ASIA-PACIFIC PSYCHIATRY

Official journal of the Pacific Rim College of Psychiatrists

Asia-Pacific Psychiatry ISSN 1758-5864

ORIGINAL ARTICLE

Common mental disorders in Malaysia: Malaysian mental health survey, 2003–2005

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Keywords
associated factor, common mental disorder, Malaysian population

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Received 15 July 2011
Accepted 7 September 2011

DOI:10.1111/j.1758-5872.2012.00180.x

Abstract

Introduction: Mental disorders are emerging as serious health threats in both developed and developing nations and contribute to greater Disability Adjusted Life Years (DALY) than infectious disease and unintentional injuries. This study aims to determine the prevalence and factors associated with the presence of common mental disorders in the Malaysian population.

Methods: Multistage cluster sampling method was used to obtain samples, with racial proportion as the main sampling criteria. Required sample size was calculated to be 4300 at 90% confidence level. Trained enumerators carried out the interview, with the Clinical Interview Scheduled- Revised (CIS-R).

Results: A total of 3666 respondents were interviewed (85% response rate). The one-week prevalence of Common Mental Disorders was 5.3% (95% CI of 4.57–6.03%). Findings from multivariate logistic regression analysis showed that associated factors were female gender (adjusted OR = 1.91, $P < 0.01$), being divorced (adjusted OR = 3.95, $P < 0.05$), difficulties at workplaces (adjusted OR = 3.58, $P < 0.01$) experiencing life events, such as divorce/marital separation (adjusted OR = 2.58,$P < 0.01$), unsolvable financial problems (adjusted OR = 3.87, $P < 0.01$), and serious problems with friends and neighbours (adjusted OR = 4.35, $P < 0.01$) in the year prior to data collection. Chinese ethnicity was least likely to be associated with CMD (adjusted OR = 0.27).

Discussion: There is a 5% prevalence of Common Mental Disorders in the Malaysian population. Socio-demographic factors and experience of certain life events, particularly divorce, problems with neighbours and friends and severe financial problems in the previous year were found to be significantly associated with the prevalence of common mental disorders.

Introduction

Neuropsychiatric conditions contribute to 31.7% of the years lived with disability with five major contributors being unipolar depression (11.8%), alcohol use disorders (3.3%), schizophrenia (2.8%), bipolar depression (2.4%) and dementia (1.6%) (WHO, 2001). Neuropsychiatric disorders account for 1.2 million deaths every year and 1.4% of all years of life lost with 40,000 deaths attributable to mental disorders and 182,000 to alcohol and drug use (Mather and Loncar, 2006). Mental disorders are also found to

be a risk factor for suicide with a median prevalence of mental disorders of 91% amongst suicide completers (Cavanagh *et al*., 2003). Mental disorders increase the risks for many communicable and non-communicable diseases and people with mental disorders also contribute to the spread of these diseases and directly or indirectly contribute to mortality (Prince *et al*., 2007).

Studies focusing on the prevalence of mental disorders, disability caused by the disorders and unmet needs showed that the median prevalence of mental disorders were 12.2% with a range from 4.3% in Shanghai to 26.4% in the USA (Handerson and Andrews, 2008). Mental disorders are common and impose significant economic and social burden to the countries with great unmet needs (Handerson and Andrews, 2008).

The Third National Health and Morbidity Survey (NHMS), which was conducted by the Malaysian Ministry of Health in 2006 reported an overall prevalence of 11.2% for psychiatric morbidity among Malaysian adults (Malaysian Ministry of Health, 2006).The study was conducted using the General Health Questionnaire (GHQ), which is a well known screening tool that can be used to measure minor psychological distress and thus did not provide knowledge on the prevalence of diagnosable mental disorders and associated risk factors. The present paper estimates the prevalence of mental disorders and identifies factors associated with the presence of mental disorders in the population.

Methods

Sampling selections of respondents

Data for this study was collected from October 2003 to August 2005. The sample size was estimated to be 4300 respondents with a 90% confidence level. The estimation was made by taking into account the disorder with the least prevalence in the community, which is panic disorder with a prevalence of 2% (Singleton *et al*., 2003). Multistage cluster sampling method was employed with racial proportion being the main sampling criteria. The first stage of sampling involved selection of five states (clusters) by geographical distribution from a total of 13. The second stage involved selection of Enumeration Blocks (EB) by ethnic distribution. EB selection was the most critical stage of sampling as each state has its own ethnic composition. EBs that consisted of the ethnic groups to be sampled in a particular state were selected; (e.g. Penang state has a large Chinese population), in Penang, EBs with at least 13% Chinese population were selected (Kelantan has a small non-Malay population) and in Kelatan EBs with non-Malay residents were selected to enable inclusion of non-Malay respondents. The EB list was provided by the Malaysian Statistical Department, based on information from the Population and Housing Census, conducted in 2000. Living quarters (LQs) were systematically selected from the lists of EBs with a random start and random interval. The sampling frame for the study was created by compiling all selected LQs. Enumerators visited the listed LQss, made a list of the eligible respondents in the household and chose two respondents, with the aid of random selection tables. All Malaysian citizens aged 16 years and above were eligible to participate in the survey with the exception of those unable to answer questions due to physical impediments or inability to comprehend the questions, the elderly (aged 60 years and above) who had low scores (0–4) for Elderly Cognitive Assessments Questionnaire (ECAQ) (Saroja *et al*., 1995), visitors and those who were not at home after three consecutive attempts to contact them. If a person could not be met after three attempts at three different times, the nearest neighboring house was chosen and members of the household were randomly selected. The selected respondents were interviewed only after verbal consent was obtained. The interview was conducted in the absence of other family members to ensure that the respondents had privacy and could provide truthful answers. Malaysian citizens, with the exception of the elderly population born in the pre-independent era are generally able to communicate in Malay. Malay is the official language and spoken by all and even those with little education can speak communicable English or Malay. Thus all interviews were conducted in either of the languages; however, Mandarin and Tamil translation were available and were used if certain psychiatric terms needed clarification. Ethical approval was obtained from the National University of Malaysia Ethical Committee.

