															
Malay	26.88	23.81	30.18	2,843,168	381	21.15	17.57	25.24	1,150,342	136	32.93	28.70	37.45	1,692,826	245
Chinese	31.76	26.36	37.70	1,214,490	174	30.79	22.87	40.02	618,512	71	32.84	27.18	39.04	595,978	103
Indian	31.15	22.41	41.47	424,259	43	31.14	19.60	45.60	237,831	21	31.16	19.85	45.27	186,428	22
Bumiputera Sabah	30.72	25.71	36.24	462,655	114	27.93	20.56	36.71	235,650	43	24.28	27.88	41.30	227,005	71
Bumiputera Sarawak	19.74	13.06	28.71	208,592	55	-	-	-	-	11	27.15	17.59	39.42	154,130	44
Others	25.86	16.77	37.65	303,218	40	-	-	-	-	15	27.58	17.68	40.50	150,531	25
Other Bumis	-	-	-	-	6	-	-	-	-	4	-	-	-	-	2
Marital status															
Never married	22.05	18.43	26.17	1,216,102	168	20.00	15.62	25.23	706,174	86	25.70	20.01	32.36	509,928	82
Married/Cohabiting	30.75	27.99	33.66	4,058,037	599	27.09	23.27	31.29	1742,137	207	34.22	30.95	37.65	2,315,901	392
Divorced/Separated	19.93	13.37	28.65	127,314	26	-	-	-	-	7	25.29	16.28	37.09	101,142	19
Widow	-	-	-	-	19	-	-	-	-		-	-	-	-	19
Others	100.00	100.00	100	9,191	1	1.00	1.00	1.00	9,192	1	-	-	-	-	-

Note :
- RSE more than 25%

Table 6.1: Prevalence of vitamins and mineral user by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-	12	-	-	-	-	2	18.10	13.36	24.05	326,087	10
Primary	14.22	11.04	18.12	511,975	94	10.33	6.69	15.60	185,888	27	-	-	-	-	67
Secondary	25.97	22.93	29.25	2,534,928	366	23.65	19.74	28.60	1,225,820	147	28.58	24.46	33.09	1,309,108	219
Tertiary	42.73	37.85	47.76	2,390,379	337	35.36	28.60	42.75	1,062,775	125	51.28	45.71	56.83	1,327,605	212
Others	-	-	-	-	2	-	-	-	-		-	-	-	-	2
Work status															
Government/ Semi-government	39.81	34.01	45.91	897,736	153	29.96	22.59	38.56	351,125	51	50.45	42.29	58.58	546,612	102
Private	-	-	-	-	283	24.74	20.52	29.52	1,235,605	136	30.08	25.06	35.64	949,875	147
Self-employed	25.06	21.35	29.17	1,235,385	189	21.96	17.04	27.81	649,537	87	29.72	24.17	35.94	585,847	102
Unpaid workers	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
Not working	26.88	22.89	31.29	858,431	151	-	-	-	-	8	29.51	25.14	34.28	817,602	143
Retired	-	-	-	-	8	-	-	-	-	6	-	-	-	-	2
Students	27.62	16.66	42.13	173,049	18	-	-	-	-	8	-	-	-	-	10
Income Group															
Less than RM1500	19.17	15.96	22.85	1,529,200	259	16.52	12.56	21.43	681,142	88	22.00	18.38	26.10	848,059	171
RM1500 – RM3500	25.45	22.21	28.98	1,590,766	244	22.11	18.09	26.74	738,576	93	29.28	24.63	34.39	852,190	151
More than RM 3500	44.71	39.79	49.73	2,301,396	302	38.22	30.87	46.14	1,004,741	116	51.49	45.64	57.29	1,296,655	186

Note :
- RSE more than 25%

Table 6.2: Prevalence of user by type of vitamin and mineral supplements

No.	Type of Supplements	Total					Men					Women				
		Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
1	Vitamin C	15.68	13.92	17.61	3,073,050	484	13.94	11.68	16.56	1,425,306	178	17.57	15.19	20.23	1,647,744	306
2	Multivitamin & Multimineral	8.87	7.49	10.47	1,738,152	231	8.32	6.60	10.43	850,413	101	9.47	9.47	11.72	887,738	130
3	Calcium	5.84	4.84	7.04	1,144,848	164	4.54	3.20	6.42	464,280	47	7.26	5.92	8.87	680,568	117
4	Vitamin B Complex	5.62	4.70	6.71	1,102,200	180	4.50	3.32	6.07	459,955	68	6.85	5.47	8.55	642,245	78
5	Folic Acid	2.70	1.99	3.64	528,814	84	-	-	-	23,675	6	5.37	3.94	7.32	505,140	51
6	Vitamin E	2.62	1.96	3.49	513,265	72	-	-	-	-		3.46	2.51	4.76	324,637	58
7	Iron	2.06	1.57	2.69	403,487	64	-	-	-	-		3.83	2.57	5.08	358,828	19
8	Zinc	1.32	0.86	2.03	258,771	36	-	-	-	-		-	-	-	-	
9	Vitamin A	-	-	-	-		-	-	-	-		-	-	-	-	
10	Vitamin B12	0.78	0.50	1.21	152,087	28	-	-	-	-		-	-	-	-	
11	Others	1.54	1.09	2.15	-		-	-	-	-		-	-	-	-	

Note :
- RSE more than 25%

Table 6.3a : The top five most used vitamin and mineral supplements by socio-demographic characteristics– i) Vitamin C

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Malaysia	**55.92**	**51.10**	**60.62**	**3,073,050**	**484**	**57.39**	**50.48**	**64.02**	**1,425,306**	**178**	**54.70**	**48.76**	**60.52**	**1647744**	**306**
Zone															
Peninsular Malaysia	52.17	46.46	57.82	2,298,265	274	54.59	46.51	62.43	1,102,607	110	50.12	42.97	57.27	1,195,658	164
East Malaysia	71.06	65.16	76.32	774,785	210	69.57	59.48	78.07	322,699	68	72.16	64.78	78.50	452,086	142
Strata															
Urban	54.54	48.57	60.38	2,292,698	295	57.64	49.18	65.69	1,098,706	118	51.96	44.58	59.25	1,193,992	177
Rural	60.40	54.29	66.21	780,352	189	56.54	46.25	66.29	326,600	60	63.53	56.05	70.41	453,752	129
Age Group															
18 –19	84.18	63.26	94.27	148,230	21	83.81	58.09	95.08	114,590	12	85.46	42.26	97.92	33,640	9
20-29	60.96	50.97	70.11	883,866	117	66.90	51.65	79.27	424,846	49	56.34	44.23	67.74	459,021	68
30-39	59.21	50.31	67.54	917,577	163	63.63	49.54	75.71	397,459	60	56.22	45.98	65.96	520,118	103
40-49	54.64	44.67	64.25	743,091	115	53.33	38.68	67.43	340,772	37	55.80	44.55	66.48	402,319	78
50-59	39.61	29.66	50.49	380,285	68	32.94	19.36	10.12	147,640	20	45.44	33.65	57.77	232,646	48
Ethnicity															
Malay	51.44	44.72	58.11	1,462,536	207	45.29	44.18	64.03	624,328	77	48.52	41.40	57.65	838,207	130
Chinese	57.53	49.04	65.60	698,723	104	58.23	46.78	68.87	360,189	44	56.80	43.03	69.60	338,534	60
Indian	59.60	40.68	76.05	252,874	26	60.76	34.36	82.07	144,500	12	58.13	33.12	79.56	108,374	14
Bumiputera Sabah	79.08	69.96	85.98	365,849	87	75.77	61.39	86.02	178,551	30	82.51	70.36	90.36	187,299	57
Bumiputera Sarawak	70.45	52.31	83.82	146,951	38	-	-	-	-	5	83.26	68.86	91.79	128,329	33
Others	-	-	-	-	17	-	-	-	-	7	-	-	-	-	10
Other Bumis	88.56	45.86	98.61	34,893	5	86.82	40.02	98.49	29,683	3	100.00	100.00	100.00	5,210	2
Marital status															
Never married	64.87	54.10	74.31	788,911	115	69.93	56.25	80.79	493,826	62	57.86	42.35	71.97	295,085	53
Married/Cohabiting	52.86	47.33	58.33	2,145,170	342	52.41	43.89	60.79	913,097	113	53.20	46.68	59.61	1,232,074	229
Divorced/Separated	55.04	33.42	74.91	70,074	14	-	-	-	-	2	60.20	34.10	81.55	60,883	12
Widow	70.12	33.88	91.49	59,703	12						70.12	33.87	91.49	59,703	12
Others	100.00	100.00	100.00	9,191	1	100	100.00	100.00	9,192	1	-				

Note :
- RSE more than 25%

Table 6.3a : The top five most used vitamin and mineral supplements by socio-demographic characteristics– i) Vitamin C (Cont.).

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	73.00	35.69	92.94	29,337	7	-	-	-	-	2	-	-	-	-	-
Primary	40.88	29.80	52.98	209,319	40	48.81	27.04	71.04	90,736	10	36.67	24.32	50.40	118,584	30
Secondary	55.02	49.75	62.07	1,394,592	219	53.67	43.12	63.90	657,868	83	-	-	-	-	-
Tertiary	60.07	53.41	66.38	1,435,969	216	62.81	53.23	71.47	667,511	83	57.88	48.36	66.86	768,459	133
Others	100.00	100.00	100.00	3,833	2						100.00	100.00	100.00	3,833	2
Work status															
Govt/ Semi-govt	62.30	52.69	71.02	559,246	102	64.73	47.31	78.96	227,300	36	60.73	49.26	71.13	331,946	66
Private	58.56	50.93	65.79	1,279,728	173	63.01	52.02	72.79	778,498	87	52.77	43.13	62.20	501,229	86
Self-employed	49.12	41.47	56.82	606,862	98	47.91	36.81	59.22	311,176	42	50.47	38.57	62.32	295,686	56
Unpaid workers	100.00	100.00	100.00	215,243	3	100	100.00	100.00	12,259	2	100	100	100.00	9,268	1
Not working	56.55	46.94	65.68	485,423	89	-	-	-	-	4	56.51	46.56	65.96	461,987	85
Retired	-	-	-	-	3	-	-	-	-	1	100.00	100.00	100.00	2,605	2
Students	55.92	30.65	78.45	96,773	12	66.53	33.39	88.75	62,758	5	-	-	-	-	7
Others															
Income Group															
Less than RM1500	52.76	42.89	62.42	806,767	147	54.17	40.48	67.25	368,952	46	51.63	41.06	62.05	4,378	16
RM1500 – RM3500	54.25	46.42	61.88	863,012	142	56.73	43.97	68.66	419,020	54	52.10	41.94	62.09	443,992	88
More than RM 3500	59.90	52.54	66.83	1,378,426	191	62.34	51.46	72.11	626,393	77	58.00	47.90	97.47	752,033	114

Note :
- RSE more than 25%

Table 6.3b : The top five most used vitamin and mineral supplements by socio-demographic characteristics – ii) Multivitamin & multimineral

Socio-demographic Characteristics	Total Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Men Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Women Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	31.63	27.56	35.99	1,738,152	231	34.24	28.24	40.79	850,413	101	29.47	24.38	35.14	887,738	130
Zone															
Peninsular Malaysia	33.10	28.29	38.28	1,458,055	160	34.64	27.72	42.27	699,669	68	31.79	25.63	38.66	758,387	92
East Malaysia	25.69	19.82	32.58	180,096	71	32.50	22.54	44.33	150,745	33	20.65	15.04	29.66	129,352	38
Strata															
Urban	33.74	28.75	39.12	1,418,212	163	35.75	28.64	43.55	681,434	71	32.06	25.74	39.12	736,778	92
Rural	24.76	19.48	30.93	319,940	68	28.25	19.63	41.17	168,979	30	21.14	15.52	28.11	150,960	38
Age Group															
18 –19	-	-	-	-	4	-	-	-	-	-	-	-	-	-	2
20-29	30.56	22.66	39.79	443,044	47	31.47	19.36	46.77	199,854	19	29.85	19.99	42.01	243,190	28
30-39	31.54	25.43	38.36	488,775	72	32.61	22.41	44.77	203,698	30	30.82	22.44	40.68	285,077	42
40-49	30.69	23.36	39.14	417,338	60	36.26	25.04	49.22	231,729	28	25.75	18.00	35.38	185,609	32
50-59	37.88	28.28	48.53	363,730	48	44.8	29.95	60.63	200,803	22	31.83	21.27	44.66	162,927	26
Ethnicity															
Malay	32.07	26.66	38.00	911,769	111	33.25	24.56	43.24	382,457	42	31.27	24.62	38.79	529,312	69
Chinese	33.05	24.43	42.97	401,344	53	38.98	27.87	51.37	241,084	30	26.89	15.88	41.75	160,260	23
Indian	32.58	18.82	50.2	138,237	15	-	-	-	-	7	-	-	-	-	8
Bumiputera Sabah	23.15	13.95	35.87	107,089	24	-	-	-	-	12	-	-	-	-	12
Bumiputera Sarawak	-	-	-	-	13	-	-	-	-	3	-	-	-	-	9
Others	-	-	-	-	14	-	-	-	-	5	-	-	-	-	9
Other Bumis	-	-	-	-	1	-	-	-	-	1					
Marital status															
Never married	27.69	19.78	37.30	336,763	44	29.74	19.04	42.24	210,035	15	-	-	-	-	19
Married/Cohabiting	33.35	28.59	38.47	1,353,270	178	36.00	28.75	43.96	627,183	73	31.35	25.54	37.82	726,087	105
Divorced/Separated	-	-	-	-	6	-	-	-	-	3	-	-	-	-	3
Widow	-	-	-	-	3						-	-	-	-	3
Others															

Note :
- RSE more than 25%

Table 6.3b : The top five most used vitamin and mineral supplements by socio-demographic characteristics – ii) Multivitamin & multimineral (Cont.).

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Education Level															
Non-formal	-	-	-	-	3	-	-	-	-	-	-	-	-	-	3
Primary	-	-	-	-	17	-	-	-	-	6	-	-	-	-	11
Secondary	30.32	24.58	36.75	768,692	97	31.50	23.31	41.02	386,126	48	29.22	21.36	38.56	382,564	49
Tertiary	34.25	27.81	41.33	818,667	112	37.43	28.02	47.90	397,841	47	31.70	23.96	40.60	420,826	65
Others	-	-	-	-		-	-	-	-		-	-	-	-	
Work status															
Govt/ Semi-govt	29.70	21.24	39.84	266,647	44	-	-	-	-	16	29.61	19.43	42.32	161,865	28
Private	37.23	30.58	44.39	813,558	94	39.70	29.98	50.31	490,555	52	34.00	24.87	44.51	323,004	42
Self-employed	31.84	24.27	40.51	393,392	55	31.77	21.62	44.01	206,369	28	31.92	21.08	45.15	187,023	27
Unpaid workers	-	-	-	-	1	-	-	-	-		100.00	100.00	100.00	9,268	1
Not working	22.43	15.49	31.33	192,559	29	-	-	-	-	1	23.18	15.94	32.43	189,495	28
Retired	-	-	-	-	4	-	-	-	-	2	100.000	100.00	100.00	2,605	2
Students	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
Others	-	-	-	-		-	-	-	-		-	-	-	-	
Income Group															
Less than RM1500	26.78	19.75	35.22	409,521	57	30.86	21.14	42.63	210,199	26	23.50	14.74	25.32	199,322	31
RM1500 – RM3500	32.79	25.73	40.71	521,543	67	37.06	26.11	49.53	273,738	33	29.08	20.70	39.18	247,806	34
More than RM 3500	32.77	26.62	39.48	754,079	103	31.67	22.63	42.35	318,202	39	33.62	25.70	42.58	435,977	64

Note :
- RSE more than 25%

Table 6.3c : The top five most used vitamin and mineral supplements by socio-demographic characteristics – iii) Calcium

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	20.83	17.46	24.53	1,144,848	164	18.69	13.56	25.2	464,280	47	22.59	18.68	27.05	680,568	117
Zone															
Peninsular Malaysia	21.98	18.08	26.45	968,276	109	19.76	13.73	27.58	399,074	33	23.86	19.14	29.33	569,202	76
East Malaysia	16.19	11.99	21.52	176,572	55	-	-	-	-	14	17.78	13.13	23.62	111,366	41
Strata															
Urban	22.01	18.00	26.62	925,225	114	19.89	13.71	27.95	379,024	34	23.77	18.96	29.36	546,201	80
Rural	17.00	12.72	22.35	219,623	50	-	-	-	-	13	18.81	13.88	25.00	134,367	37
Age Group															
18 –19	-	-	-	-	3	-	-	-	-	3	-	-	-	-	15
20-29	13.53	8.52	20.82	196,173	27	-	-	-	-	12	26.82	19.02	36.39	248,111	43
30-39	22.71	16.43	30.51	351,892	52	-	-	-	-	9	22.26	14.99	31.74	160,489	27
40-49	21.84	15.57	29.73	296,947	39	-	-	-	-	12	-	-	-	-	
50-59	27.73	19.20	38.25	266,233	43	-	-	-	-	11	34.83	23.34	48.41	178,298	32
Ethnicity															
Malay	17.04	12.95	22.11	484,540	64	-	-	-	-	17	18.71	13.94	24.63	316,663	47
Chinese	27.61	21.12	35.21	335,333	51	20.60	13.21	30.65	127,386	13	34.89	25.62	45.47	207,947	38
Indian	-	-	-	-	12	-	-	-	-	6	-	-	-	-	6
Bumiputera Sabah	-	-	-	-	19	-	-	-	-	7	-	-	-	-	12
Bumiputera Sarawak	-	-	-	-	11	-	-	-	-	3	-	-	-	-	8
Others	-	-	-	-	7	-	-	-	-	1	-	-	-	-	6
Other Bumis															
Marital status															
Never married	16.13	10.37	24.52	196,178	29	-	-	-	-	14	-	-	-	-	15
Married/Cohabiting	22.27	18.53	26.53	903,927	125	19.40	13.23	29.54	338,022	33	24.44	19.99	29.50	565,905	92
Divorced/Separated	-	-	-	-	5						-	-	-	-	5
Widow	-	-	-	-	5						-	-	-	-	5
Others															

Note :
- RSE more than 25%

Table 6.3c : The top five most used vitamin and mineral supplements by socio-demographic characteristics – iii) Calcium (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-	2						-	-	-	-	2
Primary	34.72	22.60	49.22	177,775	26	-	-	-	-	4	44.06	28.76	60.58	143,661	22
Secondary	20.33	15.73	25.86	515,381	69	20.17	13.01	29.92	247,283	24	20.48	14.69	27.81	268,098	45
Tertiary	18.73	14.21	24.29	447,834	66	17.21	10.41	29.11	182,882	19	19.96	17.75	26.44	264,951	47
Others	-	-	-	-	1						-	-	-	-	1
Work status															
Govt/ Semi-govt	18.34	12.40	26.29	164,687	31	-	-	-	-	7	23.99	15.62	35.00	131,145	24
Private	22.36	16.75	29.19	488,703	63	19.19	11.16	30.14	237,170	22	26.48	19.63	34.68	251,533	41
Self-employed	17.59	11.80	25.41	217,338	27	23.19	13.99	35.91	150,629	13	-	-	-	-	14
Unpaid workers	-	-	-	-	1						100.00	100.00	100.00	9,268	1
Not working	26.29	18.55	35.83	225,651	38	-	-	-	-	2	26.01	18.16	35.77	212,645	36
Retired															
Students	-	-	-	-	1	-	-	-	-	1					
Others															
Income Group 1															
Less than RM1500	17.58	11.92	25.16	268,787	41	-	-	-	-	8	21.36	14.61	30.12	181,116	33
RM1500 – RM3500	24.54	18.53	31.73	390,339	51	26.43	16.43	39.44	195,173	18	22.90	15.89	31.83	195,166	33
More than RM 3500	21.11	16.23	26.97	485,722	72	18.06	11.04	28.12	181,435	21	23.47	17.46	30.77	304,286	51

Note :
- RSE more than 25%

Table 6.3d : The top five most used vitamin and mineral supplements by socio-demographic characteristics – iv) Vitamin B complex

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	20.06	17.15	23.31	1,102,200	180	18.52	14.17	23.84	459,955	68	21.32	17.26	26.04	642,245	112
Zone															
Peninsular Malaysia	19.15	15.81	23.01	843,727	106	16.41	11.64	22.63	331,491	35	21.47	16.66	27.22	512,236	71
East Malaysia	13.71	18.73	29.52	258,472	74	27.70	18.65	38.02	128,464	33	20.75	15.02	27.94	130,009	41
Strata															
Urban	17.56	14.20	21.52	738,118	95	17.10	12.7	23.66	325,856	40	17.94	13.29	23.78	412,263	55
Rural	28.18	23.03	33.98	364,082	85	23.21	15.86	32.66	134,100	26	32.20	25.62	39.57	229,982	57
Age Group															
18 –19	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
20-29	23.22	16.47	31.68	336,601	48	-	-	-	-	20	23.23	14.69	34.71	189,244	28
30-39	20.17	14.72	27.00	312,616	54	-	-	-	-	16	25.28	17.46	35.12	233,886	38
40-49	17.27	11.55	25.00	234,813	37	-	-	-	-	15	-	-	-	-	22
50-59	20.86	14.13	19.68	200,281	38	-	-	-	-	15	20.31	12.39	31.48	103,995	23
Ethnicity															
Malay	22.50	18.45	27.14	639,594	91	17.63	11.38	26.29	202,793	28	25.80	19.95	32.67	136,802	63
Chinese	16.44	10.87	24.09	199,644	33	-	-	-	-	15	-	-	-	-	18
Indian	-	-	-	-	5	-	-	-	-	2	-	-	-	-	3
Bumiputera Sabah	30.53	22.32	40.19	141,234	32	37.11	22.33	54.77	87,450	16	23.69	14.42	36.39	53,785	16
Bumiputera Sarawak	-	-	-	-	11	-	-	-	-	2	-	-	-	-	9
Others	-	-	-	-	6	-	-	-	-	4	-	-	-	-	2
Other Bumis	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1
Marital status															
Never married	22.52	15.57	31.42	273,890	39	25.25	15.60	38.18	178,329	24	-	-	-	-	15
Married/Cohabiting	19.64	16.30	23.46	796,854	132	16.04	11.28	22.29	279,373	43	22.34	17.80	27.65	517,481	86
Divorced/Separated	-	-	-	-	4	-	-	-	-	1	-	-	-	-	3
Widow	-	-	-	-	5						-	-	-	-	5
Others															

Note :
- RSE more than 25%

Table 6.3d : The top five most used vitamin and mineral supplements by socio-demographic characteristics – v) Vitamin B complex (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-	4						-	-	-	-	4
Primary	20.02	12.12	31.24	102,510	24	-	-	-	-	11	-	-	-	-	13
Secondary	15.67	12.09	20.07	397,260	68	15.63	10.15	23.29	191,438	28	15.71	11.34	21.37	205,722	40
Tertiary	24.93	19.75	30.96	596,017	84	21.22	14.42	30.10	225,518	29	27.91	20.52	36.73	370,499	55
Others	-	-	-	-		-	-	-	-		-	-	-	-	
Work status															
Govt/ Semi-govt	17.07	16.46	37.83	242,992	40	14.27	8.90	22.09	176,284	12	32.62	22.26	45.02	178,329	28
Private	14.15	10.19	19.32	309,309	49	-	-	-	-	25	14.00	8.61	21.98	133,026	24
Self-employed	22.23	15.65	30.56	274,565	48	23.64	15.02	35.16	153,554	25	-	-	-	-	23
Unpaid workers						-	-	-	-						
Not working	23.39	16.46	32.11	200,794	37	-	-	-	-	2	23.24	16.21	32.15	190,040	35
Retired	-	-	-	-	4	-	-	-	-	3	-	-	-	-	1
Students	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1
Others															
Income Group															
Less than RM1500	22.53	17.04	29.17	344,579	65	24.22	15.04	26.59	164,985	25	21.18	14.48	29.89	179,595	40
RM1500 – RM3500	16.22	11.33	22.67	257,959	43	-	-	-	-	14	18.94	11.96	28.63	161,399	29
More than RM 3500	21.65	16.99	27.19	298,359	71	19.75	12.71	29.37	198,411	29	23.13	16.17	31.95	299,949	42

Note :
- RSE more than 25%

Table 6.3e : The top five most used vitamin and mineral supplements by socio-demographic characteristics – v) Folic Acid

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	**9.60**	**7.17**	**12.82**	**528,814**	**728**	-	-	-	-	-	**16.80**	**12.43**	**22.32**	**505,139**	**78**
Zone															
Peninsular Malaysia	9.55	6.67	13.48	419,996	53	-	-	-	-	-	16.85	11.65	23.74	401,006	49
East Malaysia	9.98	6.74	14.53	108,819	31	-	-	-	-	-	16.62	11.34	23.70	104,133	29
Strata															
Urban	8.54	5.67	12.68	359,145	43	-	-	-	-	-	15.19	10.01	22.37	348,988	40
Rural	13.19	9.77	17.57	169,669	40	-	-	-	-	-	22.04	16.39	28.96	156,150	38
Age Group															
18 –19	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
20-29	13.84	9.04	20.60	199,803	31	-	-	-	-	-	23.39	15.25	34.11	189,228	28
30-39	14.39	9.70	20.81	222,939	36	-	-	-	-	-	23.51	15.85	33.39	217,467	35
40-49	-	-	-	-	11	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
Ethnicity															
Malay	11.05	7.88	15.28	313,478	45	-	-	-	-	-	17.36	12.13	24.23	292,926	40
Chinese	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Marital status															
Never married	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-
Married/Cohabiting	10.96	8.27	14.38	444,103	74	-	-	-	-	-	18.60	13.93	24.36	429,440	70
Divorced/Separated	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Widow	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 6.3e : The top five most used vitamin and mineral supplements by socio-demographic characteristics – v) Folic Acid (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Primary	-	-	-	-	12	-	-	-	-	-	-	-	-	-	-
Secondary	9.36	6.31	13.66	236,678	32	-	-	-	-	-	17.22	11.52	24.94	224,447	30
Tertiary	10.37	6.88	15.32	247,786	40	-	-	-	-	-	18.04	12.05	26.12	239,464	37
Others	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Work status															
Govt/ Semi-govt	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-
Private	-	-	-	-	21	-	-	-	-	-	-	-	-	-	-
Self-employed	-	-	-	-	16	-	-	-	-	-	-	-	-	-	-
Unpaid workers	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Not working	22.31	14.57	32.59	190,238	27	-	-	-	-	-	-	-	-	-	-
Retired	-	-	-	-	-										
Students	-	-	-	-											
Others	-	-	-	-											
Income Group															
Less than RM1500	11.85	7.75	17.72	18,057	32	-	-	-	-	-	21.44	14.45	30.61	180,586	32
RM1500 – RM3500	8.52	5.30	13.42	135,513	23	-	-	-	-	-	14.63	8.94	23.02	124,665	20
More than RM 3500	-	-	-	-	28	-	-	-	-	-					

Note :
- RSE more than 25%

Table 6.4 : Frequency of intake vitamin and mineral supplements

No.	Type of Supplements	everyday		More than once a week		once a week		1-3 times per week		Occasionally		Total user
		prevalance (%)	Estimated population	prevalance (%)	Estimated population	prevalance (%)	Estimated population	prevalance (%)	Estimated population	prevalance (%)	Estimated population	N
1	Vitamin C	55.36	1,678,313	22.62	685672	6.29	190705	-	-	11.23	340561	3,031,799
2	Multivitamin & Multimineral	64.50	1,115,543	19.73	341246	4.54	78,464	-	-	-	-	1,729,379
3	Calcium	69.46	776,468	-	-	-	-	-	-	-	-	1,117,844
4	Vitamin B Complex	64.60	686,074	13.13	139427	-	-	-	-	-	-	1,062,074
5	Folic Acid	75.10	393,281	-	-	-	-	-	-	-	-	523,704
6	Vitamin E	69.69	357,704	-	-	-	-	-	-	-	-	513,265
7	Iron	72.50	288,818	-	-	-	-	-	-	-	-	398,376
8	Zinc	75.09	194,323	-	-	-	-	-	-	-	-	258,771
9	Vitamin A	61.98	93,468	-	-	-	-	-	-	-	-	150,814
10	Vitamin B12	67.63	102,862	-	-	-	-	-	-	-	-	152,087
11	Others	67.80	179,238	-	-	-	-	-	-	-	-	264,362

Note :
- RSE more than 25%

Table 6.5: Proportion of single user vitamins and mineral user by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	61.97	57.40	66.35	3,405,946	498	65.63	58.90	71.78	1,629,924	196	58.96	53.12	64.56	1,776,022	302
Zone															
Peninsular Malaysia	62.47	57.02	67.61	2,751,857	315	66.49	58.63	73.53	1343,026	137	59.06	51.98	65.78	1,408,831	178
East Malaysia	59.99	52.80	66.77	654,089	183	61.85	49.70	72.69	286,898	59	58.61	50.47	66.30	367,191	124
Strata															
Urban	61.44	55.78	66.81	2,583,018	301	63.26	55.14	70.70	1,205,809	117	59.93	52.65	66.80	1377,209	184
Rural	63.70	57.18	69.75	822,929	197	73.42	62.45	82.10	424,115	79	55.84	47.96	63.43	398,813	118
Sex															
Male	65.63	58.90	71.78	1,629,924	196	65.63	58.90	71.78	1,629,924	196	-	-	-	-	-
Female	58.96	53.12	64.56	1,776,022	302	-	-	-	-	-	58.96	53.12	64.56	1,776,022	302
Age Group															
18–19	58.03	33.72	78.98	102,186	17	55.42	27.03	80.66	75,770	10	67.10	33.09	89.38	26416	7
20-29	64.76	55.88	72.73	938,962	110	66.11	51.29	78.32	419,802	44	63.72	53.00	73.22	519,161	66
30-39	56.24	48.54	63.65	871,546	139	64.77	52.43	75.41	404,566	55	50.48	40.53	60.39	466,980	84
40-49	65.78	56.42	74.05	894,546	144	69.22	53.80	81.28	442,315	53	62.73	52.07	72.28	452,230	91
50-59	62.35	51.64	71.98	598,706	88	64.13	46.43	78.67	287,470	34	60.80	47.81	72.42	311,236	54
Ethnicity															
Malay	64.86	58.25	70.94	1,843,991	245	71.45	60.72	80.21	821,974	98	60.37	52.67	67.60	1,022,017	147
Chinese	59.01	50.17	67.30	716,630	97	59.86	47.97	70.69	370,216	39	58.13	45.67	69.63	346,414	58
Indian	61.67	45.51	75.60	261,629	27	58.59	37.05	77.28	139,353	14	65.59	42.06	83.35	122,277	13
bumiputera sarawak	45.61	26.85	65.72	113,445	25	65.70	33.16	88.09	18,681	5	38.52	20.56	60.25	94,763	20
Bumiputera Sabah	55.41	44.17	66.13	256,368	68	54.95	36.11	72.47	129,490	26	55.89	43.45	67.63	126,878	42
Others	66.50	43.79	83.49	201,634	27	68.88	30.27	91.86	105,169	10	64.08	41.20	81.96	96,465	17
Other Bumis	77.53	34.43	95.78	30,547	4	81.73	30.50	97.85	27,942	3	50.00	5.72	94.28	2,605	1
Marital status															
Never married	63.34	53.14	72.46	770,224	102	59.07	45.74	71.19	417,166	49	69.24	54.18	81.08	353,058	53
Married/Cohabiting	61.66	56.64	66.44	2,502,172	366	67.85	59.79	74.98	1,182,080	140	57.00	50.75	63.04	1,320,093	226
Divorced/Separated	73.19	50.81	87.83	93,182	19	82.10	34.74	97.53	21,486	6	70.89	44.89	87.92	71,695	13
Widow	-	-	-	-	10	-	-	-	-	-	-	-	-	-	10
Others	100.00	100.00	100.00	9,192	1	100.00	100.00	100.00	9,192	1	-	-	-	-	-

Note :
- RSE more than 25%

Table 6.5 : Proportion of single users of vitamins and mineral by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	85.65	64.14	95.22	34,423	9	100.00	100.00	100.00	9,192	2	81.40	48.38	95.33	25,231	7
Primary	71.07	57.95	81.42	363,878	67	80.03	55.60	92.77	148,774	22	65.97	48.68	79.84	215,104	45
Secondary	66.38	60.19	72.06	1,682,670	240	72.62	63.40	80.24	890,194	103	60.54	52.36	68.16	792,476	137
Tertiary	54.72	47.94	61.32	1,307,942	179	54.74	44.47	64.62	581,764	69	54.70	46.08	63.04	726,178	110
Others	-	-	-	-	1	-	-	-	-		-	-	-	-	1
Work status															
Government/ Semi-	55.06	44.71	64.99	494,291	83	65.01	49.01	78.23	228,279	29	48.67	36.43	61.06	266,012	54
Private	63.63	56.43	70.27	1,390,650	178	64.93	54.35	74.21	802,222	90	61.95	52.52	70.55	588,427	88
Self-employed	65.41	56.79	73.12	808,044	119	67.28	54.86	77.67	437,016	58	63.33	50.91	74.20	371,029	61
Unpaid workers	56.94	7.57	95.53	12,256	2	100.00	100.00	100.00	12,256	2	-	-	-	-	
Not working	56.37	46.12	66.10	483,866	91	-	-	-	-	5	56.84	46.32	66.78	464,732	86
Retired	-	-	-	-	3	-	-	-	-	3	-	-	-	-	
Students	78.02	47.21	93.37	135,012	15	-	-	-	-	6	93.38	62.57	99.17	73,513	9
Income Group															
Less than RM1500	70.18	62.12	77.15	1,073,121	180	78.10	66.26	86.63	532,004	69	63.81	54.08	72.52	541,117	111
RM1500 – RM3500	60.86	52.95	68.23	968,110	152	62.60	50.00	73.69	462,312	61	59.35	48.59	69.28	505,799	91
More than RM 3500	57.65	50.23	64.74	1,326,789	161	60.54	49.14	70.89	608,253	64	55.41	45.51	64.91	718,535	97

