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NATIONAL HEALTH AND MORBIDITY SURVEY 2017

ADOLESCENT MENTAL HEALTH (DASS-21)

MALAYSIA

iku INSTITUTE FOR PUBLIC HEALTH
Ministry of Health Malaysia
MINISTRY OF EDUCATION MALAYSIA

NATIONAL HEALTH AND MORBIDITY SURVEY 2017
ADOLESCENT MENTAL HEALTH (DASS-21)
Institute for Public Health

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2017

(NMRR-16-698-30042)

ADOLESCENT MENTAL HEALTH (DASS-21)

Contributors

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EXECUTIVE SUMMARY

The National Health & Morbidity Survey: Adolescent Mental Health 2017 is aimed at assessing the prevalence of depression, anxiety and stress including comorbidity and associated factors among secondary school students in Malaysia using self-administered anonymous questionnaires adapted from the Malaysian Global School Health Survey (GSHS) 2012. This study was conducted among secondary school-going adolescents from 26th March to 3rd May 2017. In order to ensure national representativeness, this study implemented a two-stage cluster sampling design. Out of 2738 secondary schools from the Ministry of Education and the Ministry of Rural and Regional Development, 212 schools were selected and more than 30,000 students were deemed eligible to participate in this survey. The overall response rate was 89.0% and 27,497 school-going adolescents completed the survey. The prevalence of depression, anxiety and stress were 18.3%, 39.7% and 9.6% respectively. The prevalence of depression was higher among males (18.9%), those of Indian ethnicity (33.1%), and respondents from the state of Selangor (22.6%). The prevalence of anxiety was higher among females (42.3%), those of Bumiputera Sabah ethnicity (47.3%), and respondents from the state of Sabah (46.8%). The prevalence of stress was higher among students studied in urban areas (10.3%), females (10.3%), those of Indian ethnicity (15.3%) and respondents from the state of Selangor (12.5%). Anxiety was found to be the most common mental health problem among Malaysian adolescents, followed by depression and stress. Mental health promotion and prevention strategies should be focused on adolescents and their parents in order to reduce mental health problems in Malaysia.

1.0 INTRODUCTION

Anxiety, depression, other mood disorders, behavioural and cognitive disorders are the most common mental health problems among adolescents (Kesler RC et al, 2005). The National Health and Morbidity Survey (NHMS); GSHS 2012 in Malaysia found that the prevalence of suicidal ideation was 7.9% (95% CI:7.27-8.60), suicidal plan was 6.4% (95% CI:5.96-6.88), and attempted suicide was 6.8% (95% CI:6.11-7.52) (IPH, 2012). The NHMS 2011 reported that the prevalence of mental health problems among children and adolescents less than 16 years was 20% as compared to 19.4% in 2006 (IPH, 2006; IPH 2011). The NHMS 2017: Adolescent Health and Nutrition Survey used the Depression, Anxiety, Stress Scale (DASS-21) to determine depression, anxiety, and stress among adolescents aged 13-17 years old.

1.1 Objectives

1.1.1 General Objectives:

To determine the prevalence of depression, anxiety, and stress among adolescents aged 13-17 years old.

1.1.2 Specific Objectives

- To determine the prevalence of depression by socio-demography, loneliness, high risk behaviours, being bullied, physical abuse, and verbal abuse.
- To determine the prevalence of anxiety by socio-demography, loneliness, high risk behaviours, being bullied, physical abuse, and verbal abuse.
- To determine the prevalence of stress by socio-demography, loneliness, high risk behaviours, being bullied, physical abuse, and verbal abuse.

1.2 Variable Definitions

- Mental health is a state of well-being in which a person realises his or her own abilities, can cope with the normal stresses of life, can work productively, and is able to make a contribution to his or her own community. Poor mental health can be due to depression, anxiety, and stress; where depression and anxiety are the two most common mental health disorders in the community. (WHO, 2016)

- Depression is a common mental disorder, characterized by persistent sadness, loss of interest or pleasure, feeling of guilt or low self-worth, disturbed sleep or appetite, feelings of tiredness, and poor concentration (WHO,2017). Depression was suspected with severity score of more than 13.
- Anxiety is a feeling of unease such as worry or fear that can be mild or severe. Anxiety was suspected with severity score of more than 9.
- Stress is a physical, mental or emotional factor that causes bodily or mental tension. Stress was suspected with severity score of more than 18.
- DASS 21 is a 21-item scale which is used to determine depression, anxiety and stress.

1.3 The NHMS 2017 Organisation Team

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

1.3.1 NHMS Steering Committee

The NHMS Steering Committee, chaired by the Director- General of Health Malaysia was set up at the national level to determine the scopes of NHMS 2017 and to facilitate the implementation of the survey. The members and terms of reference of this committee are shown in **Appendix 2.**

1.3.2 Central Coordinating Team (CCT)

A working committee within the Institute for Public Health was established to coordinate the implementation of the survey according to the scheduled Gantt chart. The Operation Centre was set up as a base by the CCT for coordinating and monitoring the progress of the survey. The CCT members and terms of reference are shown in **Appendices 4 and 5**. Figure 1 shows the organisation chart at the Institute for Public Health level. Adolescent Mental Health (DASS-21) is part of NHMS 2017 using sample from secondary schools only.

1.3.3 Research Team Members

There were research team members for each sub-topic under the NHMS, with a Chairperson (acting as the Principal Investigator) and Key-person (IPH officer as the co-Principal Investigator). The research team was responsible for the technical input for development of the manual to assist during data collection. The members of the Adolescent Mental Health research teams are shown in **Appendix 6.**

1.3.4 State Liason Officers

State Liaison Officer was appointed from each state to facilitate in the planning and implementation of data collection. The list of State Liaison Officers and terms of reference are shown in **Appendix 7.**

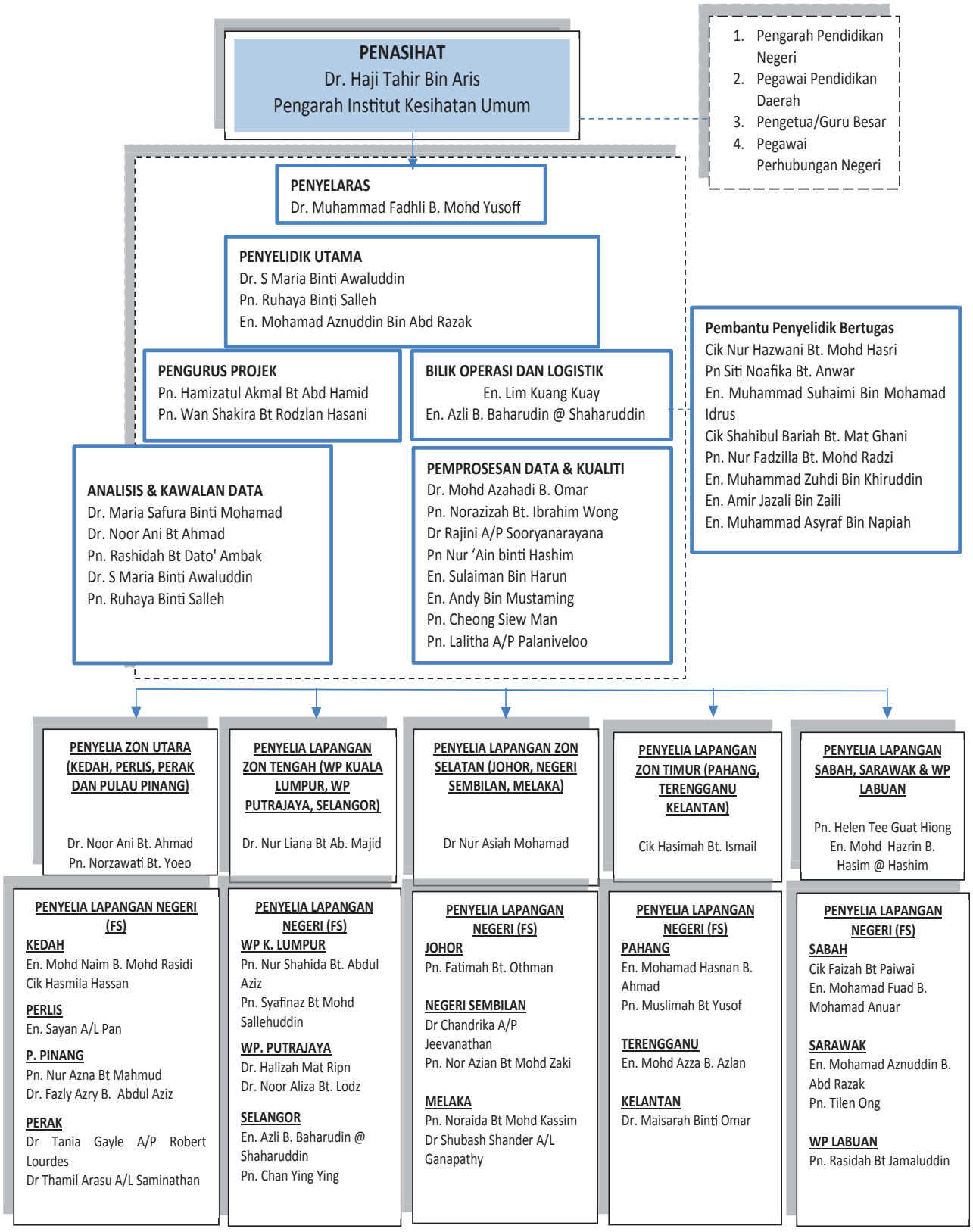

Figure 1: NHMS 2017 Data Collection Teams

2.0 METHODOLOGY AND SAMPLING DESIGN

2.1 Target Population

The Adolescent Mental Health (DASS-21) Survey 2017 target population was school-going adolescents aged 13 to 17 years in Malaysia. An equal sample proportion from 16 states including three federal territories in Malaysia to represent adolescents by state.

2.2 Sampling Frame

The sampling frame used in this survey was the list of secondary schools from the Ministry of Education and Ministry of Rural and Regional Development. Students' enrolment data of 2016 from Form 1 until Form 5 (secondary school) from the total of 2738 secondary schools were used.

2.3 Sample Size Determination

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

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

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

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

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

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

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

2. Adjusted for the design effect (deff) (based on previous survey: GSHS 2012), n(complex) = n * deff
3. Adjusted the n(complex) taking into account expected non-response rate of 25%, n(adj) = n(complex) * (1 + non-response rate)
4. The sample size was then adjusted according to the need of the analysis, whether the estimate was going to be done at the national or the state level.

Based on the requirements for the objectives and above-mentioned considerations, the optimum sample size required was 212 secondary schools (**Table 2.1).**

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

No.	State	Total Number of Schools	Number of Schools Sampled	Number of students sampled
1	Johor	306	14	1906
2	Kedah	219	14	1906
3	Kelantan	193	14	1906
4	Melaka	87	14	1906
5	Negeri Sembilan	139	14	1906
6	Pahang	209	14	1906
7	Pulau Pinang	141	14	1906
8	Perak	275	14	1906
9	Perlis	33	14	1906
10	Selangor	345	14	1906
11	Terengganu	162	14	1906
12	Sabah	246	14	1906
13	Sarawak	220	14	1906
14	WP Kuala Lumpur	133	14	1906
15	WP Labuan	19	8	1906
16	WP Putrajaya	11	8	1906
	Total	**2,738**	**212**	**30496**

2.4 Sampling Design

This survey implemented a two-stage stratified cluster sampling design to ensure national representative of students in Forms 1 to 5 (13-17 years). Malaysia was stratified into 16 states (including Federal Territory of Kuala Lumpur, Putrajaya, and Labuan). The first stage of sampling was the selection of secondary schools (students Forms 1 to 5). Schools were selected randomly with probability proportionate to the school enrolment size. A total of 212 secondary schools were selected to participate in this survey. The second stage of sampling was the selection of classes. All classes in each selected school were included in the sampling frame. Systematic random sampling was used to select classes from each selected school. All students in the selected classes were eligible to participate in the survey.

2.5 Ethical Approval

Ethical approval was obtained from the Ministry of Health, Medical Research and Ethics Committee and Ministry of Education Ethics Committee. Approval was also obtained from the relevant authorities at state, district, and school levels. Prior to the survey, several meetings with the relevant Ministry of Education officers and persons-in-charge at the selected schools were conducted to ensure logistic preparation readiness. The parental consent form was explained to the teachers, who will then distribute these further to the parents. Students whose parents did not consent to the survey were considered non-responders.

2.6 Survey Instruments

Validated self-administered bilingual DASS-21 questionnaires with computer-scannable answer sheets were used. Questionnaires were answered anonymously, thereby ensuring the students' privacy. The majority of students completed the survey within two learning periods.

2.7 Data Collection

A total 36 teams were set up, 4 teams for Sabah and Sarawak and 2 teams per state for the rest. Each team consisted of a field supervisor, research assistants, and a driver. The field supervisor was a permanent staff in the Ministry of Health.

An initial data collection by the core team members was initiated to observe the flow of data collection on 06 February 2017. The data collection training was conducted in Kuala Lumpur (for Peninsular Malaysia) and in Kuching, Sarawak (for Sabah, Sarawak and WP Labuan) simultaneously over the duration of 1 week. The training module was prepared by the core team members, covering all aspects of the questionnaire and also included a role-play session on conducting the survey in a classroom or school hall. The actual data collection was conducted from 26 March to 03 May 2017.

2.8 Data Management

Quality check for the data was conducted throughout the survey based on the specific identification (ID) number from the state ID until individual student ID. Upon completing the survey, each answer sheet was put in its individual envelope by the students. All answer sheets from the same school were wrapped together in a bundle. The bundle was either collected in person by the designated drivers (for Peninsular Malaysia) or posted via registered mail (for Sabah, Sarawak and WP Labuan).