Note :
- RSE more than 25%

Table 6.6 : Proportion of multiple users of vitamins and mineral by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Malaysia	**38.03**	**33.65**	**42.60**	**2,089,838**	**315**	**34.37**	**28.22**	**41.10**	**853,751**	**105**	**41.04**	**35.44**	**46.88**	**1,236,087**	**210**
Zone															
Peninsular Malaysia	37.53	32.39	42.98	1,653,565	193	33.51	26.47	41.37	676,814	62	40.94	34.22	48.02	976,751	131
East Malaysia	40.01	33.23	47.20	436273	122	38.15	27.31	50.30	176,937	43	41.39	33.70	49.53	259,336	79
Strata															
Urban	38.56	33.19	44.22	1,620,847	206	36.74	29.30	44.86	700,185	77	40.07	33.20	47.35	920,663	129
Rural	36.30	30.25	42.82	468,990	109	26.58	17.90	37.55	153,567	28	44.16	36.57	52.04	315,424	81
Sex															
Male	34.37	28.22	41.10	853,751	105	34.37	28.22	41.10	853,751	105	-	-	-	-	-
Female	41.04	35.44	46.88	1,236,087	210	-	-	-	-	-	41.04	35.44	46.88	1,236,087	210
Age Group															
18 –19	-	-	-	-	8	-	-	-	-	5	-	-	-	-	3
20–29	35.24	27.27	44.12	510,868	70	33.89	21.68	48.71	215,243	26	36.28	26.78	47.00	295,,625	44
30–39	43.76	36.35	51.46	678,172	114	35.23	24.59	47.57	220,067	35	49.52	39.61	59.47	458105	79
40–49	34.22	25.95	43.58	465,406	63	30.78	18.72	46.20	196,694	20	37.27	27.72	47.93	268,712	43
50–59	37.65	28.02	48.36	361,484	60	35.87	21.33	53.57	160,789	19	39.20	27.58	52.19	200,695	41
Ethnicity															
Malay	35.14	29.06	41.75	999,178	136	28.55	19.79	39.28	328,368	38	39.63	32.40	47.33	670,809	98
Chinese	40.99	32.70	49.83	497,860	77	40.14	29.31	52.03	248,296	32	41.87	30.37	54.33	249,564	45
Indian	38.33	24.40	54.49	162,631	16	-	-	-	-	7	-	-	-	-	9
Bumiputera Sabah	44.59	33.87	55.83	206,288	46	45.05	27.53	63.89	106,161	17	44.11	32.37	56.55	100,127	29
Bumiputera Sarawak	54.39	34.28	73.15	113,445	25	-	-	-	-	5	61.48	39.75	79.44	94,763	20
Others	-	-	-	-	13	-	-	-	-	5	-	-	-	-	8
Other Bumis	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1

Note :
- RSE more than 25%

Table 6.6 : Proportion of multiple users of vitamins and mineral by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Marital status															
Never married	36.66	27.54	46.86	445,879	66	40.93	28.81	54.26	289,008	37	30.76	18.92	45.82	156,870	29
Married/Cohabiting	38.34	33.56	43.36	1,555,866	233	32.15	25.02	40.21	560,058	67	43.00	36.96	49.25	995,808	166
Divorced/Separated	-	-	-	-	7	-	-	-	-	-	-	-	-	-	6
Widow	-	-	-	-	9						63.38	28.68	88.16	53,961	9
Others	-														
Education Level															
Non-formal	-	-	-	-	3						-	-	-	-	3
Primary	28.93	18.58	42.05	148,098	27	40.93	28.81	54.26	289,008	37	34.03	20.16	51.32	110,983	22
Secondary	33.62	27.94	39.81	852,258	126	32.15	25.02	40.21	560,058	67	-	-	-	-	82
Tertiary	45.28	38.68	52.06	1,082,438	158	-	-	-	-	1	45.30	36.96	53.92	601,427	102
Others	-	-	-	-	1	-	-	-	-	5	-	-	-	-	1
Work status															
Government/Semi-government	44.94	35.01	55.29	403,445	70	-	-	-	-	22	51.33	38.94	63.57	280,599	48
Private	36.37	29.73	43.57	794,831	105	35.07	25.79	45.65	433,383	46	38.05	29.45	47.48	361,448	59
Self-employed	34.59	26.88	43.21	427,340	70	32.72	22.33	45.14	212,522	29	36.67	25.80	49.09	214,818	41
Unpaid workers	-	-	-	-	1						100.00	100.00	100.00	9,268	1
Not working	43.63	33.90	53.88	374,565	60	-	-	-	-	3	43.16	33.22	53.68	352,870	57
Retired	-	-	-	-	5	-	-	-	-	3	100.00	100.00	100.00	2,605	2
Students	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
Income Group															
Less than RM1500	29.82	22.85	37.88	456,079	79	37.40	26.31	50.00	276,264	19	36.19	27.48	45.92	30,6941	60
RM1500 – RM3500	39.14	31.77	47.05	622,656	92	-	-	-	-	32	40.65	30.72	51.41	346,392	60
More than RM 3500	42.35	35.26	49.77	974,607	141	39.46	29.11	50.86	396,488	52	44.59	35.09	54.49	578,120	89

Note :
- RSE more than 25%

Table 6.7 : Reason for taking vitamin and mineral by type of supplements (percent of cases)

No.	Type of Supplements	Reason for taken (%)											
		Doctor prescription		Health		Add Energy		Beauty		Improves memory		Not sure	
		%	S.E	%	S.E	%	S.E	%	S.E	%	S.E	%	S.E
1	Vitamin C	16.62	1.99	74.73	2.26	7.86	1.63	5.30	1.03	-	-	-	-
2	Multivitamin & Multimineral	10.80	1.97	78.57	3.28	15.91	3.26	-	-	-	-	-	-
3	Calcium	-		-		-		-		-		-	
4	Vitamin B Complex	28.04	4.22	60.97	4.68	18.68	3.48	-		-		-	
5	Folic Acid	62.57	6.02	38.66	6.28			-		-		-	
6	vitamin E	-		85.22	4.27	-		-		-		-	
7	Iron	71.26	6.37	29.18	6.44	-		-		-		-	
8	Zinc	-		75.41	11.84	-		-		-		-	
9	Vitamin A	-		69.17	12.26	8.29	6.05	-		-		-	
10	Vitamin B12	46.41	11.55	56.11	11.63	-		-		-		-	

Note :
- RSE more than 25%

Table 6.8: Prevalence of non vitamins and non mineral user by socio-demographic characteristics

Socio-demographic Characteristics	Yes					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	**34.02**	**31.37**	**36.77**	**6,675,133**	**960**	**30.03**	**26.68**	**33.60**	**3,073,958**	**380**	**38.36**	**35.06**	**41.78**	**3,601,175**	**580**
Zone															
Peninsular Malaysia	35.85	32.66	39.17	5,535,996	639	32.02	27.94	36.39	2,572,761	262	40.01	36.06	44.09	2,963,235	377
East Malaysia	27.24	23.41	31.44	1,391,371	321	22.77	18.24	28.03	501,198	118	32.21	27.28	37.58	637,939	203
Strata															
Urban	37.89	34.34	41.58	5,158,749	608	33.35	28.79	38.24	2,325,672	234	42.66	38.36	47.07	2,833,077	374
Rural	25.24	22.08	28.68	1,516,384	352	22.93	18.99	27.41	748,286	146	27.98	23.96	32.39	768,098	206
Sex															
Male	30.03	26.68	33.60	3,073,958	380	-	-	-	-	-	-	-	-	-	-
Female	38.37	35.06	41.78	3,601,175	580	-	-	-	-	-	-	-	-	-	-
Age Group															
18 –19	23.76	15.43	34.75	271,977	28	22.01	12.50	35.81	192,233	16	29.39	16.27	47.15	79,743	12
20-29	28.14	23.63	33.13	1,510,224	184	23.39	17.67	30.28	654,123	71	33.30	27.65	39.48	856,101	113
30-39	36.17	31.96	40.59	1,761,640	282	30.38	24.57	36.90	734,756	109	41.87	36.04	47.94	1,026,884	173
40-49	36.19	31.43	41.23	1,665,741	251	32.39	25.77	39.79	760,857	100	40.15	33.98	46.65	904,885	151
50-59	40.29	35.08	45.74	1,465,551	215	40.68	32.67	49.21	731,989	84	39.91	32.94	47.33	733,561	131
Ethnicity															
Malay	38.30	34.48	42.27	4,045,342	526	32.97	28.23	38.08	1,786,687	208	43.90	39.06	48.87	2,258,655	318
Chinese	38.12	32.55	44.01	1,459,592	205	36.89	28.78	45.81	743,143	88	39.47	32.91	46.45	716,450	117
Indian	28.58	19.98	39.08	389,230	34	27.26	16.84	40.96	208,223	16	30.25	19.08	44.38	181,007	18
Bumiputera Sarawak	15.70	10.19	23.41	166,886	45	7.54	3.58	15.17	37,333	10	22.82	14.28	34.44	129,553	35
Bumiputera Sabah	28.56	22.52	35.49	431,616	117	24.34	16.76	33.95	205,390	44	33.90	27.04	41.52	226,226	73
Others	13.31	8.15	20.98	158,954	29	11.74	5.86	22.13	76,182	12	15.16	8.47	25.67	82,772	17
Others Bumis	23.47	7.77	52.75	23,512	4	33.00	8.67	71.87	17,000	2	13.38	2.62	46.99	6,512	2

Table 6.8: Prevalence of non vitamins and non mineral user by socio-demographic characteristics (Cont.).

Socio-demographic Characteristics	Yes					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Marital status															
Never married	27.58	22.99	32.71	1,526,902	198	22.77	17.52	29.03	807,089	95	36.16	29.68	43.19	719,813	103
Married/Cohabiting	36.70	33.59	39.93	4,844,572	691	34.12	30.02	38.46	2,193,864	268	39.16	35.31	43.15	2,650,708	423
Divorced/Separated	30.87	22.80	40.32	197,229	43	25.76	13.77	42.96	61,560	15	33.93	23.72	45.90	135,668	28
Widow	42.06	26.16	59.79	97,238	27	42.38	4.35	92.24	2,253	1	42.05	25.85	60.16	94,985	26
Others	100.00	100.00	100.00	9,192	1	100.00	100.00	100.00	9,192	1	-	-	-	-	-
	-	-	-	-	-						-	-	-	-	-
Education Level															
Non-formal	20.55	11.12	34.84	104,431	16	25.09	7.14	59.32	39,909	2	18.48	9.56	32.71	64,522	14
Primary	20.26	15.90	25.46	732,556	118	17.01	11.74	24.01	308,604	41	23.53	17.65	30.65	423,951	77
Secondary	31.36	28.09	34.84	3,067,438	455	28.14	23.76	32.96	1,461,405	189	35.02	31.09	39.17	1,606,033	266
Tertiary	49.14	44.15	54.15	2,745,200	365	41.93	35.10	49.07	1,255,540	146	57.47	51.39	63.35	1,489,660	219
Others	26.41	11.01	50.99	23,255	5	12.14	2.54	42.25	6,247	1	46.46	14.30	81.87	17,009	4
Work status															
Government/ Semi-	45.30	38.87	51.89	1,021,542	170	35.09	26.28	45.05	411,177	59	56.33	48.45	63.92	610,365	111
Private	33.70	30.04	37.56	2,759,982	337	30.87	26.55	35.55	1,551,703	169	38.19	32.39	44.35	1,208,279	168
Self-employed	32.57	28.49	36.93	1,605,426	242	30.36	24.88	36.46	897,572	123	35.87	29.73	42.53	707,854	119
Unpaid workers	27.61	7.10	65.55	13,864	2	18.28	4.86	49.47	4,596	1	36.95	4.01	89.17	9,268	1
Not working	30.82	25.59	36.60	979,038	170	20.06	10.85	35.63	83,559	14	32.31	26.76	38.42	895,479	156
Retired	35.88	18.49	57.99	75,084	12	38.98	15.82	66.63	55,486	6	31.00	14.96	53.43	19,598	6
Students	26.41	11.01	50.99	23,256	5	15.37	5.58	35.82	58,600	6	52.02	30.62	72.71	127,663	15
Income Group															
Less than RM1500	21.15	18.30	24.32	1,693,684	288	17.26	13.62	21.64	716,002	104	25.33	21.87	29.13	977,681	184
RM1500 – RM3500	35.18	31.01	39.60	2,200,701	300	32.89	27.59	38.66	1,098,637	126	37.81	32.04	43.95	1,102,065	174
More than RM 3500	52.53	47.54	57.46	2,694,979	359	46.41	38.87	54.11	1,212,428	145	58.87	52.83	64.66	1,482,552	214

Table 6.9: Prevalence of user by type of non-vitamins and non-mineral dietary supplements

No.	Type of Supplements	Total					Men					Women				
		Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
1	Fish oil	10.58	9.08	12.29	1,749,591	228	9.52	7.37	12.21	974,366	103	8.26	6.70	10.15	775,224	125
2	Royal Jelly	6.15	4.88	7.71	1,206,149	162	7.28	5.52	9.54	744,888	89	4.91	3.60	6.67	461,262	73
3	Spirulina	3.39	2.67	4.31	665,569	116	2.08	1.30	3.33	213,508	37	4.82	3.66	6.31	452,062	79
4	Collagen	2.92	2.26	3.77	573,746	102	-	-	-	-	14	5.26	4.01	6.87	493,436	88
5	Traditional Herbs	2.76	2.06	3.70	542,319	73	2.20	1.39	3.46	225,279	28	3.38	2.34	4.85	317,040	45
6	Essence of chicken	2.66	1.98	3.55	521,140	78	2.96	1.94	4.48	302,769	36	2.33	1.58	3.41	218,371	42
7	Health powder (exclude slimming product)	2.53	1.85	3.43	495,881	68	2.15	1.34	3.45	-	28	2.93	1.93	4.44	275,343	40
8	Evening Primrose Oil	2.23	1.64	3.02	436,794	71	-	-	-	-	4	4.37	3.24	5.89	410,498	67
9	Slimming Products	1.72	1.05	2.79	336,689	45	-	-	-	-	15	-	-	-	-	30
10	Bird's nest stock	1.61	1.12	2.32	316,596	45	-	-	-	-	17	1.93	1.22	3.05	181,381	28
11	Sea Cucumber Products	1.14	0.74	1.75	223,356	37	-	-	-	-	15	-	-	-	-	22
12	Garlic pil	-	-	-	-	19	-	-	-	-	7	-	-	-	-	12
13	Haruan fish stock	0.68	0.43	1.08	134,346	23	-	-	-	-	5	-	-	-	-	18
14	Berry Essence	-	-	-	-	19	-	-	-	-	5	-	-	-	-	14
15	Gingko Biloba	-	-	-	-	18	-	-	-	-	8	-	-	-	-	10
16	Prune Essence	-	-	-	-	9	-	-	-	-	2	-	-	-	-	7
17	Mangosteen Extract	-	-	-	-	8	-	-	-	-	1	-	-	-	-	7

Note :
- RSE more than 25%

Table 6.10a : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – i) Fish oil

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Malaysia	26.24	22.41	30.46	1749591	228	31.70	25.57	38.54	974366	103	21.57	17.57	26.18	775224	125
Zone															
Peninsular Malaysia	26.38	21.95	31.36	1458932	145	32.06	25.02	40.03	824856	68	21.45	16.84	26.91	634076	77
East Malaysia	25.52	20.19	31.69	290659	83	29.83	21.24	40.12	149510	35	22.13	16.22	29.43	141148	48
Strata															
Urban	29.28	24.55	34.51	1509127	177	36.32	28.75	44.64	844769	82	23.49	18.62	29.17	664358	95
Rural	15.88	11.34	21.78	240463	51	17.32	10.84	26.53	129597	21	14.47	9.64	21.16	110867	30
Age Group															
18 – 19	-	-	-	-	7	-	-	-	-	6	-	-	-	-	1
20 – 29	20.35	12.89	30.61	307305	28	-	-	-	-	16	-	-	-	-	12
30 – 39	29.58	23.23	36.83	519086	76	35.97	26.23	47.02	264267	31	24.97	17.69	34.02	254819	45
40 – 49	27.32	19.97	36.17	455142	64	32.98	21.49	46.93	250918	29	22.57	14.89	32.70	204225	35
50 – 59	26.11	19.51	34.00	382713	53	24.06	15.05	36.17	176143	21	28.16	19.33	39.07	206570	32
Ethnicity															
Malay	17.69	13.39	23.00	715113	83	22.16	15.30	30.96	395921	35	14.14	10.21	19.27	319192	48
Chinese	45.56	37.59	53.78	662941	82	52.70	40.92	64.19	391672	42	38.11	27.12	50.46	271268	40
Indian	48.47	27.23	70.28	188670	16	-	-	-	-	7	-	-	-	-	9
Bumiputera Sarawak	-	-	-	-	12	-	-	-	-	3	-	-	-	-	9
Bumiputera Sabah	24.31	17.19	33.20	104914	28	28.75	17.24	43.87	59049	12	20.27	12.25	31.65	45866	16
Others	-	-	-	-	4	-	-	-	-	3	-	-	-	-	1
Other Bumis	80.83	27.72	97.89	19006	3	-	-	-	-	1	100.00	100.00	100.00	6512	2
Marital status															
Never married	25.57	17.01	36.55	389304	41	35.38	22.62	50.63	285555	24	-	-	-	-	17
Married/Cohabiting	26.89	22.61	31.64	1302671	172	31.08	24.08	39.05	681779	77	23.42	18.73	28.88	620892	95
Divorced/Separated	-	-	-	-	8	-	-	-	-	2	-	-	-	-	6
Widow	-	-	-	-	7						-	-	-	-	7
Others	-					-					-				

Note :
- RSE more than 25%

Table 6.10a : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – i) Fish oil (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Primary	25.12	15.94	37.23	184010	25	30.68	22.55	40.20	448289	8	17.43	12.76	23.36	279607	17
Secondary	23.74	18.66	29.71	727895	98	36.60	26.84	47.60	459515	46	24.76	17.84	33.26	367624	52
Tertiary	30.18	24.18	36.95	827139	103	-	-	-	-	49	-	-	-	-	54
Others	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Work status															
Govt/ Semi-govt	21.76	14.45	31.41	222262	39	-	-	-	-	13	24.29	14.96	36.91	148248	26
Private	31.06	24.71	38.22	855847	94	40.45	31.49	50.10	627704	56	18.95	12.90	26.97	228143	38
Self-employed	25.21	18.37	33.54	404184	57	25.98	16.32	38.70	233162	29	24.23	15.88	35.13	171021	28
Unpaid workers	-	-	-	-	1	100.00	100.00	100.00	4596	1	-	-	-	-	-
Not working	22.57	15.18	32.19	220986	31	-	-	-	-	3	22.00	14.31	32.27	197037	28
Retired	-	-	-	-	4	-	-	-	-	1	-	-	-	-	3
Students	-	-	-	-	2	-	-	-	-	-	-	-	-	-	2
Others															
Income Group															
Less than RM1500	19.34	13.15	27.50	327121	38	-	-	-	-	14	18.03	11.71	26.73	175926	24
RM1500 – RM3500	22.19	16.75	28.78	488336	73	23.83	15.81	34.27	261820	30	20.55	14.19	28.82	226516	43
More than RM 3500	33.04	26.41	40.42	888915	112	43.33	33.15	54.11	525401	56	24.60	17.66	33.15	363514	56

Note :
- RSE more than 25%

Table 6.10b : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – ii) Royal Jelly .

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	**18.07**	**14.67**	**22.06**	**1,206,149**	**162**	**24.23**	**18.85**	**30.57**	**744,888**	**89**	**12.81**	**9.62**	**16.86**	**461,262**	**73**
Zone															
Peninsular Malaysia	18.85	14.91	23.53	1,043,285	121	24.73	18.57	32.13	636,280	67	13.74	10.00	18.58	407,005	54
East Malaysia	14.30	9.72	20.55	162,864	41	21.67	14.19	31.64	108,608	22	-	-	-	-	19
Strata															
Urban	16.20	12.35	20.96	835,697	85	21.44	15.27	29.23	498,581	44	11.90	8.23	16.90	337,116	41
Rural	24.43	18.02	32.22	370,452	77	32.92	23.45	44.00	246,306	45	16.16	11.09	22.96	124,146	32
Age Group															
18 –19	-	-	-	-	8	-	-	-	-	6	-	-	-	-	2
20-29	13.36	8.29	20.83	201,774	25	-	-	-	-	11	-	-	-	-	14
30-39	15.72	11.03	21.90	276,875	40	21.95	14.26	32.22	161,288	24	-	-	-	-	16
40-49	15.92	10.94	22.60	265,258	41	22.96	14.86	33.73	174,692	25	-	-	-	-	16
50-59	25.65	17.31	36.24	375,924	48	34.08	20.77	50.50	249,496	23	17.23	11.00	25.98	126,428	25
Ethnicity															
Malay	22.35	17.33	28.33	904,238	116	31.55	23.51	40.87	563,645	66	15.08	10.71	20.82	340,593	50
Chinese	13.06	8.12	20.35	190,621	22	-	-	-	-	8	-	-	-	-	14
Indian	-	-	-	-		-	-	-	-		-	-	-	-	3
Bumiputera Sarawak	-	-	-	-	5	-	-	-	-	2	-	-	-	-	5
Bumiputera Sabah	-	-	-	-	14	-	-	-	-	9	-	-	-	-	1
Others	-	-	-	-	4	-	-	-	-	3	-	-	-	-	
Other Bumis	-	-	-	-	1	-	-	-	-	1	-	-	-	-	
Marital status															
Never married	14.89	9.70	22.17	227,337	31	-	-	-	-	21	-	-	-	-	10
Married/Cohabiting	19.64	15.48	24.58	951,238	123	25.67	18.98	33.73	563,138	64	14.64	10.81	19.54	388,100	59
Divorced/Separated	-	-	-	-	7	-	-	-	-	4	-	-	-	-	3
Widow	-	-	-	-	1	-	-	-	-		-	-	-	-	1
Others	-	-	-	-	1	-	-	-	-		-	-	-	-	

Note :
- RSE more than 25%

Table 6.10b : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – ii) Royal Jelly (Cont)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-	6	-	-	-	-	1	-	-	-	-	5
Primary	24.56	15.85	36.02	179,926	24	44.00	26.27	63.41	135,793	14	-	-	-	-	10
Secondary	17.87	13.63	23.09	548,200	77	26.14	18.90	34.96	381,961	49	10.35	6.59	15.88	166,239	28
Tertiary	15.37	11.26	20.63	421,947	55	16.65	10.63	25.13	209,109	25	14.29	9.46	21.01	212,838	30
Others															
Work status															
Govt/ Semi-govt	24.19	15.38	35.90	24,7082	32	18.25	11.99	26.79	283,183	18	-	-	-	-	14
Private	14.08	9.80	19.82	388,680	45	-	-	-	-	31	-	-	-	-	14
Self-employed	18.93	13.01	26.73	303,974	45	23.83	15.39	34.99	213,919	29	-	-	-	-	6
Unpaid workers															
Not working	19.83	13.73	27.76	194,130	32	-	-	-	-	6	16.88	11.11	24.82	151,192	26
Retired	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
Students	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
Others	-	-	-												
Income Group															
Less than RM1500	23.26	17.58	30.11	394,018	62	35.68	24.89	48.15	255,466	34	14.17	8.99	21.62	138,553	28
RM1500 – RM3500	19.62	13.72	27.26	431,837	50	25.40	15.86	38.08	279,015	30	-	-	-	-	20
More than RM 3500	13.60	9.36	19.33	366,391	49	17.35	10.89	26.52	210,407	25	-	-	-	-	24

Note :
- RSE more than 25%

Table 6.10c : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – iii) Spirulina

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Malaysia	**9.99**	**7.88**	**12.59**	**665,569**	**116**	**6.95**	**4.42**	**10.75**	**213,508**	**37**	**12.59**	**9.56**	**16.41**	**452,062**	**79**
Zone															
Peninsular Malaysia	8.73	6.44	11.73	482,517	57	-	-	-	-	20	10.72	7.46	15.18	316,769	37
East Malaysia	16.09	11.70	21.72	183,052	59	-	-	-	-	17	21.25	14.87	29.42	135,293	42
Strata															
Urban	8.60	6.21	11.80	442,904	59	-	-	-	-	16	11.32	7.89	15.97	319,428	43
Rural	14.68	10.97	19.39	222,665	57	12.03	7.60	18.53	90,031	21	17.27	11.95	24.31	132,634	36
Age Group															
18 –19	-	-	-	-	4	-	-	-	-	2	-	-	-	-	2
20-29	-	-	-	-	22	-	-	-	-	7	-	-	-	-	15
30-39	14.76	10.63	20.14	259,862	48	-	-	-	-	13	19.45	12.96	28.13	199,431	35
40-49	-	-	-	-	22	-	-	-	-	8	-	-	-	-	14
50-59	-	-	-	-	20	-	-	-	-	7	-	-	-	-	13
Ethnicity															
Malay	9.94	7.17	13.62	400,977	55	-	-	-	-	21	11.18	7.58	16.19	251,403	34
Chinese	-	-	-	-	16	-	-	-	-	5	-	-	-	-	11
Indian	-	-	-	-	1						-	-	-	-	1
Bumiputera Sarawak	-	-	-	-	2						-	-	-	-	2
Bumiputera Sabah	26.22	17.90	36.69	113,167	34	-	-	-	-	8	37.78	26.30	50.82	85,472	26
Others	-	-	-	-	7	-	-	-	-	3	-	-	-	-	4
Other Bumis	-	-	-	-	1						-	-	-	-	1
Marital status															
Never married	-	-	-	-	23	-	-	-	-	10	-	-	-	-	13
Married/Cohabiting	10.37	7.81	13.66	501,651	88	-	-	-	-	26	13.02	9.47	17.65	343,954	62
Divorced/Separated	-	-	-	-	4	-	-	-	-	1	-	-	-	-	3
Widow	-	-	-	-	1						-	-	-	-	1
Others															
Education Level															
Non-formal	-	-	-	-	2						-	-	-	-	2
Primary	-	-	-	-	8	-	-	-	-	4	-	-	-	-	4
Secondary	10.73	7.92	14.38	328,948	62	-	-	-	-	22	13.81	9.45	19.75	221,679	40
Tertiary	10.45	7.12	15.08	285,937	43	-	-	-	-	11	14.70	9.63	21.79	217,598	32
Others	-	-	-	-	1						15.02	1.57	66.21	2,555	1

Note :
- RSE more than 25%

Table 6.10c : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – iii) Spirulina (Cont.).

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Work status															
Govt/ Semi-govt	14.21	8.53	22.73	144,981	25	-	-	-	-	7	-	-	-	-	18
Private	8.24	5.55	12.07	226,716	37	-	-	-	-	16	-	-	-	-	21
Self-employed	11.32	7.14	17.50	181,746	27	-	-	-	-	10	-	-	-	-	17
Unpaid workers	-	-	-	-	1	-	-	-	-	1	-	-	-	-	
Not working	8.95	5.40	14.46	87,582	22	-	-	-	-	2	-	-	-	-	20
Retired	-	-	-	-	1						-	-	-	-	1
Students	-	-	-	-	2						-	-	-	-	2
Others															
Income Group															
Less than RM1500	6.51	4.23	9.90	110,339	30	-	-	-	-	13	-	-	-	-	17
RM1500 – RM3500	13.23	8.77	19.46	290,910	40	-	-	-	-	10	18.65	12.01	27.80	205,308	30
More than RM 3500	9.57	6.52	13.84	257,081	43	-	-	-	-	14	12.41	7.83	19.12	182,868	29

Note :
- RSE more than 25%

Table 6.10d : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – iv) Collagen

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Malaysia	**8.60**	**6.76**	**10.89**	**573,746**	**102**	-	-	-	-	-	**13.70**	**10.68**	**17.42**	**493,435**	**88**
Zone															
Peninsular Malaysia	8.06	6.00	10.75	446,461	64	-	-	-	-	-	13.46	10.00	17.88	398,828	58
East Malaysia	11.22	7.91	15.68	127,285	38	-	-	-	-	-	14.83	10.28	20.93	94,607	30
Strata															
Urban	8.07	5.91	10.92	416,191	60	-	-	-	-	-	12.79	9.29	17.35	362,286	51
Rural	10.42	7.55	14.22	157333	42	-	-	-	-	-	17.07	12.16	23.45	131,149	37
Age Group															
18 –19	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
20-29	9.79	6.48	14.51	147,812	25	-	-	-	-	-	14.83	9.56	22.29	126,997	21
30-39	12.32	8.08	18.33	216,445	37	-	-	-	-	-	19.79	12.95	29.03	203,224	34
40-49	11.32	7.51	16.72	188,604	32	-	-	-	-	-	15.90	10.20	23.94	143,890	26
50-59	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
Ethnicity															
Malay	9.44	7.15	12.36	381,846	62	-	-	-	-	-	14.97	11.36	11.48	338,192	55
Chinese	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	10	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Marital status															
Never married	10.87	3.11	16.28	166,039	28	-	-	-	-	-	16.53	10.28	25.49	118,988	20
Married/Cohabiting	7.46	5.51	10.03	361,171	63	-	-	-	-	-	12.37	9.02	16.74	27,911	57
Divorced/Separated	-	-	-	-	5	-	-	-	-	-	-	-	-	-	-
Widow	-	-	-	-	6	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-		-	-	-	-	-	-	-	-	-	-
Education Level															
Non-formal	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Primary	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-
Secondary	9.44	6.79	12.97	289,446	54	-	-	-	-	-	16.18	11.52	22.25	259,857	49
Tertiary	9.10	6.21	12.15	249,467	38	-	-	-	-	-	14.08	9.14	21.07	209,687	30
Others	-	-	-	-		-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 6.10d : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – iv) Collagen (Cont.)

Socio-demographic Characteristics	Total Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Men Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Women Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Work status															
Government/Semi-government	12.28	7.79	18.81	124,866	24	-	-	-	-	-	-	-	-	-	20
Private	6.44	4.03	10.14	177,761	29	-	-	-	-	-	-	-	-	-	-
Self-employed	-	-	-	-	25	-	-	-	-	-	-	-	-	-	-
Unpaid workers															
Not working	9.55	5.93	15.03	93,500	21	-	-	-	-	-	10.44	6.49	16.39	935,00	21
Retired	-	-	-	-							-	-	-	-	-
Students	-	-	-	-	3										
Income Group															
Less than RM1500	8.24	5.27	12.68	139,634	30	-	-	-	-	-	10.83	6.89	16.61	105,862	25
RM1500 – RM3500	-	-	-	-	27	-	-	-	-	-	14.70	9.24	22.59	162,047	27
More than RM 3500	10.11	7.21	14.00	272,063	45	-	-	-	-	-	15.21	10.39	21.73	225,524	36

Note :
- RSE more than 25%

Table 6.10e : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – v) Traditional herbs (Cont.)