2.8.1 Data Operation Centre

The operation centre was set up in order to receive the data from field and consisted of several stations:

Station 1: Checking respondent IDs

Station 2: Scanning

Station 3: Verification

Station 4: Storage

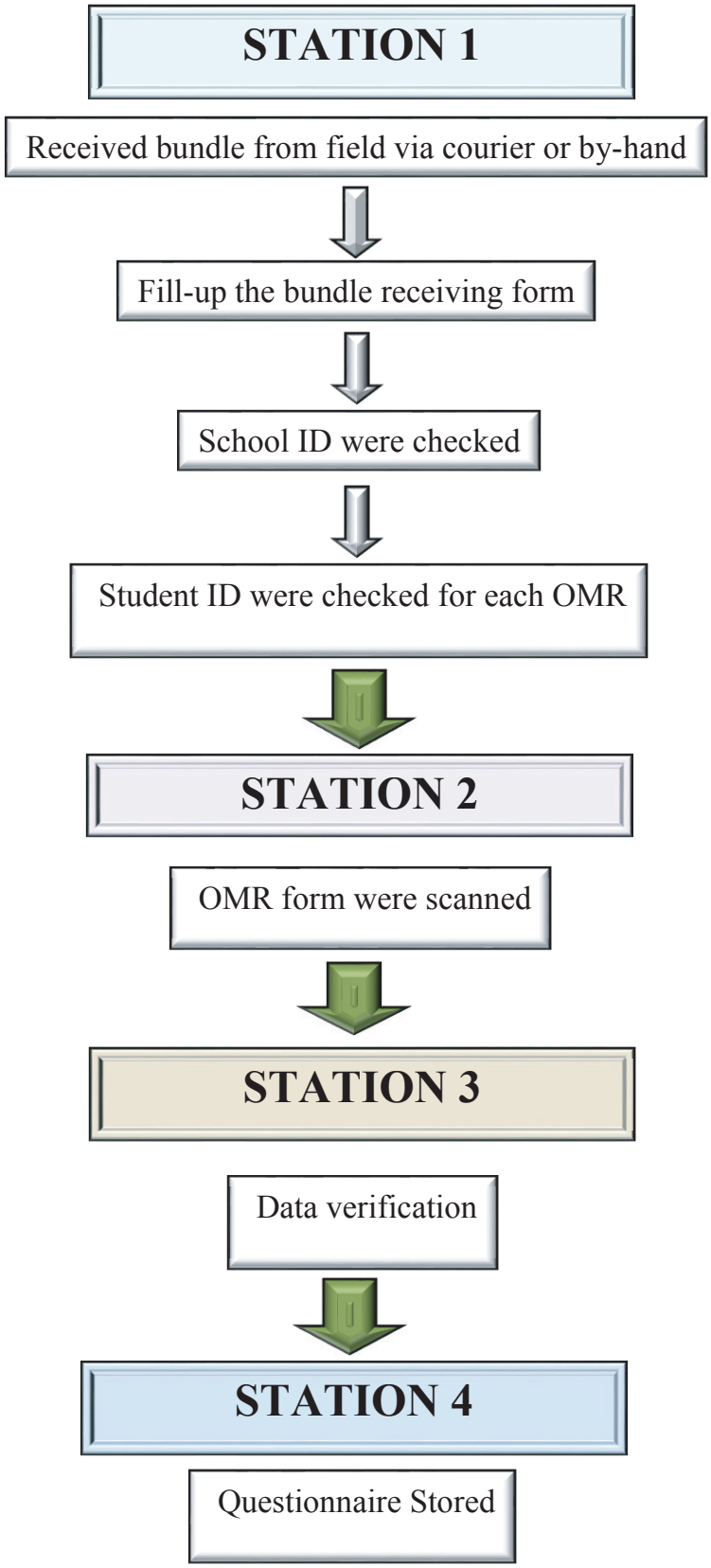

Figure 2: Work flow of NHMS 2017

2.8.2 Data Analysis

The data set was checked, cleaned and edited for inconsistencies. Data analysis was conducted using IBM SPSS Version 20.0.

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

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

Where;

W1 = the inverse of the probability of selecting the school

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

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

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

The weighted results can be used to make important inferences about the priority health risk behaviours and protective factors of all students in Forms 1 to Form 5.

3.0 RESULTS

3.1 General Findings

From a total of 212 selected schools, 27,497 questionnaires were completed by the students. The school and class response rate was 100% respectively, while the student response rate was 89.2%. The overall response rate was 89.2% (**Table 3.1.1**).

The comparison of total estimated population (weighted) with the total secondary school enrolment was shown in Table 3.1.2. The GIS mapping of the selected secondary schools as in Figure 3.

Table 3.1.1: Response Rate at Student Level by State, NHMS 2017

State	Selected School	Eligible student	Interviewed student	Response rate (%)
Johor	14	1,915	1,731	90.4
Kedah	14	1,930	1,691	87.6
Kelantan	14	1,900	1,631	85.8
Melaka	14	1,986	1,872	94.3
Negeri Sembilan	14	1,930	1,718	89.0
Pahang	14	1,948	1,784	91.6
Pulau Pinang	14	1,974	1,749	88.6
Perak	14	1,931	1,754	90.8
Perlis	14	1,992	1,667	83.7
Selangor	14	1,840	1,671	90.8
Terengganu	14	1,880	1,669	88.8
Sabah	14	1,965	1,686	85.8
Sarawak	14	1,919	1,779	92.7
WP Kuala Lumpur	14	1,937	1,721	88.8
WP Labuan	8	1,907	1,712	89.8
WP Putrajaya	8	1,869	1,662	88.9
Total	**212**	**30,823**	**27,497**	**89.2**

Table 3.1.2: Comparison between NHMS 2017 sample and total enrolment from Ministry of Education in 2017

State	NHMS 2017			School Enrolment 2017	
	Unweighted count	Estimated Enrolment (weighted)	Prevalence (%)	Total Enrolment (MOE)	Prevalence (%)
Malaysia	27,497	2,146,447	100.0	2,146,509	100.0
State					
Johor	1,731	275,711	12.8	275,700	12.8
Kedah	1,691	154,645	7.2	154,643	7.2
Kelantan	1,631	121,684	5.7	121,683	5.7
Melaka	1,872	67,234	3.1	67,235	3.1
Negeri Sembilan	1,718	88,430	4.1	88,429	4.1
Pahang	1,784	103,630	4.8	103,644	4.8
Pulau Pinang	1,749	112,980	5.3	112,981	5.3
Perak	1,754	181,681	8.5	181,724	8.5
Perlis	1,667	27,012	1.3	27,014	1.3
Selangor	1,671	391,634	18.2	391,623	18.2
Terengganu	1,669	98,667	4.6	98,664	4.6
Sabah	1,686	198,960	9.3	199,006	9.3
Sarawak	1,779	197,888	9.2	197,876	9.2
WP Kuala Lumpur	1,721	112,376	5.2	112,370	5.2
WP Labuan	1,712	5,539	0.3	5,539	0.3
WP Putrajaya	1,662	8,376	0.4	8,378	0.4
Sex					
Male	13,135	1,064,954	49.6	1,064,988	49.6
Female	14,362	1,081,493	50.4	1,081,521	50.4
Form					
Form 1	5,704	451,017	21.0	451,024	21.0
Form 2	5,501	426,924	19.9	426,908	19.9
Form 3	5,837	431,050	20.1	431,043	20.1
Form 4	5,532	414,604	19.3	414,653	19.3
Form 5	4,923	422,852	19.7	422,881	19.7

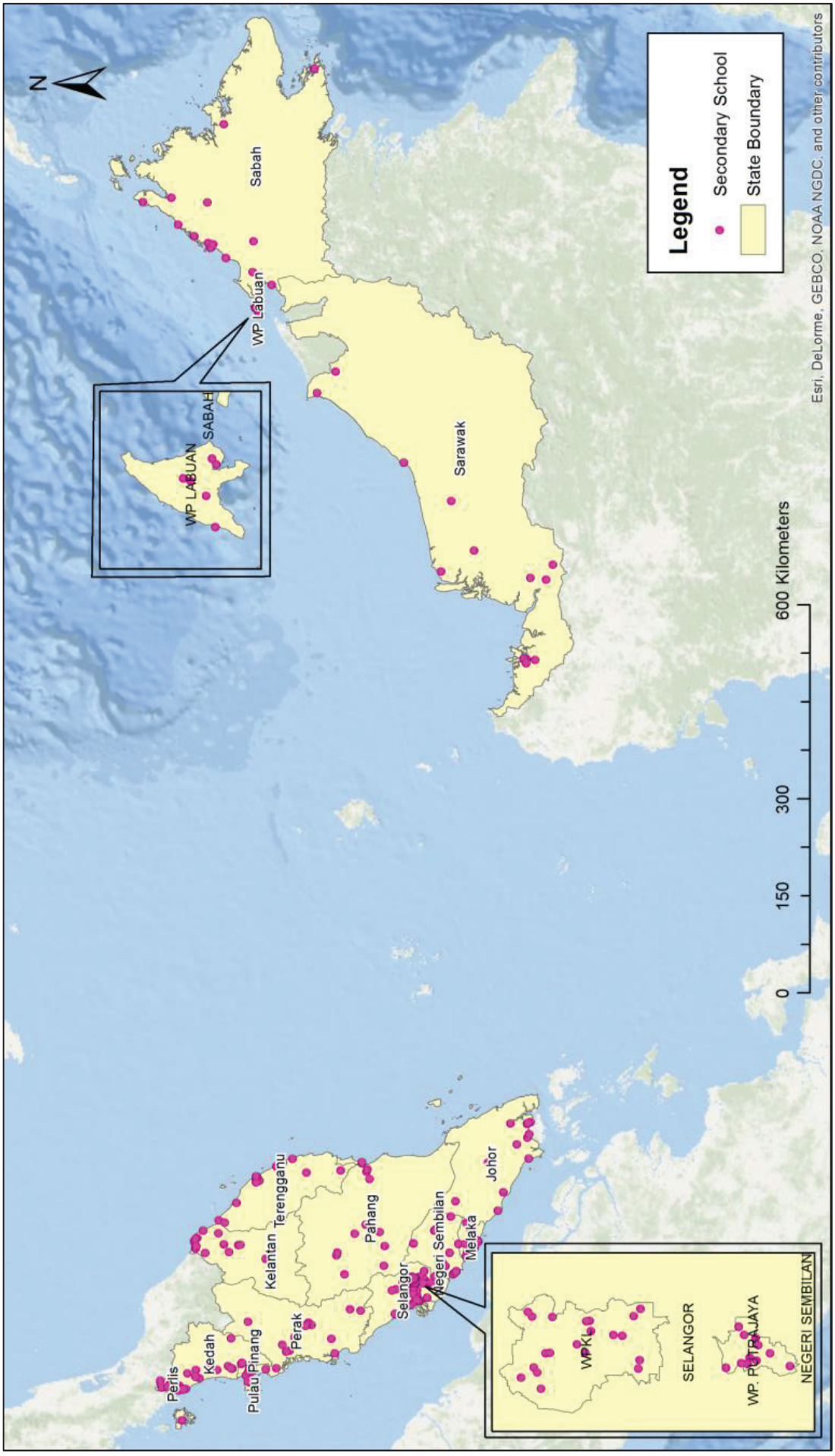

Figure 3: GIS mapping of the selected secondary schools

3.2 Depression

Overall, the prevalence of depression among adolescents was 18.3% (95% CI:17.20-19.38) **(Table 3.3.1).** The prevalence of depression was highest in Selangor at 22.6% (95% CI:18.83-26.95), urban schools 19.2% (95% CI:17.55-20.91), males 18.9% (95% CI:17.59-20.24), Form 1 students [21.4% (95% CI: 19.12-23.97)], those of Indian ethnicity 33.1% (95% CI:29.12-37.25), and in respondents whose parents were separated 30.1% (95% CI:24.65-36.28) **(Table 3.3.1).** Amongst those who felt lonely most of the time or always during the past 12 months, 46.7% (95% CI:43.77-49.67) of them have depressive symptoms **(Table 3.3.2)**. The prevalence of respondents with depressive symptoms was 29.7% (95% CI:26.65-33.00) among those who smoked cigarettes on one or more days during the past 30 days; and the prevalence of respondents with depressive symptoms was 36.6% (95% CI:32.69-40.65) among those who drank at least 1 drink containing alcohol on one or more days during the past 30 days **(Table 3.3.3)**. About 60.3% (95% CI:53.7-66.58) of those who used marijuana, and 35.5% (95% CI:31.91-39.29) of those who engaged in sexual activity, had depressive symptoms **(Table 3.3.3).** The prevalence of depression among those who were bullied, physically abused, and verbally abused were 35.0% (95% CI:32.18-37.92), 37.7%(95% CI:34.48-41.03), 24.6% (95% CI:23-26.26) respectively **(Table 3.3.4).**

3.3 Anxiety

Generally, the prevalence of anxiety among adolescents aged 13-17 years was 39.7% (95% CI:38.39-41.06). The prevalence of anxiety was highest in Sabah at 46.8% (95% CI:43.01-50.68), urban schools 40.1% (95% CI:38.02-42.25), females 42.3% (95% CI:40.66-44.01), Form 1 students, 41.9% (95% CI:39.23-44.62), those of Bumiputra Sabah ethnicity 47.3% (95% CI:42.66-52.05), and in respondents whose parents were separated 50.1% (95% CI:43.19-57.03) **(Table 3.4.1).** About 63.8% (95% CI:60.60-66.85) of those who felt lonely most of the time or always during the past 12 months reported having anxiety symptoms **(Table 3.4.2)**. The prevalence of respondents with anxiety symptoms was 47.3% (95% CI:44.45-50.07) among those who smoked cigarettes on one or more days during the past 30 days; and the prevalence of respondents with anxiety symptoms was 52.5% (95% CI:48.91-56.15) among those who drank at least 1 drink containing alcohol on one or more days during the past 30

days **(Table 3.4.3)**. Among those who used marijuana and engaged in sexual activity, the prevalence of anxiety symptoms was 74.0% (95% CI:68.26-79.1) and 52.1% (95% CI:48.53-55.73) respectively **(Table 3.4.3).** The prevalence of anxiety was reported to be 58.5% (95% CI:55.83-61.18) among those who were bullied, 58.9%(95% CI:55.78-61.85) among those who were physically abused, and 49.7% (95% CI47.97-51.52) among those who were verbally abused **(Table 3.4.4).**

3.4 Stress

The prevalence of stress was 9.6% (95% CI:9.03-10.25). The prevalence of stress was highest in Selangor at 12.5% (95% CI:10.36-15.05), urban schools 10.3% (95% CI:9.32-11.27), females 10.3% (95% CI:9.46-11.17), Form 1 students 11.0% (95% CI: 9.56-12.56), those of Indian ethnicity 15.3% (95% CI:12.91-18.12), and in respondents whose parents were separated 14.9% (95% CI:11.2-19.65) **(Table 3.5.1).** About 28.8% (95% CI:26.72-30.95) of respondents who felt lonely most of the time or always during the past 12 months admitted to having stress symptoms **(Table 3.5.2)**. The prevalence of respondents with stress symptoms was 13.7% (95% CI:12.00-15.68) among those who smoked cigarettes on one or more days during the past 30 days; and the prevalence of respondents with stress symptoms was 17.4% (95% CI:15.50-19.46) among those who drank at least 1 drink containing alcohol on one or more days during the past 30 days **(Table 3.5.3)**. The prevalence of stress symptoms was 26.8% (95% CI:22.91-30.98) for those who used marijuana, and 17.2% (95% CI:14.71-20.09) for those who engaged in sexual activity **(Table 3.5.3).** Among those who were being bullied, physically abused and verbally abused, 19.1% (95% CI:17.58-20.73), 18.7%(95% CI:17.02-20.47), and 13.7% (95% CI:12.67-14.7) had stress symptoms respectively **(Table 3.5.4).**

3.5 Morbidity Status

Based on **Tables 3.6.1**, **3.6.2** and **3.6.3**, Sabah had the highest prevalence of at least one and two conditions at 50.1%(95% CI:45.77-54.43) and 23.3% (95% CI:19.94-26.94), respectively compared to the other states; whereas Selangor had the highest prevalence of three conditions at 8.4% (95% CI:6.85-10.18). Females had higher prevalence of at least one condition at 45.7% (95% CI:43.94-47.38) and three conditions at 6.3% (95% CI:5.67-6.97)

compared to males; while males had higher prevalence of at least two conditions at 17.8% (95% CI:16.41-19.25). Form 1 students had the highest prevalence of at least two conditions and three conditions at 20.9% (95% CI:18.67-23.26) and 6.8% (95% CI:5.83-7.89) respectively, compared to other forms. Form 4 students had the highest prevalence of at least one condition at 45.2% (95% CI:42.95-47.47). Among the different ethnic groups, Indians had the highest prevalence of at least one, two and three conditions at 52.6% (95% CI:48.52-56.74), 29.9% (95% CI:25.53-34.75), and 11.1% (95% CI:9.24-13.34) respectively. Among all the parents' marital status, respondents with separated parents had the highest prevalence of at least one and two conditions at 54.2% (95% CI:46.99-61.29), and 29.6% (95% CI:24.16-35.77), respectively. Respondents with unknown parents' marital status had the highest prevalence of three conditions at 10.6% (95% CI:7.78-14.2).