Socio-demographic Characteristics	Total Prevalence %	Total 95% CI Lower	Total 95% CI Upper	Total Estimated population	Total Unweighted Count	Men Prevalence %	Men 95% CI Lower	Men 95% CI Upper	Men Estimated population	Men Unweighted Count	Women Prevalence %	Women 95% CI Lower	Women 95% CI Upper	Women Estimated population	Women Unweighted Count
Malaysia	8.14	6.12	10.75	542,319	73	7.33	4.67	11.32	225,279	28	8.83	6.18	12.45	317,040	45
Zone															
Peninsular Malaysia	8.67	6.33	11.79	479,433	53	7.67	4.65	12.38	197,286	20	9.55	6.43	13.95	282,147	33
East Malaysia	5.52	3.35	8.97	62,885	20	-	-	-	-	8	-	-	-	-	12
Strata															
Urban	8.29	5.87	11.57	426,766	46	-	-	-	-	16	9.11	5.97	13.66	257,183	30
Rural	7.62	4.98	11.48	115,553	27	-	-	-	-	12	-	-	-	-	15
Age Group															
18 –19	-	-	-	-	1	-	-	-	-		-	-	-	-	1
20-29	-	-	-	-	16	-	-	-	-	4	-	-	-	-	12
30-39	9.83	6.16	15.32	173,188	26	-	-	-	-	7	-	-	-	-	19
40-49	-	-	-	-	16	-	-	-	-	9	-	-	-	-	7
50-59	-	-	-	-	14	-	-	-	-	8	-	-	-	-	6
Ethnicity															
Malay	10.16	7.35	13.88	410,824	49	-	-	-	-	17	11.05	7.45	16.08	249,548	32
Chinese	-	-	-	-	10	-	-	-	-	5	-	-	-	-	5
Indian	-	-	-	-	1	-	-	-	-	-	-	-	-	-	1
Bumiputera Sarawak	-	-	-	-	2	-	-	-	-	1	-	-	-	-	1
Bumiputera Sabah	-	-	-	-	8	-	-	-	-	3	-	-	-	-	5
Others	-	-	-	-	3	-	-	-	-	2	-	-	-	-	1
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital status															
Never married	-	-	-	-	10	-	-	-	-	5	-	-	-	-	5
Married/Cohabiting	9.16	6.72	12.37	443,020	59	-	-	-	-	21	10.24	6.98	14.78	270,368	38
Divorced/Separated	-	-	-	-											
Widow	-	-	-	-	3						-	-	-	-	1
Others															

Note :
- RSE more than 25%

Table 6.10e : The top five most used non-vitamin and non-mineral dietary supplements by socio demographic characteristics – v) Traditional herbs (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Education Level															
Non-formal															
Primary	-	-	-	-	8	-	-	-	-	4	-	-	-	-	4
Secondary	8.45	5.75	12.25	259,275	34	-	-	-	-	14	9.16	5.66	14.49	147,088	20
Tertiary	9.04	5.92	13.55	248,082	31	-	-	-	-	10	-	-	-	-	21
Others	-	-	-	-		-	-	-	-						
Work status															
Government/Semi-government	-	-	-	-	10	-	-	-	-	4	-	-	-	-	6
Private	8.32	5.19	13.08	228,924	24	-	-	-	-	10	-	-	-	-	14
Self-employed	-	-	-	-	23	-	-	-	-	13	-	-	-	-	10
Unpaid workers															
Not working	-	-	-	-	15	-	-	-	-	1	-	-	-	-	14
Retired	-	-	-	-		-	-	-	-		-	-	-	-	-
Students	-	-	-	-	1						-	-	-	-	1
Others															
Income Group															
Less than RM1500	-	-	-	-	23	-	-	-	-	12	-	-	-	-	11
RM1500 - RM3500															
More than RM3500	10.53	7.01	15.51	283,714	31	-	-	-	-	10	-	-	-	-	21

Note :
- RSE more than 25%

Table 6.11 : Frequency of intake non-vitamin and non-mineral dietary supplements

No.	Type of Supplements	everyday			More than once a week			once a week			1-3 times per week			Occasionally			Total user
		prevalance (%)	Estimated population	Unweighted Count	prevalance (%)	Estimated population	Unweighted Count	prevalance (%)	Estimated population	Unweighted Count	prevalance (%)	Estimated population	Unweighted Count	prevalance (%)	Estimated population	Unweighted Count	Total user N
1	Fish oil	61.54	1,068,537	132	22.17	385,016	58	-	-	16	-	-	5	-	-	13	1,736,306
2	Royal Jelly	26.57	314,205	37	26.82	317,128	49	-	-	18	-	-	22	-	-	33	1,182,535
3	Spirulina	59.97	385,020	63	16.17	103,800	21	-	-	8	-	-	4	13.12	84,252	14	641,999
4	Collagen	55.92	316,674	51	24.23	137,208	28	-	-	4	-	-	7	-	-	9	566,341
5	Traditional Herbs	50.97	276,413	34	22.11	119,916	19	-	-	10	-	-	4	-	-	6	542,319
6	Essence of chicken	-	-	4	-	-	16	-	-	8	22.28	109,380	17	-	-	31	490,824
7	Health powder (exclude slimming product)	63.50	308,985	45	-	-	13	-	-	5	-	-		2.60	12,667	4	486,613
8	Evening Primrose Oil	62.16	268,339	41	30.34	130,961	21	-	-	3	-	-	1	-	-	4	431,683
9	Slimming Products	64.36	216,686	27	-	-	7	-	-	5	-	-	2	-	-	4	336,689
10	Bird's nest stock	-	-	10	-	-	4	-	-	5	-	-	8	-	-	16	304,376
11	Sea Cucumber Products	-	-	14	-	-	10	-	-	4	-	-	3	-	-	3	216,204
12	Garlic pil	51.52	74,433	9	-	-	5	-	-	2	-	-		-	-	3	144,474
13	Haruan fish stock	-	-	9	-	-	4	-	-	1	-	-	3	-	-	6	134,346
14	Berry Essence	83.30	110,388	15	-	-	4	-	-	3	-	-		-	-		132,516
15	Gingko Biloba	-	-	8	-	-	7	-	-		-	-		-	-		127,020
16	Prune Essence	-	-	1	-	-	5	-	-	1	-	-		-	-	2	54,220
17	Mangosteen Extract	-	-	5	-	-	1	-	-	1	-	-		-	-	1	43,247
18	Others	71.24	1,473,766	199	18.87	390,295	58	-	-	12	-	-	4	-	-	11	2,068,611

Note :
- RSE more than 25%

Table 6.12: Proportion of single user non-vitamin and non-mineral user by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	68.46	64.39	72.27	4,566,493	658	70.89	64.89	76.25	2,179,244	270	66.39	60.87	71.49	2,387,249	388
Zone															
Peninsular Malaysia	68.66	63.92	73.03	3,800,788	448	71.44	64.55	77.46	1,838,013	191	66.24	59.72	72.19	1,962,775	257
East Malaysia	67.52	60.70	73.68	765,706	210	68.08	56.24	77.97	341,232	79	67.08	59.22	74.08	424,474	131
Strata															
Urban	66.80	61.85	71.41	3,446,239	398	69.22	61.89	75.70	1,609,850	159	64.82	58.12	70.98	1,836,389	239
Rural	74.13	68.18	79.30	1,120,254	260	76.09	66.79	83.44	569,394	111	72.20	64.45	78.81	550,860	149
Sex															
Male	70.89	64.89	76.25	2,179,244	270	70.89	64.89	76.25	2,179,244	270					
Female	66.39	60.87	71.49	2,387,249	388						66.39	60.87	71.49	2,387,249	388
Age Group															
18 –19	76.88	54.12	90.36	209,085	21	71.59	41.96	89.78	137,622	11	89.62	62.39	97.82	71,463	10
20-29	74.15	65.94	80.95	1,116,046	134	75.14	59.57	86.11	491,508	53	73.39	62.32	82.14	624,538	81
30-39	61.36	53.89	68.33	1,080,933	170	67.38	57.28	76.08	495,053	71	57.05	46.14	67.32	585,880	99
40-49	68.58	60.56	75.63	1,42,390	177	67.27	55.03	77.54	511,813	70	69.69	59.26	78.42	630,577	107
50-59	69.46	60.20	77.38	1,018,039	156	74.22	56.93	86.24	543,248	65	64.72	53.53	74.51	474,792	91
Ethnicity															
Malay	69.51	63.85	74.62	2,811,720	374	72.80	63.81	80.24	1,300,623	154	66.90	60.11	73.06	1,511,097	220
Chinese	60.78	52.00	68.92	887,204	127	63.93	51.40	74.81	475,101	59	57.52	45.87	68.39	412,104	68
Indian	88.21	72.47	95.51	343,339	29	86.86	66.82	95.60	180,868	13	89.76	62.01	97.92	162,471	16
Bumiputera Sarawak	78.43	65.96	87.21	130,887	34	-	-	-	-	7	83.06	71.85	90.41	107,609	27
Bumiputera Sabah	60.37	48.62	71.04	257,493	70	63.85	44.31	79.67	131,141	27	57.14	44.18	69.20	126,352	43
Others	73.13	51.02	87.67	116,246	21	67.25	32.30	89.84	51,234	8	78.54	47.93	93.57	65,012	13
Other Bumis	83.38	31.15	98.23	19,605	3	-	-	-	-	2	-	-	-	-	1

Note :
- RSE more than 25%

Table 6.12: Proportion of single user non-vitamin and non-mineral user by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Men Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Women Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Marital status															
Never married	78.61	70.90	84.71	1,200,279	147	77.57	65.66	86.21	626,061	70	79.77	69.05	87.45	574,218	77
Married/Cohabiting	65.75	60.76	70.41	3,181,859	460	68.20	60.81	74.77	1,496,129	185	63.72	57.29	69.69	1,685,730	275
Divorced/Separated	59.21	40.63	75.48	116,775	30	89.02	50.38	98.48	54,801	14	45.68	26.72	65.98	61,974	16
Widow	69.50	39.81	88.70	67,580	21	100.00	100.00	100.00	2,253	1	68.78	38.87	88.41	65,327	20
Others	-														
Education Level															
Non-formal	69.68	32.97	91.48	72,768	12	100.00	100.00	100.00	39,909	2	-	-	-	-	10
Primary	80.89	70.39	88.29	592,589	97	72.71	53.41	86.10	224,400	32	86.85	75.37	93.44	368,189	65
Secondary	69.75	64.44	74.58	2,135,986	315	71.63	64.00	78.20	1,046,797	137	68.04	60.81	74.49	1,089,189	178
Tertiary	63.56	57.41	69.29	1,744,827	230	68.47	58.76	76.79	859,639	97	59.42	50.16	68.06	885,188	133
Others	77.70	31.92	96.28	18,071	3	100.00	100.00	100.00	6,247	1	-	-	-	-	2
Work status															
Government/Semi-government	64.37	54.08	73.49	657,598	110	72.73	52.29	86.65	299,059	41	58.74	46.53	69.97	358,538	69
Private	73.34	67.71	78.31	2,024,245	239	73.99	66.35	80.41	1,148,093	123	72.51	63.14	80.25	876,153	116
Self-employed	64.16	55.64	71.87	1,030,060	163	68.98	56.19	79.41	619,174	88	58.05	46.37	68.89	410,886	75
Unpaid workers	-	-	-	-	1	-	-	-	-	0	100.00	100.00	100.00	9,268	1
Not working	63.54	54.05	72.09	618,856	115	-	-	-	-	8	65.59	56.13	73.96	583,980	107
Retired	62.18	32.12	85.10	46,687	7	-	-	-	-	4	-	-	-	-	3
Students	83.14	57.55	94.72	154,856	18	-	-	-	-	5	88.26	65.51	96.75	112,669	13
Income Group															
Less than RM1500	76.27	69.19	82.14	1,287,917	222	74.92	62.33	84.36	536,421	80	77.27	68.83	83.96	751,496	142
RM1500 – RM3500	68.84	61.06	75.68	1,514,898	206	74.83	62.78	83.97	822,084	93	62.87	53.14	71.65	692,815	113
More than RM 3500	63.89	57.67	69.68	1,721,919	223	65.44	55.96	73.83	793,384	94	62.63	53.38	71.04	928,535	129

Note :
- RSE more than 25%

Table 6.13: Proportion of multiple user non vitamins and non mineral user by socio-demographic characteristics

Socio-demographic Characteristics	Total Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Men Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Women Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Malaysia	**31.54**	**27.73**	**35.61**	**2,103,529**	**301**	**29.11**	**23.75**	**35.11**	**894,714**	**110**	**33.61**	**28.51**	**39.13**	**1,208,815**	**191**
Zone															
Peninsular Malaysia	31.34	26.97	36.08	1,735,208	191	28.56	22.54	35.45	734,747	71	33.76	27.81	40.28	1,000,460	120
East Malaysia	32.48	26.32	39.30	368,320	110	31.92	22.03	43.76	159,966	39	32.92	25.92	40.78	208,354	71
Strata															
Urban	33.20	28.59	38.15	1,712,509	210	30.78	24.30	38.11	715,821	75	35.18	29.02	41.88	996,687	135
Rural	25.87	20.70	31.82	391,019	91	23.91	16.56	33.21	178,892	35	27.80	21.19	35.55	212,127	56
Sex															
Male	29.11	23.75	35.11	894,714	110	29.11	23.75	35.11	894,714	110					
Female	33.61	28.51	39.13	1,20,8815	191						33.61	28.51	39.13	1,208,815	191
Age Group															
18 –19	-	-	-	-	7	-	-	-	-	5	-	-	-	-	2
20-29	25.85	19.05	34.06	389,067	49	-	-	-	-	18	26.61	17.86	37.68	226,452	31
30-39	38.64	31.67	46.11	680,707	112	32.62	23.92	42.72	239,702	38	42.95	32.68	53.86	441,004	74
40-49	31.42	24.37	39.44	523,350	74	32.73	22.46	44.97	249,043	30	30.31	21.58	40.74	274,307	44
50-59	30.54	22.62	39.80	447,511	59	-	-	-	-	19	35.28	25.49	46.47	258,769	40
Ethnicity															
Malay	30.49	25.38	36.15	1,233,622	152	27.20	19.76	36.19	486,064	54	33.10	26.94	39.89	747,558	98
Chinese	39.22	31.08	48.00	572,387	78	36.07	25.19	48.60	268,041	29	42.48	31.61	54.13	304,346	49
Indian	-	-	-	-	5	-	-	-	-	3	-	-	-	-	2
Bumiputera Sabah	39.63	28.96	51.38	169,012	46	-	-	-	-	17	42.86	30.80	55.82	94,763	29
Bumiputera Sarawak	-	-	-	-	11	-	-	-	-	3	-	-	-	-	8
Others	-	-	-	-	8	-	-	-	-	4	-	-	-	-	4
Other Bumis	-	-	-	-	1						-	-	-	-	1
Marital status															
Never married	21.39	15.29	29.10	326,623	51	22.43	13.79	34.34	181,027	25	20.23	12.55	30.95	145,595	26
Married/Cohabiting	34.25	29.59	39.24	1,657,602	230	31.80	25.23	39.19	697,735	83	36.28	30.31	42.71	959,867	147
Divorced/Separated	40.79	24.52	59.37	80,453	13	-	-	-	-	1	54.32	34.02	73.28	73,694	12
Widow	-	-	-	-	6						-	-	-	-	6
Others	-	-	-	-	1	-	-	-	-	1					

Note :
- RSE more than 25%

Table 6.13: Proportion of multiple user non vitamins and non mineral user by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count	Prevalence %	95% CI Lower	95% CI Upper	Estimated population	Unweighted Count
Education Level															
Non-formal	-	-	-	-	4	-	-	-	-		-	-	-	-	4
Primary	19.11	11.71	29.61	139,966	21	-	-	-	-	9	-	-	-	-	12
Secondary	30.25	25.42	35.56	926,341	139	28.37	21.80	36.00	414,608	52	31.96	25.51	39.19	511,733	87
Tertiary	36.44	30.71	42.59	100,037	135	31.53	23.21	41.24	395,900	49	40.58	31.94	49.84	604,471	86
Others	-	-	-	-	2	-	-	-	-		-	-	-	-	2
Work status															
Government/ Semi-government	35.63	26.51	45.92	363,944	60	-	-	-	-	18	41.26	30.03	53.47	251,826	42
Private	26.66	21.69	32.29	735,737	98	26.01	19.59	33.65	403,610	46	27.49	19.75	36.86	332,126	52
Self-employed	35.84	28.13	44.36	575,366	79	31.02	20.59	43.81	278,398	35	41.95	31.11	53.63	296,967	44
Unpaid workers	-	-	-	-	1	100.00	100.00	100.00	4,595	1					
Not working	36.46	27.91	45.95	355,070	54	58.26	30.52	81.60	48,682	6	34.41	26.04	43.87	306,387	48
Retired	-	-	-	-	5	-	-	-	-	2	-	-	-	-	3
Students	-	-	-	-	3	-	-	-	-	1	-	-	-	-	2
Income Group															
Less than RM1500	23.73	17.86	30.81	400,656	65	25.08	15.64	37.67	179,581	24	22.73	16.04	31.17	221,075	41
RM1500 – RM3500	31.16	24.32	38.94	685,802	94	25.17	16.03	37.22	276,552	33	37.13	28.35	46.86	409,249	61
More than RM 3500	36.11	30.32	42.33	973,060	136	34.56	26.17	44.04	419,043	51	37.37	28.96	46.62	554,016	85

Note :
- RSE more than 25%

Table 6.14 : Reason for taking non-vitamin and non-mineral by type of supplements (percent of cases)

No.	Type of Supplements	Doctor prescription %	SE	Health %	SE	Add energy %	SE	Beauty %	SE	Weight reduction %	SE	Improves memory %	cholesterol reduction %	Not Sure %
						Reason for taken (%)								
1	Fish oil	-		80.53	3.22	11.28	2.77	-		-		-	-	-
2	Royal Jelly	-		87.61	3.11	-		-		-		-	-	-
3	Spirulina	-		78.56	5.18	28.80	5.21	-		-		-	-	-
4	Collagen	-		65.48	5.94	-		50.91	6.34	-		-	-	-
5	Traditional Herbs	-		-		-		-		-		-	-	-
6	Essence of chicken	-		62.84	5.29	3.42	6.84	-		-		-	-	-
7	Health powder (exclude slimming product)	-		81.46	7.04	-		-		-		-	-	-
8	Evening Primrose Oil	-		75.04	5.19	-		-		79.73	5.40	-	-	-
9	Slimming Products	-		-	6.39	-		-		-		-	-	-
10	Bird's nest stock	-		81.41	6.38	-		-		-		-	-	-
11	Sea Cucumber Products	-		87.16	6.68	-		-				-	-	
12	Garlic pil	-		93.58	6.34	-		-					-	
13	Haruan fish stock	-		90.82	6.94	-		-						
14	Berry Essence	-		91.01	5.59	-		-						
15	Gingko Biloba	-		76.61	10.01	-		-				-	-	
16	Prune Essence	-		82.84	1.14	-		-		-			-	
17	Mangosteen Extract	-		91.17	8.78	-		-						
18	Others													

Note :
- RSE more than 25%

TOPIC 7

PHYSICAL INACTIVITY

7. PHYSICAL INACTIVITY

Contributors to this section: Lim Kuang Kuay, Mohd Azahadi Omar, Siti Fatimah Mat Hussin, Hazizi Abu Saad & Joanita Sulaiman

7.1 Findings

The study indicated approximately 7.1 million Malaysian adults were physically inactive, which represented 36.9% [(CI: 34.5-39.3)] of the adult population aged 18 years to 59 years old. In other word, there were about 4 out of 10 adults who were physically inactive in this country **(Table 7.1)**.

7.1.1 Prevalence of Physical Inactivity by Zone and Strata

Peninsular Malaysia had higher prevalence of physical inactivity [38.4% (CI: 35.5-41.3)], compared to East Malaysia [31.2% (CI: 27.5-35.1)]. Urban residents were found to be more physically inactive [37.9% (CI: 34.9-41.1)] compared to rural residents [34.4% (CI: 30.8-38.2)] **(Table 7.1)**.

7.1.2 Prevalence of Physical Inactivity by Gender

Physical inactivity was more prevalent in females [50.0% (CI: 46.6-53.4)] compared to males [24.7% (CI: 22.3-27.2)] **(Table 7.1)**.

7.1.3 Prevalence of Physical Inactivity by Age group

The highest physical inactivity was more prevalent in adult age 50-59 [40.1% (CI: 35.0-45.4)] and the lowest physical inactivity was adult age 40-49 [32.2% (CI: 28.2-36.5)] **(Table 7.1)**.

7.1.4 Prevalence of Physical Inactivity by Ethnic group

The highest prevalence of physical inactivity was observed among Chinese [40.7% (CI: 35.1-46.4)] followed by Malays [38.5% (CI: 35.2-42.0)], Bumiputra Sarawak [35.6% (CI: 27.0-45.2)], Others [35.4%(CI: 24.4-48.1)], Indians [30.8% (CI: 23.9-38.7)] and Bumiptra Sabah [23.3%(CI: 18.3-29.0)] **(Table 7.1)**.

7.1.5 Prevalence of Physical Inactivity by Marital Status

Divorcee showed the highest prevalence of physical inactivity [41.3% (CI: 30.7-52.8)], followed by married [36.8% (CI: 34.0-39.7)] and unmarried residents [35.9% (CI: 31.4-40.7)] **(Table 7.1)**.

7.1.6 Prevalence of Physical Inactivity by Education Status

Residents with only primary school education had the highest prevalence of physical inactivity [38.5% (CI: 32.9-44.3)] followed by secondary [37.4% (CI: 34.1-40.7)], tertiary [35.4% (CI: 31.1-40.0)] and no formal education [34.1% (CI: 24.6-45.0)] **(Table 7.1)**.

7.1.7 Prevalence of Physical Inactivity by Occupational Status

The highest prevalence of physical inactivity was among the unemployed residents [51.7% (CI: 46.0-57.3)] followed by private [34.8% (CI: 31.2-38.7)], government officials [33.4% (CI: 27.5-39.9)], and self-employed residents [32.8%(CI: 28.3-37.7)] **(Table 7.1)**.

7.1.8 Prevalence of Physical Inactivity by Household Income

Residents with household income of more than RM3, 500/ month had the highest prevalence of physical inactivity [38.9% (CI: 34.3-43.7)], followed by those with income of less than RM1, 500 [36.6% (CI: 32.9-40.5)] and RM500-RM3, 500 [36.2% (CI: 32.1-40.4)] **(Table 7.1)**.

7.1.9 Prevalence of Physical Inactivity by Domain

The prevalence of physical inactivity in each lifestyle domain was found to be higher compared to the overall prevalence of physical inactivity. The study found the prevalence of physical inactivity was highest in travelling [84.8% (CI: 82.7-86.)] **(Table 7.3)**, followed by leisure time [70.0% (CI: 67.5-72.3)] **(Table 7.4)** and during working time [55.0% (CI: 52.1-57.9)] **(Table 7.2)**.

7.2   Implication

The prevalence of physical inactivity in the study was comparable to NHMS 2011 (36.9% vs 35.7%).

7.3   Conclusions

The findings suggested four out of ten Malaysian adults were physically inactive. The overall prevalence of physical inactivity was 36.9% in estimated 19.27 million Malaysian adults aged between 18 and 59 years old. Overall, physical inactivity was highest among females, older age group and residents in the urban areas. Additionally, residents from Peninsular Malaysia had higher prevalence of physical inactivity than the East Malaysians. Inactive individuals are at higher risk of developing chronic diseases co-morbidities. It is thus important to target in a public health perspective. Decreasing physical inactivity in domains of everyday life, such as active commuting could increase mobility and long term healthy lifestyle.

7.4 Recommendations

National policies and programmes should integrate strategies and activities to promote physical activities. This includes the improvement of public transportation in an effort to promote walking. Furthermore, upsurge venue (cycling, walking, sports and exercise campaigns) as well as facilities to promote physical activity should be enhanced. Schools, government agencies, private organizations, NGOs and political organizations should be advocated to organize and participate in active lifestyle projects besides supporting them in organizing appropriate activity/ campaign / project related to physical activities. Break in sedentary activities should be encouraged among Malaysian adults to boost active lifestyle.

Further studies utilizing the objective methods of physical activity assessment for a sub sample of the population should be carried out.

Definition of variables: Physical Inactivity

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Physical Inactivity	PA	Weight	1.Inactive (Low) 2. Active (Moderate and High)	*******active work vigorous****** COMPUTE vigorous_actv_work_mins=(f105_j * 60) + f105_m. EXECUTE. COMPUTE vigorous_actv_work_week=f104_h * vigorous_actv_work_mins. EXECUTE. RECODE vigorous_actv_work_week (MISSING=SYSMIS) (75 thru Highest=1) (Lowest thru 74.9=2) INTO vig_actv_work_week. EXECUTE. Value label vig_actv_work_week 1'active' 2'inactive'. *******active work moderate******* COMPUTE moderate_actv_work_mins=(f108_j * 60) + f108_m. EXECUTE. COMPUTE moderate_actv_work_week=f107_h * moderate_actv_work_mins. EXECUTE. RECODE moderate_actv_work_week (MISSING=SYSMIS) (150 thru Highest=1) (Lowest thru 149.9=2) INTO mod_actv_work_week. EXECUTE. Value label mod_actv_work_week 1'active' 2'inactive'.

Definition of variables: Physical Inactivity

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
				COMPUTE MET_vig_work=vigorous_actv_work_week * 8. EXECUTE.
				COMPUTE MET<u>mod</u>_work=moderate_actv_work_week * 4. EXECUTE.
				COMPUTE Total_MET_work=SUM(MET_vig_work,MET_mod_work). EXECUTE.
				RECODE Total_MET_work (MISSING=SYSMIS) (600 thru Highest=1) (Lowest thru 599.9=2) INTO Active_work_MET.
				EXECUTE. Value label Active_work_MET 1 'active' 2 'inactive'.
				IF (vig_actv_work_week = 1 | mod_actv_work_week = 1 | Active_work_MET = 1) Final_work=1. EXECUTE.
				IF (vig_actv_work_week = 2 & mod_actv_work_week = 2 & Active_work_MET = 2) Final_work=2. EXECUTE.
				Value label Final_work 1 'active' 2 'inactive'.

Table 7.1: Prevalence of overall physical inactivity

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	1084	7103945	36.90	34.50	39.30
Zone					
Peninsular Malaysia	718	5851000	38.40	35.50	41.30
East Malaysia	366	1253000	31.20	27.50	35.10
Strata					
Urban	608	5075000	37.90	34.90	41.10
Rural	476	2029000	34.40	30.80	38.20
Sex					
Male	316	2474000	24.70	22.30	27.20
Female	768	4630000	50.00	46.60	53.40
Age Group					
18-19	42	387900	34.40	25.20	45.00
20-29	267	2010000	38.60	33.80	43.60
30-39	297	1801000	37.60	33.80	41.50
40-49	249	1466000	32.20	28.20	36.50
50-59	229	1440000	40.10	35.00	45.40
Ethnicity Group					
Malay	582	4009000	38.50	35.20	42.00
Chinese	202	1523000	40.70	35.10	46.40
Indian	38	414500	30.80	23.90	38.70
Bumiputera Sabah	95	342400	23.30	18.30	29.00
Bumiputera Sarawak	102	365800	35.60	27.00	45.20
Others	58	415000	35.40	24.40	48.10
Other Bumis					
Marital Status					
Never married	250	1931000	35.90	31.40	40.70
Married/Cohabiting	757	4791000	36.80	34.00	39.70
Divorced/Separated	50	258700	41.30	30.70	52.80
Widow					
Others					
Education Level					
Non-formal	45	172200	34.10	24.60	45.00
Primary	221	1371000	38.50	32.90	44.30
Secondary	547	3599000	37.40	34.10	40.70
Tertiary	265	1928000	35.40	31.10	40.00
Others	2	-	-		-

Note :
- RSE more than 25%

Table 7.1: Prevalence of overall physical inactivity (Cont.)

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
Work Status					
Government/ Semi - government	128	733100	33.40	27.50	39.90
Private	344	2778000	34.80	31.20	38.70
Self-employed	260	1603000	32.80	28.30	37.70
Unpaid workers	2	-	-		-
Not working	306	1636000	51.70	46.00	57.30
Retired	14	-	-	-	-
Students	20	-	-	-	-
Income Group					
Less than RM1500	505	2887000	36.60	32.90	40.50
RM1500 - RM3500	328	2226000	36.20	32.10	40.40
More than RM 3500	243	1946000	38.90	34.30	43.70

Note :
- RSE more than 25%

Table 7.2: Prevalence of physical inactivity working domain

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI Lower	Upper
Malaysia	**1422**	**9692000**	**55.00**	**52.10**	**57.90**
Zone					
Peninsular Malaysia	908	7826000	56.00	52.50	59.40
East Malaysia	514	1866000	51.20	46.60	55.70
Strata					
Urban	857	7241000	58.90	55.10	62.50
Rural	565	2451000	46.10	41.90	50.30
Sex					
Male	526	4190000	45.30	41.60	49.00
Female	896	5502000	65.70	62.20	69.10
Age Group					
18-19	54	535000	57.70	46.00	68.70
20-29	335	2726000	58.30	52.90	63.50
30-39	414	2598000	57.50	52.80	62.00
40-49	351	2104000	49.00	44.20	53.70
50-59	268	1729000	54.00	48.10	59.70
Ethnicity Group					
Malay	710	5110000	53.90	49.90	57.90
Chinese	305	2300000	66.30	60.90	71.30
Indian	58	603500	49.00	39.50	58.60
Bumiputera Sabah	145	591100	45.20	38.60	52.00
Bumiputera Sarawak	121	448300	47.90	38.40	57.50
Others	75	589200	53.30	41.30	64.90
Marital Status					
Never married	348	2768000	58.00	52.50	63.30
Married/Cohabiting	979	6457000	53.70	50.40	56.90
Divorced/Separated	63	332300	57.80	46.20	68.60
Education Level					
Non-formal	48	176200	39.10	27.70	51.80
Primary	227	1481000	47.60	41.60	53.70
Secondary	694	4714000	52.90	49.30	56.50
Tertiary	440	3262000	64.70	59.50	69.60
Others	6	28500	40.00	14.30	72.70
Work Status					
Government/ Semi-government	212	1212000	57.00	50.10	63.70
Private	501	4037000	53.40	49.10	57.50
Self-employed	355	2283000	48.90	44.00	53.90
Not working	292	1652000	66.10	59.40	72.20
Students	32	279900	67.50	45.90	83.60
Income Group					
Less than RM1500	591	3644000	51.40	47.20	55.60
RM1500 – RM3500	425	2987000	52.60	47.70	57.40
More than RM 3500	388	2916000	62.30	57.10	67.30

Table 7.3: Prevalence of physical inactivity travel domain

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	2413	16020000	84.80	82.70	86.70
Zone					
Peninsular Malaysia	1575	12950000	86.60	84.20	88.70
East Malaysia	838	3065000	77.90	73.70	81.60
Strata					
Urban	1266	11030000	84.20	81.40	86.60
Rural	1147	4990000	86.20	83.30	88.70
Sex					
Male	1099	8175000	82.80	79.90	85.30
Female	1314	7845000	87.00	84.40	89.20
Age Group					
18-19	105	881700	80.30	69.70	87.80
20-29	571	4439000	87.40	83.50	90.50
30-39	674	4077000	86.40	83.20	89.10
40-49	600	3778000	83.80	79.90	87.10
50-59	463	2844000	81.40	76.10	85.70
Ethnicity Group					
Malay	1272	8945447	87.24	84.60	89.49
Chinese	417	3109898	85.34	80.74	88.99
Indian	107	1127832	84.82	74.74	91.35
Bumiputera Sabah	257	1059693	72.90	64.85	79.68
Bumiputera Sarawak	206	738125	75.92	66.10	83.60
Others	138	940800	82.50	73.20	89.00
Other Bumis	16	97920	97.80	83.20	99.70
Marital status					
Never married	602	4472000	85.40	81.20	88.80
Married/Cohabiting	1656	10830000	84.60	82.20	86.70
Divorced/Separated	108	526500	84.40	74.10	91.10
Widow	44	176200	80.00	63.30	90.20
Others	1	-	-	-	-
Education Level					
Non-formal	87	313000	66.00	52.40	77.30
Primary	476	2857000	81.70	77.10	85.50
Secondary	1219	8259000	87.20	84.60	89.40
Tertiary	613	4498000	84.50	80.60	87.80
Others	1‡	-	-	-	-

Note :
- RSE more than 25%

Table 7.3: Prevalence of physical inactivity travel domain (Cont.)

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
Work Status					
Government/ Semi-government	319	1879000	87.30	81.70	91.30
Private	843	6526000	83.70	80.60	86.40
Self-employed	666	4082000	84.80	81.20	87.80
Unpaid workers	6	-	-	-	-
Not working	481	2723000	87.20	82.80	90.50
Retired	29	-	-	-	-
Students	46	407700	69.50	52.30	82.50
Others					
Income Group					
Less than RM1500	1114	6517000	84.50	81.60	87.00
RM1500–RM3500	739	5196000	85.40	82.20	88.20
More than RM 3500	545	4213000	86.50	82.90	89.40

Note :
- RSE more than 25%

Table 7.4 : Prevalence of physical inactivity leisure time domain

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
Malaysia	2012	12784669	70	67.50	72.30
Zone					
Peninsular Malaysia	1274	10190000	70.90	67.90	73.70
East Malaysia	738	2594000	66.70	63.00	70.20
Strata					
Urban	1058	8764000	69.20	65.80	72.30
Rural	954	4021000	71.90	68.80	74.70
Sex					
Male	786	5754000	59.90	56.30	63.40
Female	1226	7031000	81.20	78.20	83.80
Age Group					
18–19	57	470800	44.30	32.60	56.60
20-29	433	3157000	63.70	58.40	68.70
30-39	547	3195000	70.50	66.00	74.60
40-49	539	3295000	76.00	71.90	79.80
50-59	436	2667000	78.80	74.00	82.90
Ethnicity Group					
Malay	1003	6901000	70.30	67.10	73.20
Chinese	339	2441000	68.80	62.70	74.40
Indian	84	836600	66.60	56.60	75.30
Bumiputera Sabah	232	872500	61.90	55.40	68.00
Bumiputera Sarawak	205	732200	74.10	66.60	80.40
Others	137	938100	81.70	70.80	89.10
Other Bumis	12	-	-	-	-
Marital Status					
Never married	424	2983000	58.30	53.30	63.10
Married/Cohabiting	1442	9103000	74.00	71.30	76.50
Divorced/Separated	94	483000	80.00	71.60	86.30
Widow	50	207000	91.60	82.10	96.30
Others					
Education Level					
Non-formal	112	420200	84.40	73.10	91.50
Primary	460	2725000	80.50	76.30	84.10
Secondary	985	6429000	71.00	67.60	74.30
Tertiary	436	3114000	59.80	55.50	63.90
Others	11	-	-	-	-

Note :
- RSE more than 25%

Table 7.4 : Prevalence of physical inactivity leisure time domain

Sociodemography	Unweighted Count	Estimated Population	Prevalence (%)	95% CI	
				Lower	Upper
Work Status					
Government/ Semi-government	210	1211000	58.90	52.20	65.30
Private	722	5339000	69.70	65.60	73.50
Self -employed	585	3423000	74.20	69.60	78.30
Unpaid workers	8	-	-	-	-
Not working	433	2327000	78.40	73.40	82.70
Retired	18	-	-	-	-
Students	25	-	-	-	-
Others					
Income Group					
Less than RM1500	990	5454000	73.40	69.90	76.60
RM1500– RM3500	604	4181000	70.90	66.40	75.00
More than RM 3500	404	3067000	65.10	60.40	69.50

Note :
- RSE more than 25%

TOPIC 8

FOOD CONSUMPTION PATTERNS

8. FOOD CONSUMPTION PATTERNS

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8.1   Findings

A habitual food choice is an important factor in determining the common dietary habit practices of an individual. An understanding of common types of food consumed is crucial to identify the population's food choices. **Tables 1 to 7** show the most common types of foods and drinks, expressed as the top ten food items consumed on a daily or weekly basis among adult men and women aged 18 to 59 years from the National Malaysia Nutrition Adult Survey 2014.

Table 8.1 shows the mean frequency and prevalence of the top ten daily food items consumed among Malaysian adults. White rice was the most frequently consumed food by adults (89.8%) with a frequency intake of 1.86 times/day at an average of 2.48 cups/day. This was followed by sugar (55.9%), leafy green vegetables (43.2%), marine fish (29.4%), chillies (24.2%), condensed milk/ creamer (23.5%), soy sauce (20.3%), condiment (14.6%), hen egg (14.2%) and cream creakers (12.9%). This suggests the role of white rice as a major staple food among Malaysian population. When comparing between men and women, there was a similar pattern of daily food consumption as presented in **Tables 8.2** and **Table 8.3**, with the exception of hen egg and chicken consumed by men and cream crackers and anchovy consumed by women respectively. Men consumed more white rice than women (2.86 cups/ day vs. 2.05 cups/day).

There were also slight differences observed in the top ten weekly consumed foods among Malaysian adults **(Tables 8.4 to Table 8.6)**, whereby hen eggs (70.6%) was the leading food consumed on a weekly basis with the consumption frequency of 2.70 ± 0.04 at 3.11 pieces each time, followed by chicken (66.9%), marine fish (56.4%), cabbage (55.7%), local cakes (53.9%), white bread (50.9%), other types of legumes (long bean, French bean and kacang botol) (47.6%), leafy green vegetables (47.3%) noodles (46.7%) and and soy sauces (44.7%). There were many similarities found among the top ten weekly consumed foods between genders, with the exception where noodles and flavoured rice were favoured by men; soy sauce and mihun/ kuey teow/ laksa/ laksam/ loh shi fun were favoured by women respectively. Comparison of most common foods consumed by Malaysian adults both daily and weekly showed that marine fish, soy sauce and leafy green vegetables were the main food items consumed in their diet. There was an almost similar consumption prevalence of leafy green vegetables among adults whether daily or weekly, but the consumption prevalence of marine fish and soy sauce was twice higher in adults in a week as compared with their daily consumption.

Table 8.7 showed that plain water was the most consumed daily beverage item among majority of Malaysian adults (98.2%). This suggests an increasing awareness in the adult population on the health benefits of consuming plain water. The daily consumption of plain water was 7 times/day at 11 cups/day, followed by tea (0.7 times/day), and coffee (0.5 times/ day). Other beverages such as malted drinks, pre-mixed drinks, carbonated drinks, soy milk, commercial milk, fruit juices and cordial syrup were found to be consumed from ranges between 0.11 to 0.32 times/day, whereas energy drinks, fresh milk, herbal/ botanical drinks (brewed, pre-mixed, ready-to-drink) and chocolate drinks were among the least consumed beverages among these adults.

8.2   Implications

Based on the results from MANS 2014, it clearly shows that both daily and weekly food consumption patterns were diverse. The most commonly consumed foods were derived from legumes, meat and seafood, vegetables, eggs and sugar-based foods. White rice was considered a staple food of the Malaysian population as evidenced by a mean frequency consumption of about twice/ day. On the contrary, the consumption of sugar and sugar based foods contributed to at least 4 food items in a day ($\approx$ 6.5 times/ day). Malaysian adults consumed marine fish, soy sauce and leafy green vegetables both daily and weekly in their diet. Adult Malaysians had a satisfactory habit of drinking plain water. It showed that on average they consumed at least 11 glasses of plain water daily, which was above the recommended intake of between 6 and 8 glasses per day.

8.3   Conclusions

White rice and hen eggs was a major contributor to the most common daily and weekly food items consumed respectively. Other food groups include vegetables, meat and seafood. There was an almost consistent food consumption pattern found between men and women in both top ten daily and weekly consumed foods. However, there was an increasing popularity of sugar and sugar-based food consumption among adults, as indicated by the four food items as the most daily consumed food. Hence, programmes need to be created and implemented to increase understanding regarding the harmful effects of sugar in relation to impacts on health such as diabetes, obesity and liver disease,

8.4   Recommendations

The identification of simple yet effective nutrition strategies need to be identified and implemented. The Ministry of Health should increase and reinforce its efforts in creating awareness and improving nutrition knowledge to encourage a change in nutrition behaviour.

Definition of variables : Daily Food Habit of Malaysian Adults (18 – 59 years old)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Number of time white rice is consume daily	g1001_c_day	Final_weight	Number of time white rice is consume daily	IF (g1001_b = 1) g1001_c_day=g1001_c. EXECUTE.
Number of time sugar (white/brown/Melaka) is consume daily	G2201_c_day	Final_weight	Number of time sugar (white/brown/Melaka) is consume daily	IF (g2201_b = 1) g1001_c_day=g2201_c. EXECUTE.
Number of time leafy green vegetables is consume daily	G1601_c_day	Final_weight	Number of time leafy green vegetables is consume daily	IF (g1601_b = 1) g1601_c_day=g1601_c. EXECUTE.
Number of time marine fish is consume daily	g1201_c_day	Final_weight	Number of time marine fish is consume daily	IF (g1201_b = 1) g1201_c_day=g1201_c. EXECUTE.
Number of time chilies is consume daily	g1607_c_day	Final_weight	Number of time chilies is consume daily	IF (g1607_b = 1) g1607_c_day=g1607_c. EXECUTE.
Number of time condense milk/creamer is consume daily	G2203_c_day	Final_weight	Number of time condense milk/creamer is consume daily	IF (g2203_b = 1) g2203_c_day=g2203_c. EXECUTE.
Number of time soy sauce is consume daily	G2209_c_day	Final_weight	Number of time soy sauce is consume daily	IF (g2209_b = 1) g2209_c_day=g2209_c. EXECUTE.
Number of time cream creakers is consume daily	G2009_c_day	Final_weight	Number of time cream creakers is consume daily	IF (g2009_b = 1) g2009_c_day=g2009_c. EXECUTE.
Number of time condiment is consume daily	g2204_c_day	Final_weight	Number of time condensed milk (creamer) is consume daily	IF (g2204_b = 1) g2204_c_day=g2204_c. EXECUTE.
Number of time hen egg is consume daily	G1301_c_day	Final_weight	Number of time soy sauce is consume daily	IF (g1301_b = 1) g1301_c_day=g1301_c. EXECUTE.
Number of time chicken is consume daily	G1101_c_day	Final_weight	Number of time chicken is consume daily	IF (g1101_b = 1) g1101_c_day=g1101_c. EXECUTE.
Number of time anchovy is consume daily	G1207_c_day	Final_weight	Number of time anchovy is consume daily	IF (g1207_b = 1) g1207_c_day=g1207_c. EXECUTE.

Definition of variables: Weekly Food Habit of Malaysian Adults (18 – 59 years old)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Number of time Hen egg (bulls eye, omelets, boiled, with chilies or herbs) is consumed weekly	g1301_c_wk	Final_weight	Number of time hen egg (bulls eye, omeletts, boiled, with chilies or herbs) is consumed weekly	IF (g1301_b = 2) g1301_c_wk=g1301_c. EXECUTE.
Number of time chicken is consumed weekly	g1101_c_wk	Final_weight	Number of time Chicken is consumed weekly	IF (g1101_b = 2) g1101_c_wk=g1101_c. EXECUTE.
Number of time local kuih is consumed weekly	G2001_c_wk	Final_weight	Number of time local kuih is consumed weekly	IF (g2001_b = 2) g2001_c_wk=g2001_c. EXECUTE.
Number of time marine fish is consumed weekly	g1201_c_wk	Final_weight	Number of time marine fish is consumed weekly	DATASET ACTIVATE DataSet1. IF (g1201_b = 2) g1201_c_wk=g1201_c. EXECUTE.
Number of time cabbages is consumed weekly	g1606_c_wk	Final_weight	Number of time Cabbages is consumed weekly	IF (g1606_b = 2) g1606_c_wk=g1606_c. EXECUTE.
Number of time white bread is consumed weekly	g1010_c_wk	Final_weight	Number of time white bread is consumed weekly	IF (g1010_b = 2) g1010c_wk=g1010_c. EXECUTE.
Number of time other types of legumes is consumed weekly	g1603_c_wk	Final_weight	Number of time other types of legumes is consumed weekly	IF (g1603_b = 2) g1603_c_wk=g1603_c. EXECUTE.
Number of time noodles is consumed weekly	g1006_c_wk	Final_weight	Number of time Noodles is consumed weekly	IF (g1006_b = 2) g1006_c_wk=g1006_c. EXECUTE.
Number of time leafy green vegetables is consumed weekly	g1601_c_wk	Final_weight	Number of time Leafy green vegetables is consumed weekly	IF (g1601_b = 2) g1601_c_wk=g1601_c. EXECUTE.

Definition of variables: Weekly Food Habit of Malaysian Adults (18 – 59 years old) (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Number of time soy sauce is consumed weekly	G2209_c_wk	Final_weight	Number of time Soy sauce is consumed weekly	IF (g2209_b = 2) g2209_c_wk=g2209_c. EXECUTE.
Number of time flavored rice is consumed weekly	g1003_c_wk	Final_weight	Number of time Flavored rice is consumed weekly	IF (g1003_b = 2) g1003_c_wk=g1003_c. EXECUTE.
Number of time mihun/ kueh teow/laksa/ laksam/loh shi fun is consumed weekly	g1007_c_wk	Final_weight	Number of time Mihun/kueh teow/laksa/ laksam/loh shi fun is consumed weekly	IF (g1007_b = 2) g1007_c_wk=g1007_c. EXECUTE.

Definition of variables: Frequency of drinks consumed daily by Malaysian Adults (18 – 59 years old)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

Number of time plain water is consumed daily	g1801_MTH_D	Final_weight	Number of times plain water is consumed daily	IF (g1801_b = 3) g1801_mth=g1801_c. EXECUTE.
				
				IF (g1801_b = 2) g1801_mth=g1801_c * 4.3. EXECUTE.
				
				IF (g1801_b = 1) g1801_mth=g1801_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1801_MTH_D=g1801_mth/(4.3*7). EXECUTE.

Number of times tea is consumed daily	g1802_MTH_D	Final_weight	Number of times tea is consumed daily	IF (g1802_b = 3) g1802_mth=g1802_c. EXECUTE.
				
				IF (g1802_b = 2) g1802_mth=g1802_c * 4.3. EXECUTE.
				
				IF (g1802_b = 1) g1802_mth=g1802_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1802_MTH_D=g1802_mth/(4.3*7). EXECUTE.

Number of times coffee is consumed daily	g1803_MTH_D	Final_weight	Number of times coffee is consumed daily	IF (g1803_b = 3) g1803_mth=g1803_c. EXECUTE.
				
				IF (g1803_b = 2) g1803_mth=g1803_c * 4.3. EXECUTE.
				
				IF (g1803_b = 1) g1803_mth=g1803_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1803_MTH_D=g1803_mth/(4.3*7). EXECUTE.

Definition of variables: Frequency of drinks consumed daily by Malaysian Adults (18 – 59 years old) (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

Number of times malted drink is consumed daily	g1805_MTH_D	Final_weight	Number of times malted drink is consumed daily	IF (g1805_b = 3) g1805_mth=g1805_c. EXECUTE.
				IF (g1805_b = 2) g1805_mth=g1805_c * 4.3. EXECUTE.
				IF (g1805_b =1) g1805_mth=g1805_c * 4.3 * 7. EXECUTE.
				COMPUTE g1805_MTH_D=g1805_mth/(4.3*7) EXECUTE.

Number of times pre mixed drink is consumed daily	g1806_MTH_D	Final_weight	Number of times pre mixed drink is consumed daily	IF (g1806_b = 3) g1806_mth=g1806_c. EXECUTE.
				IF (g1806_b = 2) g1806_mth=g1806_c * 4.3. EXECUTE.
				IF (g1806_b =1) g1806_mth=g1806_c * 4.3 * 7. EXECUTE.
				COMPUTE g1806_MTH_D=g1806_mth/(4.3*7). EXECUTE.

Number of times carbonated drink is consumed daily	g1810_MTH_D	Final_weight	Number of times carbonated drink is consumed daily	IF (g1810_b = 3) g1810_mth=g1810_c. EXECUTE.
				IF (g1810_b = 2) g1810_mth=g1810_c * 4.3. EXECUTE.
				IF (g1810_b =1) g1810_mth=g1810_c * 4.3 * 7. EXECUTE.
				COMPUTE g1810_MTH_D=g1810_mth/(4.3*7). EXECUTE.

Definition of variables: Frequency of drinks consumed daily by Malaysian Adults (18 – 59 years old) (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

Number of times soy milk is consumed daily	g1811_MTH_D	Final_weight	Number of times is consumed daily	IF (g1811_b = 3) g1811_mth=g1811_c. EXECUTE.
				
				IF (g1811_b = 2) g1811_mth=g1811_c * 4.3. EXECUTE.
				
				IF (g1811_b = 1) g1811_mth=g1811_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1811_MTH_D=g1811_mth/(4.3*7). EXECUTE.

Number of times commercial milk is consumed daily	g1502_MTH_D	Final_weight	Number of times commercial milk is consumed daily	IF (g1502_b = 3) g1502_mth=g1502_c. EXECUTE.
				
				IF (g1502_b = 2) g1502_mth=g1801_c * 4.3. EXECUTE.
				
				IF (g1502_b = 1) g1502_mth=g1502_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1502_MTH_D=g1502_mth/(4.3*7). EXECUTE.

Number of times fruit juice is consumed daily	g1809_MTH_D	Final_weight	Number of times fruit juice is consumed daily	IF (g1809_b = 3) g1809_mth=g1809_c. EXECUTE.
				
				IF (g1809_b = 2) g1809_mth=g1809_c * 4.3. EXECUTE.
				
				IF (g1809_b = 1) g1809_mth=g1809_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1809_MTH_D=g1809_mth/(4.3*7). EXECUTE.

Definition of variables: Frequency of drinks consumed daily by Malaysian Adults (18 – 59 years old) (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Number of times cordial syrup is consumed daily	g1808_MTH_D	Final_weight	Number of times cordial syrup is consumed daily	IF (g1808_b = 3) g1808_mth=g1808_c. EXECUTE. IF (g1808_b = 2) g1808_mth=g1808_c * 4.3. EXECUTE. IF (g1808_b = 1) g1808_mth=g1808_c * 4.3 * 7. EXECUTE. COMPUTE g1808_MTH_D=g1808_mth/(4.3*7). EXECUTE.
Number of times ready to drink is consumed daily	g1807_MTH_D	Final_weight	Number of times ready to drink is consumed daily	IF (g1807_b = 3) g1807_mth=g1807_c. EXECUTE. IF (g1807_b = 2) g1807_mth=g1807_c * 4.3. EXECUTE. IF (g1807_b = 1) g1807_mth=g1807_c * 4.3 * 7. EXECUTE. COMPUTE g1807_MTH_D=g1807_mth/(4.3*7). EXECUTE.
Number of times energy drink is consumed daily	g1815_MTH_D	Final_weight	Number of times energy drink is consumed daily	IF (g1815_b = 3) g1815_mth=g1815_c. EXECUTE. IF (g1815_b = 2) g1815_mth=g1815_c * 4.3. EXECUTE. IF (g1815_b= 1) g1815_mth=g1815_c * 4.3 * 7. EXECUTE. COMPUTE g1815_MTH_D=g1815_mth/(4.3*7). EXECUTE.

Definition of variables: Frequency of drinks consumed daily by Malaysian Adults (18 – 59 years old) (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

Number of times herbal/ botanical brewed drink is consumed daily	g1814_MTH_D	Final_weight	Number of times herbal/ botanical brewed drink is consumed daily	IF (g1814_b = 3) g1814_mth=g1814_c. EXECUTE.
				IF (g1814_b = 2) g1814_mth=g1814_c * 4.3. EXECUTE.
				IF (g1814_b = 1) g1814_mth=g1814_c * 4.3 * 7. EXECUTE.
				COMPUTE g1814_MTH_D=g1814_mth/(4.3*7). EXECUTE.

Number of times yoghurt drink is consumed daily	g1816_MTH_D	Final_weight	Number of times yoghurt drink is consumed daily	IF (g1816_b = 3) g1816_mth=g1816_c. EXECUTE.
				IF (g1816_b = 2) g1816_mth=g1816_c * 4.3. EXECUTE.
				IF (g1816_b = 1) g1816_mth=g1816_c * 4.3 * 7. EXECUTE.
				COMPUTE g1816_MTH_D=g1816_mth/(4.3*7). EXECUTE.

Number of times herbal/botanical drink (pre-mixed) is consumed daily	g1812_MTH_D	Final_weight	Number of times herbal/botanical drink (pre-mixed) is consumed daily	IF (g1812_b = 3) g1812_mth=g1812_c. EXECUTE.
				IF (g1812_b = 2) g1812_mth=g1812_c * 4.3. EXECUTE.
				IF (g1812_b = 1) g1812_mth=g1812_c * 4.3 * 7. EXECUTE.
				COMPUTE g1812_MTH_D=g1812_mth/(4.3*7). EXECUTE.

Definition of variables: Frequency of drinks consumed daily by Malaysian Adults (18 – 59 years old) (Cont.)

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

Number of times fresh milk is consumed daily	g1801_MTH_D	Final_weight	Number of times fresh milk is consumed daily	IF (g1812_b = 3) g1812_mth=g1812_c. EXECUTE.
				
				IF (g1812_b = 2) g1812_mth=g1812_c * 4.3. EXECUTE.
				
				IF (g1812_b = 1) g1812_mth=g1812_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1812_MTH_D=g1812_mth/(4.3*7). EXECUTE.

Number of times herbal/botanical drink (ready to drink) is consumed daily	g1813_MTH_D	Final_weight	Number of times herbal/botanical drink (ready to drink) is consumed daily	IF (g1813_b = 3) g1813_mth=g1813_c. EXECUTE.
				
				IF (g1813_b = 2) g1813_mth=g1813_c * 4.3. EXECUTE.
				
				IF (g1813_b = 1) g1813_mth=g1813_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1813_MTH_D=g1813_mth/(4.3*7). EXECUTE.

Number of times chocolate drink is consumed daily	g1804_MTH_D	Final_weight	Number of times chocolate drink is consumed daily	IF (g1804_b = 3) g1804_mth=g1804_c. EXECUTE.
				
				IF (g1804_b = 2) g1804_mth=g1804_c * 4.3. EXECUTE.
				
				IF (g1804_b = 1) g1804_mth=g1804_c * 4.3 * 7. EXECUTE.
				
				COMPUTE g1804_MTH_D=g1804_mth/(4.3*7). EXECUTE.

Table 8.1. Mean frequency and prevalence of the top ten food items consumed daily by adults (18-59 years old)

No.	Food Items	Mean Frequency of Intake ± SD	Mean Intake (gm/day)	Household measure	No. of Servings consumed per day	Prevalence (%)	Count	Estimated Population
1	White rice	1.86 ± 0.02	297.91	Cup/Plate, 120g	2.48 cups/plates	89.8	2710	17561043
2	Sugar (white, brown, Melaka)	1.78 ± 0.04	25.52	Teaspoon, 7g	3.65 teaspoons	55.9	1719	10883938
3	Leafy green vegetables	1.55 ± 0.03	118.63	Teaspoon, 20g	5.93 tablespoons	43.2	1314	8387067
4	Marine fish	1.43 ± 0.04	102.62	Whole medium, 64g	1.60 whole medium	29.4	957	5741243
5	Chilies	1.42 ± 0.05	51.51	Tablespoon, 28g	1.84 tablespoons	24.2	697	4668622
6	Condensed milk/ creamer	1.58 ± 0.06	50.66	Tablespoon, 19g	2.67 tablespoons	23.5	680	4579566
7	Soy sauce	1.37 ± 0.04	17.97	Teaspoon, 8.6g	2.09 teaspoons	20.3	638	3943296
8	Condiment	1.44 ± 0.07	19.37	Teaspoon, 8.6g	2.42 teaspoons	14.6	430	2846098
9	Hen egg	1.23 ± 0.04	85.21	Pieces, 54g	1.58 pieces	14.2	415	2784504
10	Cream creakers	1.31 ± 0.06	43.41	Pieces, 9g	4.82 pieces	12.9	436	2518291

Table 8.2. Mean frequency and prevalence of the top ten food items consumed daily by men.

No.	Food Items	Mean Frequency of Intake ± SD	Mean Intake (gm/day)	Household measure	No. of Servings consumed per day	Prevalence (%)	Count	Estimated Population
1	White rice	1.97 ± 0.03	342.61	Cup/Plate, 120g	2.86 cups/plates	92.6	1285	9457832
2	Sugar (white, brown, Melaka)	1.87 ± 0.05	28.28	Teaspoon, 7g	4.04 teaspoons	58.2	824	5936189
3	Leafy green vegetables	1.57 ± 0.04	123.53	Tablespoon, 20g	6.18 tablespoons	39.8	556	4034987
4	Marine fish	1.46 ± 0.05	106.58	Whole medium, 64g	1.67 whole medium	28.3	416	2887409
5	Condensed	1.68 ± 0.08	57.00	Tablespoon, 19g	3.00 tablespoons	26.2	350	2670675
6	Chilies	1.52 ± 0.09	51.17	Tablespoon, 28g	1.83 tablespoons	23.1	302	2323057
7	Soy sauce	1.39 ± 0.05	18.65	Teaspoon, 8.6g	2.17 teaspoons	21.0	301	213781
8	Hen egg	1.29 ± 0.06	93.83	Piece, 54g	1.74 pieces	18.1	242	1854158
9	Chicken	1.43 ± 0.07	106.96	Pieces, 59g	1.81 pieces	15.5	184	1579414
10	Condiment	1.50 ± 0.10	19.29	Teaspoon, 8g	2.41 teaspoons	14.8	200	1512587

Table 8.3. Mean frequency and prevalence of the top ten food items consumed daily by women.

No.	Food Items	Mean Frequency of Intake ± SD	Mean Intake (gm/day)	Household measure	No. of Servings consumed per day	Prevalence (%)	Count	Estimated Population
1	White rice	1.75 ± 0.02	245.74	Cup/Plate, 120g	2.05 cups/plates	86.8	1425	8103212
2	Sugar (white, brown, Melaka)	1.68 ± 0.04	22.21	Teaspoon, 7g	3.17 teaspoons	53.3	895	4947749
3	Leafy green vegetables	1.54 ± 0.03	114.09	Tablespoon, 20g	5.70 tablespoons	46.8	758	4352080
4	Marine fish	1.40 ± 0.04	98.61	Whole medium, 64g	1.54 whole medium	30.5	541	2853833
5	Chilies	1.32 ± 0.04	51.84	Tablespoon, 28g	1.85 tablespoons	25.4	395	2345565
6	Condensed milk/ creamer	1.44 ± 0.05	41.80	Teaspoon, 19g	2.20 tablespoons	20.6	330	1908890
7	Soy sauce	1.34 ± 0.05	17.17	Tablespoon, 8.6g	2.00 teaspoons	19.5	337	1805481
8	Cream creakers	1.29 ±0.06	40.84	Piece, 9g	4.54 pieces	16.8	298	1570861
9	Condiment	1.37 ± 0.08	19.47	Teaspoon, 8g	2.43 teaspoons	14.4	230	1333511
10	Anchovy	1.30 ± 0.05	13.41	Pieces, 9g	1.49 tablespoons	13.0	225	1209337

Table 8.4. Mean frequency and prevalence of the top ten food items consumed weekly by adults

No.	Food Items	Mean Frequency of Intake ± SD	Mean Intake (gm/ weekly)	Household measure	No. of Servings consumed per weekly	Prevalence (%)	Count	Estimated Population
1	Hen eggs (bulls eye, omelets, boiled, with chilies or herbs)	2.70 ± 0.04	167.68	Piece, 54g	3.11 pieces	70.6	2074	13845440
2	Chicken	2.61 ± 0.04	199.92	Piece, 59g	3.39 pieces	66.9	1969	13053977
3	Marine fish	2.96 ± 0.05	202.35	Whole medium, 64g	3.16 whole medium	56.4	1598	11015631
4	Cabbage	1.99 ± 0.04	169.73	Tablespoon, 25g	6.79 tablespoons	55.7	1595	10783820
5	Local *kuih*	2.30 ± 0.04	157.21	Piece, 30g	5.24 pieces	53.9	1642	10486876
6	White bread	2.49 ± 0.05	211.38	Slice, 34g	6.22 slices	50.9	1492	9848628
7	Other types of legumes (long bean, French bean, kacang botol)	1.86 ± 0.04	111.10	Tablespoon, 18g	6.17 tablespoons	47.6	1442	9217884
8	Leafy green vegetables	2.93 ± 0.06	216.74	Tablespoon, 20g	10.84 tablespoons	47.3	1403	9191408
9	Noodles	2.05 ± 0.04	702.75	Cup/Plate, 288g	2.44 cups/plates	46.7	1437	8985524
10	Soy sauce	2.42 ± 0.05	32.43	Teaspoon, 8.6g	3.77 teaspoons	44.7	1369	8676020

Table 8.5. Mean frequency and prevalence of the top ten food items consumed weekly by men

No.	Food Items	Mean Frequency of Intake ± SD	Mean Intake (gm/ weekly)	Household measure	No. of Servings consumed per weekly	Prevalence (%)	Count	Estimated Population
1	Hen eggs (bulls eye, omelets, boiled, with chilies or herbs)	2.80 ± 0.06	186.30	Piece, 54g	3.45 pieces	68.9	925	7045124
2	Chicken	2.73 ± 0.06	219.07	Piece, 59g	3.71 pieces	66.0	909	6725610
3	Marine fish	2.98 ± 0.07	211.69	Whole medium, 64g	3.31 whole medium	55.9	740	5694444
4	Cabbage	2.04 ± 0.05	174.54	Tablespoon, 25g	6.98 tablespoons	54.2	702	5486373
5	Local *kuih*	2.37 ± 0.05	177.90	Piece, 30g	5.93 pieces	52.0	731	5274149
6	Noodles	2.15 ± 0.06	787.42	Cup/Plate, 288g	2.73 cups/plates	49.9	713	4993334
7	Leafy green vegetables	2.92 ± 0.08	225.00	Tablespoon, 20g	11.25 tablespoons	48.9	669	4955806
8	White bread	2.46 ± 0.08	237.19	Slice, 34g	6.98 slices	47.6	653	4801954
9	Other types of legumes (long bean, French bean, kacang botol)	1.91 ± 0.06	117.98	Tablespoon, 18g	6.55 tablespoons	46.6	639	4725218
10	Flavored rice	2.00 ± 0.06	310.12	Cup/Plate, 120g	2.58 cups/plates	46.4	622	4756482

Table 8.6. Mean frequency and prevalence of the top ten food items consumed weekly by women

No.	Food Items	Mean Frequency of Intake ± SD	Mean Intake (gm/ weekly)	Household measure	No. of Servings consumed per weekly	Prevalence (%)	Count	Estimated Population
1	Hen eggs (bulls eye, omelette, boiled, with chillies or herbs)	2.59 ± 0.06	148.40	Piece, 54g	2.75 pieces	72.5	1149	6800315
2	Chicken	2.49 ± 0.05	179.58	Piece, 59g	3.04 pieces	68.0	1060	6328367
3	Cabbage	1.95 ± 0.05	164.75	Tablespoon, 25g	6.60 tablespoons	57.2	893	5297447
4	Marine fish	2.95 ± 0.07	192.37	Whole medium, 64g	3.01 whole medium	56.8	858	5321187
5	Local *kuih*	2.24 ± 0.05	136.29	Piece, 30g	4.54 pieces	56.0	911	5212727
6	White bread	2.51 ± 0.06	186.82	Slice, 34g	5.49 slices	54.5	839	5046675
7	Soy sauce	2.48 ± 0.06	31.82	Teaspoon, 8.6g	3.70 teaspoons	48.8	787	4513773
8	Other types of legumes (long bean, French bean, kacang botol)	1.80 ± 0.04	103.87	Tablespoon, 18g	5.77 tablespoons	48.7	803	4492666
9	Mihun/ kuey teow/ laksa/ laksam/ loh shi fun	1.92 ± 0.05	682.86	Cup/Plate, 330g	2.07 cups/plates	48.6	743	4497937
10	Leafy green vegetables	2.94 ± 0.07	207.07	Tablespoon, 20g	10.35 tablespoons	45.6	734	4235603

Table 8.7. Mean frequency of the drinks consumed daily by adults.

No.	Beverages	Mean Frequency ± SD	Mean Intake (ml/day)	Household measure	No. of Servings consumed per day	Prevalence (%)	Count	Estimated Population
1	Plain water	6.66 ± 012	2121.22	Cup, 200ml	11.03 cups	98.2	2938	19238136
2	Tea	0.71 ± 0.02	326.26	Cup, 200ml	1.81 cups	70.3	2957	19367280
3	Coffee	0.50 ± 0.02	356.70	Cup, 200ml	1.78 cups	53.2	2951	19363319
4	Malted drink	0.32 ± 0.01	314.60	Cup, 200ml	1.57 cups	59.1	2975	19533505
5	Pre-mixed drink	0.18 ± 0.01	314.80	Cup, 200ml	1.57 cups	28.8	2963	19495032
6	Carbonated drinks	0.13 ± 0.01	186.10	Cup, 200ml	0.93 cups	45.7	2960	19439124
7	Soy milk	0.12 ± 0.01	273.90	Cup, 200ml	1.36 cups	51.4	2960	19438212
8	Commercial milk	0.11 ± 0.01	290.94	Cup, 200ml	1.45 cups	29.6	2961	19462285
9	Fruit juices	0.11 ± 0.01	272.62	Cup, 200ml	1.36 cups	41.1	2949	19315302
10	Cordial syrup	0.11 ± 0.01	152.61	Cup, 200ml	0.76 cups	34.4	1849	11980807
11	Ready to drinks	0.09 ± 0.01	286.87	Cup, 200ml	1.43 cups	30.8	2968	19490620
12	Energy drinks	0.03 ± 0.01	680.15	Cup, 200ml	3.48 cups	12.6	2959	19446428
13	Herbal botanical brewed drinks	0.03 ± 0.00	320.10	Cup, 200ml	1.69 cups	10.3	2952	19461487
14	Yoghurt drinks	0.03 ± 0.00	320.19	Cup, 200ml	1.51 cups	14.0	2951	19425417
15	Herbal botanical drinks (Pre-mixed)	0.03 ± 0.00	280.50	Cup, 200ml	1.41 cups	6.5	2949	19433632
16	Fresh milk	0.02 ± 0.00	238.21	Cup, 200ml	1.19 cups	7.1	2952	19460554
17	Herbal botanical drink (ready to drinks)	0.01 ± 0.00	238.99	Cup, 200ml	1.19 cups	4.9	2956	19473903
18	Chocolate drinks	0.01±0.00	368.39	Cup, 200ml	1.84 cups	4.1	2943	19402347

TOPIC 9

NUTRITIONAL STATUS

9. NUTRITIONAL STATUS

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9.1 Findings

Based on the WHO (1998) classification, the national prevalence of underweight or chronic energy deficiency (CED) among Malaysian adults was 6.2% (95% CI: 5.1-7.6) **(Table 9.15)**, while that of normal BMI was 42.9% (95% CI: 40.5-45.3) **(Table 9.8)**. The prevalence of overweight and obesity was 32.4% (95% CI: 30.3 - 34.6) **(Table 9.13)** and 18.5% (95% CI: 16.6-20.5) **(Table 9.12)** respectively.

The prevalence of underweight/CED in Peninsular Malaysia [6.3% (95% CI: 4.9-8.0)] was comparable to East Malaysia [6.2% (95% CI: 4.6-8.2)]. There was no significant difference in prevalence of underweight between the urban [6.4% (95% CI: 4.9 – 8.3)] and rural areas [6.0% (95% CI: 4.7-7.6)]. The prevalence of underweight/CED was higher in men [7.7% (95% CI: 5.9-10.0)] compared to women [4.6% (95% CI: 3.5-6.1)], but it was not statistically significant. With the exception of age groups 40-49 [1.9% (95% CI: 1.1-3.2)] and 50-59 years [2.8% (95% CI: 1.4-5.4)], the prevalence of underweight/CED was significantly higher in age group of 18-19 years [24.0% (95% CI: 14.9-36.4)], followed by 20-29 years [10.1% (95% CI: 7.4-13.7)] and 30-39 years [4.6% (95% CI: 3.0-6.8)]. Malays reported a higher prevalence of underweight/CED [6.8% (95% CI: 5.2-9.0)] compared to Chinese [5.6% (95% CI: 3.5-8.7)], but it was not statistically significant.

The prevalence of normal BMI was higher in East Malaysia [46.6% (95% CI: 43.2-50.0)] compared to Peninsular Malaysia [41.9% (95% CI: 39.0-44.8)], but the difference was not statistically significant. A slighly higher prevalence of normal BMI was observed in rural areas [44.3% (95% CI: 41.0-47.6)] compared to urban areas [42.3% (95% CI: 39.2-45.4)], but it was not statistically significant. Men [44.5% (95% CI: 41.2-47.9)] had a higher prevalence of normal BMI than women [41.1% (95% CI: 38.0-44.1)], but the difference was not statistically significant. Among age groups, the highest prevalence of normal BMI was observed in the younger age group of 18-19 years [53.0% (95% CI: 40.8-64.8)], followed by 20-29 years [49.8% (95% CI: 44.8-54.8)], 30-39 years [41.5% (95% CI: 36.7-46.5)], 40-49 years [39.8% (95% CI: 35.3-44.6)], and 50-59 years [35.3% (95% CI: 30.5-40.5)].

Our findings showed that the prevalence of overweight between Peninsular Malaysia [32.4% (95% CI: 29.9-35.1)] and East Malaysia [32.4% (95% CI: 29.9-35.6)] was similar; with no significant differences observed between urban [32.7% (95% CI: 29.9-35.6)] and rural areas [31.8% (95% CI: 29.2-34.5)]; men [33.3% (95% CI: 30.2-36.6)] and women [31.4% (95% CI: 28.5-34.4)]. The prevalence of overweight increased significantly from 22.3% (95% CI: 18.6-26.5) in younger age group of 20-29 years to 32.7% (95% CI: 28.6-37.1) in 30-39 years, 39.3% (95% CI: 35.0-43.8) in 40-49 years, and 43.5% (95% CI: 38.0-49.1) in 50-59 years.

Although the prevalence of obesity was higher in Peninsular Malaysia [19.5% (95% CI: 17.2-22.0)] than East Malaysia [14.9% (95% CI: 12.8-17.3)], the difference was not statistically significant. It is interesting to note that there was no significant difference in obesity prevalence between urban [18.7% (95% CI: 16.2-21.5)] and rural areas [17.9% (95% CI: 16.0-20.0)]. The prevalence of obesity was significantly higher in women [22.9% (95% CI: 20.4-25.7)] compared to men [14.5% (95% CI: 12.0-17.0)]. The highest

prevalence of obesity was observed in adults aged 30-39 years [21.2% (95% CI: 17.7 25.2)], followed by 40-49 years [19.0% (95% CI: 15.6-22.9)], 50-59 years [18.4% (95% CI: 14.6-23.1)] and 20-29 years [17.8% (95% CI: 14.4-21.9)]. Comparison among the ethnic groups showed that Indians had the highest prevalence of obesity [28.1% (95% CI: 20.1 37.7)], followed by Malays [22.0% (95% CI: 19.4-24.8)], Bumiputera Sarawak [17.0% (95% CI: 12.5-22.7)], Bumiputera Sabah [14.1 (95% CI: 10.9-18.1)], and Chinese [10.8% (95% CI: 7.6-15.1)]. The differences in obesity prevalence were statistically significant between the Indians and Chinese, and between the Indians and Bumiputera Sabah.

The prevalence of obesity was highest among divorced/separated [21.2% (95% CI: 14.1 30.7)] followed by married/cohabiting [20.5% (95% CI: 18.4-22.8)] and never married [13.6% (95% CI: 10.6-17.3)]. The differences in obesity prevalence among married and never married was statistically significant. Based on educational levels, the tertiary level group had the highest prevalence of obesity [20.2% (95% CI: 16.7-24.3)], followed by secondary level [18.2% (95% CI: 15.70-21.0)] and primary level [17.3% (95% CI: 13.6 21.7)]. As for work status, non-employed group had the highest prevalence of obesity [28.5% (95% CI: 23.7-33.8)] followed by government/ semi-government employees [24.7% (95% CI: 19.1-31.3)], self-employed [17.4% (95% CI: 14.5-20.8)] and private sector [15.1% (95% CI: 12.5-18.1)].

Abdominal obesity is defined based on the WHO (1998) classification, with internationally accepted waist circumference (WC) cut-off points >102cm for men and >88cm for women. The national prevalence of abdominal obesity was 20.0% (95% CI: 18.1 - 22.1) **(Table 9.16)**. The prevalence of abdominal obesity was higher in the East Malaysia [22.1% (95% CI: 19.6 24.8)] compared to Peninsular Malaysia [19.5% (95% CI: 17.1 - 22.1)] but it was not statistically significant. Abdominal obesity prevalence was slightly higher in the urban areas [20.4% (95% CI: 17.8 - 23.3)] as compared to the rural areas [19.3% (95% CI: 17.1 - 21.6)] but this difference was not statistically significant. Women showed a significantly higher prevalence of abdominal obesity [31.8% (95% CI: 28.7 - 35.0)] than men [9.6% (95% CI: 7.6 - 12.0)]. The prevalence of abdominal obesity increased with age peaking at 50 to 59 years. Approximately 50% the adults between 40-59 years had abdominal obesity. Among the three major ethnic groups, the abdominal obesity prevalence was significantly higher among the Indians [34.6% (95% CI: 27.4 - 42.7)] than the Malays [20.7% (95% CI: 18.2 - 23.7) and Chinese [12.4% (95% CI: 9.1 - 16.6)].