4.0 Discussion

In this current NHMS 2017 Adolescent Mental Health Survey using the DASS-21, the prevalence of depression was 18.3% (95% CI:17.20-19.38), anxiety 39.7% (95% CI:38.39-41.06), and stress 9.6% (95% CI:9.03-10.25).

The previous NHMS 2012 Mental Health of Adolescents Survey also used the DASS-21. This previous study involved 24,708 students aged 13-17 years old. The prevalence of depression, anxiety and stress found here was 17.7% (95%CI: 16.71-18.67), 39.6% (95% CI: 38.23-41.06), and 10.1% (95% CI: 9.53-10.67), respectively. This current survey (NHMS 2017) had a slightly higher prevalence of depression (18.3%) and anxiety (39.7%) compared to the NHMS 2012 findings for depression and anxiety. However, the prevalence of stress (9.6%) was slightly lower than the NHMS 2012 findings.

4.1 Depression

There may be several reasons for the increase in the prevalence of depression in this current NHMS 2017 as compared to the NHMS 2012 findings. In the NHMS 2017, about 46.7% (95% CI:43.77-49.67) of respondents who felt lonely most of the time or always during the past 12 months had depressive symptoms. This result is almost 2.5 times higher compared to the

NHMS 2012, where only 19.0% (95% CI 17.4-20.7) of respondents who felt lonely most of the time or always during the past 12 months with depressive symptoms.

As for the prevalence of depressive symptoms among those who smoked cigarettes on one or more days during the past 30 days, the NHMS 2017 results was 29.7% (95% CI:26.65-33.00) which increased by two-fold compared to the NHMS 2012 at 15.1% (95% CI 13.4-16.9). The prevalence of respondents with depressive symptoms among those who drank at least 1 drink containing alcohol on one or more days during the past 30 days at 36.6% (95% CI:32.69-40.65) in the NHMS 2017 was 2.6 times higher compared to the NHMS 2012 at 14.1% (95% CI 12.2-16.2). In the NHMS 2017, 60.3% (95% CI:53.7-66.58) of those who use marijuana had depressive symptoms. This finding is rather alarming because it shows an upsurge of 18 times in the NHMS 2017 results compared to the NHMS 2012 findings at 3.3% (95% CI 2.5-4.2). Another area of concern is the prevalence of depressive symptoms among those who had sexual activity. This was 35.5% (95% CI:31.91-39.29) in the NHMS 2017 survey, which was a 3-fold increase compared to the NHMS 2012 findings at 12.0% (95% CI 10.7-13.5)**.** In the NHMS 2017, about 35% (95% CI:32.18-37.92) of those who being bullied had depressive symptoms; and this result was also higher compared to the NHMS 2012 findings at 29.7% (95% CI 27.3-32.2).

4.2 Anxiety

The prevalence of anxiety in NHMS 2017 was found to be on the up-going trend compared to survey done in NHMS 2012. Based on NHMS 2017, 63.8% (95% CI: 60.6-66.85) of respondents who felt lonely most of the time or always during the past 12 months had anxiety symptoms. This result is 5 times higher compared to the NHMS 2012, where only 12.2% (95% CI 11.3-13.3) of those felt lonely most of the time or always during the past 12 months had anxiety symptoms.

As for the prevalence of anxiety symptoms among those who smoked cigarettes on one or more days during the past 30 days, the NHMS 2017 results was 47.3% (95% CI:44.45-50.07) which jump up by 3 times higher compared to the NHMS 2012 at 12.5% (95% CI 11.1-14). The prevalence of respondents with anxiety symptoms among those who drank at least 1 drink

containing alcohol on one or more days during the past 30 days at 52.5% (95% CI:48.91-56.15) in the NHMS 2017 escalated by five times compared to the NHMS 2012 at 10.2% (95% CI 8.9-11.7). In the NHMS 2017, 74% (95% CI:68.26-79.10) of those who used marijuana had anxiety symptoms. This finding is highly alarming because it shows an upsurge of 38 times in the NHMS 2017 results compared to the NHMS 2012 findings at 1.9% (95% CI 1.5-2.5). Another area of concern is the prevalence of anxiety symptoms among those who had sexual activity. This was 52.1% (95% CI:48.53-55.73) in the NHMS 2017 survey, which was a 5-fold increase compared to the NHMS 2012 findings at 9.7% (95% CI 8.7-10.8). In the NHMS 2017, about 58.5% (95% CI:55.83-61.18) of those who were bullied had anxiety symptoms; and this result was also higher by almost 2 folds compared to the NHMS 2012 findings at 23.8% (95% CI 22.3-25.4).

4.3 Stress

Surprisingly, the prevalence of stress was slightly reduced in the NHMS 2017 compared to NHMS 2012. From the analysis done, this could be due to the decrease in prevalence of those with stress and smoking cigarettes on one or more days during the past 30 days. The prevalence was 14.2% (95% CI 12.4-16.2) in NHMS 2012 which reduced to 13.7% in NHMS 2017. The prevalence of stress symptoms among those who had been bullied in the past 30 days was also markedly reduced from 28.3% (95% CI 25.7-31) in NHMS 2012 to 19.1%(95% CI 17.58-20.73) in NHMS 2017.

Conclusion

Selangor had the highest prevalence of depression and stress, whereas Sabah had the highest prevalence of anxiety. Males had higher prevalence of depression, while females had higher prevalence of both anxiety and stress. Form 1 students had the highest prevalence of all three conditions. Respondents of Indian ethnicity had the highest prevalence of depression and stress, whereas those of Bumiputra Sabah ethnicity had the highest prevalence of anxiety. Respondents whose parents were separated had the highest prevalence of depression, anxiety and stress. Depression, anxiety and stress were highest among respondents who felt lonely, smoked cigarettes, drank alcohol, used marijuana, had sexual behaviour, were bullied and had experienced physical abuse.

Compared to the NHMS 2012, there was an increase in the prevalence for depression and anxiety symptoms in NHMS 2017. However, there was a decrease in the prevalence for stress symptoms. Several factors have been identified, mainly loneliness, cigarette smoking, alcohol use, marijuana use, sexual behaviour and having been bullied.

Recommendations

Efforts should be made to inform our community of all these findings. Public health campaigns, education and awareness programmes should be conducted to increase the knowledge and awareness of depression, anxiety and stress among adolescents in Malaysia. Factors associated with higher prevalence of depression, anxiety, and stress as found in this study such as feeling lonely, smoking cigarettes, drinking alcohol, using marijuana, engaging in sexual activity, being bullied and having prior experience of physical abuse as well as verbal abuse should be highlighted and addressed accordingly. These programmes can be conducted in schools, clinics and the community. Intervention programmes to reduce the prevalence and severity of these problems should target not only the children and adolescents, but also their parents, teachers and the community as a whole. In view of many recent cases of abuse and bullying, including deaths and suicides, these issues need to be tackled urgently.

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APPENDIX 1

Table 3.2.1 Prevalence of depression, anxiety and stress

	Prevalence of Depression					Prevalence of Anxiety					Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI		Unweighted Count	Estimated Population	Percentage (%)	95% CI		Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper				Lower	Upper				Lower	Upper
Malaysia	4783	382418	18.3	17.20	19.38	10540	832181	39.7	38.39	41.06	2487	200999	9.6	9.03	10.25

Table 3.3.1 Prevalence of depression by socio-demography

	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MALAYSIA	4783	382418	18.3	17.20	19.38
STATES					
Johor	251	39599	14.6	11.61	18.14
Kedah	218	19585	13.1	11.07	15.53
Kelantan	236	18668	16.0	12.95	19.60
Melaka	287	10161	15.4	13.00	18.13
Negeri Sembilan	263	14189	16.4	13.14	20.28
Pahang	348	21174	21.0	16.57	26.26
Pulau Pinang	318	20853	18.8	14.95	23.36
Perak	324	33577	18.8	15.30	22.99
Perlis	291	4744	17.9	15.21	21.02
Selangor	356	86059	22.6	18.83	26.95
Terengganu	255	15373	16.0	13.72	18.66
Sabah	350	42316	21.9	18.59	25.63
Sarawak	259	29844	15.4	13.51	17.54
WP Kuala Lumpur	375	23620	21.3	18.77	24.06
WP Labuan	350	1120	20.7	17.10	24.92
WP Putrajaya	302	1535	18.5	15.35	22.02
STRATA OF THE SCHOOL					
Urban	2894	227741	19.2	17.55	20.91
Rural	1889	154677	17.1	15.72	18.52
SEX					
Male	2333	195650	18.9	17.59	20.24
Female	2450	186768	17.7	16.22	19.21
FORM					
1	1146	93764	21.4	19.12	23.97
2	941	72463	17.4	15.61	19.30
3	913	66837	15.8	14.16	17.68
4	1002	77955	19.2	17.44	21.20
5	781	71398	17.3	15.36	19.45
ETHNIC					
Malay	2898	204325	15.5	14.47	16.49
Chinese	841	74659	21.2	18.83	23.81
Indian	408	47655	33.1	29.12	37.25
Bumiputra Sabah	360	32072	22.1	18.71	26.00
Bumiputra Sarawak	154	15674	16.5	14.14	19.24
Others	122	8033	22.2	17.98	27.05
PARENTS MARITAL STATUS					
Married and living together	3670	291925	17.0	15.98	18.10
Married and living apart	206	17357	24.2	20.66	28.10
Divorced	357	27222	21.8	19.14	24.70
Widow /widower	258	21595	21.6	18.50	24.98
Separated	109	9510	30.1	24.65	36.28
Unknown	161	12305	29.3	24.37	34.69

Table 3.3.2 Mental Health issues among Students with Depressive Symptoms

Behaviour	Depressed				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
Mental Health					
Felt lonely most of the time or always during the past 12 months					
Yes	1155	91527	46.7	43.77	49.67
No	3611	289383	15.3	14.32	16.33
Worried about something that they could not sleep at night most of the time or always during the past 12 months					
Yes	835	66599	44.9	41.917	47.86
No	3928	314105	16.2	15.226	17.24
Had no close friends					
Yes	348	27291	36.6	31.67	41.88
No	4398	352215	17.6	16.51	18.65

Table 3.3.3: Tobacco, Alcohol and Drug Use, Sexual, Physical Activity and Obesity among Students with Depressive Symptoms

Behaviour	Depressed				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
Tobacco Use					
Smoked cigarettes on one or more days during the past 30 days					
Yes	974	84733	29.7	26.65	33.00
No	3804	297163	16.5	15.44	17.53
Used any tobacco on one or more days during the past 30 days					
Yes	1389	118563	27.4	24.72	30.18
No	3389	263334	15.9	14.89	16.94
Alcohol Use					
Drank at least one drink containing alcohol on one or more of the past 30 days					
Yes	875	77817	36.6	32.69	40.65
No	3903	304079	16.2	15.29	17.14
Drug Use					
Ever used drugs in the past 30 days					
Yes	427	36682	58.5	52.02	64.77
No	3948	308153	14.7	13.98	15.54
Used marijuana one or more times during the past 30 days					
Yes	354	31214	60.3	53.70	66.58
No	4421	350358	17.2	16.23	18.19
Sexual Behaviours					
Ever had sexual					
Yes	640	53383	35.5	31.91	39.29
No	4100	325369	16.8	15.85	17.82
Physical Activity					
Were physical inactive					
Yes	2727	218405	17.5	16.42	18.57
No	1775	138330	18.6	17.12	20.18
Obese					
Yes	690	54787	19.7	17.80	21.78
No	4079	326619	18.0	16.97	19.16

Table 3.3.4: School and Home Environment Factors, Bully and Abuse among Students with Depressive Symptoms

Behaviour	Depressed				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
School and Home Environment					
Missed classes or school without permission on one or more of the past 30 days					
Yes	1797	145534	23.8	22.15	25.49
No	2970	235366	15.9	14.95	16.97
Parents or guardians never or really understood their problems and worries during the past 30 days					
Yes	1194	93766	14.0	12.88	15.22
No	3572	287293	20.3	19.04	21.53
Parents or guardians never or really know what they were doing with their free time during the past 30 days					
Yes	1576	124284	13.9	12.99	14.95
No	3183	255889	21.4	20.06	22.87
Bully and Abuse					
Been bullied in the past 30 days					
Yes	1483	117176	35.0	32.18	37.92
No	3281	263071	15.0	14.11	15.96
Physical abuse					
Yes	1117	92602	37.7	34.48	41.03
No	3642	287613	15.6	14.74	16.54
Verbal abuse					
Yes	2802	221394	24.6	23.00	26.26
No	1952	158371	13.4	12.48	14.35