9.2   Implications

Based on the WHO (1998) classification, the national prevalence of overweight has increased gradually from 26.7% in MANS 2003, 29.0% in NHMS 2006, 28.9% in NHMS 2011 to 32.4% in MANS 2014 (Figure 1). On the other hand, the prevalence of obesity had increased substantially from 12.2% in MANS 2003 to 14.5% in NHMS 2006, 15.4% in NHMS 2011 and 18.5% in the current MANS 2014 (Figure 2). Waist circumference was not measured in MANS 2003. But the prevalence of abdominal obesity (20.0%) in MANS 2014 is higher compared to NHMS 2006 (16.8%) and NHMS 2011 (18.6%) (Figure 3). General obesity and abdominal obesity are major contributors to various chronic diseases including type 2 diabetes mellitus, hypertension, coronary heart disease and certain types of cancers. Excessive accumulation of body fat is known to increase the risk of premature mortality and contributed to poorer quality of life. The increasing trend of obesity in the Malaysian population has imposed substantial burden on medical costs for treatment of many obesity-related diseases. Additionally, the higher proportion of obese population has lower productivity than their normal BMI counterparts.
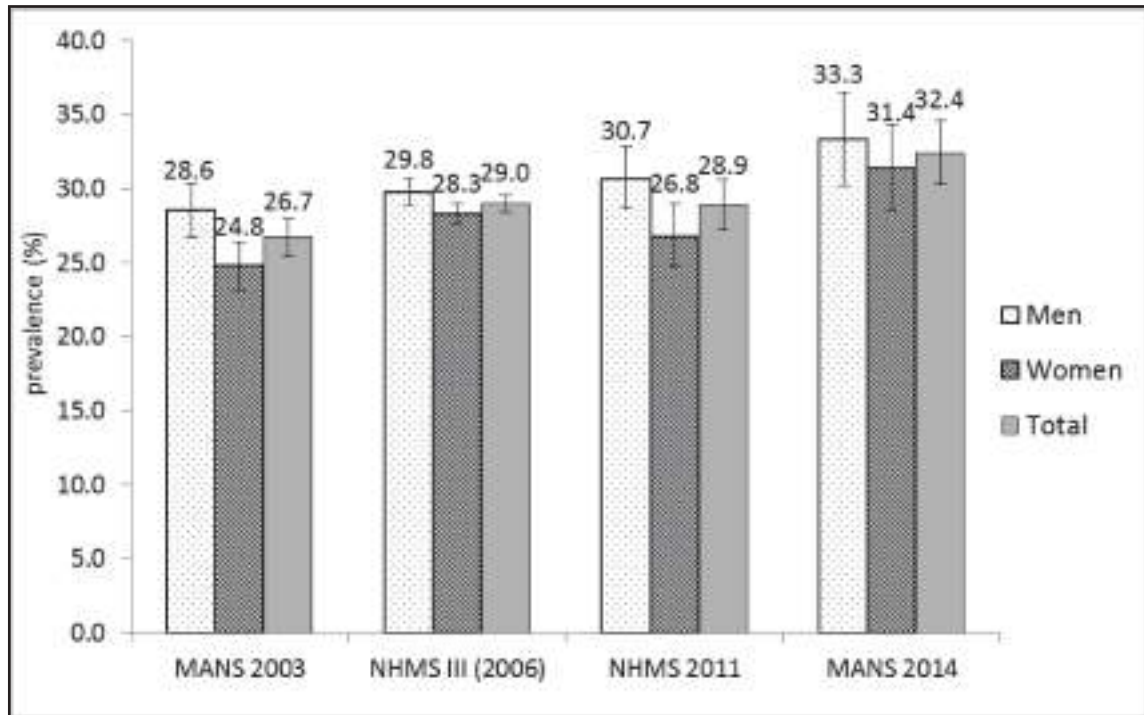
Figure 1. Prevalence of overweight* (95% confidence interval) among Malaysian adults aged 18--59 years by sex
* Overweight (BMI: 25 to <30 kg/m²)
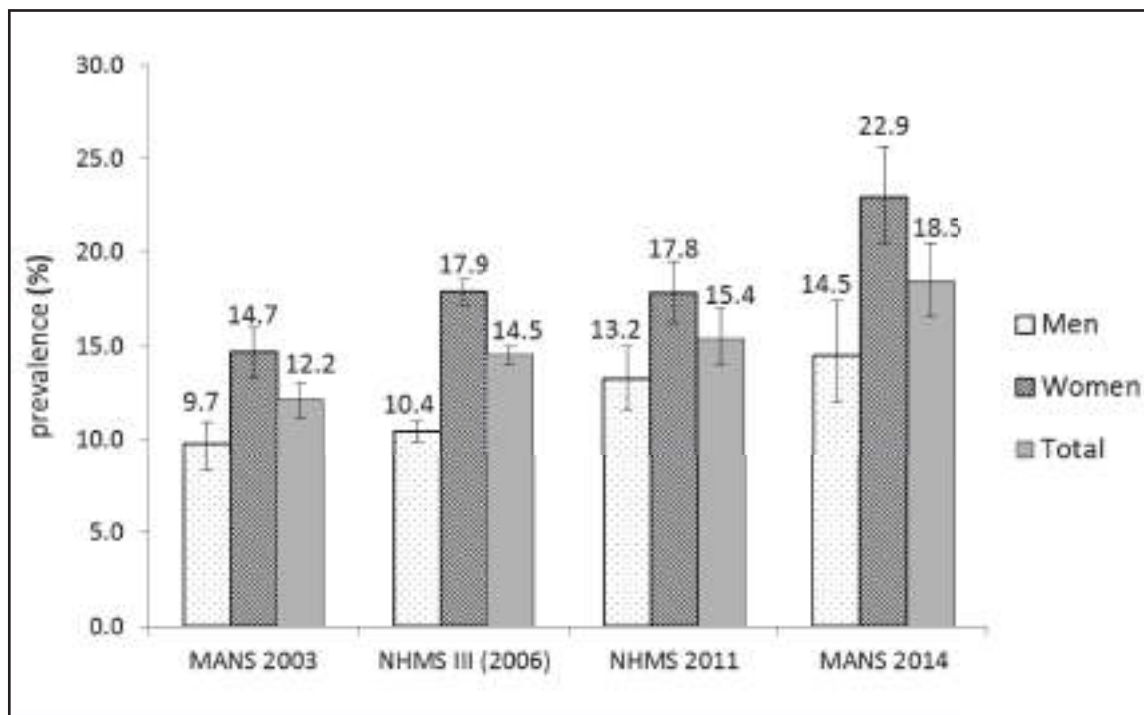
Figure 2. Prevalence of obesity* (95% confidence interval) among Malaysian adults aged 18-59 years by sex
* Obesity (BMI: ≥ 30 kg/m²)
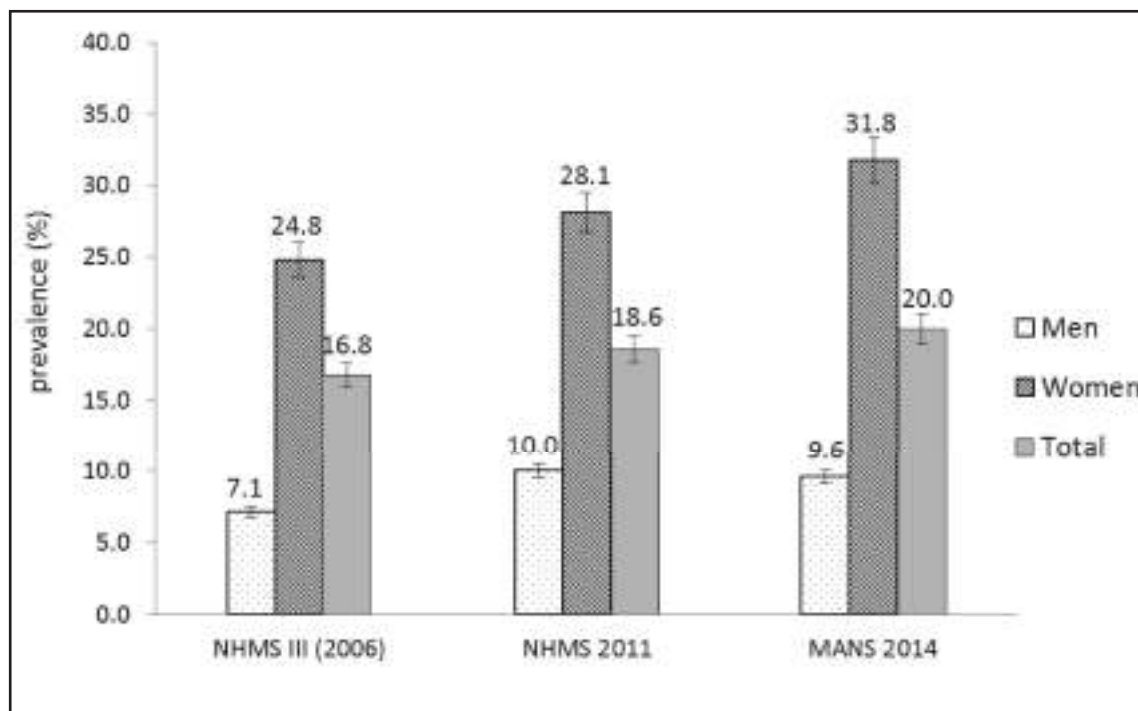
Figure 3. Prevalence of abdominal obesity* (95% confidence interval) among Malaysian adults aged 18--59 years by sex
* abdominal obesity (WC WHO 1998 : Men 102cm/ Women 88cm)

9.3   Conclusion

The prevalence of obesity was notably higher among women, age 30-39 years old, Indians, and those with a higher educational level and income. There was an increasing trend in prevalence of overweight and obesity between the years 2003 and 2014. Abdominal obesity was more prevalent among women, older age group, Indians and those with lower educational level.

9.4 Recommendations

Obesity is a multifactorial adverse health condition resulting from the interactions of lifestyle, genetic and environmental factors. The prevention, management and successful treatment of obesity require a multidisciplinary approach, including dietary modification, nutrition education, behaviour modification, and exercise. Although reduced calorie intake and increased physical activity remain the main strategies to combat the problem of obesity, these strategies may not be to prevent obesity at the population level. A collaborative and concerted effort among the health professionals, local authorities, food industries, professional organizations, NGOs and the communities is urgently needed to prevent the rising trend in obesity. Recommended strategies for obesity prevention include the following:

1. Limiting unhealthy food (high in simple sugar and saturated fat) and increasing the consumption of fruits and vegetables in a daily diet.

2. Promoting physical activity by building more public sports facilities. Improving the environment to encourage a physically active lifestyle, such as providing more gated walking paths, bicycle lanes and improving access to public transportation.

3. Government policies to support the strategies for obesity prevention

    a. Providing financial incentives for food manufacturers to produce food products with low sugar and fat content
    b. Sales tax exemption on purchase of sports equipment
    c. Providing incentives for local farms to increase production of fresh fruits and vegetables and facilitate its distribution to consumers at affordable prices
    d. Restrict accessibility of less healthy foods and sugary beverages through limiting the number of fast food outlets in public venues (public transport stations, vicinity of higher learning institutions) and reduce their operating hours
    e. Limiting the advertisements of less healthy foods and beverages in mass media

4. Empowering the individuals and communities by providing knowledge and skills to maintain ideal body weight and to facilitate weight loss (goal setting, monitoring of calorie intake and physical activity).

5. Childhood obesity is a predictor for adult obesity. Increasing awareness of weight related diseases and providing nutritional education in early age of life are important measures to reduce the risk of obesity in adulthood.

Definition of Variables : Nutritional Status

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
BMI WHO 1998 Classification	BMI_WHO1998		The classification of body weight in adults according to BMI (modified from WHO, 1998): <16.0 = CED Class III 16.0-16.9 = CED Class II 17.0-18.4 = CED Class I 18.5-24.9 = Normal 25.0-29.9 = Preobese 30.0-34.9 = Obesity Class I 35.0-39.0 = Obesity Class II ≥40.0 = Obesity Class III	RECODE BMI (Lowest thru 15.99=1) (16.00 thru 16.99=2) (17.00 thru 18.49=3) (18.50 thru 24.99=4) (25.00 thru 29.99=5) (30.00 thru 34.99=6) (35.00 thru 39.99=7) (40.00 thru Highest=8) INTO BMI_WHO1998. EXECUTE.
WC WHO 1998 Classification	WC_WHO1998		The classification of abdominal obesity in adults according to WHO 1998: Men: wc >102cm Women: wc >88cm	DO IF (sex = 1). RECODE valid_wc (102.01 thru Highest=1) (Lowest thru 102.00=0) INTO WC_WHO1998. END IF. EXECUTE. DO IF (sex = 2). RECODE valid_wc (88.01 thru Highest=1) (Lowest thru 88.00=0) INTO WC_WHO1998. END IF. EXECUTE.

Table 9.1: Mean weight by socio-demographic and nutritional characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean Weight (kg)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Mean Weight (kg)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Mean Weight (kg)	95% CI Lower	95% CI Upper
Malaysia	2914	19126692	66.48	65.69	67.27	1365	10120954	69.95	68.77	71.12	1549	9005738	62.59	61.75	63.43
Zone															
Peninsular Malaysia	1787	15012054	67.27	66.30	68.23	841	7934930	71.04	69.59	72.48	946	7077124	63.04	62.04	64.03
East Malaysia	1127	4114637	63.63	62.65	64.61	524	2186024	65.99	64.58	67.40	603	1928614	60.95	59.60	62.31
Strata															
Urban	1546	13276438	67.04	65.97	68.11	705	6891719	70.97	69.34	72.60	841	6384720	62.79	61.71	63.87
Rural	1368	5850253	65.23	64.34	66.12	660	3229235	67.76	66.55	68.98	708	2621018	62.10	60.94	63.27
Sex															
Men	1365	10120954	69.95	68.77	71.12										
Women	1549	9005738	62.59	61.75	63.43										
Age Group															
18-19	128	1121118	59.23	56.30	62.17	84	867014	60.60	57.16	64.04	44	254104	54.57	49.58	59.55
20-29	662	5183950	65.17	63.43	66.91	321	2754735	69.66	66.87	72.46	341	2429214	60.07	58.31	61.83
30-39	805	4713069	68.11	66.55	69.66	372	2371043	72.31	70.09	74.52	433	2342025	63.85	62.21	65.49
40-49	746	4553240	67.69	66.54	68.84	347	2354603	71.09	69.47	72.70	399	2198637	64.06	62.52	65.60
50-59	573	3555315	66.99	65.42	68.55	241	1773559	70.29	67.84	72.73	332	1781756	63.70	61.94	65.46
Ethnic Group															
Malay	1434	10333408	67.49	66.46	68.53	661	5369329	70.62	69.05	72.19	773	4964079	64.12	62.94	65.29
Chinese	497	3675653	65.93	64.26	67.60	244	1982596	71.44	69.25	73.63	253	1693057	59.48	57.89	61.06
Indian	129	1319400	72.14	68.60	75.68	66	752777	77.22	72.33	82.11	63	566623	65.38	61.60	69.16
Bumiputera Sabah	366	1468287	63.09	61.62	64.55	177	832870	65.66	63.70	67.62	189	635417	59.71	57.32	62.10
Bumiputera Sarawak	293	1054246	62.85	61.16	64.53	124	489198	63.40	60.87	65.94	169	565047	62.36	59.72	65.01
Others	178	1175528	60.75	58.71	62.80	86	642661	62.14	58.80	65.48	92	532867	59.08	56.50	61.67
Other Bumis	17	100170	63.24	55.34	71.13	7	51523	64.79	54.06	75.52	10	48647	61.59	49.91	73.27
Marital status															
Never married	725	5461926	63.74	62.25	65.23	447	3507925	66.56	64.39	68.74	278	1954001	58.67	56.72	60.62
Married/Cohabiting	1998	12782283	67.68	66.77	68.59	869	6351689	71.79	70.38	73.21	1129	6430594	63.62	62.67	64.58
Divorced/Separated	127	631075	67.82	64.84	70.79	45	239022	71.97	66.79	77.16	82	392053	65.28	61.80	68.76
Widow	61	233105	62.76	59.74	65.79	2	5317	70.65	63.05	78.26	59	227788	62.58	59.52	65.64
Others	1	9192	49.80	49.80	49.80	1	9192	49.80	49.80	49.80					

Table 9.1: Mean weight by socio-demographic and nutritional characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean Weight (kg)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean Weight (kg)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean Weight (kg)	95% CI Lower	Upper
Educational Level															
Non-formal	135	508167	60.51	58.31	62.72	34	159039	59.75	57.49	62.01	101	349129	60.86	57.96	63.75
Primary	603	3507858	64.35	62.84	65.85	275	1779285	65.81	63.47	68.16	328	1728574	62.84	61.15	64.52
Secondary	1422	9545544	66.31	65.25	67.37	701	5160874	69.05	67.50	70.60	721	4384670	63.08	61.92	64.23
Tertiary	727	5435898	68.84	67.22	70.46	340	2950856	74.71	72.33	77.10	387	2485042	61.86	60.30	63.42
Others	17	83559	60.99	56.97	65.01	9	46953	60.71	56.18	65.25	8	36606	61.34	54.25	68.43
Work status															
Government/ Semi-government	363	2190170	70.35	67.87	72.83	169	1151446	76.35	72.99	79.70	194	1038724	63.70	61.56	65.85
Private	1057	8006781	66.12	64.96	67.28	617	4969268	69.65	68.00	71.29	440	3037513	60.35	59.01	61.70
Self-employed	816	4807500	67.13	65.78	68.48	456	2923972	69.41	67.57	71.25	360	1883528	63.59	61.86	65.33
Unpaid workers	8	50222	63.29	57.40	69.17	5	25143	64.66	55.06	74.25	3	25079	61.91	55.07	68.75
Not working	555	3081229	64.35	62.61	66.08	58	410891	63.37	56.20	70.54	497	2670339	64.50	63.01	65.99
Retired	28	207710	68.25	61.99	74.50	17	144496	69.41	60.09	78.73	11	63214	65.59	63.26	67.91
Students	60	608160	62.31	58.06	66.55	29	376678	65.63	60.37	70.90	31	231483	56.89	52.03	61.74
Income Group															
Less than RM1500	1370	7813748	63.70	62.53	64.88	623	4126187	65.88	64.00	67.77	747	3687562	61.27	60.19	62.35
RM1500 – RM3500	864	6074269	67.93	66.63	69.22	419	3256690	71.57	69.61	73.53	445	2817579	63.72	62.11	65.33
More than RM 3500	656	5036892	68.90	67.34	70.46	312	2622817	74.35	72.34	76.37	344	2414075	62.98	61.26	64.71
Nutritional Status															
CED Class III	17	119440	41.25	38.19	44.32	5	70064	44.59	43.11	46.06	12	49375	36.52	33.27	39.77
CED Class II	30	300268	44.60	42.54	46.65	15	193407	46.89	45.51	48.27	15	106861	40.46	37.81	43.10
CED Class I	114	770292	46.73	45.73	47.74	67	509100	48.86	47.90	49.81	47	261192	42.60	41.48	43.72
Normal	1250	8178634	57.43	56.90	57.96	643	4489014	60.96	60.25	61.67	607	3689620	53.13	52.56	53.70
Pre-obese	951	6178697	71.06	70.24	71.88	440	3359401	76.25	75.28	77.22	511	2819296	64.88	64.30	65.47
Obesity Class I	398	2615437	82.49	81.02	83.96	146	1120965	90.83	88.92	92.75	252	1494472	76.24	75.29	77.19
Obesity Class II	114	703371	94.61	90.98	98.23	31	262582	106.42	102.27	110.56	83	440790	87.57	85.91	89.24
Obesity Class III	31	201779	109.51	103.80	115.21	10	76182	113.18	102.18	124.17	21	125597	107.28	101.36	113.20
Abdominal Obesity															
No	2252	15294152	62.90	62.16	63.64	1229	9138049	67.09	66.08	68.10	1023	6156102	56.67	55.95	57.39
Yes	654	3788293	80.91	79.09	82.72	131	945726	97.44	94.49	100.40	523	2842567	75.40	74.06	76.75

Table 9.2: Mean height by socio-demographic and nutritional characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean Height (cm)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean Height (cm)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean Height (cm)	95% CI Lower	Upper
Malaysia	2923	19175384	161.11	160.63	161.58	1364	10110012	167.03	166.57	167.48	1559	9065372	154.50	154.12	154.88
Zone															
Peninsular Malaysia	1794	15055636	161.71	161.13	162.30	840	7923988	167.78	167.24	168.33	954	7131648	154.96	154.52	155.41
East Malaysia	1129	4119748	158.89	158.22	159.55	524	2186024	164.28	163.63	164.94	605	1933724	152.79	152.19	153.38
Strata															
Urban	1547	13293301	161.71	161.08	162.35	704	6880777	167.85	167.25	168.45	843	6412525	155.13	154.65	155.61
Rural	1376	5882082	159.73	159.12	160.33	660	3229235	165.27	164.68	165.86	716	2652847	152.98	152.44	153.52
Sex															
Men	1364	10110012	167.03	166.57	167.48										
Women	1559	9065372	154.50	154.12	154.88										
Age Group															
18-19	128	1121118	163.95	162.41	165.48	84	867014	166.86	165.72	168.00	44	254104	154.00	151.65	156.34
20-29	667	5220309	162.24	161.28	163.19	321	2754735	168.55	167.55	169.56	346	2465574	155.18	154.45	155.90
30-39	810	4736343	161.65	160.79	162.51	372	2371043	167.78	166.84	168.73	438	2365300	155.50	154.75	156.26
40-49	745	4542298	160.04	159.10	160.99	346	2343661	165.89	164.82	166.96	399	2198637	153.81	153.10	154.51
50-59	573	3555315	159.18	158.24	160.12	241	1773559	165.23	164.19	166.27	332	1781756	153.16	152.35	153.98
Ethnic Group															
Malay	1438	10350584	160.84	160.22	161.46	661	5369329	167.08	166.51	167.66	777	4981255	154.10	153.58	154.62
Chinese	498	3674254	163.79	162.79	164.79	243	1971654	169.22	168.33	170.10	255	1702599	157.51	156.66	158.35
Indian	131	1347206	163.66	161.57	165.76	66	752777	170.16	168.48	171.83	65	594428	155.44	153.95	156.94
Bumiputera Sabah	367	1470842	159.06	158.10	160.02	177	832870	163.99	163.00	164.97	190	637972	152.62	151.66	153.58
Bumiputera Sarawak	293	1054246	156.21	155.11	157.30	124	489198	162.00	160.68	163.31	169	565047	151.19	150.18	152.20
Others	179	1178083	159.48	157.77	161.18	86	642661	164.51	162.49	166.54	93	535422	153.44	151.96	154.91
Other Bumis	17	100170	156.83	153.20	160.45	7	51523	160.01	156.73	163.29	10	48647	153.45	147.65	159.25
Marital status															
Never married	727	5471468	163.28	162.46	164.10	447	3507925	167.61	166.80	168.42	280	1963543	155.55	154.75	156.34
Married/Cohabiting	2005	12821432	160.39	159.82	160.96	868	6340747	166.73	166.12	167.34	1137	6480686	154.19	153.73	154.65
Divorced/Separated	127	631075	159.27	157.21	161.34	45	239022	166.47	164.19	168.75	82	392053	154.88	153.00	156.76
Widow	61	233105	154.11	152.53	155.69	2	5317	169.92	162.99	176.85	59	227788	153.74	152.22	155.25
Others	1	9192	172.30	172.30	172.30	1	9192	172.30	172.30	172.30					
Educational Level															
Non-formal	135	508167	153.63	151.92	155.34	34	159039	161.35	159.90	162.79	101	349129	150.12	148.75	151.48
Primary	605	3512969	158.50	157.46	159.55	275	1779285	164.47	163.40	165.55	330	1733684	152.38	151.65	153.11
Secondary	1428	9592434	161.32	160.70	161.94	701	5160874	167.09	166.43	167.75	727	4431559	154.60	154.13	155.08
Tertiary	728	5432590	163.08	162.26	163.90	339	2939913	168.80	167.93	169.67	389	2492676	156.34	155.57	157.10
Others	17	83559	162.82	159.33	166.31	9	46953	166.35	163.70	168.99	8	36606	158.30	153.76	162.85

Table 9.2: Mean height by socio-demographic and nutritional characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean Height (cm)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean Height (cm)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean Height (cm)	95% CI Lower	Upper
Work status															
Government/ Semi-government	365	2197804	161.20	159.91	162.49	169	1151446	167.46	166.14	168.77	196	1046358	154.31	153.47	155.15
Private	1057	8006781	162.67	161.91	163.44	617	4969268	167.18	166.45	167.90	440	3037513	155.31	154.65	155.96
Self-employed	817	4818912	161.74	160.94	162.54	455	2913030	166.61	165.84	167.38	362	1905882	154.30	153.41	155.19
Unpaid workers	8	50222	164.12	159.17	169.08	5	25143	168.97	165.18	172.76	3	25079	159.26	156.18	162.35
Not working	561	3110876	155.15	154.21	156.08	58	410891	165.17	162.45	167.88	503	2699985	153.62	152.96	154.29
Retired	28	207710	164.04	161.83	166.25	17	144496	166.45	164.53	168.36	11	63214	158.53	155.41	161.66
Students	60	608160	163.17	160.86	165.49	29	376678	168.14	166.65	169.63	31	231483	155.09	153.05	157.12
Income Group															
Less than RM1500	1378	7865749	159.66	159.02	160.30	623	4126187	165.46	164.76	166.16	755	3739562	153.26	152.70	153.82
RM1500 – RM3500	863	6063327	161.71	161.00	162.43	418	3245748	167.82	167.16	168.49	445	2817579	154.68	153.95	155.41
More than RM 3500	658	5044526	162.57	161.58	163.56	312	2622817	168.46	167.42	169.49	346	2421709	156.20	155.51	156.89
Nutritional Status															
CED Class III	17	119440	164.04	158.30	169.77	5	70064	169.74	165.62	173.85	12	49375	155.95	149.96	161.94
CED Class II	30	300268	164.19	160.05	168.33	15	193407	168.69	165.76	171.61	15	106861	156.06	151.24	160.87
CED Class I	114	770292	161.94	160.23	163.66	67	509100	165.70	164.15	167.26	47	261192	154.62	152.88	156.35
Normal	1250	8178634	161.22	160.64	161.80	643	4489014	166.55	165.91	167.20	607	3689620	154.74	154.17	155.31
Pre-obese	951	6178697	161.22	160.41	162.02	440	3359401	167.01	166.11	167.91	511	2819296	154.31	153.67	154.95
Obesity Class I	398	2615437	160.56	159.21	161.91	146	1120965	168.82	167.42	170.22	252	1494472	154.37	153.45	155.28
Obesity Class II	114	703371	159.22	156.18	162.25	31	262582	168.98	165.59	172.36	83	440790	153.40	152.20	154.60
Obesity Class III	31	201779	158.81	155.05	162.58	10	76182	165.06	157.68	172.43	21	125597	155.03	152.74	157.31
Abdominal Obesity															
No	2252	15287026	161.74	161.23	162.24	1228	9127107	166.68	166.21	167.14	1024	6159919	154.42	153.94	154.90
Yes	654	3788293	158.57	157.51	159.64	131	945726	170.35	168.77	171.94	523	2842567	154.65	154.09	155.22

Table 9.3: Mean waist circumference (WC) by socio-demographic and nutritional characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean WC (cm)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Mean WC (cm)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Mean WC (cm)	95% CI Lower	95% CI Upper
Malaysia	**2923**	**19180713**	**84.53**	**83.84**	**85.23**	**1369**	**10135607**	**86.32**	**85.34**	**87.29**	**1554**	**9045106**	**82.53**	**81.64**	**83.42**
Zone															
Peninsular Malaysia	1793	15047204	84.45	83.60	85.30	841	7929459	86.73	85.53	87.92	952	7117745	81.91	80.84	82.97
East Malaysia	1130	4133509	84.84	83.92	85.76	528	2206148	84.84	83.60	86.09	602	1927361	84.83	83.40	86.27
Strata															
Urban	1550	13297105	84.82	83.89	85.75	708	6897180	87.04	85.71	88.38	842	6399925	82.42	81.26	83.58
Rural	1373	5883608	83.89	83.05	84.72	661	3238427	84.77	83.63	85.92	712	2645181	82.80	81.64	83.96
Sex															
Men	1369	10135607	86.32	85.34	87.29										
Women	1554	9045106	82.53	81.64	83.42										
Age Group															
18-19	128	1115522	75.19	72.52	77.85	83	853783	75.97	72.69	79.25	45	261738	72.62	69.10	76.14
20-29	667	5212163	81.43	79.98	82.87	324	2771497	83.71	81.55	85.88	343	2440665	78.83	77.00	80.65
30-39	805	4708859	85.32	84.13	86.51	372	2365572	87.93	86.32	89.55	433	2343287	82.68	81.24	84.13
40-49	746	4563849	86.72	85.57	87.86	346	2350097	88.87	87.42	90.32	400	2213752	84.43	82.90	85.95
50-59	577	3580321	88.14	86.72	89.56	244	1794657	89.79	87.78	91.80	333	1785664	86.49	84.61	88.38
Ethnic Group															
Malay	1443	10398855	84.63	83.69	85.56	665	5397972	86.27	84.87	87.68	778	5000883	82.85	81.59	84.12
Chinese	497	3662458	83.15	81.70	84.59	242	1961677	87.23	85.44	89.02	255	1700781	78.43	76.82	80.05
Indian	129	1319400	90.58	87.94	93.21	66	752777	93.61	89.75	97.48	63	566623	86.55	83.16	89.93
Bumiputera Sabah	368	1476155	84.32	82.72	85.91	179	840739	84.56	82.29	86.82	189	635417	84.00	81.66	86.34
Bumiputera Sarawak	292	1055213	85.45	83.85	87.05	125	495326	83.43	81.32	85.54	167	559887	87.24	84.62	89.85
Others	178	1170714	80.87	78.89	82.85	86	637847	79.90	77.10	82.70	92	532867	82.02	79.42	84.62
Other Bumis	16	97917	81.77	73.22	90.32	6	49270	85.38	73.11	97.65	10	48647	78.11	67.88	88.35
Marital status															
Never married	729	5463835	79.67	78.35	80.98	448	3494566	81.12	79.28	82.97	281	1969268	77.08	75.13	79.03
Married/Cohabiting	2003	12833388	86.43	85.65	87.20	873	6381954	89.06	87.97	90.14	1130	6451434	83.82	82.87	84.78
Divorced/Separated	127	632083	87.71	84.66	90.75	44	236769	90.03	85.71	94.35	83	395314	86.32	82.23	90.40
Widow	61	233105	86.79	83.55	90.04	2	5317	93.96	87.88	100.04	59	227788	86.62	83.32	89.93
Others	1	9192	71.00	71.00	71.00	1	9192	71.00	71.00	71.00					

Table 9.3: Mean waist circumference (WC) by socio-demographic and nutritional characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean WC (cm)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Mean WC (cm)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Mean WC (cm)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	134	505914	85.86	83.68	88.04	33	156786	80.80	77.77	83.82	101	349129	88.13	85.56	90.70
Primary	605	3526241	84.68	83.33	86.02	277	1797011	84.50	82.51	86.49	328	1729229	84.87	83.29	86.44
Secondary	1427	9567479	84.51	83.56	85.47	703	5155547	85.82	84.49	87.14	724	4411931	82.99	81.78	84.20
Tertiary	729	5447349	84.45	83.06	85.85	340	2950856	88.63	86.70	90.57	389	2496493	79.51	78.04	80.98
Others	18	88065	81.23	71.04	91.42	10	51459	85.57	69.01	102.12	8	36606	75.13	69.72	80.55
Work status															
Government/ Semi-government	365	2205147	86.77	84.82	88.72	171	1160697	91.21	88.79	93.63	194	1044450	81.84	79.65	84.03
Private	1060	8027755	83.74	82.68	84.80	618	4982608	86.11	84.69	87.54	442	3045147	79.86	78.54	81.18
Self-employed	818	4828086	84.97	83.78	86.17	457	2929443	86.28	84.83	87.73	361	1898643	82.95	81.15	84.75
Unpaid workers	8	50222	75.61	67.85	83.38	5	25143	69.47	59.71	79.24	3	25079	81.77	76.92	86.62
Not working	556	3089060	85.24	83.63	86.85	57	407827	79.31	73.55	85.07	499	2681233	86.14	84.74	87.55
Retired	29	209271	88.40	82.26	94.54	18	146058	88.47	80.23	96.71	11	63214	88.24	82.47	94.00
Students	60	596253	78.31	74.16	82.46	29	364771	81.32	75.64	87.01	31	231483	73.56	69.80	77.32
Income Group															
Less than RM1500	1370	7801747	82.89	81.81	83.96	621	4102169	83.18	81.48	84.88	749	3699578	82.57	81.51	83.62
RM1500 – RM3500	871	6126531	85.69	84.56	86.82	424	3289233	87.50	85.96	89.05	447	2837298	83.58	82.02	85.14
More than RM 3500	658	5050654	85.53	84.09	86.97	313	2628945	89.59	88.00	91.18	345	2421709	81.12	79.34	82.89
Nutritional Status															
CED Class III	17	119440	66.13	62.06	70.21	5	70064	67.54	61.94	73.14	12	49375	64.13	59.98	68.29
CED Class II	30	300268	64.08	61.39	66.78	15	193407	65.22	63.20	67.24	15	106861	62.02	56.44	67.59
CED Class I	113	767228	66.77	65.59	67.95	66	506036	68.02	66.62	69.42	47	261192	64.34	62.59	66.08
Normal	1248	8171874	76.79	76.16	77.42	641	4482255	78.95	78.17	79.74	607	3689620	74.16	73.30	75.01
Pre-obese	947	6146878	89.30	88.54	90.06	438	3332046	92.39	91.44	93.33	509	2814832	85.64	84.78	86.51
Obesity Class I	397	2612832	96.85	95.88	97.83	146	1120965	101.28	100.11	102.45	251	1491867	93.53	92.34	94.71
Obesity Class II	114	703371	106.06	103.16	108.96	31	262582	115.27	113.34	117.20	83	440790	100.57	98.31	102.84
Obesity Class III	31	201779	112.89	106.66	119.11	10	76182	114.81	101.46	128.16	21	125597	111.72	105.94	117.51
Abdominal Obesity															
No	663	3841468	100.46	99.39	101.54	1233	9165967	83.73	82.88	84.58	1027	6173278	75.81	75.20	76.42
Yes	2260	15339245	80.54	79.91	81.18	136	969640	110.77	108.98	112.57	527	2871828	96.98	96.02	97.95

Table 9.4: Mean BMI by socio-demographic and nutritional characteristics

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean BMI (kg/m²)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean BMI (kg/m²)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean BMI (kg/m²)	95% CI Lower	Upper
Malaysia	2913	19115749	25.57	25.29	25.85	1364	10110012	24.99	24.61	25.38	1549	9005738	26.21	25.86	26.56
Zone															
Peninsular Malaysia	1786	15001112	25.68	25.34	26.02	840	7923988	25.17	24.69	25.64	946	7077124	26.25	25.83	26.67
East Malaysia	1127	4114637	25.16	24.84	25.48	524	2186024	24.36	23.93	24.79	603	1928614	26.06	25.52	26.60
Strata															
Urban	1545	13265496	25.57	25.19	25.95	704	6880777	25.09	24.56	25.63	841	6384720	26.09	25.63	26.54
Rural	1368	5850253	25.56	25.27	25.85	660	3229235	24.78	24.41	25.15	708	2621018	26.52	26.06	26.97
Sex															
Men	1364	10110012	24.99	24.61	25.38										
Women	1549	9005738	26.21	25.86	26.56										
Age Group															
18-19	128	1121118	22.02	20.97	23.07	84	867014	21.75	20.52	22.97	44	254104	22.95	21.08	24.82
20-29	662	5183950	24.66	24.09	25.23	321	2754735	24.43	23.56	25.30	341	2429214	24.92	24.20	25.64
30-39	805	4713069	26.00	25.52	26.49	372	2371043	25.62	24.96	26.27	433	2342025	26.40	25.73	27.07
40-49	745	4542298	26.40	25.98	26.82	346	2343661	25.77	25.26	26.27	399	2198637	27.07	26.43	27.72
50-59	573	3555315	26.37	25.84	26.90	241	1773559	25.61	24.90	26.32	332	1781756	27.13	26.40	27.86
Ethnic Group															
Malay	1434	10333408	26.07	25.67	26.46	661	5369329	25.23	24.67	25.79	773	4964079	26.97	26.50	27.44
Chinese	496	3664711	24.46	23.98	24.95	243	1971654	24.89	24.20	25.57	253	1693057	23.97	23.32	24.62
Indian	129	1319400	26.79	25.86	27.72	66	752777	26.55	25.15	27.96	63	566623	27.11	25.59	28.63
Bumiputera Sabah	366	1468287	24.92	24.41	25.44	177	832870	24.39	23.73	25.06	189	635417	25.62	24.64	26.60
Bumiputera Sarawak	293	1054246	25.77	25.10	26.44	124	489198	24.10	23.30	24.90	169	565047	27.21	26.16	28.26
Others	178	1175528	23.89	22.99	24.79	86	642661	22.95	21.73	24.17	92	532867	25.02	24.00	26.05
Other Bumis	17	100170	25.44	23.17	27.70	7	51523	25.23	21.86	28.59	10	48647	25.66	22.23	29.09
Marital status															
Never married	725	5461926	23.84	23.35	24.33	447	3507925	23.62	22.94	24.30	278	1954001	24.23	23.44	25.03
Married/Cohabiting	1997	12771341	26.24	25.93	26.55	868	6340747	25.74	25.30	26.17	1129	6430594	26.74	26.34	27.14
Divorced/Separated	127	631075	26.78	25.59	27.96	45	239022	25.92	24.31	27.52	82	392053	27.30	25.69	28.91
Widow	61	233105	26.46	25.22	27.69	2	5317	24.65	20.08	29.21	59	227788	26.50	25.24	27.76
Others	1	9192	16.77	16.77	16.77	1	9192	16.77	16.77	16.77					

Table 9.4: Mean BMI by socio-demographic and nutritional characteristics (Cont.)

Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Mean BMI (kg/m²)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean BMI (kg/m²)	95% CI Lower	Upper	Unweighted Count	Estimated population	Mean BMI (kg/m²)	95% CI Lower	Upper
Educational Level															
Non-formal	135	508167	25.70	24.82	26.59	34	159039	22.98	22.11	23.85	101	349129	26.94	25.85	28.04
Primary	603	3507858	25.65	25.06	26.24	275	1779285	24.27	23.50	25.03	328	1728574	27.07	26.34	27.80
Secondary	1422	9545544	25.45	25.07	25.83	701	5160874	24.68	24.15	25.20	721	4384670	26.37	25.90	26.83
Tertiary	726	5424956	25.75	25.24	26.27	339	2939913	26.15	25.39	26.91	387	2485042	25.29	24.62	25.95
Others	17	83559	23.07	21.27	24.86	9	46953	21.84	20.67	23.02	8	36606	24.64	21.21	28.07
Work status															
Government/ Semi-government	363	2190170	26.95	26.27	27.64	169	1151446	27.17	26.22	28.13	194	1038724	26.71	25.81	27.60
Private	1057	8006781	24.90	24.53	25.28	617	4969268	24.85	24.34	25.37	440	3037513	24.99	24.45	25.52
Self-employed	815	4798558	25.59	25.16	26.03	455	2913030	24.89	24.35	25.43	360	1883528	26.69	26.00	27.37
Unpaid workers	8	50222	23.44	21.55	25.33	5	25143	22.52	19.84	25.21	3	25079	24.35	22.62	26.09
Not working	555	3081229	26.80	26.08	27.52	58	410891	23.20	20.74	25.66	497	2670339	27.36	26.73	27.98
Retired	28	207710	25.33	23.02	27.65	17	144496	25.01	21.83	28.18	11	63214	26.08	25.24	26.93
Students	60	608160	23.34	22.00	24.68	29	376678	23.19	21.35	25.02	31	231483	23.59	21.68	25.50
Income Group															
Less than RM1500	1370	7813748	24.99	24.58	25.41	623	4126187	24.01	23.41	24.62	747	3687562	26.09	25.66	26.51
RM1500 – RM3500	863	6063327	25.93	25.45	26.40	418	3245748	25.35	24.71	25.99	445	2817579	26.59	25.95	27.24
More than RM 3500	656	5038892	25.98	25.49	26.47	312	2622817	26.12	25.50	26.74	344	2414075	25.83	25.11	26.55
Nutritional Status															
CED Class III	17	119440	15.26	14.87	15.66	5	70064	15.48	15.16	15.79	12	49375	14.96	14.19	15.73
CED Class II	30	300268	16.50	16.35	16.66	15	193407	16.47	16.24	16.70	15	106861	16.56	16.47	16.66
CED Class I	114	770292	17.78	17.70	17.87	67	509100	17.77	17.67	17.88	47	261192	17.80	17.64	17.95
Normal	1250	8178634	22.04	21.90	22.17	643	4489014	21.93	21.74	22.12	607	3689620	22.16	21.97	22.36
Pre-obese	951	6178697	27.25	27.13	27.38	440	3359401	27.28	27.11	27.46	511	2819296	27.22	27.06	27.38
Obesity Class I	398	2615437	31.89	31.72	32.06	146	1120965	31.79	31.53	32.06	252	1494472	31.96	31.75	32.17
Obesity Class II	114	703371	37.19	36.84	37.55	31	262582	37.24	36.55	37.93	83	440790	37.17	36.78	37.56
Obesity Class III	31	201779	43.32	42.00	44.64	10	76182	41.32	40.50	42.14	21	125597	44.54	42.76	46.32
Abdominal Obesity															
No	2251	15283210	23.97	23.72	24.22	1228	9127107	24.11	23.76	24.45	1023	6156102	23.76	23.47	24.06
Yes	654	3788293	32.02	31.57	32.47	131	945726	33.56	32.85	34.28	523	2842567	31.51	30.99	32.02

Table 9.5: Prevalence of CED Class III by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone															
Peninsular Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strata															
Urban	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sex															
Men	-	-	-	-	-	-	-	-	-	-					
Women	-	-	-	-	-	-	-	-	-	-					
Age Group															
18-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethnic Group															
Malay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chinese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital status															
Never married	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Married/ Cohabiting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Divorced/ Separated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.6: Prevalence of CED Class II by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zone															
Peninsular Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
East Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strata															
Urban	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sex															
Men	-	-	-	-	-										
Women	-	-	-	-	-										
Age Group															
18-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethnic Group															
Malay	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chinese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital status															
Never married	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Married/Cohabiting	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Divorced/Separated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Educational Level															
Non-formal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Secondary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tertiary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.6: Prevalence of CED Class II by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Work status															
Government/ Semi-government	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Self-employed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unpaid workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not working	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM1500 – RM3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
More than RM 3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.7: Prevalence of CED Class I by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	114	770292	4.04	3.15	5.17	67	509100	5.05	3.67	6.92	47	261192	2.91	2.03	4.14
Zone															
Peninsular Malaysia	67	586549	3.92	2.89	5.30	41	391360	4.95	3.36	7.24	26	195189	2.77	1.78	4.28
East Malaysia	47	183743	4.48	3.10	6.43	-	-	-	-	-	-	-	-	-	-
Strata															
Urban	58	508328	3.84	2.72	5.40	30	320385	4.67	2.93	7.36	28	187943	2.95	1.87	4.63
Rural	56	261964	4.49	3.34	6.02	37	188716	5.87	4.13	8.28	-	-	-	-	-
Sex															
Men	67	509100	5.05	3.67	6.92										
Women	47	261192	2.91	2.03	4.14										
Age Group															
18-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	47	286611	5.54	3.79	8.03	29	188037	6.84	4.18	11.01	-	-	-	-	-
30-39	25	179868	3.83	2.39	6.07	-	-	-	-	-	-	-	-	-	-
40-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethnic Group															
Malay	57	391641	3.80	2.67	5.39	32	251938	4.70	2.97	7.35	25	139703	2.82	1.80	4.41
Chinese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital status															
Never married	65	437095	8.02	5.80	10.99	41	310464	8.87	5.88	13.18	24	126631	6.48	3.99	10.37
Married/Cohabiting	48	331919	2.61	1.81	3.74	26	198636	3.14	1.93	5.09	-	-	-	-	-
Divorced/Separated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.7: Prevalence of CED Class I by socio-demographic characteristics (Cont)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Secondary	60	471567	4.94	3.61	6.73	37	304064	5.90	3.93	8.77	23	167503	3.82	2.35	6.16
Tertiary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Work status															
Government/ Semi-government	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private	50	352745	4.41	3.21	6.04	32	230039	4.64	3.12	6.85	-	-	-	-	-
Self-employed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unpaid workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not working	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	67	358908	4.60	3.29	6.40	43	263430	6.41	4.30	9.44	24	95479	2.59	1.59	4.19
RM1500 – RM3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
More than RM 3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.8: Prevalence of normal by socio-demographic characteristics

Socio-demographic Characteristics	Total Unweighted Count	Total Estimated population	Total Prevalence (%)	Total 95% CI Lower	Total 95% CI Upper	Men Unweighted Count	Men Estimated population	Men Prevalence (%)	Men 95% CI Lower	Men 95% CI Upper	Women Unweighted Count	Women Estimated population	Women Prevalence (%)	Women 95% CI Lower	Women 95% CI Upper
Malaysia	1250	8178634	42.89	40.51	45.30	643	4489014	44.53	41.19	47.93	607	3689620	41.05	38.04	44.14
Zone															
Peninsular Malaysia	749	6268303	41.88	39.01	44.81	369	3321389	42.00	37.98	46.13	380	2946915	41.75	38.14	45.45
East Malaysia	501	1910330	46.58	43.23	49.97	274	1167625	53.75	48.98	58.46	227	742705	38.51	33.78	43.47
Strata															
Urban	662	5594690	42.28	39.18	45.44	312	2890534	42.09	37.63	46.70	350	2704156	42.48	38.59	46.45
Rural	588	2583944	44.28	41.05	47.57	331	1598480	49.73	45.65	53.83	257	985463	37.60	33.37	42.02
Sex															
Men	643	4489014	44.53	41.19	47.93										
Women	607	3689620	41.05	38.04	44.14										
Age Group															
18 –19	70	592618	52.97	40.84	64.75	49	452033	52.27	38.12	66.07	21	140585	55.33	37.27	72.08
20-29	329	2578438	49.81	44.79	54.82	160	1325827	48.25	41.23	55.34	169	1252611	51.56	44.62	58.44
30-39	342	1952957	41.53	36.72	46.52	171	1024757	43.42	36.76	50.32	171	928200	39.63	33.86	45.71
40-49	296	1808484	39.81	35.25	44.56	155	1004513	42.86	36.12	49.88	141	803971	36.57	30.79	42.76
50-59	213	1246136	35.33	30.46	40.52	108	681883	38.65	32.02	45.73	105	564253	32.00	25.68	39.06
Ethnic Group															
Malay	557	3949197	38.31	35.34	41.38	288	2199281	41.02	36.52	45.67	269	1749916	35.38	31.79	39.15
Chinese	254	1892875	51.81	46.40	57.17	115	931218	47.49	40.75	54.33	139	961657	56.80	48.72	64.53
Indian	54	546325	41.41	32.93	50.43	29	306707	40.74	29.25	53.34	25	239617	42.29	27.18	58.99
Bumiputera Sabah	161	688986	47.07	41.23	52.99	89	434555	52.47	44.52	60.28	72	254431	40.04	31.64	49.07
Bumiputera Sarawak	115	440015	41.99	35.73	48.52	64	260859	54.00	45.23	62.53	51	179256	31.72	22.37	42.84
Others	101	611907	52.05	41.59	62.34	55	339060	52.76	35.91	69.00	46	272846	51.20	40.33	61.96
Other Bumis	8	49230	49.15	28.60	69.99	-	-	-	-	-	5	31896	65.57	39.05	84.98
Marital Status															
Never married	378	2789208	51.15	46.53	55.76	239	1792696	51.24	45.20	57.24	139	996512	51.00	43.72	58.24
Married/Cohabiting	792	5028711	39.49	36.90	42.15	378	2566623	40.61	37.00	44.32	414	2462088	38.40	35.17	41.74
Divorced/Separated	57	276820	43.86	33.86	54.39	24	119633	50.05	32.06	68.03	33	157187	40.09	27.68	53.92
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.8: Prevalence of normal by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Educational Level															
Non-formal	52	224353	44.55	33.16	56.55	24	114403	74.07	52.09	88.25	28	109950	31.49	20.00	45.81
Primary	255	1434241	41.32	37.03	45.74	137	847549	48.12	41.35	54.95	118	586691	34.31	28.58	40.54
Secondary	608	4146093	43.46	39.96	47.02	137	2381204	46.18	41.07	51.37	278	1764889	40.25	35.92	44.74
Tertiary	318	2288414	42.09	37.65	46.66	330	1090430	37.12	31.00	43.68	177	1191985	47.97	42.01	53.98
Others	10	58628	70.16	41.82	88.50	141	41636	88.68	58.84	97.72	-	-	-	-	-
Work Status															
Government/ Semi-government	131	762837	34.83	28.78	41.41	64	395784	34.37	26.33	43.42	67	367053	35.34	27.64	43.88
Private	502	3770788	47.17	43.61	50.76	285	2226255	44.92	40.18	49.75	217	1544532	50.85	45.32	56.35
Self-employed	361	2088998	43.68	39.23	48.23	239	1436583	49.55	43.86	55.26	122	652415	34.64	28.76	41.03
Unpaid workers	6	34195	68.09	26.20	92.77	-	-	-	-	-	-	-	-	-	-
Not working	194	1076318	35.17	30.23	40.44	24	154868	37.90	23.47	54.84	170	921451	34.75	29.50	40.39
Retired	5	32434	15.61	5.32	37.87	-	-	-	-	-	-	-	-	-	-
Students	33	314847	51.77	35.78	67.41	16	174259	46.26	26.32	67.47	17	140588	60.73	39.77	78.37
Income Group															
Less than RM1500	621	3640773	46.69	43.31	50.10	334	2061721	50.15	44.71	55.59	287	1579052	42.82	38.59	47.16
RM1500 – RM3500	372	2539749	42.11	38.04	46.30	186	1387661	42.94	37.20	48.87	186	1152088	41.16	35.65	46.90
More than RM 3500	249	1943435	38.58	34.25	43.10	119	996829	38.01	32.32	44.04	130	946606	39.21	33.33	45.43

Note :
- RSE more than 25%

Table 9.9.: Prevalence of obesity class I by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Malaysia	398	2615437	13.72	12.19	15.40	146	1120965	11.12	8.98	13.70	252	1494472	16.63	14.52	18.97
Zone															
Peninsular Malaysia	271	2167726	14.48	12.64	16.55	103	945887	11.96	9.34	15.19	168	1221838	17.31	14.78	20.17
East Malaysia	127	447711	10.92	9.02	13.16	43	175078	8.06	5.80	11.09	84	272633	14.14	11.30	17.55
Strata															
Urban	211	1815038	13.72	11.71	16.00	82	765071	11.14	8.30	14.79	129	1049967	16.49	13.78	19.61
Rural	187	800399	13.72	11.91	15.75	64	355894	11.07	8.70	14.00	123	444505	16.96	14.28	20.02
Sex															
Men	146	1120965	11.12	8.98	13.70										
Women	252	1494472	16.63	14.52	18.97										
Age Group															
18 -19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	83	661834	12.78	9.97	16.25	41	368850	13.42	9.41	18.80	42	292984	12.06	8.26	17.28
30-39	126	751334	15.98	12.79	19.78	44	307609	13.03	8.81	18.87	82	443725	18.95	14.80	23.93
40-49	103	651721	14.35	11.42	17.87	31	208757	8.91	5.73	13.60	72	442964	20.15	15.96	25.10
50-59	80	480087	13.61	10.44	17.56	25	167196	9.48	6.03	14.58	55	312890	17.75	12.66	24.30
Ethnic Group															
Malay	240	1652024	16.03	13.90	18.41	91	730209	13.62	10.62	17.30	149	921814	18.64	15.68	22.02
Chinese	44	307641	8.42	5.70	12.26	-	-	-	-	-	23	161937	9.56	5.82	15.34
Indian	25	287535	21.79	14.32	31.72	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	43	164104	11.21	8.27	15.03	15	72598	8.76	5.42	13.86	28	91506	14.40	9.43	21.37
Bumiputera Sarawak	33	111426	10.63	7.26	15.31	-	-	-	-	-	27	86646	15.33	9.84	23.10
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital Status															
Never married	63	533641	9.79	7.20	13.17	40	363335	10.38	6.99	15.16	-	-	-	-	-
Married/Cohabiting	312	1977650	15.53	13.75	17.49	101	725540	11.48	8.99	14.55	211	1252110	19.53	17.04	22.28
Divorced/Separated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.9.: Prevalence of obesity class I by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary	73	450467	12.98	9.67	17.19	74	558121	10.82	8.08	14.36	54	336041	19.65	13.99	26.88
Secondary	194	1291832	13.54	11.42	15.98	52	443733	15.10	10.80	20.72	120	733711	16.73	13.67	20.32
Tertiary	110	802810	14.80	11.78	18.45						58	359077	14.45	10.56	19.47
Others															
Work Status															
Government/ Semi-government	66	356732	16.29	12.54	20.89	29	175373	15.23	10.18	22.17	37	181358	17.46	12.18	24.39
Private	113	894916	11.20	8.93	13.95	66	577466	11.65	8.58	15.64	47	317449	10.45	7.41	14.55
Self-employed	105	642976	13.44	10.77	16.65	41	285512	9.85	6.66	14.33	64	357463	18.98	14.71	24.14
Unpaid workers															
Not working	105	660778	21.59	17.50	26.34	-	-	-	-	-	101	619815	23.37	18.97	28.44
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	175	936734	12.01	9.98	14.39	48	354263	8.62	6.03	12.18	127	582471	15.80	12.93	19.15
RM1500 – RM3500	123	929071	15.41	12.69	18.58	55	411670	12.74	9.37	17.08	68	517401	18.48	14.11	23.85
More than RM 3500	96	718703	14.27	11.36	17.77	42	351909	13.42	9.24	19.09	54	366794	15.19	11.23	20.24

Note :
- RSE more than 25%

Table 9.10: Prevalence of obesity class II by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	114	703371	3.69	2.87	4.73	-	-	-	-	-	83	440790	4.90	3.72	6.44
Zone															
Peninsular Malaysia	72	567174	3.79	2.81	5.10	-	-	-	-	-	53	354121	5.02	3.61	6.93
East Malaysia	42	136198	3.32	2.36	4.65	-	-	-	-	-	30	86669	4.49	3.02	6.65
Strata															
Urban	65	523451	3.96	2.88	5.41	-	-	-	-	-	44	310886	4.88	3.40	6.97
Rural	49	179920	3.08	2.21	4.29	-	-	-	-	-	39	129904	4.96	3.47	7.03
Sex															
Men	-	-	-	-	-										
Women	83	440790	4.90	3.72	6.44										
Age Group															
18 -19															
20-29	26	198246	3.83	2.34	6.20	-	-	-	-	-	-	-	-	-	-
30-39	30	191644	4.08	2.64	6.25	-	-	-	-	-	-	-	-	-	-
40-49	31	169435	3.73	2.28	6.04	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethnic Group															
Malay	68	469561	4.56	3.44	6.02	14	129604	2.42	1.31	4.43	54	339957	6.87	4.94	9.48
Chinese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	18	56720	5.41	3.42	8.46	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis															
Marital Status															
Never married	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Married/Cohabiting	84	495697	3.89	2.95	5.12	-	-	-	-	-	64	322194	5.02	3.64	6.91
Divorced/Separated	-	-	-	-	-	2	12230	5.12	1.23	18.90	-	-	-	-	-
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others															

Note :
- RSE more than 25%

Table 9.10: Prevalence of obesity class II by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Educational Level															
Non-formal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Secondary	57	326446	3.42	2.48	4.70	-	-	-	-	-	39	193529	4.41	2.93	6.60
Tertiary	26	244087	4.50	2.82	7.11	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Work Status															
Government/ Semi-government	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private	31	246875	3.09	2.03	4.67	-	-	-	-	-	-	-	-	-	-
Self-employed	27	148628	3.11	1.92	4.99	-	-	-	-	-	18	98956	5.25	2.83	9.55
Unpaid workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not working	36	154472	5.05	3.33	7.59	-	-	-	-	-	34	147533	5.56	3.62	8.46
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	50	228337	2.93	2.05	4.17	-	-	-	-	-	37	155526	4.22	2.73	6.47
RM1500 – RM3500	34	254670	4.22	2.67	6.62	-	-	-	-	-	-	-	-	-	-
More than RM 3500	29	211097	4.19	2.68	6.51	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.11: Prevalence of obesity class III by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	31	201779	1.06	0.72	1.56	-	-	-	-	-	21	125597	1.40	0.86	2.27
Zone															
Peninsular Malaysia	22	175559	1.17	0.76	1.81	-	-	-	-	-	-	-	-	-	-
East Malaysia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Strata															
Urban	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rural	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sex															
Men	-	-	-	-	-										
Women	21	125597	1.40	0.86	2.27										
Age Group															
18 –19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
30-39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
40-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	-	-	-	-	-	-	2	23171	1.31	0.33	5.09
Ethnic Group															
Malay	21	145793	1.41	0.89	2.23	-	-	-	-	-	-	-	-	-	-
Chinese	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-						-	-	-	-	-
Other Bumis	-	-	-	-	-						-	-	-	-	-
Marital Status															
Never married	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Married/Cohabiting	22	138016	1.08	0.67	1.74	-	-	-	-	-	-	-	-	-	-
Divorced/Separated	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Widow															
Others															

Note :
- RSE more than 25%

Table 9.11: Prevalence of obesity class III by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Educational Level															
Non-formal															
Primary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Secondary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tertiary	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others															
Work Status															
Government/ Semi-government	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Self-employed	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unpaid workers															
Not working	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retired															
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
RM1500 – RM3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
More than RM 3500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.12: Prevalence of obesity by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Malaysia	**543**	**3520587**	**18.46**	**16.59**	**20.50**	**187**	**1459729**	**14.48**	**11.95**	**17.43**	**356**	**2060858**	**22.93**	**20.40**	**25.67**
Zone															
Peninsular Malaysia	365	2910458	19.45	17.15	21.97	131.00	1231999	15.58	12.48	19.28	234	1678459	23.78	20.73	27.12
East Malaysia	178	610129	14.88	12.75	17.29	56.00	227731	10.48	7.86	13.85	122	382399	19.83	16.45	23.71
Strata															
Urban	292	2474006	18.70	16.16	21.53	108	1024528	14.92	11.50	19.13	184	1449478	22.77	19.47	26.44
Rural	251	1046581	17.94	16.04	20.01	79	435201	13.54	11.00	16.56	172	611380	23.33	20.31	26.64
Sex															
Men	187	1459729	14.48	11.95	17.43										
Women	356	2060858	22.93	20.40	25.67										
Age Group															
18 –19	-	-	-	-	-	6	79495	16.64	11.83	22.91	2	9542	17.65	13.01	23.49
20-29	118	923398	17.84	14.41	21.86	55	494745	11.29	7.69	16.28	63	428653	25.76	21.10	31.04
30-39	164	995976	21.18	17.67	25.18	55	392754	12.93	8.59	19.00	109	603222	27.16	22.08	32.91
40-49	143	861749	18.97	15.57	22.92	-	-	-	-	-	104	597097	23.95	17.93	31.23
50-59	110	650427	18.44	14.57	23.06	32	228084	-	-	-	78	422343	-	-	-
Ethnic Group															
Malay	329	2267377	22.00	19.41	24.82	111	897470	16.74	13.35	20.78	218	1369908	27.70	24.19	31.51
Chinese	56	394118	10.79	7.62	15.06	29	218430	11.14	6.95	17.38	27	175688	10.38	6.49	16.20
Indian	33	370070	28.05	20.08	37.69	15	189880	25.22	15.27	38.71	18	180190	31.80	18.60	48.76
Bumiputera Sabah	54	206802	14.13	10.94	18.05	20	95756	11.56	7.77	16.86	34	111045	17.48	11.80	25.10
Bumiputera Sarawak	54	177890	16.97	12.48	22.66	-	-	-	-	-	44	137672	24.36	16.61	34.25
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital Status															
Never married	89	741864	13.61	10.60	17.30	53	471403	13.47	9.66	18.49	36	270461	13.84	9.36	19.99
Married/Cohabiting	418	2611363	20.51	18.36	22.84	127	944005	14.94	12.00	18.44	291	1667358	26.00	23.10	29.13
Divorced/Separated	25	134014	21.24	14.11	30.68	-	-	-	-	-	18	89694	22.88	14.27	34.59
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.12: Prevalence of obesity by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	25	83466	16.57	10.39	25.39						25	83466	23.91	15.35	35.25
Primary	106	599745	17.28	13.60	21.70	24	139006	33.40	26.89	40.60	82	460739	26.94	20.74	34.20
Secondary	268	1733358	18.17	15.65	20.99	99	731818	30.28	26.33	34.55	169	1001540	22.84	19.31	26.81
Tertiary	142	1096728	20.22	16.69	24.28	63	584220	39.61	33.78	45.76	79	512508	20.62	15.99	26.19
Others															
Work Status															
Government/ Semi-government	91	540357	24.67	19.10	31.25	38	280935	24.40	16.89	33.89	53	259422	24.98	18.18	33.28
Private	152	1203147	15.05	12.46	18.07	83	723410	14.60	11.14	18.89	69	479737	15.79	12.21	20.18
Self-employed	139	832963	17.42	14.47	20.81	52	349250	12.05	8.61	16.60	87	483713	25.68	20.45	31.71
Unpaid workers															
Not working	149	871479	28.48	23.70	33.78	-	-	-	-	-	142	810058	30.55	25.59	36.00
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	240	1266238	16.24	13.79	19.02	64	462476	11.25	8.19	15.26	176	803762	21.80	18.55	25.43
RM1500 – RM3500	165	1226508	20.34	17.14	23.96	67	526358	16.29	12.30	21.26	98	700149	25.01	20.32	30.37
More than RM 3500	133	987645	19.61	16.08	23.69	55	467772	17.83	13.12	23.77	78	519873	21.54	16.37	27.79

Note :
- RSE more than 25%

Table 9.13: Prevalence of overweight by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	**951**	**6178697**	**32.40**	**30.29**	**34.59**	**440**	**3359401**	**33.33**	**30.24**	**36.57**	**511**	**2819296**	**31.37**	**28.53**	**34.36**
Zone															
Peninsular Malaysia	573	4850950	32.41	29.86	35.07	281	2726602	34.48	30.74	38.41	292	2124348	30.10	26.70	33.72
East Malaysia	378	1327747	32.38	29.28	35.64	159	632799	29.13	24.85	33.83	219	694948	36.03	31.70	40.61
Strata															
Urban	502	4321954	32.66	29.85	35.60	239	2410871	35.11	30.95	39.51	263	1911082	30.02	26.37	33.94
Rural	449	1856743	31.82	29.24	34.52	201	948530	29.51	25.87	33.44	248	908213	34.65	30.82	38.69
Sex															
Men	440	3359401	33.33	30.24	36.57										
Women	511	2819296	31.37	28.53	34.36										
Age Group															
18 -19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	143	1152077	22.25	18.52	26.49	63	601531	21.89	16.48	28.47	80	550546	22.66	17.84	28.34
30-39	265	1538804	32.73	28.64	37.10	130	836382	35.44	29.05	42.40	135	702423	29.99	25.17	35.31
40-49	287	1786276	39.33	34.99	43.83	146	1045529	44.61	37.94	51.48	141	740747	33.69	28.49	39.32
50-59	231	1532955	43.46	37.97	49.11	89	771074	43.70	35.84	51.90	142	761881	43.21	35.59	51.16
Ethnic Group															
Malay	457	3385455	32.85	29.95	35.88	213	1814266	33.84	29.41	38.56	244	1571188	31.77	28.07	35.71
Chinese	163	1163935	31.86	27.21	36.90	88	706467	36.03	29.09	43.61	75	457468	27.02	20.93	34.12
Indian	40	370179	28.06	20.44	37.19	20	223363	29.67	19.54	42.30	20	146816	25.91	15.46	40.08
Bumiputera Sabah	128	463686	31.68	26.71	37.11	56	229693	27.73	21.33	35.20	72	233993	36.83	29.65	44.63
Bumiputera Sarawak	107	381435	36.39	29.68	43.68	38	144988	30.01	22.43	38.88	69	236447	41.85	32.18	52.18
Others	49	369489	31.43	22.54	41.93	-	-	-	-	-	28	163055	30.60	20.38	43.17
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital Status															
Never married	164	1198721	21.98	17.97	26.60	95	732350	20.93	15.80	27.19	69	466372	23.87	18.03	30.89
Married/Cohabiting	716	4639894	36.44	33.95	39.00	330	2548919	40.33	36.33	44.46	386	2090975	32.61	29.40	35.99
Divorced/Separated	45	220241	21.24	14.11	30.68	-	-	-	-	-	31	145173	37.03	25.47	50.29
Widow	26	119840	51.41	32.46	69.96	1	3064	57.62	7.77	95.64	25	116776	51.27	32.03	70.14
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.13: Prevalence of overweight by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Educational Level															
Non-formal	51	181340	36.01	26.12	47.25	8	38478	24.91	10.99	47.14	43	142862	40.92	29.23	53.73
Primary	202	1216261	35.04	30.41	39.96	85	588269	33.40	26.89	40.60	117	627992	36.72	30.34	43.61
Secondary	464	2971718	31.15	28.29	34.16	222	1561279	30.28	26.33	34.55	242	1410439	32.17	27.90	36.76
Tertiary	227	1782041	32.86	28.92	37.06	123	1163651	39.61	33.78	45.76	104	618389	24.88	20.23	30.20
Others	-	-	-	-	-	1	2253	4.80	.58	30.40	5	19614	53.58	18.06	85.80
Work status															
Government/ Semi-government	127	814115	37.17	31.04	43.74	64	462293	40.15	30.74	50.34	63	351822	33.87	25.71	43.12
Private	330	2441678	30.55	27.36	33.93	203	1630778	32.90	28.71	37.39	127	810900	26.70	21.99	32.00
Self-employed	275	1617866	33.83	29.96	37.93	138	938827	32.38	26.97	38.31	137	679039	36.05	29.60	43.05
Unpaid workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not working	181	934725	30.54	25.89	35.63	-	-	-	-	-	167	860924	32.47	27.60	37.74
Retired	18	133139	64.10	37.11	84.38	-	-	-	-	-	8	50734	80.26	39.15	96.25
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	413	2263978	29.03	25.85	32.43	165	1122513	27.31	22.32	32.93	248	1141465	30.95	26.98	35.23
RM1500 – RM3500	285	1971056	32.68	28.77	36.86	140	1102974	34.13	28.64	40.08	145	868083	31.01	25.71	36.87
More than RM 3500	244	1847428	36.68	32.71	40.83	130	1073952	40.95	34.84	47.34	114	773476	32.04	26.99	37.55

Note :
- RSE more than 25%

Table 9.14: Prevalence of overweight and obesity by socio-demographic characteristics