Table 3.4.1: Prevalence of anxiety by socio-demography

	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MALAYSIA	10540	832181	39.7	38.39	41.06
STATES					
Johor	630	100217	37.0	31.59	42.83
Kedah	572	51847	34.8	31.16	38.70
Kelantan	571	42623	36.8	33.62	40.09
Melaka	677	24719	37.2	34.66	39.79
Negeri Sembilan	652	33191	38.1	33.06	43.42
Pahang	737	43013	42.4	38.33	46.48
Pulau Pinang	648	41655	37.6	32.89	42.50
Perak	690	72090	40.4	36.92	44.03
Perlis	629	10072	38.1	34.13	42.15
Selangor	691	164774	43.2	39.22	47.24
Terengganu	612	37148	38.7	35.27	42.33
Sabah	759	90322	46.8	43.01	50.68
Sarawak	606	69849	36.1	31.68	40.75
WP Kuala Lumpur	719	45111	40.4	37.23	43.72
WP Labuan	671	2121	39.5	36.06	43.02
WP Putrajaya	676	3431	41.2	36.52	46.14
STRATA OF THE SCHOOL					
Urban	6166	476966	40.1	38.02	42.25
Rural	4374	355215	39.2	37.64	40.78
SEX					
Male	4612	384684	37.1	35.31	38.86
Female	5928	447498	42.3	40.66	44.01
FORM					
1	2310	183707	41.9	39.23	44.62
2	1939	153654	36.8	34.62	38.96
3	2090	156003	36.9	34.73	39.13
4	2227	167235	41.4	39.17	43.68
5	1974	171582	41.6	39.20	44.11
ETHNIC					
Malay	7139	516594	39.1	37.62	40.55
Chinese	1410	125499	35.6	32.82	38.45
Indian	629	68291	47.1	43.04	51.21
Bumiputra Sabah	789	68590	47.3	42.66	52.05
Bumiputra Sarawak	343	37478	39.6	35.03	44.43
Others	230	15730	43.8	37.28	50.49
PARENTS MARITAL STATUS					
Married and living together	8487	666407	38.8	37.49	40.15
Married and living apart	397	31223	43.6	39.30	48.04
Divorced	708	54981	43.6	40.50	46.77
Widow /widower	493	41244	41.3	37.83	44.86
Separated	187	15917	50.1	43.19	57.03
Unknown	234	19285	46.4	39.80	53.04

Table 3.4.2: Mental Health issues among Students with Anxiety Symptoms

Behaviour	Estimated count	Estimated Population	Anxiety (%)	95% CI	
				Lower	Upper
Mental Health					
Felt lonely most of the time or always during the past 12 months					
Yes	1549	124665	63.8	60.60	66.85
No	8962	704662	37.2	35.99	38.46
Worried about something that they could not sleep at night most of the time or always during the past 12 months					
Yes	1209	97880	65.9	62.78	68.98
No	9296	730841	37.7	36.46	38.93
Had no close friends					
Yes	471	37296	49.8	45.70	53.92
No	10006	789932	39.4	38.03	40.69

Table 3.4.3: Tobacco, Alcohol and Drug Use, Sexual, Physical Activity and Obesity among Students with Anxiety Symptoms

Behaviour	Anxiety				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
Tobacco Use					
Smoked cigarettes on one or more days during the past 30 days					
Yes	1606	134831	47.3	44.45	50.07
No	8926	696461	38.5	37.17	39.94
Used any tobacco on one or more days during the past 30 days					
Yes	2390	199296	46.1	43.47	48.67
No	8142	631995	38.1	36.75	39.44
Alcohol Use					
Drank at least one drink containing alcohol on one or more of the past 30 days					
Yes	1272	112258	52.5	48.91	56.15
No	9259	718980	38.3	36.99	39.59
Drug Use					
Ever used drugs in the past 30 days					
Yes	517	45984	73.0	67.76	77.70
No	10010	785005	38.7	37.38	40.04
Used marijuana one or more times during the past 30 days					
Yes	421	38487	74.0	68.26	79.10
No	10105	792354	38.9	37.54	40.20
Sexual Behaviours					
Ever had sexual					
Yes	975	79123	52.1	48.53	55.73
No	9509	748095	38.7	37.37	39.97
Physical Activity					
Were physical inactive					
Yes	6190	496850	39.7	38.20	41.16
No	3843	290699	39.1	37.24	41.05
Obese					
Yes	1451	113651	41.1	38.56	43.61
No	9058	716586	39.5	38.18	40.89

Table 3.4.4: School and Home Environment Factors, Bully and Abuse among Students with Anxiety Symptoms

Behaviour	Anxiety				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
School and Home Environment					
Missed classes or school without permission on one or more of the past 30 days					
Yes	3447	275497	45.2	43.17	47.19
No	7075	554825	37.5	36.19	38.79
Parents or guardians never or really understood their problems and worries during the past 30 days					
Yes	3242	246778	36.8	35.29	38.41
No	7270	583000	41.1	39.50	42.69
Parents or guardians never or really know what they were doing with their free time during the past 30 days					
Yes	4221	327894	36.8	35.26	38.27
No	6271	500876	41.9	40.38	43.51
Bully and Abuse					
Been bullied in the past 30 days					
Yes	2472	196301	58.5	55.83	61.18
No	8044	633114	36.1	34.80	37.44
Physical abuse					
Yes	1721	143902	58.9	55.78	61.85
No	8789	685303	37.2	35.85	38.48
Verbal abuse					
Yes	5656	448136	49.7	47.97	51.52
No	4843	380162	32.1	30.82	33.43

Table 3.5.1: Prevalence of Stress by socio-demography

	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MALAYSIA	2487	200999	9.6	9.03	10.25
STATES					
Johor	160	25206	9.3	7.85	10.95
Kedah	102	9402	6.3	4.79	8.27
Kelantan	108	8143	7.0	5.14	9.38
Melaka	159	5624	8.5	7.27	9.95
Negeri Sembilan	141	7126	8.2	6.35	10.59
Pahang	182	10531	10.4	8.99	11.96
Pulau Pinang	154	10121	9.2	7.18	11.70
Perak	144	15185	8.5	6.85	10.60
Perlis	112	1750	6.6	5.21	8.40
Selangor	189	47393	12.5	10.36	15.05
Terengganu	125	7324	7.6	6.35	9.15
Sabah	190	23427	12.3	10.88	13.85
Sarawak	145	15951	8.3	6.82	9.98
WP Kuala Lumpur	191	12225	11.0	9.59	12.63
WP Labuan	204	648	12.1	10.74	13.60
WP Putrajaya	181	944	11.4	9.14	14.02
STRATA OF THE SCHOOL					
Urban	1546	121607	10.3	9.32	11.27
Rural	941	79392	8.8	8.14	9.50
SEX					
Male	1095	92556	8.9	8.18	9.78
Female	1392	108443	10.3	9.46	11.17
FORM					
1	575	48099	11.0	9.59	12.59
2	452	34622	8.3	7.33	9.45
3	493	37586	8.9	7.74	10.22
4	497	37106	9.2	8.07	10.52
5	470	43586	10.6	9.19	12.20
ETHNIC					
Malay	1557	112335	8.5	7.71	9.40
Chinese	392	34803	9.9	8.44	11.57
Indian	186	22187	15.3	12.91	18.12
Bumiputra Sabah	208	18544	13.0	11.11	15.09
Bumiputra Sarawak	88	9096	9.6	7.66	12.04
Others	56	4032	11.3	8.15	15.55
PARENTS MARITAL STATUS					
Married and living together	1921	156169	9.1	8.51	9.77
Married and living apart	104	8196	11.5	9.07	14.54
Divorced	196	14320	11.5	9.45	13.83
Widow /widower	129	10472	10.5	8.48	12.98
Separated	56	4688	14.9	11.20	19.65
Unknown	71	5844	14.0	10.66	18.26

Table 3.5.2: Mental Health issues among Students with Stress Symptoms

Behaviour	Stress				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
Mental Health					
Felt lonely most of the time or always during the past 12 months					
Yes	718	55842	28.8	26.72	30.95
No	1761	144204	7.6	7.10	8.21
Worried about something that they could not sleep at night most of the time or always during the past 12 months					
Yes	601	46959	31.9	29.66	34.19
No	1877	152990	7.9	7.37	8.49
Had no close friends					
Yes	2301	187495	9.4	8.77	10.00
No	165	11802	15.9	13.07	19.17

Table 3.5.3: Tobacco, Alcohol and Drug Use, Sexual, Physical Activity and Obesity among Students with Stress Symptoms

Behaviour	Stress				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
Tobacco Use					
Smoked cigarettes on one or more days during the past 30 days					
Yes	457	38967	13.7	12.00	15.68
No	2027	161692	9.0	8.34	9.64
Used any tobacco on one or more days during the past 30 days					
Yes	669	57198	13.3	11.84	14.92
No	1815	143462	8.7	8.05	9.32
Alcohol Use					
Drank at least one drink containing alcohol on one or more of the past 30 days					
Yes	395	36709	17.4	15.50	19.46
No	2088	163897	8.7	8.15	9.38
Drug Use					
Ever used drugs in the past 30 days					
Yes	180	16400	26.4	22.64	30.61
No	2977	184206	9.1	8.52	9.73
Used marijuana one or more times during the past 30 days					
Yes	149	13801	26.8	22.91	30.98
No	2333	186748	9.2	8.61	9.80
Sexual Behaviours					
Ever had sexual					
Yes	326	26029	17.2	14.71	20.09
No	2145	173354	9.0	8.38	9.62
Physical Activity					
Were physical inactive					
Yes	1017	79220	10.7	9.71	11.76
No	2200	111036	8.9	8.26	9.56
Obese					
Yes	380	30826	11.1	9.61	12.86
No	2101	169723	9.4	8.80	10.03

Table 3.5.4: School and Home Environment Factors, Bully and Abuse among Students with Stress Symptoms

Behaviour	Stress				
	Estimated Count	Estimated Population	(%)	95% CI	
				Lower	Upper
School and Home Environment					
Missed classes or school without permission on one or more of the past 30 days					
Yes	870	70437	11.6	10.61	12.61
No	1611	129771	8.8	8.19	9.44
Parents or guardians never or really understood their problems and worries during the past 30 days					
Yes	725	57431	8.6	7.88	9.36
No	1757	143146	10.1	9.41	10.88
Parents or guardians never or really know what they were doing with their free time during the past 30 days					
Yes	888	69938	7.9	7.19	8.60
No	1586	130084	10.9	10.14	11.76
Bully and Abuse					
Been bullied in the past 30 days					
Yes	812	63825	19.1	17.58	20.73
No	1669	136508	7.8	7.24	8.42
Physical abuse					
Yes	554	45614	18.7	17.02	20.47
No	1923	154296	8.4	7.79	9.04
Verbal abuse					
Yes	1574	122677	13.7	12.67	14.70
No	905	77422	6.6	5.95	7.23

Table 3.6.1: Prevalence of at least one condition by Socio-demography

	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MALAYSIA	11163	880252	43.0	41.69	44.41
STATES					
Johor	688	108968	40.9	35.87	46.07
Kedah	606	54875	37.7	33.76	41.78
Kelantan	618	46032	40.9	37.64	44.18
Melaka	730	26592	41.0	38.62	43.52
Negeri Sembilan	685	34721	40.9	36.16	45.79
Pahang	750	43727	44.6	40.82	48.46
Pulau Pinang	697	45070	41.5	36.29	46.93
Perak	723	75169	43.2	39.06	47.48
Perlis	658	10535	40.8	36.41	45.37
Selangor	739	176211	47.5	43.21	51.77
Terengganu	619	37248	39.9	36.58	43.32
Sabah	789	94026	50.1	45.77	54.43
Sarawak	628	71995	38.1	33.60	42.73
WP Kuala Lumpur	779	49085	44.9	41.66	48.19
WP Labuan	722	2300	43.9	41.06	46.69
WP Putrajaya	732	3697	44.9	40.14	49.76
STRATA OF THE SCHOOL					
Urban	6623	511476	43.9	41.77	46.06
Rural	4540	368776	41.9	40.27	43.56
SEX					
Male	4896	407931	40.4	38.63	42.13
Female	6267	472321	45.7	43.94	47.38
FORM					
Form 1	2397	190761	44.9	42.18	47.72
Form 2	2076	162421	39.9	37.73	42.01
Form 3	2230	166505	40.2	37.74	42.72
Form 4	2368	178390	45.2	42.95	47.47
Form 5	2092	182175	45.1	42.29	47.91
ETHNIC					
Malay	7511	541980	42.0	40.41	43.55
Chinese	1542	137224	39.7	36.89	42.52
Indian	676	73658	52.6	48.52	56.74
Bumiputra Sabah	818	70907	50.5	45.28	55.74
Bumiputra Sarawak	365	39580	42.7	38.49	47.03
Others	251	16903	48.5	41.50	55.53
PARENTS MARITAL STATUS					
Married and living together	8976	703937	42.0	40.64	43.34
Married and living apart	422	33683	48.4	43.99	52.92
Divorced	757	57662	47.0	43.78	50.30
Widow/Widower	533	45395	46.4	42.59	50.19
Separated	197	16703	54.2	46.99	61.29
Unknown	244	19710	48.8	41.87	55.74

Table 3.6.2: Prevalence of at least two conditions by Socio-demography

	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MALAYSIA	4531	362544	17.7	16.67	18.83
STATES					
Johor	249	39513	14.8	11.98	18.19
Kedah	199	18100	12.4	10.44	14.74
Kelantan	203	15994	14.2	11.06	18.05
Melaka	254	8985	13.9	11.89	16.12
Negeri Sembilan	250	13098	15.4	12.07	19.50
Pahang	337	20031	20.4	16.62	24.86
Pulau Pinang	291	19224	17.7	14.14	21.94
Perak	292	30742	17.7	14.26	21.71
Perlis	266	4293	16.6	14.24	19.33
Selangor	327	78890	21.3	17.40	25.70
Terengganu	267	15934	17.1	14.80	19.61
Sabah	359	43638	23.3	19.94	26.94
Sarawak	253	29132	15.4	13.25	17.83
WP Kuala Lumpur	355	22397	20.5	17.88	23.37
WP Labuan	339	1070	20.4	17.98	23.04
WP Putrajaya	290	1504	18.3	15.13	21.89
STRATA OF THE SCHOOL					
Urban	2735	214668	18.4	16.75	20.22
Rural	1796	147876	16.8	15.59	18.09
SEX					
Male	2137	179719	17.8	16.41	19.25
Female	2394	182825	17.7	16.29	19.14
FORM					
Form 1	1094	88613	20.9	18.67	23.26
Form 2	857	67622	16.6	14.84	18.51
Form 3	874	64356	15.5	13.79	17.46
Form 4	921	71043	18.0	16.12	20.05
Form 5	785	70910	17.5	15.66	19.60
ETHNIC					
Malay	2796	197519	15.3	14.22	16.44
Chinese	746	66892	19.3	16.87	22.08
Indian	362	41889	29.9	25.53	34.75
Bumiputra Sabah	370	33669	24.0	20.32	28.08
Bumiputra Sarawak	144	14804	16.0	12.87	19.65
Others	113	7772	22.3	17.89	27.41
PARENTS MARITAL STATUS					
Married and living together	3503	279934	16.7	15.66	17.78
Married and living apart	188	15803	22.7	19.08	26.84
Divorced	333	24804	20.2	17.79	22.91
Widow/Widower	238	19331	19.7	17.10	22.68
Separated	103	9129	29.6	24.16	35.77
Unknown	147	11308	28.0	22.67	34.00

Table 3.6.3: Prevalence of three conditions by Socio-demography

	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MALAYSIA	1492	120420	5.9	5.45	6.36
STATES					
Johor	75	11560	4.3	3.30	5.67
Kedah	60	5489	3.8	2.77	5.11
Kelantan	57	4312	3.8	2.60	5.60
Melaka	103	3668	5.7	4.53	7.06
Negeri Sembilan	85	4464	5.3	3.98	6.92
Pahang	109	6557	6.7	5.65	7.90
Pulau Pinang	102	6461	6.0	4.35	8.09
Perak	90	9539	5.5	4.26	7.04
Perlis	72	1129	4.4	3.24	5.88
Selangor	120	31051	8.4	6.85	10.18
Terengganu	65	3984	4.3	3.36	5.41
Sabah	107	13178	7.0	5.76	8.54
Sarawak	91	10156	5.4	4.18	6.88
WP Kuala Lumpur	125	7904	7.2	6.30	8.28
WP Labuan	114	362	6.9	5.11	9.25
WP Putrajaya	117	606	7.4	5.49	9.80
STRATA OF THE SCHOOL					
Urban	930	73152	6.3	5.59	7.04
Rural	562	47268	5.4	4.84	5.95
SEX					
Male	665	55345	5.5	4.88	6.14
Female	827	65075	6.3	5.67	6.97
FORM					
Form 1	349	28828	6.8	5.83	7.89
Form 2	284	20661	5.1	4.30	5.97
Form 3	274	20704	5.0	4.27	5.85
Form 4	322	24300	6.2	5.33	7.10
Form 5	263	25927	6.4	5.29	7.77
ETHNIC					
Malay	897	64474	5.0	4.46	5.59
Chinese	265	22478	6.5	5.40	7.80
Indian	124	15566	11.1	9.24	13.34
Bumiputra Sabah	121	10080	7.2	5.60	9.16
Bumiputra Sarawak	55	5589	6.0	4.32	8.35
Others	30	2233	6.4	4.59	8.87
PARENTS MARITAL STATUS					
Married and living together	1119	90119	5.4	4.94	5.84
Married and living apart	64	4956	7.1	5.25	9.62
Divorced	128	10175	8.3	6.55	10.46
Widow/Widower	80	6442	6.6	5.17	8.35
Separated	38	3239	10.5	7.36	14.81
Unknown	54	4270	10.6	7.78	14.20

Table 3.7.1: Prevalence of depression by socio-demography, Johor 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
JOHOR	251	39599	14.6	11.36	18.51
STRATA OF THE SCHOOL					
Urban	193	30478	15.7	11.80	20.61
Rural	58	9121	11.7	7.97	16.97
SEX					
Male	108	19595	14.6	11.71	17.98
Female	143	20004	14.6	10.63	19.68
FORM					
1	51	9242	16.3	9.93	25.64
2	64	8875	17.0	11.03	25.31
3	40	6178	11.4	7.08	17.80
4	66	9617	18.1	14.29	22.55
5	30	5687	10.3	6.47	15.96

Table 3.7.2: Prevalence of anxiety by socio-demography, Johor 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
JOHOR	630	100217	37.0	31.10	43.40
STRATA OF THE SCHOOL					
Urban	467	73816	38.2	30.59	46.50
Rural	163	26400	34.1	27.61	41.17
SEX					
Male	247	45743	34.0	27.09	41.68
Female	383	54473	40.0	34.24	46.13
FORM					
1	134	23120	41.2	30.97	52.19
2	133	17985	34.5	27.39	42.33
3	118	18546	34.1	25.97	43.37
4	137	19781	37.3	29.44	45.84
5	108	20784	37.9	29.60	46.93

Table 3.7.3: Prevalence of stress by socio-demography, Johor 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
JOHOR	160	25206	9.3	7.72	11.12
STRATA OF THE SCHOOL					
Urban	116	18066	9.3	7.22	11.94
Rural	44	7139	9.2	8.30	10.19
SEX					
Male	63	11435	8.5	6.33	11.24
Female	97	13771	10.1	8.31	12.21
FORM					
1	35	5985	10.6	7.69	14.47
2	38	5334	10.2	6.74	15.11
3	32	5028	9.3	4.68	17.52
4	32	4561	8.6	6.09	12.04
5	23	4298	7.7	4.97	11.85

Table 3.8.1: Prevalence of depression by socio-demography, Kedah 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
KEDAH	218	19585	13.1	10.89	15.77
STRATA OF THE SCHOOL					
Urban	124	11268	14.7	11.17	19.22
Rural	94	8318	11.4	9.90	13.20
SEX					
Male	118	10686	14.7	12.32	17.46
Female	100	8899	11.6	8.49	15.77
FORM					
1	52	4173	13.7	8.65	21.12
2	43	3950	13.3	8.10	21.05
3	35	3672	12.0	7.65	18.30
4	61	4847	16.4	13.10	20.32
5	27	2944	10.2	6.76	15.21

Table 3.8.2: Prevalence of anxiety by socio-demography, Kedah 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
KEDAH	572	51847	34.8	30.82	39.08
STRATA OF THE SCHOOL					
Urban	281	25623	33.7	29.13	38.66
Rural	291	26224	36.0	29.52	43.00
SEX					
Male	261	23838	32.9	30.19	35.80
Female	311	28009	36.6	30.78	42.90
FORM					
1	128	10091	33.2	25.03	42.55
2	113	10352	34.9	25.31	45.96
3	95	9693	31.5	26.75	36.77
4	147	11680	39.5	32.78	46.64
5	89	10031	35.2	26.36	45.13

Table 3.8.3: Prevalence of stress by socio-demography, Kedah 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
KEDAH	102	9402	6.3	4.66	8.49
STRATA OF THE SCHOOL					
Urban	63	5833	7.7	5.53	10.52
Rural	39	3569	4.9	3.06	7.74
SEX					
Male	49	4469	6.2	4.28	8.78
Female	53	4933	6.5	4.40	9.38
FORM					
1	19	1497	5.0	3.09	8.00
2	28	2553	8.6	5.06	14.21
3	13	1423	4.6	2.57	8.08
4	23	1844	6.2	4.53	8.40
5	19	2086	7.3	4.43	11.77

Table 3.9.1: Prevalence of depression by socio-demography, Kelantan 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
KELANTAN	236	18668	16.0	12.69	19.97
STRATA OF THE SCHOOL					
Urban	35	2032	8.9	5.97	13.15
Rural	201	16635	17.7	14.45	21.51
SEX					
Male	141	11204	19.7	15.25	25.10
Female	95	7464	12.5	9.42	16.32
FORM					
1	55	5246	23.1	15.72	32.56
2	48	3889	17.0	10.73	25.86
3	41	3791	16.2	10.87	23.34
4	53	3089	13.3	9.02	19.15
5	39	2653	10.9	7.45	15.62

Table 3.9.2: Prevalence of anxiety by socio-demography, Kelantan 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
KELANTAN	571	42623	36.8	33.32	40.41
STRATA OF THE SCHOOL					
Urban	137	8184	36.1	33.58	38.78
Rural	434	34439	37.0	32.71	41.41
SEX					
Male	266	19843	35.1	29.57	41.17
Female	305	22780	38.4	33.77	43.16
FORM					
1	88	8240	36.1	27.94	45.19
2	102	7788	34.7	28.50	41.43
3	95	8504	36.4	30.74	42.38
4	142	8261	36.0	32.27	39.95
5	144	9829	40.5	35.09	46.23

Table 3.9.3: Prevalence of stress by socio-demography, Kelantan 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
KELANTAN	108	8143	7.0	4.99	9.64
STRATA OF THE SCHOOL					
Urban	23	1472	6.5	5.33	7.79
Rural	85	6671	7.1	4.73	10.50
SEX					
Male	65	4959	8.7	6.06	12.20
Female	43	3184	5.3	3.20	8.80
FORM					
1	16	1552	6.8	2.69	16.02
2	19	1497	6.6	3.90	11.08
3	22	1948	8.2	4.65	13.90
4	23	1277	5.5	3.69	8.10
5	28	1870	7.7	3.99	14.37

Table 3.10.1: Prevalence of depression by socio-demography, Melaka 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MELAKA	287	10161	15.4	12.79	18.41
STRATA OF THE SCHOOL					
Urban	113	3758	16.6	11.84	22.81
Rural	174	6403	14.8	11.95	18.07
SEX					
Male	168	5168	15.9	12.68	19.76
Female	119	4994	14.9	12.00	18.33
FORM					
1	58	2148	16.1	11.34	22.43
2	67	2597	19.7	14.95	25.46
3	56	1829	13.8	8.71	21.31
4	53	1745	13.4	9.60	18.39
5	53	1842	13.9	10.57	17.98

Table 3.10.2: Prevalence of anxiety by socio-demography, Melaka 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MELAKA	677	24719	37.2	34.42	40.05
STRATA OF THE SCHOOL					
Urban	250	8510	37.3	30.24	44.92
Rural	427	16208	37.1	35.30	39.01
SEX					
Male	353	10869	33.1	29.46	36.99
Female	324	13850	41.2	37.52	44.90
FORM					
1	137	5140	38.2	31.11	45.76
2	117	4534	34.2	28.95	39.84
3	123	4069	30.6	25.25	36.55
4	143	5011	38.5	31.33	46.26
5	157	5964	44.4	38.44	50.52

Table 3.10.3: Prevalence of stress by socio-demography, Melaka 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
MELAKA	159	5624	8.5	7.16	10.10
STRATA OF THE SCHOOL					
Urban	62	2109	9.3	8.02	10.86
Rural	97	3516	8.1	6.28	10.34
SEX					
Male	88	2687	8.3	6.65	10.26
Female	71	2937	8.7	6.62	11.44
FORM					
1	31	1155	8.6	6.12	12.03
2	35	1340	10.3	6.27	16.33
3	34	1117	8.4	4.94	13.87
4	34	1156	8.9	5.84	13.28
5	25	856	6.5	3.90	10.49

Table 3.11.1: Prevalence of depression by socio-demography, Negeri Sembilan 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
N. SEMBILAN	263	14189	16.4	12.85	20.68
STRATA OF THE SCHOOL					
Urban	213	11114	15.2	12.03	19.11
Rural	50	3075	22.6	13.74	34.94
SEX					
Male	103	6740	15.8	11.09	22.01
Female	160	7449	17.0	13.66	20.91
FORM					
1	65	4736	25.7	17.50	36.01
2	44	2536	14.6	8.66	23.60
3	52	2346	13.6	9.18	19.77
4	52	2752	16.7	9.75	27.15
5	50	1820	10.7	7.56	14.86

Table 3.11.2: Prevalence of anxiety by socio-demography, Negeri Sembilan 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
N. SEMBILAN	652	33191	38.1	32.59	43.94
STRATA OF THE SCHOOL					
Urban	545	26913	36.5	32.30	41.00
Rural	107	6277	46.7	26.76	67.68
SEX					
Male	232	14481	33.7	27.27	40.71
Female	420	18710	42.4	36.00	49.15
FORM					
1	115	8060	43.2	30.64	56.63
2	110	6196	35.5	29.23	42.40
3	141	6229	36.1	27.37	45.77
4	119	6381	38.6	29.64	48.30
5	167	6325	36.8	28.44	46.07

Table 3.11.3: Prevalence of stress by socio-demography, Negeri Sembilan 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
N. SEMBILAN	141	7126	8.2	6.20	10.84
STRATA OF THE SCHOOL					
Urban	110	5233	7.1	5.90	8.64
Rural	31	1893	14.1	8.76	21.93
SEX					
Male	48	3086	7.2	4.06	12.50
Female	93	4040	9.2	7.53	11.22
FORM					
1	27	1960	10.7	4.96	21.69
2	22	1272	7.3	4.27	12.27
3	28	1243	7.1	5.10	9.93
4	28	1370	8.4	4.26	15.80
5	36	1280	7.4	4.78	11.38

Table 3.12.1: Prevalence of depression by socio-demography, Pahang 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PAHANG	348	21174	21.0	16.19	26.80
STRATA OF THE SCHOOL					
Urban	131	7572	17.4	10.73	26.90
Rural	217	13602	23.8	18.09	30.56
SEX					
Male	174	11123	22.3	15.55	30.84
Female	174	10051	19.8	16.45	23.54
FORM					
1	69	5107	24.7	15.47	37.08
2	81	5202	25.3	15.68	38.20
3	65	3695	18.2	11.81	27.01
4	67	3883	20.1	14.23	27.67
5	66	3287	16.4	12.40	21.44

Table 3.12.2: Prevalence of anxiety by socio-demography, Pahang 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PAHANG	737	43013	42.4	37.96	46.88
STRATA OF THE SCHOOL					
Urban	290	16300	37.3	32.99	41.82
Rural	447	26713	46.2	40.69	51.75
SEX					
Male	320	19826	39.3	32.77	46.24
Female	417	23187	45.4	40.32	50.52
FORM					
1	134	9427	44.9	33.19	57.13
2	140	8527	41.4	33.18	50.14
3	148	8163	40.0	33.79	46.62
4	141	8161	42.4	36.52	48.42
5	174	8735	43.1	33.33	53.36

Table 3.12.3: Prevalence of stress by socio-demography, Pahang 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PAHANG	182	10531	10.4	8.86	12.12
STRATA OF THE SCHOOL					
Urban	82	4600	10.5	8.87	12.43
Rural	100	5931	10.3	8.02	13.08
SEX					
Male	74	4599	9.2	6.95	12.04
Female	108	5932	11.5	8.86	14.91
FORM					
1	34	2299	11.0	6.87	17.25
2	31	1973	9.5	5.52	15.82
3	32	1740	8.5	5.96	12.10
4	41	2433	12.7	8.27	18.97
5	44	2086	10.3	7.29	14.35

Table 3.13.1: Prevalence of depression by socio-demography, Pulau Pinang 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
P. PINANG	318	20853	18.8	14.62	23.84
STRATA OF THE SCHOOL					
Urban	235	16010	22.2	17.37	27.82
Rural	83	4843	12.5	8.63	17.83
SEX					
Male	127	9226	16.9	12.05	23.14
Female	191	11627	20.7	16.54	25.49
FORM					
1	53	3435	14.9	9.33	22.82
2	42	2334	10.7	7.06	15.86
3	67	3656	16.7	11.86	22.96
4	84	4984	23.5	15.85	33.30
5	72	6444	28.3	19.86	38.50