Socio-demographic Characteristics	Total Unweighted Count	Total Estimated population	Total Prevalence (%)	Total 95% CI Lower	Total 95% CI Upper	Men Unweighted Count	Men Estimated population	Men Prevalence (%)	Men 95% CI Lower	Men 95% CI Upper	Women Unweighted Count	Women Estimated population	Women Prevalence (%)	Women 95% CI Lower	Women 95% CI Upper
Malaysia	1494	9689284	50.87	48.40	53.33	627	4819130	47.81	44.23	51.41	867	4880154	54.30	51.18	57.39
Zone															
Peninsular Malaysia	938	7761408	51.86	48.85	54.85	412	3958601	50.05	45.66	54.45	526	3802807	53.87	50.16	57.55
East Malaysia	556	1937876	47.26	44.04	50.49	215	860530	39.62	35.14	44.27	341	1077346	55.86	50.65	60.94
Strata															
Urban	794	6795959	51.36	48.06	54.64	347	3435399	50.03	45.09	54.97	447	3360560	52.79	48.76	56.78
Rural	700	2903325	49.76	46.79	52.72	280	1383731	43.05	39.25	46.94	420	1519593	57.98	53.53	62.30
Sex															
Men	627	4819130	47.81	44.23	51.41										
Women	867	4880154	54.30	51.18	57.39										
Age Group															
18 –19	33	257622	23.03	14.70	34.17	-	-	-	-	-	-	-	-	-	-
20-29	261	2075475	40.09	35.22	45.16	118	1096276	39.90	32.74	47.51	3.78	979199	40.31	34.03	46.92
30-39	429	2534780	53.91	49.01	58.73	185	1229135	52.08	45.25	58.83	3.47	1305645	55.75	49.53	61.80
40-49	430	2648025	58.30	53.66	62.79	185	1310181	55.90	48.96	62.62	3.50	1337844	60.85	54.61	66.75
50-59	341	2183382	61.89	56.55	66.97	121	999158	56.63	48.82	64.12	3.92	1184224	67.16	60.11	73.52
Ethnic Group															
Malay	786	5652832	54.84	51.55	58.10	324	2711736	50.58	45.41	55.73	462	2941096	59.47	55.59	63.23
Chinese	219	1558053	42.64	37.54	47.91	117	924897	47.17	40.13	54.32	102	633156	37.40	29.93	45.52
Indian	73	740249	56.10	47.11	64.71	35	413244	54.90	42.37	66.83	38	327006	57.71	41.01	72.82
Bumiputera Sabah	182	670488	45.81	40.64	51.07	76	325449	39.29	32.72	46.28	106	345038	54.30	44.79	63.50
Bumiputera Sarawak	161	559325	53.36	46.72	59.89	48	185206	38.34	30.70	46.60	113	374119	66.21	55.35	75.59
Others	64	467396	39.76	29.89	50.54	23	224409	34.92	20.52	52.72	41	242987	45.60	34.44	57.22
Other Bumis	9	50940	50.85	30.01	71.40	-	-	-	-	-	-	-	-	-	-
Marital Status															
Never married	253	1940585	35.59	31.08	40.37	148	1203753	34.41	28.42	40.93	105	736832	37.71	30.51	45.49
Married/Cohabiting	1134	7251257	56.95	54.12	59.73	457	3492924	55.26	51.05	59.40	677	3758333	58.61	55.10	62.04
Divorced/Separated	70	354255	56.14	45.61	66.14	21	119389	49.95	31.97	67.94	49	234866	59.91	46.08	72.32
Widow	37	153186	65.72	47.48	80.25	-	-	-	-	-	36	150122	65.90	47.38	80.58
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.14: Prevalence of overweight and obesity by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	76	264806	52.59	40.81	64.08	-	-	-	-	-	68	226328	64.83	50.89	76.62
Primary	308	1816006	52.31	47.32	57.26	109	727275	41.29	34.17	48.79	199	1088731	63.67	57.34	69.55
Secondary	732	4705075	49.31	45.85	52.79	321	2293097	44.47	39.50	49.55	411	2411979	55.01	50.42	59.52
Tertiary	369	2878769	53.09	48.45	57.67	186	1747871	59.50	52.46	66.17	183	1130898	45.51	39.97	51.16
Others	-	-	-	-	-	-	-	-	-	-	5	19614	53.58	18.06	85.80
Work Status															
Government/ Semi-government	218	1354472	61.84	55.49	67.81	102	743227	64.55	55.44	72.71	116	611244	58.85	50.57	66.65
Private	482	3644825	45.60	42.12	49.11	286	2354188	47.50	42.64	52.41	196	1290637	42.49	37.23	47.92
Self-employed	414	2450829	51.24	46.72	55.74	190	1288077	44.43	38.86	50.15	224	1162752	61.73	55.12	67.94
Unpaid workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not working	330	1806203	59.02	53.10	64.68	-	-	-	-	-	309	1670982	63.01	57.44	68.26
Retired	22	147921	71.22	42.09	89.38	14	97186	67.26	33.07	89.52	8	50734	80.26	39.15	96.25
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	653	3530215	45.27	41.57	49.02	229	1584988	38.56	32.85	44.60	424	1945227	52.75	48.59	56.87
RM1500 – RM3500	450	3197564	53.02	48.66	57.33	207	1629332	50.42	44.07	56.75	243	1568232	56.03	50.22	61.68
More than RM 3500	377	2835072	56.29	52.01	60.47	185	1541723	58.78	52.78	64.53	192	1293349	53.58	47.54	59.51

Note :
- RSE more than 25%

Table 9.15: Prevalence of CED by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	Upper
Malaysia	**161**	**1190000**	**6.24**	**5.09**	**7.63**	**87**	**772572**	**7.66**	**5.86**	**9.97**	**74**	**417428**	**4.64**	**3.52**	**6.11**
Zone															
Peninsular Malaysia	95	937416	6.26	4.90	7.98	56	628550	7.95	5.80	10.80	39	308866	4.38	3.08	6.18
East Malaysia	66	252584	6.16	4.61	8.18	31	144022	6.63	4.27	10.16	35	108562	5.63	3.81	8.24
Strata															
Urban	86	842245	6.36	4.86	8.29	43	540778	7.88	5.49	11.18	43	301466	4.74	3.32	6.72
Rural	75	347755	5.96	4.68	7.57	44	231794	7.21	5.29	9.76	31	115961	4.42	3.01	6.45
Sex															
Men	87	772572	7.66	5.86	9.97										
Women	74	417428	4.64	3.52	6.11										
Age Group															
18 –19	24	268625	24.01	14.85	36.40	-	-	-	-	-	-	-	-	-	-
20-29	69	523128	10.10	7.37	13.71	40	325724	11.85	7.69	17.85	29	197404	8.13	5.27	12.33
30-39	33	214389	4.56	3.02	6.82	-	-	-	-	-	-	-	-	-	-
40-49	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
50-59	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethnic Group															
Malay	87	705213	6.84	5.20	8.96	46	450682	8.41	5.77	12.09	41	254531	5.15	3.61	7.29
Chinese	22	202840	5.55	3.52	8.65	-	-	-	-	-	-	-	-	-	-
Indian	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sabah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bumiputera Sarawak	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other Bumis															
Marital Status															
Never married	90	722971	13.26	10.19	17.08	56	502314	14.36	10.27	19.71	34	220657	11.29	7.38	16.90
Married/Cohabiting	67	452702	3.56	2.56	4.92	30	261066	4.13	2.60	6.50	37	191636	2.99	2.00	4.44
Divorced/Separated	0	0	0.00	0.00	0.00	0	0	0.00	0.00	0.00	0	0	0.00	0.00	0.00
Widow	2	3833	1.64	0.37	7.04	0	0	0.00	0.00	0.00	-	-	-	-	-
Others	1	9192	100.00	100.00	100.00	1	9192	100.00	100.00	100.00	0	0	0.00	0.00	0.00

Note :
- RSE more than 25%

Table 9.15: Prevalence of CED by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Primary	35	221224	6.37	4.10	9.77	25	186609	10.59	6.48	16.84	-	-	-	-	-
Secondary	81	689780	7.23	5.46	9.52	49	481978	9.35	6.64	13.01	32	207802	4.74	3.12	7.13
Tertiary	38	261519	4.82	3.01	7.63	-	-	-	-	-	27	162160	6.53	3.99	10.50
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Work Status															
Government/ Semi-government	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Private	71	577973	7.23	5.46	9.51	44	375630	7.58	5.34	10.66	27	202344	6.66	4.28	10.22
Self-employed	36	242884	5.08	3.19	7.98	-	-	-	-	-	-	-	-	-	-
Unpaid workers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Not working	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	91	627530	8.05	6.10	10.54	55	464247	11.29	8.04	15.64	36	163283	4.43	2.96	6.59
RM1500 – RM3500	38	293412	4.87	3.22	7.30	-	-	-	-	-	-	-	-	-	-
More than RM 3500	30	258385	5.13	3.31	7.87	-	-	-	-	-	22	174120	7.21	4.47	11.44

Note :
- RSE more than 25%

Table 9.16: Prevalence of abdominal obesity by socio-demographic characteristics

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Malaysia	**663**	**3841468**	**20.03**	**18.08**	**22.13**	**136**	**969640**	**9.57**	**7.60**	**11.97**	**527**	**2871828**	**31.75**	**28.65**	**35.02**
Zone															
Peninsular Malaysia	382	2929351	19.47	17.10	22.07	86	785281	9.90	7.52	12.93	296	2144070	30.12	26.41	34.11
East Malaysia	281	912116	22.07	19.58	24.77	50	184359	8.36	6.16	11.25	231	727757	37.76	33.14	42.62
Strata															
Urban	358	2708788	20.37	17.76	23.26	83	715046	10.37	7.75	13.74	275	1993742	31.15	27.10	35.52
Rural	305	1132680	19.25	17.11	21.60	53	254594	7.86	5.72	10.71	252	878086	33.20	29.40	37.23
Sex															
Men	136	969640	9.57	7.60	11.97										
Women	527	2871828	31.75	28.65	35.02										
Age Group															
18-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
20-29	112	807203	15.49	12.12	19.58	31	276697	9.98	6.25	15.58	81	530506	21.74	16.41	28.21
30-39	174	981278	20.84	17.39	24.76	34	235978	9.98	6.54	14.93	140	745301	31.81	26.30	37.87
40-49	180	970354	21.26	17.99	24.95	32	198835	8.46	5.54	12.72	148	771519	34.85	29.77	40.30
50-59	190	1035600	28.92	24.55	33.73	35	225170	12.55	8.33	18.46	155	810430	45.39	38.68	52.26
Ethnic Group															
Malay	327	2156374	20.74	18.05	23.71	64	514171	9.53	6.96	12.91	263	1642204	32.84	28.56	37.42
Chinese	76	452378	12.35	9.09	16.57	25	165460	8.43	5.25	13.28	51	286918	16.87	11.64	23.82
Indian	46	457001	34.64	27.37	42.70	15	162525	21.59	13.26	33.15	31	294476	51.97	38.88	64.80
Bumiputera Sabah	91	313842	21.26	17.19	25.99	18	74190	8.82	5.36	14.18	73	239652	37.72	29.24	47.01
Bumiputera Sarawak	88	278741	26.42	21.06	32.57	-	-	-	-	-	77	240203	42.90	33.00	53.41
Others	31	161861	13.83	8.83	20.99	-	-	-	-	-	29	158046	29.66	19.47	42.37
Other Bumis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Marital Status															
Never married	83	603521	11.05	8.30	14.55	33	245890	7.04	4.59	10.65	50	357631	18.16	12.70	25.30
Married/Cohabiting	521	2982028	23.24	20.94	25.71	97	690371	10.82	8.45	13.75	424	2291657	35.52	32.07	39.13
Divorced/Separated	38	182589	28.89	19.86	39.97	-	-	-	-	-	32	149210	37.74	25.62	51.62
Widow	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Note :
- RSE more than 25%

Table 9.16: Prevalence of abdominal obesity by socio-demographic characteristics (Cont.)

Socio-demographic Characteristics	Total					Men					Women				
	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper	Unweighted Count	Estimated population	Prevalence (%)	95% CI Lower	95% CI Upper
Educational Level															
Non-formal	54	168895	33.38	24.58	43.52						54	168895	48.38	36.39	60.55
Primary	154	804486	22.81	18.76	27.45	23	134833	7.50	4.59	12.03	131	669653	38.73	32.18	45.70
Secondary	311	1882018	19.67	17.31	22.27	73	470529	9.13	6.80	12.14	238	1411489	31.99	28.13	36.11
Tertiary	140	975426	17.91	14.56	21.82	38	357519	12.12	8.36	17.23	102	617908	24.75	20.07	30.12
Others	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Work Status															
Government/ Semi-government	85	471231	21.37	16.45	27.29	-	-	-	-	-	61	285473	27.33	20.57	35.33
Private	167	1203769	15.00	12.51	17.88	58	484269	9.72	7.09	13.19	109	719500	23.63	19.26	28.63
Self-employed	169	866053	17.94	15.12	21.15	40	236516	8.07	5.50	11.70	129	629537	33.16	27.52	39.32
Unpaid workers															
Not working	225	1221513	39.54	33.69	45.71	-	-	-	-	-	220	1195908	44.60	38.39	50.99
Retired	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Students	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Income Group															
Less than RM1500	-	-	-	-	-	52	343947	8.38	5.83	11.91	269	1193823	32.27	28.18	36.65
RM1500 – RM3500	-	-	-	-	-	47	346568	10.54	7.49	14.62	152	996882	35.13	29.49	41.23
More than RM 3500	-	-	-	-	-	36	276001	10.50	7.22	15.02	101	640216	26.44	20.98	32.72

Note :
- RSE more than 25%

TOPIC 10

NUTRIENT INTAKE

10. NUTRIENT INTAKE

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10.1 Findings

Information on dietary intake was collected using 24-hour diet recall, a widely used method to obtain quantitative dietary information of individuals in large epidemiological studies. This survey was undertaken to determine the population dietary practices and adequacy. A total of 2,973 respondents took part in this survey, of which 1,378 were men and 1,595 were women.

The daily median energy intake of Malaysia adults was 1466 kcal/day (Table 10.1) or 64% **(Table 10.1)** of the Recommended Nutrient Intake (RNI). The respondents in East Malaysia zones had higher energy intake and RNI achievement (66%) compared to Peninsular Malaysia counterparts (63%). Urban respondents had higher energy intake and RNI achievement (66%) than their rural counterparts (62%). The energy intake was lower among the older age group compared to the younger age group. In most of socio demographic group, women had lower median energy intake and per cent achievement of RNI than men.

The median daily intake of carbohydrate, protein and fat were about 195g **(Table 10.2)**, 57g **(Table 10.3)** and 46g **(Table 10.4)** respectively. The median percentage of total energy contributed by macronutrient was 55% for carbohydrate, 16% protein and 29% fat (Figure 4). Contribution of energy by macronutrients was similar in both men and women.
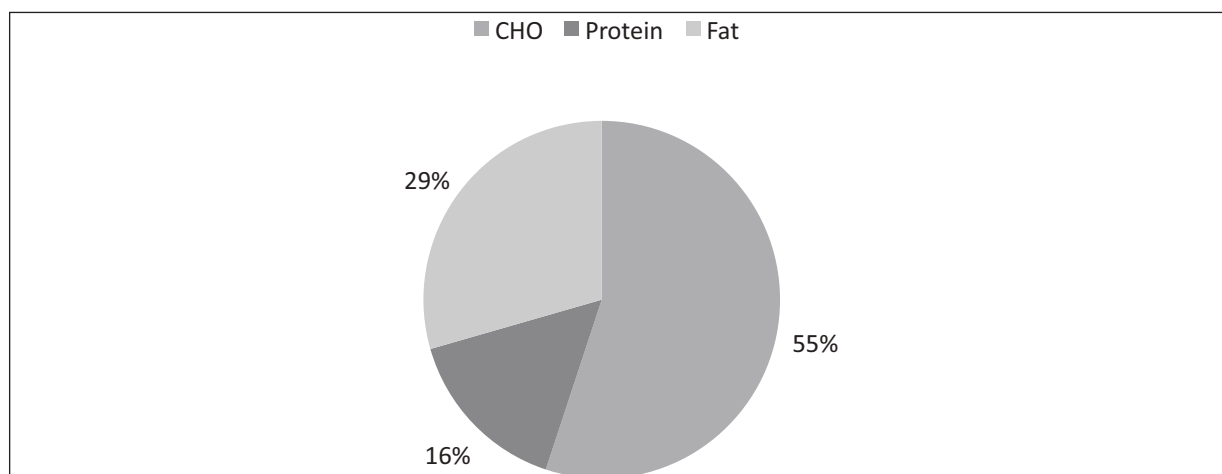

Figure 4: Median percentage of energy from macronutrients for total adult population.

Adults should consume less than 2,000 mg of sodium, or 5 grams of salt, and at least 3,510 mg of potassium per day, according to new guidelines issued by the WHO. The median sodium intake among Malaysian adults was about 1935 mg/day. Malaysian men had a median intake, which was higher than overall median by about 278 mg and by about 490 mg more than in women **(Table 10.5)**. The respondents in East Malaysia (2026 mg) had higher sodium intake compared to Peninsular Malaysia (1865 mg). Urban respondents had higher sodium intake (2063 mg) than their rural counterparts (1763 mg). By age group, sodium intake range from highest in the 30 to 39 years group (2020 mg) to the lowest in 50 to 59 years group (1685 mg). In most of socio-demographic group, men had consumed more than recommended level of sodium intake than women.

The median intake for calcium was 357 mg/day **(Tables 10.6)** or 43% **(Table 10.13)** of the RNI. For all socio-demographic groups, the achievement of recommended level for calcium did not exceed 50%. The median intake of iron **(Table 10.7)** was about 9.9% mg/day with men (10.8 mg/day) having higher intake than women (9.0 mg/day). While men achieved more than 100% of RNI for iron, women satisfied only 52% of the recommended level with the exception of the oldest group **(Table 10.14)**.

The median intake of vitamin C was about 39 mg/day **(Tables 10.8)** or 56% of the RNI recommended level **(Tables 10.15)**. The respondents in East Malaysia zones had higher Vitamin C intake and RNI achievement (74%) compared to Peninsular Malaysia counterparts (46%). The median intake of vitamin A was about 480 μg/day **(Tables 10.9)** or 88% **(Tables 10.16)** of the recommended intake for vitamin A. The median intake of thiamine was about 0.59 mg/day **(Tables 10.10)** or 51% **(Tables 10.17)** of the re ommended intake for thiamine. Men and women had similar achievements of RNI across zone and strata.

10.2 Implications

The present survey provides the second national estimates of the intake of energy and nutrients for the Malaysian population after being conducted for the first time in 2003.

10.3 Conclusions

The survey found that the intake of energy among Malaysian population fall short of the recommended intakes and lower than previous survey. While, intakes of other are well within the recommendations for a healthy diet. The intakes of major micronutrients studied were less than two thirds of the RNI. Calcium and iron were found to be the most inadequate particularly among women across socio-demographic group. As nearly half of the studied population had under-reported their energy intake, cautious interpretations of the current findings are needed.

10.4 Recommendations

Regular nutrition surveys should be carried out to provide valueable information on trends in food and nutrient intake, particularly among age and ethnically diverse subgroups of the population. Future studies are needed to explore the associations between diet and chronic diseases among Malaysians and finally, continued nutrition monitoring is needed to assess public adherence to dietary recommendations.

Definition of variables: Nutrient Intake

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
Carbohydrate Kcal Percentage	Carbo_Kcal_Percentage			COMPUTE Carbo_Kcal_Percentage=Carb_WD * 4 / Kcal_WD*100. EXECUTE.
Protein Kcal Percentage	Protein_Kcal_Percentage			COMPUTE Protein_Kcal_Percentage=Protein_WD*4 / Kcal_WD * 100. EXECUTE.
Fat Kcal Percentage	Fat_Kcal_percentage			COMPUTE Fat_Kcal_percentage=Fat_WD * 9 / Kcal_WD * 100. EXECUTE.

RNI calories percentage	RNI_calories_percantage			IF (sex = 1 & age_group_new = 1) RNI_Kcal=2840.
				EXECUTE.
				IF (sex = 1 & age_group_new = 2) RNI_Kcal=2440.
				EXECUTE.
				IF (sex = 1 & age_group_new = 3) RNI_Kcal=2460.
				EXECUTE.
				IF (sex = 1 & age_group_new = 4) RNI_Kcal=2460.
				EXECUTE.
				IF (sex = 2 & age_group_new = 1) RNI_Kcal=2050.
				EXECUTE.
				IF (sex = 2 & age_group_new = 2) RNI_Kcal=2000.
				EXECUTE.
				IF (sex = 2 & age_group_new = 3) RNI_Kcal=2180.
				EXECUTE.
				IF (sex = 2 & age_group_new = 4) RNI_Kcal=2180.
				EXECUTE.
				COMPUTE RNI_calories_percantage=Kcal_WD / RNI_Kcal * 100.
				EXECUTE.

RNI calcium percentage	RNI_calcium_percentage			IF (sex = 1 & age_group_new = 1) RNI_Calcium=1000.
				EXECUTE.
				IF (sex = 1 & age_group_new = 2) RNI_Calcium=800.
				EXECUTE.
				IF (sex = 1 & age_group_new = 3) RNI_Calcium=800.
				EXECUTE.
				IF (sex = 1 & age_group_new = 4) RNI_Calcium=800.
				EXECUTE.
				IF (sex = 1 & age_group_new = 1) RNI_Calcium=800.

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

				EXECUTE.
				IF (sex = 2 & age_group_new = 1) RNI_Calcium=1000.
				EXECUTE.
				IF (sex = 2 & age_group_new = 2) RNI_Calcium=800.
				EXECUTE.
				IF (sex = 2 & age_group_new = 3) RNI_Calcium=800.
				EXECUTE.
				IF (sex = 2 & age_group_new = 4) RNI_Calcium=1000.
				EXECUTE.
				COMPUTE RNI_calcium_percentage=Calcium_WD / RNI_Calcium * 100.
				EXECUTE.

RNI Iron Percentage	RNI_Iron_Percentage			IF (sex = 1 & age_group_new = 1) RNI_Iron=12.
				EXECUTE.
				IF (sex = 1 & age_group_new = 2) RNI_Iron=9.
				EXECUTE.
				IF (sex = 1 & age_group_new = 3) RNI_Iron=9.
				EXECUTE.
				IF (sex = 1 & age_group_new = 4) RNI_Iron=9.
				EXECUTE.
				IF (sex = 2 & age_group_new = 1) RNI_Iron=21.
				EXECUTE.
				IF (sex = 2 & age_group_new = 2) RNI_Iron=20.
				EXECUTE.
				IF (sex = 2 & age_group_new = 3) RNI_Iron=20.
				EXECUTE.
				IF (sex = 2 & age_group_new = 4) RNI_Iron=8.
				EXECUTE.
				COMPUTE RNI_Iron_Percentage=Iron_WD/RNI_Iron*100.
				EXECUTE.

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition

RNI Vitamin C Percentage	RNI_VitaminC_Percentage			IF (sex = 1 & age_group_new = 1) RNI_VitaminC=65.
				EXECUTE.
				IF (sex = 1 & age_group_new = 2) RNI_VitaminC=70.
				EXECUTE.
				IF (sex = 1 & age_group_new = 3) RNI_VitaminC=70.
				EXECUTE.
				IF (sex = 1 & age_group_new = 4) RNI_VitaminC=70.
				EXECUTE.
				IF (sex = 2 & age_group_new = 1) RNI_VitaminC=65.
				EXECUTE.
				IF (sex = 2 & age_group_new = 2) RNI_VitaminC=70.
				EXECUTE.
				IF (sex = 2 & age_group_new = 3) RNI_VitaminC=70.
				EXECUTE.
				IF (sex = 2 & age_group_new = 4) RNI_VitaminC=70.
				EXECUTE.
				COMPUTE
				RNI_VitaminC_Percentage=VitC_WD/RNI_VitaminC*100.
				EXECUTE.

RNI Vitamin A Percentage	RNI_VitaminA_Percentage			IF (sex = 1 & age_group_new = 1) RNI_VitaminA=600.
				EXECUTE.
				IF (sex = 1 & age_group_new = 2) RNI_VitaminA=600.
				EXECUTE.
				IF (sex = 1 & age_group_new = 3) RNI_VitaminA=600.
				EXECUTE.
				IF (sex = 1 & age_group_new = 4) RNI_VitaminA=600.
				EXECUTE.
				IF (sex = 2 & age_group_new = 1) RNI_VitaminA=600.
				EXECUTE.
				IF (sex = 2 & age_group_new = 2) RNI_VitaminA=500.
				EXECUTE.
				IF (sex = 2 & age_group_new = 3) RNI_VitaminA=500.
				EXECUTE.
				IF (sex = 2 & age_group_new = 4) RNI_VitaminA=500.
				EXECUTE.
				COMPUTE
				RNI_VitaminA_Percentage=VitARE_WD/RNI_VitaminA*100.
				EXECUTE.

Variable Name	Variable in SPSS	Weight	Definition	SPSS Variable Definition
RNI Thiamine Percentage	RNI_Thiamine_percentage			IF (sex = 1 & age_group_new = 1) RNI_Thiamine=1.2. EXECUTE. IF (sex = 1 & age_group_new = 2) RNI_Thiamine=1.2. EXECUTE. IF (sex = 1 & age_group_new = 3) RNI_Thiamine=1.2. EXECUTE. IF (sex = 1 & age_group_new = 4) RNI_Thiamine=1.2. EXECUTE. IF (sex = 2 & age_group_new = 1) RNI_Thiamine=1.1. EXECUTE. IF (sex = 2 & age_group_new = 2) RNI_Thiamine=1.1. EXECUTE. IF (sex = 2 & age_group_new = 3) RNI_Thiamine=1.1. EXECUTE. IF (sex = 2 & age_group_new = 4) RNI_Thiamine=1.1. EXECUTE. COMPUTE RNI_Thiamine_percentage=Thiamin_WD/RNI_Thiamine*100. EXECUTE.

Table 10.1: Median Intake of Energy (kcal) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**1466**	**19515215**	**1489**	**10185946**	**1445**	**9329269**
Zone						
Peninsular Malaysia	1445	15359831	1479	7986105	1422	7373726
East Malaysia	1493	4155384	1496	2199841	1490	1955543
Strata						
Urban	1510	13504364	1550	6915165	1493	6589200
Rural	1428	6010851	1457	3270781	1401	2740069
Age Group						
18-19	1413	1140724	1465	873261	1300	267464
20-29	1489	5277953	1467	2755084	1500	2522868
30-39	1488	4831231	1577	2383965	1436	2447266
40-49	1449	4616140	1473	2357737	1428	2258404
50-59	1443	3649167	1432	1815900	1449	1833267
Ethnicity						
Malay	1438	10495484	1502	5388642	1376	5106843
Chinese	1564	3832452	1572	2012896	1551	1819556
Indian	1444	1351023	1494	752777	1405	598245
Bumiputera Sabah	1431	1490399	1429	835994	1434	654405
Bumiputera Sarawak	1516	1062929	1414	495326	1580	567603
Others	1456	1182760	1486	648789	1449	533971
Other Bumis	1439	100170	1017	51523	1491	48647
Marital Status						
Never married	1456	5492108	1465	3523747	1436	1968361
Married/Cohabiting	1471	13143264	1494	6408668	1453	6734596
Divorced/ Separating	1473	638800	1673	239022	1429	399778
Widow	1373	225915	1629	5317	1373	220598
Educational Level						
Non-formal	1473	508167	1346	159039	1477	349129
Primary	1414	3618304	1424	1821472	1394	1796832
Secondary	1478	9711185	1546	5162759	1442	4548425
Tertiary	1503	5544404	1504	2967269	1500	2577135
Others	1458	88065	1432	51459	1811	36606
Work status						
Government/ Semi-government	1532	2175418	1582	1116929	1459	1058489
Private	1480	8151954	1467	5015758	1494	3136196
Self-employed	1445	4930850	1485	2967791	1397	1963059
Unpaid workers	1629	50222	1214	25143	1751	25079
Not working	1435	3188130	1465	421833	1434	2766298
Retired	1579	209271	1608	146058	1508	63214
Students	1335	626569	1459	381184	1223	245385
Income Group						
Less than RM1500	1435	7997754	1470	4146987	1398	3850767
RM1500 – RM3500	1490	6208939	1535	3316638	1472	2892301
More than RM 3500	1493	5073008	1479	2585176	1500	2487832

Table 10.2: Median Intake of Protein (g) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**56.67**	**19515215**	**58.13**	**10185946**	**55.85**	**9329269**
Zone						
Peninsular Malaysia	55.43	15359831	57.06	7986105	54.20	7373726
East Malaysia	58.78	4155384	60.24	2199841	58.08	1955543
Strata						
Urban	57.89	13504364	59.17	6915165	56.62	6589200
Rural	55.52	6010851	57.03	3270781	53.99	2740069
Age Group						
18-19	55.69	1140724	57.25	873261	51.30	267464
20-29	57.41	5277953	57.45	2755084	56.75	2522868
30-39	57.04	4831231	60.41	2383965	54.63	2447266
40-49	56.27	4616140	57.69	2357737	55.09	2258404
50-59	56.59	3649167	56.86	1815900	56.54	1833267
Ethnicity						
Malay	55.30	10495484	57.72	5388642	53.52	5106843
Chinese	61.86	3832452	64.07	2012896	61.04	1819556
Indian	52.48	1351023	55.77	752777	48.59	598245
Bumiputera Sabah	58.07	1490399	59.54	835994	56.04	654405
Bumiputera Sarawak	55.88	1062929	54.05	495326	56.51	567603
Others	56.84	1182760	56.12	648789	56.91	533971
Other Bumis	48.98	100170	27.01	51523	52.93	48647
Marital Status						
Never married	57.43	5492108	57.87	3523747	56.02	1968361
Married/Cohabiting	56.59	13143264	58.30	6408668	55.64	6734596
Divorced/ Separating	56.42	638800	61.99	239022	55.64	399778
Widow	57.61	225915	58.90	5317	57.61	220598
Educational Level						
Non-formal	56.91	508167	54.09	159039	56.91	349129
Primary	55.39	3618304	55.44	1821472	55.22	1796832
Secondary	56.68	9711185	59.55	5162759	54.26	4548425
Tertiary	57.89	5544404	57.43	2967269	58.39	2577135
Others	65.76	88065	54.40	51459	-	36606
Work status						
Government/ Semi-government	59.52	2175418	60.41	1116929	58.36	1058489
Private	57.74	8151954	58.10	5015758	57.63	3136196
Self-employed	56.53	4930850	57.42	2967791	55.33	1963059
Unpaid workers	66.68	50222	45.49	25143	69.28	25079
Not working	54.58	3188130	54.83	421833	54.53	2766298
Retired	60.01	209271	57.54	146058	64.97	63214
Students	48.87	626569	54.11	381184	45.96	245385
Income Group						
Less than RM1500	55.19	7997754	57.10	4146987	54.10	3850767
RM1500 – RM3500	58.59	6208939	60.01	3316638	57.86	2892301
More than RM 3500	57.08	5073008	57.85	2585176	56.31	2487832

Table 10.3: Median Intake of Carbohydrate (g) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**195.04**	**19515215**	**198.07**	**10185946**	**192.10**	**9329269**
Zone						
Peninsular Malaysia	190.06	15359831	193.98	7986105	187.83	7373726
East Malaysia	203.32	4155384	203.11	2199841	203.88	1955543
Strata						
Urban	196.89	13504364	197.33	6915165	196.66	6589200
Rural	193.08	6010851	198.43	3270781	188.05	2740069
Age Group						
18-19	187.82	1140724	193.87	873261	180.52	267464
20-29	200.45	5277953	201.79	2755084	198.65	2522868
30-39	193.87	4831231	199.95	2383965	190.04	2447266
40-49	194.04	4616140	196.67	2357737	192.32	2258404
50-59	192.87	3649167	194.91	1815900	189.03	1833267
Ethnicity						
Malay	191.15	10495484	198.63	5388642	186.62	5106843
Chinese	197.87	3832452	195.25	2012896	198.62	1819556
Indian	190.15	1351023	197.59	752777	179.98	598245
Bumiputera Sabah	197.86	1490399	198.43	835994	193.96	654405
Bumiputera Sarawak	211.64	1062929	203.49	495326	217.59	567603
Others	193.81	1182760	193.82	648789	193.78	533971
Other Bumis	150.63	100170	139.95	51523	158.31	48647
Marital Status						
Never married	194.55	5492108	198.45	3523747	189.47	1968361
Married/Cohabiting	195.20	13143264	198.03	6408668	193.30	6734596
Divorced/ Separating	191.57	638800	214.69	239022	190.81	399778
Widow	193.97	225915	224.11	5317	193.97	220598
Educational Level						
Non-formal	195.04	508167	202.48	159039	193.97	349129
Primary	188.98	3618304	194.16	1821472	187.91	1796832
Secondary	195.20	9711185	198.56	5162759	191.08	4548425
Tertiary	199.08	5544404	199.37	2967269	198.95	2577135
Others	209.90	88065	205.11	51459		36606
Work status						
Government/ Semi-government	203.01	2175418	214.46	1116929	198.92	1058489
Private	194.64	8151954	192.39	5015758	197.83	3136196
Self-employed	193.32	4930850	200.73	2967791	186.76	1963059
Unpaid workers	180.72	50222	172.10	25143	206.05	25079
Not working	192.32	3188130	198.32	421833	191.88	2766298
Retired	197.56	209271	208.25	146058	176.03	63214
Students	187.04	626569	199.84	381184	175.30	245385
Income Group						
Less than RM1500	192.10	7997754	199.09	4146987	188.00	3850767
RM1500 – RM3500	197.82	6208939	201.95	3316638	195.69	2892301
More than RM 3500	196.64	5073008	192.69	2585176	200.72	2487832

Table 10.4: Median Intake of Fat (g) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**46.43**	**19515215**	**46.61**	**10185946**	**45.99**	**9329269**
Zone						
Peninsular Malaysia	46.55	15359831	46.85	7986105	45.99	7373726
East Malaysia	46.33	4155384	46.44	2199841	45.98	1955543
Strata						
Urban	48.70	13504364	48.86	6915165	48.48	6589200
Rural	44.46	6010851	44.86	3270781	44.10	2740069
Age Group						
18-19	43.09	1140724	42.89	873261	43.39	267464
20-29	47.57	5277953	46.58	2755084	48.55	2522868
30-39	47.91	4831231	50.77	2383965	46.24	2447266
40-49	46.02	4616140	47.90	2357737	44.67	2258404
50-59	44.43	3649167	44.17	1815900	45.30	1833267
Ethnicity						
Malay	45.33	10495484	46.18	5388642	44.44	5106843
Chinese	53.31	3832452	53.78	2012896	52.02	1819556
Indian	47.22	1351023	49.96	752777	44.70	598245
Bumiputera Sabah	44.73	1490399	43.30	835994	45.22	654405
Bumiputera Sarawak	45.32	1062929	42.71	495326	48.66	567603
Others	46.38	1182760	47.94	648789	45.52	533971
Other Bumis	44.50	100170	22.63	51523	50.75	48647
Marital Status						
Never married	46.58	5492108	46.12	3523747	48.00	1968361
Married/Cohabiting	46.43	13143264	47.49	6408668	45.83	6734596
Divorced/ Separating	45.46	638800	48.70	239022	45.23	399778
Widow	44.10	225915	54.19	5317	44.10	220598
Educational Level						
Non-formal	48.49	508167	45.75	159039	48.77	349129
Primary	43.51	3618304	43.37	1821472	43.52	1796832
Secondary	46.59	9711185	47.81	5162759	45.49	4548425
Tertiary	48.75	5544404	48.49	2967269	48.82	2577135
Others	53.97	88065	46.08	51459		36606
Work status						
Government/ Semi-government	47.58	2175418	48.03	1116929	46.92	1058489
Private	48.11	8151954	48.11	5015758	48.27	3136196
Self-employed	45.30	4930850	45.67	2967791	44.50	1963059
Unpaid workers	56.95	50222	36.98	25143		25079
Not working	45.27	3188130	45.08	421833	45.36	2766298
Retired	48.09	209271	48.70	146058	48.09	63214
Students	44.02	626569	43.92	381184	44.50	245385
Income Group						
Less than RM1500	44.74	7997754	44.84	4146987	44.47	3850767
RM1500 – RM3500	48.32	6208939	47.91	3316638	48.56	2892301
More than RM 3500	48.27	5073008	48.80	2585176	47.41	2487832