Table 3.13.2: Prevalence of anxiety by socio-demography, Pulau Pinang 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
P. PINANG	648	41655	37.6	32.46	42.98
STRATA OF THE SCHOOL					
Urban	413	27269	37.8	32.13	43.78
Rural	235	14386	37.2	27.43	48.11
SEX					
Male	244	17360	31.8	27.74	36.15
Female	404	24295	43.2	36.62	49.97
FORM					
1	125	8563	37.0	27.55	47.56
2	104	5930	27.0	21.10	33.96
3	139	7440	33.8	25.10	43.72
4	158	9307	44.0	35.91	52.40
5	122	10414	46.0	38.65	53.63

Table 3.13.3: Prevalence of stress by socio-demography, Pulau Pinang 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
P. PINANG	154	10121	9.2	7.01	11.97
STRATA OF THE SCHOOL					
Urban	110	7561	10.5	7.97	13.80
Rural	44	2561	6.7	4.00	10.96
SEX					
Male	61	4565	8.4	6.11	11.52
Female	93	5557	9.9	6.74	14.40
FORM					
1	31	1982	8.6	5.41	13.47
2	20	1101	5.0	3.01	8.28
3	31	1653	7.7	4.09	13.88
4	32	1818	8.6	5.42	13.46
5	40	3567	15.8	10.58	22.93

Table 3.14.1: Prevalence of depression by socio-demography, Perak 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PERAK	324	33577	18.8	14.99	23.41
STRATA OF THE SCHOOL					
Urban	163	17686	19.8	14.39	26.54
Rural	161	15891	17.9	12.97	24.23
SEX					
Male	172	18143	20.6	16.88	24.89
Female	152	15434	17.1	12.39	23.21
FORM					
1	47	5140	13.9	8.95	20.89
2	84	7910	22.6	15.08	32.47
3	68	6303	17.6	12.01	25.11
4	70	6575	18.9	13.95	25.03
5	55	7650	21.5	13.63	32.27

Table 3.14.2: Prevalence of anxiety by socio-demography, Perak 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PERAK	690	72090	40.4	36.60	44.37
STRATA OF THE SCHOOL					
Urban	351	37794	42.2	37.25	47.22
Rural	339	34295	38.7	33.29	44.34
SEX					
Male	342	36228	41.0	36.13	46.04
Female	348	35862	39.9	34.37	45.62
FORM					
1	126	13817	36.9	32.09	41.92
2	151	14348	40.9	31.80	50.72
3	146	13640	38.3	32.67	44.34
4	147	13781	39.9	32.27	48.06
5	120	16503	46.3	34.76	58.17

Table 3.14.3: Prevalence of stress by socio-demography, Perak 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PERAK	144	15185	8.5	6.70	10.82
STRATA OF THE SCHOOL					
Urban	70	7470	8.3	5.29	12.80
Rural	74	7714	8.8	7.19	10.66
SEX					
Male	77	8231	9.3	6.83	12.49
Female	67	6954	7.8	5.40	11.14
FORM					
1	23	2535	6.8	3.98	11.26
2	25	2320	6.7	3.68	11.97
3	35	3247	9.0	6.09	13.19
4	29	2659	9.0	6.09	13.19
5	32	4424	12.5	8.00	18.96

Table 3.15.1: Prevalence of depression by socio-demography, Perlis 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PERLIS	291	4744	17.9	14.97	21.33
STRATA OF THE SCHOOL					
Urban	71	1109	20.0	13.38	28.84
Rural	220	3635	17.4	14.25	21.02
SEX					
Male	155	2750	21.3	16.25	27.32
Female	136	1994	14.7	12.24	17.66
FORM					
1	99	1520	28.9	17.85	43.14
2	55	1012	18.4	11.55	27.99
3	39	646	12.0	7.04	19.63
4	48	852	16.2	11.18	22.92
5	50	715	14.2	9.51	20.57

Table 3.15.2: Prevalence of anxiety by socio-demography, Perlis 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PERLIS	629	10072	38.1	33.77	42.54
STRATA OF THE SCHOOL					
Urban	143	2165	38.7	30.78	47.32
Rural	486	7907	37.9	32.92	43.10
SEX					
Male	253	4578	35.2	30.27	40.46
Female	376	5494	40.8	35.78	46.07
FORM					
1	169	2484	47.3	37.12	57.66
2	102	1846	33.6	24.44	44.09
3	113	1801	33.0	25.37	41.67
4	122	2148	41.3	35.78	47.00
5	123	1793	35.5	27.68	44.20

Table 3.15.3: Prevalence of stress by socio-demography, Perlis 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
PERLIS	112	1750	6.6	5.09	8.59
STRATA OF THE SCHOOL					
Urban	23	337	6.0	2.69	13.02
Rural	89	1413	6.8	5.23	8.77
SEX					
Male	53	906	6.9	4.83	9.89
Female	59	845	6.3	4.87	8.17
FORM					
1	42	632	12.2	7.64	18.87
2	19	338	6.1	3.51	10.45
3	14	225	4.1	2.03	8.27
4	12	210	4.0	2.12	7.58
5	25	345	6.8	3.56	12.62

Table 3.16.1: Prevalence of depression by socio-demography, Selangor 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SELANGOR	356	86059	22.6	18.50	27.39
STRATA OF THE SCHOOL					
Urban	257	64312	23.3	18.18	29.27
Rural	99	21747	20.9	15.37	27.88
SEX					
Male	191	42511	22.6	18.06	27.94
Female	165	43548	22.7	16.59	30.12
FORM					
1	108	24592	30.5	22.18	40.33
2	54	12085	15.9	11.62	21.28
3	66	12916	17.0	11.24	24.95
4	85	16806	23.4	16.65	31.72
5	43	19660	26.0	18.98	34.59

Table 3.16.2: Prevalence of anxiety by socio-demography, Selangor 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SELANGOR	691	164774	43.2	38.85	47.63
STRATA OF THE SCHOOL					
Urban	498	121444	43.8	38.08	49.62
Rural	193	43330	41.7	37.69	45.74
SEX					
Male	362	78514	41.5	35.29	48.03
Female	329	86260	44.8	39.14	50.66
FORM					
1	183	41840	51.3	41.20	61.34
2	122	27123	35.4	29.87	41.36
3	147	29481	38.5	32.34	45.13
4	164	32065	44.6	37.19	52.21
5	75	34264	45.7	37.42	54.24

Table 3.16.3: Prevalence of stress by socio-demography, Selangor 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SELANGOR	189	47393	12.5	10.18	15.31
STRATA OF THE SCHOOL					
Urban	143	36745	13.3	10.46	16.81
Rural	46	10648	10.4	8.04	13.31
SEX					
Male	93	20594	11.0	8.32	14.44
Female	96	26800	14.0	10.88	17.83
FORM					
1	59	13433	16.6	10.61	25.03
2	27	6389	8.4	5.60	12.47
3	38	7565	10.0	7.01	14.04
4	39	7581	10.6	6.61	16.45
5	26	12425	16.8	11.77	23.29

Table 3.17.1: Prevalence of depression by socio-demography, Terengganu 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
TERENGGANU	255	15373	16.0	13.52	18.92
STRATA OF THE SCHOOL					
Urban	60	2875	13.8	11.09	17.00
Rural	195	12499	16.7	13.68	20.14
SEX					
Male	132	8662	18.5	15.07	22.60
Female	123	6711	13.7	10.66	17.33
FORM					
1	61	4316	22.8	14.46	33.93
2	57	3050	15.7	10.90	22.20
3	67	3268	16.6	12.55	21.59
4	32	2014	10.7	6.29	17.61
5	38	2726	14.4	8.34	23.57

Table 3.17.2: Prevalence of anxiety by socio-demography, Terengganu 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
TERENGGANU	612	37148	38.7	34.95	42.68
STRATA OF THE SCHOOL					
Urban	146	7300	35.4	31.61	39.48
Rural	466	29848	39.6	35.12	44.35
SEX					
Male	273	18354	39.3	35.12	43.71
Female	339	18794	38.2	32.07	44.69
FORM					
1	116	8326	43.9	34.42	53.86
2	128	7182	37.1	29.10	45.84
3	151	7401	37.7	29.28	46.85
4	106	6419	34.1	28.70	39.94
5	111	7821	41.0	33.06	49.42

Table 3.17.3: Prevalence of stress by socio-demography, Terengganu 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
TERENGGANU	125	7324	7.6	6.24	9.31
STRATA OF THE SCHOOL					
Urban	31	1499	7.3	4.86	10.84
Rural	94	5825	7.7	6.13	9.68
SEX					
Male	60	3906	8.4	5.87	11.77
Female	65	3418	6.9	5.68	8.45
FORM					
1	26	1904	9.9	6.06	15.86
2	25	1229	6.4	4.21	9.48
3	28	1338	6.9	5.10	9.20
4	23	1244	6.6	3.52	12.15
5	23	1609	8.4	5.06	13.49

Table 3.18.1: Prevalence of depression by socio-demography, Sabah 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SABAH	350	42316	21.9	18.30	26.00
STRATA OF THE SCHOOL					
Urban	60	2875	13.8	11.09	17.00
Rural	195	12499	16.7	13.68	20.14
SEX					
Male	200	24162	25.2	19.75	31.66
Female	150	18154	18.6	15.51	22.21
FORM					
1	95	10469	25.8	15.44	39.78
2	59	7055	18.0	13.07	24.26
3	82	10065	25.2	17.23	35.19
4	62	9540	25.4	18.87	33.28
5	52	5187	14.5	9.93	20.68

Table 3.18.2: Prevalence of anxiety by socio-demography, Sabah 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SABAH	759	90322	46.8	42.65	51.05
STRATA OF THE SCHOOL					
Urban	146	7300	35.4	31.61	39.48
Rural	466	29848	39.6	35.12	44.35
SEX					
Male	362	43298	45.2	40.00	50.42
Female	397	47024	48.5	43.14	53.85
FORM					
1	166	18543	46.2	36.16	56.51
2	144	16790	42.2	35.63	49.01
3	158	19142	47.6	37.88	57.42
4	129	19636	53.0	43.53	62.17
5	162	16211	53.0	43.53	62.17

Table 3.18.3: Prevalence of stress by socio-demography, Sabah 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SABAH	190	23427	12.3	10.75	14.00
STRATA OF THE SCHOOL					
Urban	31	1499	7.3	4.86	10.84
Rural	94	5825	7.7	6.13	9.68
SEX					
Male	87	10562	11.2	9.19	13.60
Female	103	12865	13.3	11.70	15.17
FORM					
1	52	5841	14.5	10.77	19.29
2	30	3562	9.2	5.96	13.84
3	43	5304	13.4	8.12	21.37
4	39	6098	16.7	11.68	23.44
5	26	2622	7.4	4.86	11.00

Table 3.19.1: Prevalence of depression by socio-demography, Sarawak 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SARAWAK	259	29844	15.4	13.34	17.76
STRATA OF THE SCHOOL					
Urban	126	15612	16.2	12.84	20.24
Rural	133	14232	14.6	12.51	17.06
SEX					
Male	134	13881	14.2	11.47	17.38
Female	125	15964	16.7	12.45	22.02
FORM					
1	86	8977	20.8	14.48	28.82
2	42	6573	16.7	10.06	26.41
3	40	3856	9.8	7.02	13.61
4	49	5227	14.4	8.75	22.86
5	42	5211	14.7	10.45	20.28

Table 3.19.2: Prevalence of anxiety by socio-demography, Sarawak 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SARAWAK	606	69849	36.1	31.28	41.21
STRATA OF THE SCHOOL					
Urban	274	34150	35.3	27.40	44.14
Rural	332	35699	36.9	31.81	42.23
SEX					
Male	275	29196	30.1	25.95	34.67
Female	331	40653	42.1	34.96	49.53
FORM					
1	143	15302	35.4	28.45	43.00
2	105	16005	40.6	30.25	51.80
3	137	12808	32.9	23.85	43.40
4	116	12711	35.1	28.06	42.80
5	105	13024	36.5	29.18	44.58

Table 3.19.3: Prevalence of stress by socio-demography, Sarawak 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
SARAWAK	145	15951	8.3	6.70	10.16
STRATA OF THE SCHOOL					
Urban	61	7291	7.6	5.28	10.85
Rural	84	8659	8.9	7.14	11.07
SEX					
Male	60	6176	6.4	4.49	8.91
Female	85	9774	10.2	7.42	13.90
FORM					
1	41	4248	9.7	6.47	14.42
2	20	2906	7.4	5.19	10.58
3	38	3422	8.7	6.00	12.48
4	24	2574	7.2	4.43	11.43
5	22	2800	8.0	4.58	13.47

Table 3.20.1: Prevalence of depression by socio-demography, WP Kuala Lumpur 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP KUALA LUMPUR	375	23620	21.3	18.54	24.34
STRATA OF THE SCHOOL					
Urban	375	23620	21.3	18.54	24.34
Rural	-	-	-	-	-
SEX					
Male	110	10545	18.8	15.06	23.32
Female	265	13075	23.8	20.69	27.20
FORM					
1	66	4056	17.6	13.78	22.26
2	70	4883	22.4	15.77	30.89
3	64	4054	18.2	14.05	23.34
4	98	5557	25.5	19.91	32.08
5	77	5070	22.9	16.54	30.81

Table 3.20.2: Prevalence of anxiety by socio-demography, WP Kuala Lumpur 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP KUALA LUMPUR	719	45111	40.4	36.93	44.04
STRATA OF THE SCHOOL					
Urban	719	45111	40.4	36.93	44.04
Rural	-	-	-	-	-
SEX					
Male	210	19898	35.4	30.35	40.74
Female	509	25213	45.6	41.55	49.68
FORM					
1	149	9410	40.9	35.15	46.90
2	116	8042	36.9	30.10	44.18
3	126	7952	35.9	27.22	45.70
4	185	10839	49.1	40.43	57.81
5	143	8866	39.4	31.57	47.72

Table 3.20.3: Prevalence of stress by socio-demography, WP Kuala Lumpur 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP KUALA LUMPUR	191	12225	11.0	9.47	12.79
STRATA OF THE SCHOOL					
Urban	191	12225	11.0	9.47	12.79
Rural	-	-	-	-	-
SEX					
Male	60	5698	10.2	8.30	12.47
Female	131	6527	11.9	9.49	14.70
FORM					
1	41	2756	12.1	9.45	15.34
2	37	2512	11.5	6.99	18.38
3	33	2011	9.1	5.29	15.14
4	36	1962	9.0	5.87	13.45
5	44	2983	13.4	10.20	17.39