Table 10.5: Median Intake of Sodium (mg) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**1935**	**19515215**	**1970**	**10185946**	**1914**	**9329269**
Zone						
Peninsular Malaysia	1873	15359831	1898	7986105	1849	7373726
East Malaysia	2007	4155384	2037	2199841	1967	1955543
Strata						
Urban	2026	13504364	2067	6915165	1994	6589200
Rural	1822	6010851	1830	3270781	1797	2740069
Age Group						
18-19	1778	1140724	1812	873261	1652	267464
20-29	1937	5277953	1903	2755084	1953	2522868
30-39	1971	4831231	2123	2383965	1893	2447266
40-49	1919	4616140	1991	2357737	1848	2258404
50-59	1908	3649167	1829	1815900	1951	1833267
Ethnicity						
Malay	1839	10495484	1900	5388642	1764	5106843
Chinese	2251	3832452	2281	2012896	2210	1819556
Indian	1870	1351023	1845	752777	2040	598245
Bumiputera Sabah	2026	1490399	2005	835994	2026	654405
Bumiputera Sarawak	1776	1062929	1530	495326	1843	567603
Others	2028	1182760	1971	648789	2058	533971
Other Bumis	735	100170	1010	51523	723	48647
Marital Status						
Never married	1876	5492108	1982	3523747	1807	1968361
Married/Cohabiting	1940	13143264	1956	6408668	1937	6734596
Divorced/ Separating	2050	638800	2563	239022	1837	399778
Widow	1965	225915	1880	5317	1965	220598
Educational Level						
Non-formal	1948	508167	1791	159039	2048	349129
Primary	1830	3618304	1811	1821472	1837	1796832
Secondary	1983	9711185	2075	5162759	1888	4548425
Tertiary	1935	5544404	1924	2967269	1943	2577135
Others	1709	88065	1350	51459	1872	36606
Work status						
Government/ Semi-government	1967	2175418	2039	1116929	1926	1058489
Private	1971	8151954	1995	5015758	1953	3136196
Self-employed	1885	4930850	1924	2967791	1835	1963059
Unpaid workers	2060	50222	2043	25143		25079
Not working	1915	3188130	1865	421833	1917	2766298
Retired	2054	209271	2113	146058	2054	63214
Students	1770	626569	1523	381184	1830	245385
Income Group						
Less than RM1500	1843	7997754	1824	4146987	1851	3850767
RM1500 – RM3500	1985	6208939	2052	3316638	1917	2892301
More than RM 3500	2050	5073008	2132	2585176	1948	2487832

Table 10.6: Median Intake of Calcium (mg) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**356.25**	**19515215**	**368.06**	**10185946**	**344.08**	**9329269**
Zone						
Peninsular Malaysia	363.59	15359831	368.14	7986105	356.67	7373726
East Malaysia	346.04	4155384	367.93	2199841	324.55	1955543
Strata						
Urban	357.98	13504364	366.98	6915165	351.54	6589200
Rural	351.64	6010851	369.87	3270781	333.82	2740069
Age Group						
18-19	342.82	1140724	339.89	873261	353.06	267464
20-29	356.82	5277953	371.35	2755084	337.46	2522868
30-39	357.88	4831231	388.58	2383965	338.75	2447266
40-49	356.59	4616140	359.87	2357737	346.89	2258404
50-59	355.32	3649167	364.84	1815900	349.34	1833267
Ethnicity						
Malay	353.33	10495484	372.55	5388642	336.56	5106843
Chinese	387.10	3832452	398.20	2012896	383.07	1819556
Indian	344.65	1351023	337.38	752777	348.68	598245
Bumiputera Sabah	321.53	1490399	347.22	835994	305.30	654405
Bumiputera Sarawak	359.87	1062929	359.87	495326	359.19	567603
Others	383.84	1182760	388.35	648789	373.32	533971
Other Bumis	310.87	100170	178.88	51523	343.26	48647
Marital Status						
Never married	356.67	5492108	365.18	3523747	348.49	1968361
Married/Cohabiting	357.76	13143264	371.30	6408668	344.08	6734596
Divorced/ Separating	357.79	638800	359.87	239022	355.71	399778
Widow	305.58	225915	352.93	5317	305.58	220598
Educational Level						
Non-formal	315.36	508167	329.86	159039	312.07	349129
Primary	346.14	3618304	362.22	1821472	334.26	1796832
Secondary	353.45	9711185	366.32	5162759	341.26	4548425
Tertiary	366.95	5544404	392.76	2967269	358.73	2577135
Others	488.79	88065	456.16	51459		36606
Work status						
Government/ Semi-government	366.58	2175418	406.24	1116929	355.07	1058489
Private	370.73	8151954	382.32	5015758	359.28	3136196
Self-employed	355.55	4930850	355.55	2967791	354.51	1963059
Unpaid workers	384.15	50222	294.41	25143	-	25079
Not working	333.82	3188130	365.18	421833	332.12	2766298
Retired	368.68	209271	435.21	146058	265.42	63214
Students	340.24	626569	340.82	381184	305.75	245385
Income Group						
Less than RM1500	347.00	7997754	362.79	4146987	338.87	3850767
RM1500 – RM3500	359.17	6208939	374.06	3316638	337.68	2892301
More than RM 3500	369.87	5073008	373.93	2585176	365.28	2487832

Table 10.7: Median Intake of Iron (mg) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**9.90**	**19390605**	**10.22**	**10098409**	**9.54**	**9292196**
Zone						
Peninsular Malaysia	10.23	15235221	10.76	7898568	9.90	7336653
East Malaysia	9.25	4155384	9.53	2199841	9.02	1955543
Strata						
Urban	10.16	13379754	10.50	6827628	9.90	6552126
Rural	9.48	6010851	9.83	3270781	9.18	2740069
Age Group						
18-19	9.76	1102427	10.36	834963	9.10	267464
20-29	9.90	5277953	9.87	2727729	9.92	2522868
30-39	10.04	4809347	10.65	2362081	9.66	2447266
40-49	9.80	4579067	10.27	2357737	9.42	2221330
50-59	9.62	3649167	10.09	1815900	9.31	1833267
Ethnicity						
Malay	10.00	10370874	10.70	5301105	9.48	5069769
Chinese	10.80	3832452	11.95	2012896	10.44	1819556
Indian	10.07	1351023	10.29	752777	9.47	598245
Bumiputera Sabah	8.44	1490399	8.46	835994	8.38	654405
Bumiputera Sarawak	8.76	1062929	8.26	495326	9.24	567603
Others	10.01	1182760	9.23	648789	10.62	533971
Other Bumis	9.33	100170	9.18	51523	9.51	48647
Marital Status						
Never married	9.94	5426455	10.35	3458095	9.39	1968361
Married/Cohabiting	9.91	13143264	10.13	6386784	9.68	6697523
Divorced/ Separating	9.51	638800	10.80	239022	9.28	399778
Widow	9.00	225915	24.68	5317	9.00	220598
Educational Level						
Non-formal	8.76	508167	8.82	159039	8.57	349129
Primary	9.40	3618304	10.09	1821472	8.94	1796832
Secondary	9.83	9688014	10.38	5162759	9.42	4525254
Tertiary	10.28	5442964	10.15	2879732	10.57	2563233
Others	15.07	88065	12.19	51459		36606
Work status						
Government/ Semi-government	10.03	2139632	10.48	1095045	9.85	1044587
Private	10.14	8151954	10.21	5015758	9.92	3136196
Self-employed	9.54	4907679	10.06	2967791	8.95	1939889
Unpaid workers	11.24	50222	8.94	25143	-	25079
Not working	9.71	3188130	10.55	421833	9.58	2766298
Retired	10.15	209271	10.22	146058	10.06	63214
Students	9.88	560916	10.56	315531	9.36	245385
Income Group						
Less than RM1500	9.54	7970398	10.06	4119632	9.09	3850767
RM1500 – RM3500	10.04	6122626	10.50	3267399	9.66	2855227
More than RM 3500	10.20	5062066	10.15	2574234	10.27	2487832

Table 10.8: Median Intake of Vitamin C (mg) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**38.86**	**19510581**	**40.53**	**10185946**	**37.70**	**9324635**
Zone						
Peninsular Malaysia	32.87	15355197	33.09	7986105	32.70	7369092
East Malaysia	51.30	4155384	53.92	2199841	47.53	1955543
Strata						
Urban	41.06	13499730	43.51	6915165	38.95	6584566
Rural	37.25	6010851	37.88	3270781	36.82	2740069
Age Group						
18-19	31.25	1140724	33.06	873261	30.80	267464
20-29	37.87	5277953	38.03	2755084	37.77	2522868
30-39	36.87	4826597	39.05	2383965	35.47	2442632
40-49	41.00	4616140	41.03	2357737	40.76	2258404
50-59	43.44	3649167	50.19	1815900	39.30	1833267
Ethnicity						
Malay	31.01	10495484	32.50	5388642	30.35	5106843
Chinese	51.27	3827818	50.25	2012896	51.74	1814922
Indian	32.80	1351023	37.04	752777	32.00	598245
Bumiputera Sabah	38.72	1490399	47.06	835994	34.08	654405
Bumiputera Sarawak	64.92	1062929	65.17	495326	63.00	567603
Others	48.54	1182760	44.78	648789	50.17	533971
Other Bumis	46.63	100170	46.63	51523	46.43	48647
Marital Status						
Never married	40.04	5492108	40.88	3523747	39.29	1968361
Married/Cohabiting	38.78	13143264	40.75	6408668	37.60	6734596
Divorced/ Separating	31.42	634165	34.66	239022	31.37	395143
Widow	39.12	225915	35.27	5317	39.12	220598
Educational Level						
Non-formal	51.29	508167	65.04	159039	43.41	349129
Primary	44.27	3618304	48.97	1821472	41.89	1796832
Secondary	35.18	9706551	36.65	5162759	34.31	4543791
Tertiary	39.65	5544404	40.88	2967269	39.07	2577135
Others	61.79	88065	51.52	51459		36606
Work status						
Government/ Semi-government	42.02	2175418	41.52	1116929	42.38	1058489
Private	40.53	8151954	40.53	5015758	40.23	3136196
Self-employed	40.38	4926216	40.85	2967791	39.91	1958425
Unpaid workers	54.29	50222	61.16	25143	47.42	25079
Not working	34.26	3188130	31.10	421833	34.29	2766298
Retired	42.51	209271	61.16	146058	28.87	63214
Students	27.25	626569	28.06	381184	26.70	245385
Income Group						
Less than RM1500	38.72	7997754	40.19	4146987	37.57	3850767
RM1500 – RM3500	38.71	6204304	41.76	3316638	37.73	2887666
More than RM 3500	39.48	5073008	41.58	2585176	37.26	2487832

Table 10.9: Median Intake of Vitamin A (µg) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**480.26**	**19498249**	**494.08**	**10182882**	**470.85**	**9315367**
Zone						
Peninsular Malaysia	471.25	15345928	493.41	7986105	455.55	7359824
East Malaysia	496.69	4152320	500.64	2196777	495.51	1955543
Strata						
Urban	472.81	13490462	489.89	6915165	456.34	6575297
Rural	493.85	6007787	509.18	3267718	488.74	2740069
Age Group						
18-19	509.52	1131456	508.30	873261	510.74	258195
20-29	495.16	5277953	541.67	2755084	454.58	2522868
30-39	477.00	4823533	521.96	2380901	440.95	2442632
40-49	477.24	4616140	450.01	2357737	489.98	2258404
50-59	469.27	3649167	471.23	1815900	468.12	1833267
Ethnicity						
Malay	467.87	10492420	510.07	5385578	436.39	5106843
Chinese	507.17	3818549	477.30	2012896	526.37	1805653
Indian	493.81	1351023	493.81	752777	488.11	598245
Bumiputera Sabah	355.38	1490399	430.35	835994	319.67	654405
Bumiputera Sarawak	611.14	1062929	521.95	495326	669.02	567603
Others	492.19	1182760	510.31	648789	480.39	533971
Other Bumis	540.73	100170	376.57	51523	625.80	48647
Marital Status						
Never married	482.04	5482839	522.23	3523747	435.48	1959092
Married/Cohabiting	487.56	13140200	488.22	6405604	484.13	6734596
Divorced/ Separating	411.86	634165	454.61	239022	374.52	395143
Widow	399.21	225915	957.15	5317	399.21	220598
Educational Level						
Non-formal	536.27	508167	518.69	159039	536.27	349129
Primary	467.85	3618304	463.24	1821472	470.92	1796832
Secondary	477.56	9697282	504.24	5162759	458.19	4534523
Tertiary	486.47	5544404	504.05	2967269	467.84	2577135
Others	-	85001	-	48395		36606
Work status						
Government/ Semi-government	480.13	2175418	495.14	1116929	467.88	1058489
Private	496.69	8151954	490.91	5015758	505.51	3136196
Self-employed	471.89	4923152	504.12	2964727	456.98	1958425
Unpaid workers	480.11	50222	447.50	25143	512.71	25079
Not working	470.92	3188130	469.74	421833	470.97	2766298
Retired	553.21	209271	643.55	146058	251.10	63214
Students	390.60	617301	578.98	381184	260.74	236117
Income Group						
Less than RM1500	493.12	7985421	486.78	4143923	495.51	3841498
RM1500 – RM3500	477.03	6204304	510.60	3316638	450.67	2887666
More than RM 3500	473.66	5073008	493.81	2585176	456.34	2487832

Table 10.10: Median Intake of Thiamine (mg) by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**0.59**	**19278419**	**0.62**	**10053358**	**0.57**	**9225062**
Zone						
Peninsular Malaysia	0.61	15139822	0.64	7861236	0.59	7278586
East Malaysia	0.56	4138597	0.59	2192122	0.54	1946476
Strata						
Urban	0.62	13300219	0.65	6791678	0.60	6508540
Rural	0.55	5978200	0.58	3261679	0.53	2716521
Age Group						
18-19	0.57	1059779	0.59	815486	0.54	244293
20-29	0.60	5238360	0.60	2727729	0.59	2510631
30-39	0.61	4768842	0.64	2345668	0.59	2423174
40-49	0.58	4566778	0.61	2353081	0.55	2213697
50-59	0.57	3644661	0.62	1811394	0.54	1833267
Ethnicity						
Malay	0.57	10324347	0.63	5285657	0.55	5038690
Chinese	0.69	3783232	0.69	1993359	0.68	1789873
Indian	0.58	1345551	0.58	747306	0.58	598245
Bumiputera Sabah	0.54	1487335	0.55	832930	0.54	654405
Bumiputera Sarawak	0.55	1058842	0.57	493794	0.55	565047
Others	0.64	1178943	0.64	648789	0.63	530154
Other Bumis	0.53	100170	0.28	51523	0.62	48647
Marital Status						
Never married	0.59	5363936	0.62	3438618	0.56	1925318
Married/Cohabiting	0.59	13044745	0.63	6366680	0.57	6678065
Divorced/ Separating	0.58	628694	0.53	233551	0.59	395143
Widow	0.54	225915	0.72	5317	0.54	220598
Educational Level						
Non-formal	0.54	501795	0.56	159039	0.53	342756
Primary	0.59	3610358	0.63	1815434	0.55	1794924
Secondary	0.58	9628066	0.59	5140159	0.56	4487907
Tertiary	0.62	5405045	0.68	2863319	0.58	2541726
Others	0.65	88065	0.63	51459		36606
Work status						
Government/ Semi-government	0.62	2138100	0.68	1093513	0.58	1044587
Private	0.60	8120547	0.60	4999344	0.59	3121203
Self-employed	0.58	4885775	0.61	2964667	0.54	1921108
Unpaid workers	0.50	50222	0.59	25143	0.41	25079
Not working	0.57	3176097	0.55	414263	0.57	2761834
Retired	0.66	209271	0.68	146058	0.53	63214
Students	0.58	515607	0.69	299118	0.55	216489
Income Group						
Less than RM1500	0.55	7928681	0.58	4112061	0.54	3816620
RM1500 – RM3500	0.61	6072367	0.64	3240859	0.56	2831508
More than RM 3500	0.63	5041856	0.66	2563292	0.61	2478564

Table 10.11: Median Energy Intake as percentage of RNI by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	64.36	19506775	66.53	10196281	62.06	9310494
Zone						
Peninsular Malaysia	63.28	15379849	66.68	8011848	60.42	7368001
East Malaysia	65.68	4126926	66.39	2184432	65.45	1942494
Strata						
Urban	65.82	13529121	69.56	6954248	62.62	6574873
Rural	62.12	5977655	63.43	3242033	61.41	2735622
Age Group						
18-19	65.45	1136897	62.55	865601	71.33	271296
20-29	68.85	5317552	67.43	2777764	70.77	2539788
30-39	65.00	4829050	70.24	2374594	61.09	2454455
40-49	63.67	4600954	66.59	2365545	59.45	2235409
50-59	59.43	3622322	61.30	1812776	58.74	1809546
Ethnicity						
Malay	64.67	10561460	67.39	5427904	62.01	5133557
Chinese	66.84	3794927	69.61	1997816	64.42	1797112
Indian	58.31	1351023	66.46	752777	52.83	598245
Bumiputera Sabah	62.67	1453242	63.06	828394	62.26	624848
Bumiputera Sarawak	63.75	1062929	62.12	495326	65.54	567603
Others	64.07	1193179	66.95	648789	61.37	544391
Other Bumis	55.57	90015	55.45	45276	55.57	44740
Marital Status						
Never married	65.20	5470104	64.46	3501067	65.91	1969038
Married/Cohabiting	64.54	13159639	67.43	6433874	61.84	6725765
Divorced/ Separating	60.35	620990	64.42	239022	59.16	381968
Widow	55.96	233105	-	5317	55.94	227788
Educational Level						
Non-formal	51.85	503533	51.84	159039	52.75	344494
Primary	60.69	3610051	64.38	1810689	58.43	1799363
Secondary	64.03	9725091	65.76	5175502	62.03	4549589
Tertiary	68.32	5529735	69.90	2975644	66.01	2554091
Others	70.94	88065	62.79	51459	74.13	36606
Work status						
Government/ Semi-government	66.62	2245235	71.12	1171639	63.10	1073595
Private	64.82	8126044	67.15	4990939	62.00	3135105
Self-employed	64.19	4928672	66.47	2961603	59.88	1967068
Unpaid workers	90.00	42563	95.79	17483	90.00	25079
Not working	61.11	3162863	55.44	408314	61.82	2754549
Retired	62.74	205364	58.69	146058	69.80	59306
Students	66.97	610062	63.30	381184	67.69	228878
Income Group						
Less than RM1500	61.11	7970296	63.15	4136989	60.18	3833307
RM1500 – RM3500	66.02	6235358	69.19	3332275	64.69	2903083
More than RM 3500	67.32	5081183	70.42	2600814	63.27	2480369

Table 10.12: Median Protein Intake as percentage of RNI by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**97.73**	**19506775**	**101.25**	**10196281**	**94.86**	**9310494**
Zone						
Peninsular Malaysia	94.75	15379849	99.22	8011848	90.19	7368001
East Malaysia	102.54	4126926	103.19	2184432	102.22	1942494
Strata						
Urban	99.37	13529121	105.24	6954248	95.80	6574873
Rural	95.58	5977655	97.23	3242033	93.46	2735622
Age Group						
18-19	94.66	1136897	101.37	865601	87.30	271296
20-29	100.77	5317552	101.67	2777764	99.46	2539788
30-39	99.29	4829050	106.87	2374594	95.70	2454455
40-49	95.93	4600954	98.69	2365545	93.31	2235409
50-59	93.35	3622322	96.04	1812776	91.56	1809546
Ethnicity						
Malay	95.79	10561460	100.67	5427904	91.98	5133557
Chinese	110.11	3794927	114.83	1997816	103.47	1797112
Indian	82.14	1351023	89.66	752777	69.19	598245
Bumiputera Sabah	95.70	1453242	97.16	828394	92.88	624848
Bumiputera Sarawak	99.21	1062929	88.38	495326	105.37	567603
Others	102.89	1193179	106.37	648789	99.58	544391
Other Bumis	94.92	90015	93.28	45276	94.92	44740
Marital Status						
Never married	97.83	5470104	101.13	3501067	92.28	1969038
Married/Cohabiting	98.63	13159639	101.48	6433874	96.60	6725765
Divorced/ Separating	90.90	620990	93.70	239022	87.20	381968
Widow	77.27	233105	-	5317	77.13	227788
Educational Level						
Non-formal	81.24	503533	80.92	159039	81.66	344494
Primary	96.08	3610051	96.06	1810689	96.59	1799363
Secondary	98.06	9725091	103.33	5175502	91.76	4549589
Tertiary	100.84	5529735	101.33	2975644	100.18	2554091
Others	99.07	88065	93.37	51459	115.59	36606
Work status						
Government/ Semi-government	98.63	2245235	100.88	1171639	97.83	1073595
Private	97.25	8126044	99.08	4990939	94.10	3135105
Self-employed	100.37	4928672	103.04	2961603	93.69	1967068
Unpaid workers	104.80	42563	135.69	17483	104.80	25079
Not working	94.51	3162863	88.03	408314	95.05	2754549
Retired	92.71	205364	85.04	146058	112.11	59306
Students	88.35	610062	96.05	381184	84.03	228878
Income Group						
Less than RM1500	93.46	7970296	96.02	4136989	91.28	3833307
RM1500 – RM3500	102.27	6235358	105.97	3332275	98.05	2903083
More than RM 3500	100.67	5081183	105.98	2600814	97.75	2480369

Table 10.13: Median Calcium Intake as percentage of RNI by Socio-demographi Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**43.56**	**19506775**	**46.90**	**10196281**	**40.46**	**9310494**
Zone						
Peninsular Malaysia	43.82	15379849	48.33	8011848	40.28	7368001
East Malaysia	43.32	4126926	44.83	2184432	41.50	1942494
Strata						
Urban	43.90	13529121	48.69	6954248	40.37	6574873
Rural	42.78	5977655	45.85	3242033	40.46	2735622
Age Group						
18-19	34.57	1136897	35.21	865601	34.57	271296
20-29	44.53	5317552	47.53	2777764	41.26	2539788
30-39	45.74	4829050	51.17	2374594	42.63	2454455
40-49	43.93	4600954	47.22	2365545	41.52	2235409
50-59	40.71	3622322	46.51	1812776	35.78	1809546
Ethnicity						
Malay	44.46	10561460	47.94	5427904	41.41	5133557
Chinese	44.58	3794927	48.84	1997816	38.60	1797112
Indian	41.16	1351023	48.24	752777	35.07	598245
Bumiputera Sabah	39.66	1453242	42.16	828394	37.45	624848
Bumiputera Sarawak	43.44	1062929	45.99	495326	42.49	567603
Others	45.66	1193179	51.17	648789	42.25	544391
Other Bumis	30.06	90015	40.72	45276	24.05	44740
Marital Status						
Never married	43.38	5470104	45.85	3501067	40.10	1969038
Married/Cohabiting	43.94	13159639	48.04	6433874	41.39	6725765
Divorced/ Separating	43.14	620990	46.15	239022	42.36	381968
Widow	31.50	233105	84.44	5317	30.65	227788
Educational Level						
Non-formal	31.01	503533	30.11	159039	31.01	344494
Primary	39.92	3610051	44.65	1810689	36.48	1799363
Secondary	43.65	9725091	46.80	5175502	41.25	4549589
Tertiary	48.28	5529735	50.43	2975644	46.08	2554091
Others	39.29	88065	42.68	51459	34.03	36606
Work status						
Government/ Semi-government	48.88	2245235	52.97	1171639	45.82	1073595
Private	44.46	8126044	48.33	4990939	39.87	3135105
Self-employed	43.27	4928672	47.07	2961603	37.40	1967068
Unpaid workers	44.85	42563	54.62	17483	42.56	25079
Not working	40.96	3162863	36.41	408314	41.38	2754549
Retired	43.11	205364	45.23	146058	35.09	59306
Students	36.56	610062	36.03	381184	43.48	228878
Income Group						
Less than RM1500	41.06	7970296	43.85	4136989	37.50	3833307
RM1500 – RM3500	44.68	6235358	49.48	3332275	40.91	2903083
More than RM 3500	46.96	5081183	50.82	2600814	45.07	2480369

Table 10.14: Median Iron Intake as percentage of RNI by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**78.44**	**19390596**	**119.06**	**10103273**	**52.00**	**9287324**
Zone						
Peninsular Malaysia	83.37	15263670	124.49	7918841	53.99	7344830
East Malaysia	72.25	4126926	111.22	2184432	49.77	1942494
Strata						
Urban	78.81	13412942	128.77	6861240	52.00	6551702
Rural	78.05	5977655	110.04	3242033	51.92	2735622
Age Group						
18-19	77.67	1136897	94.20	865601	41.84	271296
20-29	76.11	5290197	116.34	2750409	49.87	2539788
30-39	71.10	4801695	128.18	2347239	44.78	2454455
40-49	67.97	4566841	125.62	2354603	44.70	2212238
50-59	106.96	3594967	108.52	1785421	104.02	1809546
Ethnicity						
Malay	78.62	10445282	119.53	5334896	53.59	5110386
Chinese	94.96	3794927	142.68	1997816	60.45	1797112
Indian	91.99	1351023	128.81	752777	46.51	598245
Bumiputera Sabah	71.72	1453242	102.56	828394	44.57	624848
Bumiputera Sarawak	64.92	1062929	95.77	495326	49.48	567603
Others	77.36	1193179	114.67	648789	46.97	544391
Other Bumis	45.90	90015	111.98	45276	41.89	44740
Marital Status						
Never married	84.87	5466287	114.80	3473711	46.89	1969038
Married/Cohabiting	77.32	13070816	120.42	6368222	53.99	6702594
Divorced/ Separating	79.52	620990	109.21	239022	52.80	381968
Widow	57.36	233105	-	5317	56.22	227788
Educational Level						
Non-formal	54.70	503533	69.43	159039	49.55	344494
Primary	79.90	3566283	107.44	1766920	58.64	1799363
Secondary	78.21	9704880	125.18	5164560	49.13	4540321
Tertiary	82.25	5477535	129.16	2937347	55.74	2540188
Others	90.12	88065	103.85	51459	60.58	36606
Work status						
Government/ Semi-government	81.96	2234292	126.46	1160697	52.12	1073595
Private	85.47	8098689	120.59	4963584	49.24	3135105
Self-employed	88.16	4905501	120.24	2961603	54.83	1943897
Unpaid workers	82.77	42563	122.63	17483	41.69	25079
Not working	57.14	3162863	77.87	408314	54.14	2754549
Retired	113.99	205364	104.71	146058	121.51	59306
Students	77.67	582706	129.89	381184	42.61	228878
Income Group						
Less than RM1500	74.26	7915585	110.26	4082279	50.01	3833307
RM1500 – RM3500	81.65	6184832	123.84	3304920	50.39	2879912
More than RM 3500	84.72	5070241	131.79	2589871	57.99	2480369

Table 10.15: Median Vitamin C Intake as percentage of RNI by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**55.71**	**19502958**	**52.68**	**10196281**	**58.60**	**9306678**
Zone						
Peninsular Malaysia	46.80	15376032	42.57	8011848	51.01	7364184
East Malaysia	73.93	4126926	71.01	2184432	78.29	1942494
Strata						
Urban	59.24	13529121	58.81	6954248	59.27	6574873
Rural	53.53	5973838	48.20	3242033	57.24	2731805
Age Group						
18-19	38.56	1136897	31.56	865601	55.02	271296
20-29	49.46	5290197	41.25	2777764	52.54	2535971
30-39	56.85	4829050	55.88	2374594	57.83	2454455
40-49	60.96	4600954	61.50	2365545	60.31	2235409
50-59	63.31	3622322	55.02	1812776	69.34	1809546
Ethnicity						
Malay	42.25	10557643	37.21	5427904	47.61	5129740
Chinese	79.11	3794927	82.19	1997816	78.26	1797112
Indian	45.25	1351023	42.03	752777	45.98	598245
Bumiputera Sabah	56.36	1453242	48.69	828394	65.79	624848
Bumiputera Sarawak	108.41	1062929	104.45	495326	115.60	567603
Others	65.32	1193179	72.07	648789	59.92	544391
Other Bumis	70.10	90015	60.33	45276	87.92	44740
Marital Status						
Never married	46.74	5466287	41.38	3501067	55.58	1965221
Married/Cohabiting	58.81	13159639	56.83	6433874	59.41	6725765
Divorced/ Separating	58.92	620990	49.50	239022	59.66	381968
Widow	51.78	233105	-	5317	50.18	227788
Educational Level						
Non-formal	82.26	503533	88.90	159039	78.74	344494
Primary	63.63	3610051	66.66	1810689	59.84	1799363
Secondary	49.99	9725091	47.71	5175502	52.57	4549589
Tertiary	57.33	5525918	48.79	2975644	62.58	2550274
Others	77.94	88065	95.44	51459	44.42	36606
Work status						
Government/ Semi-government	57.27	2241418	56.33	1171639	59.89	1069778
Private	56.00	8126044	57.52	4990939	55.58	3135105
Self-employed	52.99	4928672	49.32	2961603	58.84	1967068
Unpaid workers	31.30	42563	31.51	17483	27.95	25079
Not working	57.02	3162863	30.28	408314	59.82	2754549
Retired	64.11	205364	64.11	146058	61.90	59306
Students	61.07	610062	33.73	381184	79.07	228878
Income Group						
Less than RM1500	53.92	7970296	50.01	4136989	55.87	3833307
RM1500 – RM3500	55.33	6231541	52.63	3332275	57.60	2899266
More than RM 3500	60.91	5081183	57.14	2600814	61.75	2480369

Table 10.16: Median Vitamin A Intake as percentage of RNI by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**88.55**	**19489461**	**92.81**	**10185338**	**85.43**	**9304122**
Zone						
Peninsular Malaysia	86.61	15365090	97.59	8000906	78.09	7364184
East Malaysia	91.95	4124371	87.18	2184432	95.43	1939938
Strata						
Urban	87.04	13518178	97.53	6943306	80.54	6574873
Rural	90.38	5971282	90.29	3242033	90.61	2729250
Age Group						
18-19	77.04	1136897	79.16	865601	62.61	271296
20-29	91.22	5302793	101.94	2766822	83.89	2535971
30-39	91.44	4826495	97.05	2374594	87.75	2451900
40-49	90.63	4600954	93.69	2365545	85.99	2235409
50-59	82.77	3622322	82.22	1812776	82.81	1809546
Ethnicity						
Malay	86.45	10546701	91.90	5416962	81.42	5129740
Chinese	90.29	3794927	95.85	1997816	86.49	1797112
Indian	70.51	1351023	88.48	752777	52.56	598245
Bumiputera Sabah	72.12	1450686	67.52	828394	75.03	622293
Bumiputera Sarawak	122.88	1062929	109.82	495326	136.45	567603
Others	90.09	1193179	115.11	648789	80.70	544391
Other Bumis	56.66	90015	85.42	45276	53.35	44740
Marital Status						
Never married	84.06	5466287	90.09	3501067	76.72	1965221
Married/Cohabiting	90.50	13146142	94.37	6422932	87.69	6723210
Divorced/ Separating	86.70	620990	86.70	239022	85.12	381968
Widow	63.79	233105		5317	63.52	227788
Educational Level						
Non-formal	93.50	503533	85.86	159039	93.50	344494
Primary	89.49	3610051	86.99	1810689	91.12	1799363
Secondary	87.67	9714149	95.32	5164560	79.01	4549589
Tertiary	88.25	5523362	89.98	2975644	87.34	2547718
Others	99.93	88065	157.13	51459	65.27	36606
Work status						
Government/ Semi-government	88.55	2238862	99.78	1171639	86.76	1067223
Private	92.14	8115102	96.31	4979997	89.30	3135105
Self-employed	88.89	4928672	93.13	2961603	80.45	1967068
Unpaid workers	39.11	42563	35.23	17483	59.00	25079
Not working	80.45	3162863	58.14	408314	85.71	2754549
Retired	97.29	205364	87.90	146058	115.34	59306
Students	86.11	610062	107.30	381184	70.07	228878
Income Group						
Less than RM1500	84.98	7970296	87.05	4136989	82.88	3833307
RM1500 – RM3500	91.88	6231541	98.09	3332275	86.03	2899266
More than RM 3500	90.02	5067686	97.53	2589871	86.66	2477814

Table 10.17: Median Thiamine Intake as percentage of RNI by Socio-demographic Characteristics

Characteristic	Total		Men		Women	
	Median	Estimated Population	Median	Estimated Population	Median	Estimated Population
Malaysia	**51.33**	**19262894**	**52.33**	**10011419**	**50.09**	**9251475**
Zone						
Peninsular Malaysia	53.08	15152436	53.67	7833234	52.27	7319202
East Malaysia	49.08	4110458	49.88	2178185	48.27	1932273
Strata						
Urban	55.08	13325466	56.83	6778398	54.09	6547068
Rural	47.55	5937428	48.13	3233020	47.27	2704408
Age Group						
18-19	49.00	1124761	48.46	853465	49.00	271296
20-29	50.09	5241694	49.92	2712111	50.14	2529583
30-39	51.83	4778071	54.08	2333174	49.18	2444897
40-49	52.42	4555390	54.75	2354603	50.86	2200787
50-59	51.05	3562977	51.75	1758066	50.64	1804911
Ethnicity						
Malay	49.83	10408151	51.00	5314942	48.68	5093209
Chinese	62.46	3789456	64.25	1992344	60.27	1797112
Indian	53.21	1340917	53.42	747306	53.00	593611
Bumiputera Sabah	45.75	1447563	46.50	825270	45.09	622293
Bumiputera Sarawak	48.67	1058528	48.83	492203	48.64	566325
Others	53.50	1128264	54.33	594078	52.23	534186
Other Bumis	42.73	90015	38.88	45276	54.64	44740
Marital Status						
Never married	49.87	5397533	50.58	3434220	47.64	1963312
Married/Cohabiting	52.23	12998435	52.92	6321330	51.73	6677105
Divorced/ Separating	52.82	610885	55.13	233551	50.82	377334
Widow	42.45	233105	-	5317	42.18	227788
Educational Level						
Non-formal	38.69	489987	38.04	159039	38.77	330949
Primary	47.96	3530631	49.58	1739565	45.91	1791066
Secondary	51.68	9668698	51.58	5136011	51.73	4532687
Tertiary	55.78	5437768	58.75	2901397	54.00	2536371
Others	52.55	85510	39.58	51459	80.91	34051
Work status						
Government/ Semi-government	53.25	2230476	55.92	1160697	49.77	1069778
Private	51.83	8009041	52.00	4880324	50.91	3128717
Self-employed	50.58	4889272	52.38	2953009	48.09	1936264
Unpaid workers	53.09	42563	56.75	17483	53.09	25079
Not working	49.45	3144853	42.08	408314	50.18	2736539
Retired	58.15	205364	57.42	146058	62.09	59306
Students	61.08	582706	59.50	353829	64.09	228878
Income Group						
Less than RM1500	47.67	7856892	48.63	4051800	47.09	3805092
RM1500 – RM3500	53.54	6162714	57.25	3290437	50.00	2872278
More than RM 3500	57.09	5050704	55.92	2570335	57.36	2480369

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