Table 3.21.1: Prevalence of depression by socio-demography, WP Labuan 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP LABUAN	350	1120	20.7	16.44	25.82
STRATA OF THE SCHOOL					
Urban	350	1120	20.7	16.44	25.82
Rural	-	-	-	-	-
SEX					
Male	161	557	20.6	14.64	28.19
Female	189	563	20.9	16.96	25.42
FORM					
1	88	248	20.9	12.09	33.70
2	69	233	20.8	17.03	25.07
3	77	240	21.3	15.51	28.40
4	72	220	22.4	15.05	31.99
5	44	179	18.3	12.41	26.05

Table 3.21.2: Prevalence of anxiety by socio-demography, WP Labuan 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP LABUAN	671	2121	39.5	35.40	43.73
STRATA OF THE SCHOOL					
Urban	671	2121	39.5	35.40	43.73
Rural	-	-	-	-	-
SEX					
Male	285	979	36.2	28.86	44.33
Female	386	1142	42.8	38.29	47.38
FORM					
1	194	543	46.3	35.69	57.27
2	108	367	32.3	27.72	37.30
3	135	418	37.2	29.94	45.05
4	150	455	46.8	39.94	53.69
5	84	339	35.0	25.39	45.98

Table 3.21.3: Prevalence of stress by socio-demography, WP Labuan 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP LABUAN	204	648	12.1	10.49	13.92
STRATA OF THE SCHOOL					
Urban	204	648	12.1	10.49	13.92
Rural	-	-	-	-	-
SEX					
Male	77	266	10.0	6.92	14.16
Female	127	382	14.2	6.92	14.16
FORM					
1	53	144	12.3	7.31	20.06
2	41	138	12.3	8.83	16.98
3	39	122	10.9	7.55	15.57
4	44	134	13.8	9.28	20.06
5	27	109	11.2	7.82	15.73

Table 3.22.1: Prevalence of depression by socio-demography, WP Putrajaya 2017

	Prevalence of Depression				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP PUTRAJAYA	302	1535	18.5	14.78	22.78
STRATA OF THE SCHOOL					
Urban	302	1535	18.5	14.78	22.78
Rural	-	-	-	-	-
SEX					
Male	139	697	15.1	11.90	18.87
Female	163	838	22.7	17.98	28.26
FORM					
1	93	361	18.6	13.03	25.74
2	62	278	15.9	11.41	21.62
3	54	323	19.1	13.11	26.86
4	50	249	17.1	11.36	24.82
5	43	324	22.1	13.22	34.55

Table 3.22.2: Prevalence of anxiety by socio-demography, WP Putrajaya 2017

	Prevalence of Anxiety				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP PUTRAJAYA	676	3431	41.2	35.60	47.13
STRATA OF THE SCHOOL					
Urban	676	3431	41.2	35.60	47.13
Rural	-	-	-	-	-
SEX					
Male	327	1678	36.2	32.19	40.32
Female	349	1752	47.7	40.44	55.00
FORM					
1	203	801	41.4	31.57	52.06
2	144	638	36.6	30.07	43.55
3	118	716	41.9	34.86	49.31
4	121	597	41.0	36.21	45.97
5	90	678	46.0	36.90	55.41

Table 3.22.3: Prevalence of stress by socio-demography, WP Putrajaya 2017

	Prevalence of Stress				
	Unweighted Count	Estimated Population	Percentage (%)	95% CI	
				Lower	Upper
WP PUTRAJAYA	181	944	11.4	8.75	14.61
STRATA OF THE SCHOOL					
Urban	181	944	11.4	8.75	14.61
Rural	-	-	-	-	-
SEX					
Male	80	419	9.0	6.34	12.72
Female	101	525	14.3	10.52	19.08
FORM					
1	45	175	9.1	6.23	13.02
2	35	159	9.1	5.49	14.70
3	33	199	11.8	7.31	18.50
4	38	184	12.5	10.05	15.52
5	30	227	15.4	9.21	24.48

Appendix 2: Members of Steering Committee NHMS 2015-2018

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

Appendix 3: Term of Reference for NHMS 2017 Steering Committee

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

Appendix 4: List of members of Central Coordinating Committee, NHMS 2017

1. Dr Hj Tahir bin Aris, Director of Institute for Public Health
2. Dr Muhammad Fadhli bin Mohd Yusoff, Coordinator of NHMS 2015-2018
3. Dr. S Maria binti Awaluddin, Principal Investigator of Adolescent Health Survey
4. Ms Ruhaya binti Salleh, Principal Investigator of Adolescent Nutrition Survey
5. Mr Mohamad Aznuddin bin Abd Razak, Principal Investigator of Adolescent Mental Health using DASS-21
6. Dr Mohd Azahadi bin Omar, Head Data Processing and Data Management
7. Dr Noor Ani binti Ahmad, Central Field Supervisor of Perlis & Kedah
8. Dr Nor Asiah binti Mohamad, Central Field Supervisor of Johor, Melaka & Negeri Sembilan
9. Dr Rajini a/p Sooryanarayana, Data Processing & Quality
10. Ms Tee Guat Hiong, Central Field Supervisor of Sarawak
11. Dr Nur Liana binti Ab. Majid, Central Field Supervisor of WP Kuala Lumpur, WP Putrajaya & Selangor
12. Ms Hasimah binti Ismail, Central Field Supervisor of Pahang, Kelantan & Terengganu
13. Ms Norzawati binti Yeop, Central Field Supervisor of Perak & Kedah
14. Ms Norazizah binti Ibrahim Wong, Data Processing & Quality
15. Mr Mohd Hazrin bin Hasim @ Hashim, Central Field Supervisor of WP Labuan & Sabah
16. Ms Lalitha a/p Palanivello, Person in charge for 24Hour Diet Recall
17. Ms Siti Nor'Ain binti Hashim, Head of ICT Support
18. Mr Lim Kuang Kuay, Logistic Support
19. Ms Hamizatul Akmal binti Abd. Hamid, Project Manager
20. Ms Wan Shakira binti Rodzlan Hasani, Project Manager
21. Ms Cheong Siew Man, Person in charge for Food Frequency Questionnaire
22. Ms Nazirah Bt Alias, Data Processing & Quality
23. Dr Fazila Haryati Ahmad, Data Processing &Quality

Appendix 5: Terms of Reference for NHMS 2017 Central Coordinating Team

No	Team	Duties	Officers
1	Project Management and Finance	Work closely with recruitment group for employment of RA Prepare security cards/name tags for research team Arrangement for advanced payment for team managers, nurses and drivers Process claims of MOH staff Prepare tickets for travelling Monitor the expenditure/budget	Dr. Muhammad Fadhli bin Mohd Yusoff Dr. S. Maria Binti Awaluddin Hamizatul Akmal binti Abd Hamid Wan Shakira binti Rodzlan Hasani Nur Hazwani Binti Mohd Hasri
2	Survey Research Centre	Calculate sample size Determine sample distribution	Dr. Muhammad Fadhli bin Mohd Yusoff Norazizah binti Ibrahim Wong Wan Shakira binti Rodzlan Hasani
3	ICT Unit	Daily back up for databases Maintenance of the server for data collection	Siti Nor'ain Binti Hashim Sulaiman Bin Harun Yusmirol Bin Yusop Andy Bin Mustaming
4	Central Field Supervisors	**Before Data Collection** Central Field Supervisors are expected to prepare for the initiation of data	Dr Nor Asiah Binti Muhamad Dr Nur Liana Binti Ab Majid

		collection. The preparation tasks include: To ensure adequate logistic support for the data collection and liaise with the District Health Office and other relevant departments to ensure that: • Human resources are available: Field Supervisors, Nurses, Research Assistants and Drivers. • Manage transport: Vehicles • Manage survey equipment and maps • Manage lodging for data collectors • Notification of the survey to the City Council/ Police / Head of the Village or Residential	Norzawati Binti Yeop Dr. Noor Ani Binti Ahmad Hasimah Binti Ismail Helen Tee Guat Hiong Mohd Hazrin Bin Hasim @ Hashim
		Areas/ Village Development and Security Committee (JKKK) via notice/notification letter Ensure the notification letters to the Director of the State Health Department regarding the date of the survey in each province have been issued and a copy forwarded to the District Health Officer and State Liaison Officer, based on the selected Enumeration Block (EB) and Living Quarters (LQ). Assist the State Liaison Officer to carry out publicity during the survey via: • Police Department • District Information Office: Local Radio Broadcast • Posters in the clinic (Klinik Kesihatan and Klinik Desa) at selected District Health Office Plan the data collection movement schedule with the State Liaison Officer and the Field Supervisors.	

		<u>During Data Collection</u> Gather feedback from the field on the data collection status and issues related to logistics. Visit the field to help data collectors solve the problem if necessary. To ensure all data collection monitoring forms have been received on time.	
5	Data Processing and management	Setting up data processing facility Development of directory of variables database Development of QC manual for data Processing Specify data structure for data processing and data output requirement Responsible for data entry and data Cleaning Monitoring and evaluation of QC performance for data processing Responsible for GIS data quality	Dr. Mohd Azahadi bin Omar Dr. Rajini a/p sooryanarayana Dr. Fazila Haryati Binti Ahmad Nazirah Binti Alias
6	Operation Centre	Arrange date and place of meeting Prepare and circulate briefing materials Prepare and circulate minutes of CCT meeting Prepare letters of appointment to state liaison officers, nurses, scouts and data collectors	Hamizatul Akmal binti Abd Hamid Azli bin Baharudin Nur Hazwani Binti Mohd Hasri Siti Noafika Binti Anwar

		Prepare advertisement material for recruitment of data collectors, team leaders, and interviewers, Prepare letters of notifications for data collections Prepare manuals for scouts, field supervisors, data collectors and nurses Develop a system/format and monitor the distribution of materials/equipment for field work Arrange transport/drivers for distribution and collection of materials/equipment/SAQ	Muhammad Suhaimi Bin Mohamad Idrus Shahibul Bariah binti Mat Ghani Nur Fadzilla binti Mohd Radzi Muhammad Zuhdi Bin Khiruddin Nurbaiti Binti Asmawi

Appendix 6: List of Research Team Members, NHMS 2017: Adolescent Mental Health (DASS-21)

1. Mr Mohamad Aznuddin Bin Abd Razak (Primary Investigator)
2. Dr. Noor Ani Binti Ahmad
3. Dr. S Maria Binti Awaluddin
4. Dr Fazly Azry Bin Abd Aziz
5. Ms Rasidah Binti Jamaluddin
6. Ms Muslimah Binti Yusof
7. Profesor Dr Sherina Binti Mohd Sidik
8. Dr Nurashikin Binti Ibrahim

Appendix 7: List of Data Collection Teams

PERLIS

Liaison Officer
Mohd Khairul Nizam Bin Baharom

Field Supervisor
Sayan a/l Pan

Nutritionist
1. Nur Hazwani Bt. Roslan
2. Shazwani Binti Magini

Research Assistants
1. Mohammad Syafiq Fadhlan Norsaid
2. Nor Asmira binti Abidin
3. Afidah Haziani binti Rodzi
4. Intan Shamira binti Tajudin
5. Mohamad Syazwan bin Abd. Aziz
6. Siti Hazira binti Che Halim
7. Muhd Syamir bin Sobri
8. Noraini binti Abdul Manaf
9. Nur Faniza binti Zainol
10. Muhammad Hanif bin Samsuddin

KEDAH

Liaison Officer
Rohida binti Sallehuddin

Field Supervisor
Hasmila binti Mat Hassan

Nutritionist
1. Noor Hasnani Binti Ismail
2. Sharifah Salbiah
3. Ho Boon Keat
4. Zalikha Amirah Binti Zainol

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

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

PULAU PINANG

Liaison Officer
Zuhaida binti Harun

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

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

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

PERAK

Liaison Officer
Zuraini Binti Abdullah

Field Supervisor
1. Dr. Tania Gayle a/p Robert Lourdes
2. Dr. Thamil Arasu a/l Saminathan

Nutritionist
1. Zuraini Abdullah
2. Zulkifli Bin Jamil
3. Ng Zei Pei
4. Ruby Zainureen Binti Zahedi
5. Nursyakirah Binti Ahmad Kamil

Research Assistants
1. Nursyafiza binti Zahari
2. Siti 'Aisyah binti Mohamad Johari
3. Nur Zahirah binti Mohd Khairuddin
4. Mohd Azfar bin Ismail
5. Mohamad Sabri bin Mohamad Shariman
6. Kalaivani a/p Ananthan
7. Raja Nor Fatihah binti Raja Omar
8. Adly Akmal bin Md Yunus

SELANGOR

Liaison Officer
Ja'afar Bin Mohamed Idris

Field Supervisor
Azli Bin Baharudin @ Shaharuddin
Chan Ying Ying

Nutritionist

1. Norazaidah Yusof
2. Adibah Binti Zakaria
3. Zamzurina Binti Muhamad Kamaruzaman
4. Wan Ema Marliza Binti Wan Ismail
5. Ng Chee Kai
6. Amirah Binti Mohamed Jalal
7. Argeela a/p Subramaniam
8. Nor Hasyimah Binti Khalid
9. Ellin Kiung
10. Nadiy Binti Isa

Research Assistants

1. Nurul Hidayah Binti Mat Yusoff
2. Illya Natasha Binti Zulkefli
3. Shazana Binti Che Hassandi
4. Nurlis Bin Yunarlis
5. Ihsan Sabri Bin Ahmad Khairi
6. Fatin Norhasny Binti Leman
7. Nur Syuhada Binti Sadrani
8. Mohd Syamim Bin Mat Sakry
9. Aida Marina Binti Jamin
10. Abdul Aziz Bin Nazaruddin

WILAYAH PERSEKUTUAN KUALA LUMPUR

Liaison Officer
Nor Azah Binti Ahmad

Field Supervisor
Syafinaz Mohd Sallehuddin

Nutritionist

1. Wan Siti Zulaicha Binti Shaharudin
2. Noorzatul Shuhada Binti Md Zaini
3. Norhasniza Binti Yaacob
4. Sharidatulakmar Binti Ismail
5. Muhammad Asyraf Bin Ismail

Research Assistants

1. Wan Nur Khairunnisa Wan Kozil
2. Teoh Jia Yu
3. Nurul Adilin Binti Johari
4. Hiew Yan Ting
5. Mohd Salman Syahmi Bin Mohamad Idris
6. Rahimah Binti Ab Rahman
7. Nadia Wahida Binti Nordin
8. Farris Fadilah Binti Ramli
9. Ain Munirah Binti Yusof
10. Heriyansha Bin Hanafiah

WILAYAH PERSEKUTUAN PUTRAJAYA

Liaison Officer
Nor Azah Binti Ahmad

Field Supervisor
1. Dr. Noor Aliza Bintu Lodz
2. Dr. Halizah Binti Mat Ripin

Nutritionist
1. Azlinda Binti Hamid
2. Nurul Zaiza Binti Zainuddin
3. Nooraidaliana Binti Abas
4. Siti Syazwani Binti Abdullah

Driver
1. Pragas a/l Arulanantham
2. Wan Abdul Rashid Bin Wan Zakaria

Research Assistants

1. Nur Nadiah Binti Ab Majid
2. Sadeshwaran A/L Paramesvaran
3. Thachayani A/P Ramayah
4. Nurul 'Awatif Hanani Binti Hazarudin
5. Muhammad Hasif Bin Abdul Ghalib
6. Wan Suhaili Wan Ab Rahman
7. Muhammad Rashidi Bin Rosli
8. Danial Barr Bin Abdul Aziz
9. Nurain Nadia Binti Azmi
10. Lukmanulhakim Bin Azid

JOHOR

Liaison Officer
Yahya Bin Ahmad

Field Supervisor
Fatimah Binti Othman

Nutritionist
1. Nik Normasitah Binti Nik Ismail
2. Mohd Razif Bin Mohd Jamain
3. Siti Dinie Syazwani Binti Azlam
4. Lee Pei Shan
5. Mohd Zaid Bin Ramlan

Drivers
1. Osman Bin Mohd
2. Mohd Safar Bin Sarbani

Research Assistants
1. Mohd Nazrulshah Bin Salim
2. Sharifah Solihah Bt Syed Hashim
3. Khairulhanafi Bin Muhammad Khair
4. Nur Hamizah Binti Md Sha'eb
5. Siti Aisyah Binti Ibrahim
6. Nor Hamizah Binti Atan
7. Siti Nur Nadiah Binti Khozaini
8. Nurul Siddiqah Binti Whakiddi

MELAKA

Liaison Officer
Jamilah Binti Ahmad

Field Supervisor
1. Dr. Shubash Shander a/l Ganapathy
2. Noraida Binti Mohamad Kasim

Nutritionist
1. Zahratul Nur Binti Kalmi
2. Nathirah Binti Maamor
3. Rohana Binti Ya'akof
4. Asvini a/p Vastavan

Drivers
1. Wan Muhd Firdaus Bin Wan ismail
2. Anuar Bin Mohamad

Research Assistants
1. Nabila Huda Binti Mohd Nor
2. Thaneswaran a/l Subramaniam
3. Muhamad Hazwan Bin Hasman
4. Nur Nazihah Binti Mohamed
5. Mohamad Asyfik Bin Whakiddin
6. Nursyafawani Binti Yusoff
7. Nur Afifah Binti Shaari
8. Nabilah Binti Mohd Nawi
9. Muhammad Noriduan Bin Nor'amilin

NEGERI SEMBILAN

Liaison Officer
Norliza Bt Zainal Abidin

Field Supervisor
Dr. Nor Asiah Binti Muhamad

Nutritionist
1. Suhaidi Bin Sudin
2. Mohamad Ihsan Bin Tahir
3. Suriyani Binti Mohd Yusop
4. Siti Nor Aisah Binti Muhamad Fandi
5. Farah Wahida Binti Za'abar

Drivers
1. Mohd Baharuddin Bin Abu Bakar
2. Hashim Bin Mat Zin

Research Assistants

1. Suhainiza Binti Samsudin
2. Nur Anas Iylia Binti Ishak
3. Sharmilla D/O Bala Subramaniam
4. Sa'dun Bin Mohd Yusoff
5. Syarifah Nurul Azirah Bt Sy Hassan
6. Nor Aliza Binti Hassan @ Hassanudin
7. Mohamad Aimi Iqwan Mohd Roslan
8. Kalaiwani A/P Gunasekaran
9. Muhammad Syahir Bin Samad
10. Muhamad Mustaqim Bin Md Lazim

PAHANG

Liaison Officer
Suriati Binti Zakaria

Field Supervisor
1. Muslimah Binti Yusof
2. Mohamad Hasnan Bin Ahmad

Nutritionist

1. Nur Shazwani binti Ahmad Nazri
2. Shalina binti Ramli
3. Lai Wai Kent
4. Tiew Kee Fong
5. Fazrina binti Jamharee
6. Mohd Faez bin Bachok
7. Nurul Hidayah binti Whakiddin
8. Norafifah binti Ahmad Shabri
9. Nur Nadia binti Zambri

Drivers

1. Wan Mohd Aharulnizam Wan Abd Aziz
2. Muhammad Syamil bin Abdul Rahim
3. Hasmizan bin Mukhtar
4. Muhammad Shairul Azizie Abdul Razak
5. Muhammad Yusof bin Fadzil
6. Mohd Zorani bin Siwok
7. Abdullah bin Ishak

Research Assistants

1. Najihah binti Mohd Shahril
2. Noraini binti Abdullah@Ab Ghani
3. Nursahila binti Abdul Hamid
4. Khairul Hazmi bin Haslan
5. Maisarah binti Norhizat
6. Nurul Nadia binti Mohd Ghazali
7. Norhayati binti Kamarudin
8. Muhamad Fateh bin Mustafa
9. Ahmad Zamri Bin Idris

KELANTAN

Liaison Officer
Puspawati Binti Mohamed

Field Supervisor
Dr. Maisarah Binti Omar

Nutritionist

1. Tengku Fatimatul Bt Tengku Hassim
2. Salmie Binti Ibrahim
3. Norita Bt Mat Rasid
4. Wan Fauzi B Wan Yusoff
5. Fadwa Bt Ali
6. Noriza Bt Hussein
7. Junaidah Bt Mustapha
8. Sharifah Fatimah Zahra Bt Sy. Agil
9. Siti Nuzullah Binti Mohd Salleh
10. Norhasliza Bt Ariffin

Drivers
1. Nik Zabri bin Nik Harun
2. Mohd Azaman bin Hassan

Research Assistants

1. Norhasliza binti Ariffin
2. Junaidah binti Mustapha
3. Norul Syurafakbinti Sa'ari
4. Wan Roswani binti Wan Ibrahim
5. Noriza binti Hussain
6. Nor Maihiza Akmal binti Mohd Salleh
7. Lina Husniyah binti Mohamad
8. Wan Fauzi bin Wan Yusoff
9. Nor Suhaida binti Che Ali
10. Suzy Edawaty binti Ahmad Nordin
11. Mohammad Affendy Bin Mhd Akhir
12. Sharifah Fatimah Zahra bt Syed Agil
13. Nurulashikin bt Mohd Arriffin

TERENGGANU

Liaison Officer
Noorsyahmun Bin Muhd Noor

Field Supervisor
Mohd Azza Bin Azlan

Nutritionist
1. Sam Azura binti Ahmad
2. Zamilah Hasniah binti Abd. Hamid
3. Nurnadia binti Abd. Aziz
4. Nur Ili binti Mohamad Tarmizi
5. Noorsyahmun binti Muhd Noor
6. Salihah binti Brahim
7. Nur Amalina binti Othman
8. Nurul Fatihah Hanim binti Ghani

Research Assistants
1. Siti Aminah binti Hamdan
2. Norfatin Najiehan binti Kassim
3. Nur Hazwani binti Mat Sulong
4. Muhamad Zawahir bin Ismail
5. Ahmad Taufik bin Yusof
6. Safrial bin Ridwan
7. Nor Shahirrah binti Ibrahim
8. Nur Hashima binti Mat Sulong
9. Nuraqilah binti Kamaruddin
10. Ihsanuddin bin Adnan

SARAWAK

Liaison Officer
Tan Beng Chin

Field Supervisors
1. Mohamad Aznuddin Bin Abd Razak
2. Tilen Jok

Nutritionist
1. Mackendy Manggis
2. Ahmad Khairul Zaman Bin Razak
3. Jambai anak Endu
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Appendix 8

BAHAGIAN 13
PART 13

77. Saringan Minda Sihat
Healthy Mind Screening

Sila baca setiap kenyataan di bawah dan **HITAMKAN** jawapan anda pada KERTAS JAWAPAN berdasarkan jawapan **a, b, c,** atau **d** bagi mengambarkan keadaan anda sepanjang minggu yang lalu. Tiada jawapan betul atau salah. Jangan mengambil masa yang terlalu lama untuk menjawab mana-mana kenyataan.
*Please read each statement and **SHADE** numbers **a**, **b**, **c**, or **d** which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.*

Skala pemarkahan adalah seperti berikut:
The rating scale is as follow:

a. **Tidak langsung** menggambarkan keadaan saya
***Did not** apply to me at all*
b. **Sedikit atau jarang-jarang** mengambarkan keadaan saya
*Applied to me to some **degree** or **some of the time***
c. **Banyak atau kerapkali** mengambarkan keadaan saya
*Applied to me to a **considerable degree** or a **good part of time***
d. **Sangat banyak atau sangat kerap** mengambarkan keadaan saya
*Applied to me **very much**, or **most of the time***

78.1	Saya dapati diri saya sukar ditenteramkan *I found it hard to wind down*	a	b	c	d
78.2	Saya sedar mulut saya terasa kering *I was aware of dryness of my mouth*	a	b	c	d
78.3	Saya tidak dapat mengalami perasaan positif sama sekali *I couldn't seem to experience any positive feeling at all*	a	b	c	d
78.4	Saya mengalami kesukaran bernafas (contohnya pernafasan yang laju, tercungap-cungap walaupun tidak melakukan senaman fizikal) *I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)*	a	b	c	d

78.5	Saya sukar untuk mendapatkan semangat bagi melakukan sesuatu perkara *I found it difficult to work up the initiative to do things*	a	b	c	d
78.6	Saya cenderung untuk bertindak keterlaluan dalam sesuatu keadaan *I tended to over-react to situations*	a	b	c	d
78.7	Saya rasa mengeletar (contohnya pada tangan) *I experience trembling (e.g. in the hands)*	a	b	c	d
78.8	Saya rasa saya menggunakan banyak tenaga dalam keadaan cemas *I felt that I was using a lot of nervous energy*	a	b	c	d
78.9	Saya bimbang keadaan di mana saya mungkin menjadi panik dan melakukan perkara yang membodohkan diri sendiri *I was worried about situation in which I might panic and make a fool of myself*	a	b	c	d
78.10	Saya rasa saya tidak mempunyai apa-apa untuk diharapkan *I felt that I had nothing to look forward to*	a	b	c	d
78.11	Saya mendapati diri saya semakin gelisah *I found myself getting agitated*	a	b	c	d
78.12	Saya rasa sukar untuk relaks *I found it difficult to relax*	a	b	c	d
78.13	Saya rasa sedih dan murung *I felt down-hearted and blue*	a	b	c	d
78.14	Saya tidakdapat menahan sabar dengan perkara yang menghalang saya meneruskan apa yang saya lakukan *I was intolerant of anything that kept me from getting on with what I was doing*	a	b	c	d

78.15	Saya rasa hampir-hampir menjadi panik/cemas *I felt I was close to panic*	a	b	c	d
78.16	Saya tidak bersemangat dengan apa jua yang saya lakukan *I was unable to become enthusiastic about anything*	a	b	c	d
78.17	Saya tidak begitu berharga sebagai seorang individu *I felt I wasn't worth much as a person*	a	b	c	d
78.18	Saya rasa yang saya mudah tersentuh *I felt that I was rather touchy*	a	b	c	d
78.19	Saya sedar tindakbalas jantung saya walaupun tidak melakukan aktiviti fizikal (contohnya kadar denyutan jantung bertambah, atau denyutan jantung berkurangan) *I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)*	a	b	c	d
78.20	Saya berasa takut tanpa sebab yang munasabah *I felt scared without any good reason*	a	b	c	d
78.21	Saya rasa hidup ini tidak bermakna *I felt that life was meaningless*	a	b	c	d

Appendix 9

Introduction

The DASS 21 is a 21 item self-report questionnaire designed to measure the severity of a range of symptoms common to both Depression and Anxiety. In completing the DASS, the individual is required to indicate the presence of a symptom over the previous week. Each item is scored from 0 (did not apply to me at all over the last week) to 3 (applied to me very much or most of the time over the past week).

The essential function of the DASS is to assess the severity of the core symptoms of Depression, Anxiety and Stress. Accordingly, the DASS allows not only a way to measure the severity of a patient's symptoms but a means by which a patient's response to treatment can also be measured.

The DASS and Diagnosis

Although the DASS may contribute to the diagnosis of Anxiety or Depression, it is not designed as a diagnostic tool. Indeed, a number of symptoms typical of Depression such as sleep, appetite and sexual disturbances, are not covered by the DASS and will need to be assessed independently. The DASS is not meant to replace a comprehensive clinical interview.

Suicide

Suicidality is not assessed by the DASS. Accordingly, the clinician will need to address directly this important symptom of Depression in their clinical interview.

How often to use the DASS?

Although the DASS can provide a comparison of symptoms from week to week, it is best given on first presentation and again after a period of time has lapsed long enough for the chosen treatment to have effect. In the case of antidepressant medication, the second administration should be between the 2-4 weeks period after the individual has commenced taking the medication. This period is long enough for most antidepressants to be expected to show some change in the patient.

Scoring the DASS

The scale to which each item belongs is indicated by the letters D (Depression), A (Anxiety) and S (Stress). For each scale (D, A & S) sum the scores for identified items. Because the DASS 21 is a short form version of the DASS (the Long Form has 42 items), the final score of each item groups (Depression, Anxiety and Stress) needs to be multiplied by two (x2).

Interpreting the DASS

Once multiplied by 2, each score can now be transferred to the DASS profile sheet, enabling comparisons to be made between the three scales and also giving percentile rankings and severity labels.

DASS Severity Ratings

(Don't forget to multiply summed scores by x 2)

Severity	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

As previously mentioned, the DASS should not be used on its own to assess the presence or absence of Depression or Anxiety. High scores on the DASS would certainly alert the clinician to a high level of distress in the patient and this would need to be explored further within the interview process. Similarly, low scores on the DASS should not be a substitute for a comprehensive clinical interview.

High DASS scores which are not changing, may prompt the clinician to look for explanations and perhaps augment dosages or change medication. Here again, the DASS should be interpreted alongside the clinical interview.

Changes in scores in one scale (EG: Depression), with consistently high and unchanging scores in another scale (Anxiety) may alert the clinician to pay particular attention to the presence of a coexisting anxiety disorder which may need specific treatment in its own right.

Similarly, decreasing Depression scores alongside unchanging Stress scores may alert the clinician to the presence of some life event or problem, which may need to be addressed directly.

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