Data collection

Instruments

Common Mental Disorders (CMD)

Presence of CMD was measured using the Clinical Interview Schedule Revised (CIS-R) (Lewis *et al*., 1992) in the Programmed Questionnaire System (PROQSY) format, which generates diagnosis accord-

ing to ICD10 (Lewis, 1994). The instrument diagnoses for the presence of common mental disorders, namely mixed anxiety and depressive disorder, depressive episode, generalized anxiety disorder, phobic disorders and panic disorder. The CIS-R is a fully structured diagnostic instrument with sequential or jumping questions. PROQSY is the computerized version of the CIS-R instrument which has the advantage of automatically leading the interviewer to the next question based on the answers keyed in and thus the enumerators were not expected to make any decisions or judgments during the interview. This feature makes it a suitable instrument to be used by lay interviewers after minimal training. The English version of CIS-R in PROQSY format was translated and back translated into Malay and its reliability and validity were established before the fieldwork was carried out. The Malay version of the CIS-R in PROQSY format had a sensitivity of 100% and specificity of 96% (Subramanian *et al*., 2006).

Explanatory variables

Socio-demographic factors assessed were age, gender, ethnicity and marital status. Social capital variables that were assessed were satisfaction with the place of residence (defined as the area that is within 5 min walk from place of residence), and other social factors, such as participation in community activities. Socio-economic factors assessed were house ownership, type of house, transport ownership, employment and familial income. The explanatory variables were assessed using a questionnaire designed especially for this study.

Risk factors for mental disorders

WHO Mental Health Risk Factors analysis questionnaire was used to assess the presence of risk factors for mental disorders in the year preceding data collection. The risk factors assessed include:

1 experience of armed conflict, terrorism, or natural or technological disaster
2 serious illness, injury or assault to a parent, child, or spouse
3 death of a child, spouse or close friend
4 divorce, marital separation or break-up of a steady relationship
5 serious problems (defined as problems that could not be resolved) with close friends, neighbours or relatives
6 being unemployed and looking for a job for more than one month
7 major financial difficulty (defined as financial problems that could not be resolved and which resulted in the respondents being indebted or being in loss)
8 problems with police and court appearance
9 loss of something of value

Special software was developed to run the PROQSY application and other questionnaires in the pocket PCs or IPAQS (Krishnaswamy *et al*., 2009a). The application enabled entry of data right into the pocket PC and later synchronization of the collected data to desk computers for further analysis. Enumerators for this study, who were college students, medical students, research assistants and contract staff from the Statistical Department were subjected to a three-day training prior to data collection. The PROQSY automatically led the users to the subsequent question based on the given answer. The training was focused on correctly asking the question and using the PROQSY application. Once familiar with the PROQSY application and the questions in the survey, the enumerators were trained with mock interviews using patients before the actual commencement of the fieldwork until complete agreement with the trainers was obtained for the CIS-R diagnosis.

Statistical analysis

Analysis was made using the Statistical Packages for Social Sciences (SPSS) software version 12. Level of significance was pre-set to 0.05. As females outnumbered males in the final sample with a ratio of 60:40, the data was weighted for gender for all analysis. The weighting enabled correction of the gender proportion in the sample and provided findings that were balanced for both genders. Two regression models were developed. First, a block model where all variables were entered in blocks, namely demographic block, socio-economic block and life event block. In the block model, the factors in a particular block were studied after controlling for all variables in the demographic block and other variables in the entered block. As the life event block consisted of a question on marital separation in the past one-year period, the particular block was studied after removing marital status from the demographic block, to avoid repetition of the variable. Second, a final multivariate model was developed using forward stepwise regression method by including all the significant variables from the block regression. In the final multivariate model, all factors were controlled for each other. Likelihood ratio statistic was used to test the goodness of fit for both the models.

Table 1. Prevalence of common mental disorders in the Malaysian population

Attribute	Frequency (n)	Percentage (%) (subgroup, n)	Percentage (%) (total, N)
ICD-10 diagnosis for common mental disorders			
Yes	3472	94.7	94.7
No	194	5.3	5.3
Total	3666	100	100
Primary diagnosis			
Mixed anxiety and depressive disorder	144	74.0	3.9
Mild depressive episode	15	8.0	0.4
Generalised anxiety disorder	17	8.7	0.5
Phobic disorders	18	9.3	0.5
Total	194	100	5.3
Secondary diagnosis			
Mixed anxiety and depressive disorder	40	91.0	1.10
Generalised anxiety disorder	2	4.5	0.05
Phobic disorders	2	4.5	0.05
Total	44	100	1.20

ICD-10, International Classification of Diseases, Tenth Revision.

Results

Sampling

Of the estimated sample size of 4300 respondents from five states, 3666 (85%) were successfully recruited with 15% not being contactable. The 15% were not contactable because of many factors, including inability to access their houses, refusals from the respondents and difficulties in reaching the houses in remote parts of the country.

Demographic characteristics

The study population consisted of 61% females (n = 2253) and 39% males (n = 1415). The racial distribution of the sample was proportionate to that of the country with Malays forming the majority at 54% (n = 1972), followed by Chinese at 27% (n = 986), Indians at 10% (n = 383) and other 9% (n = 327), with the other category including aboriginal races of Sarawak. Age profiles of the population showed that mode age group was 30–39 years (n = 827, 23%) followed by 40–49 years (n = 786, 21%), 20–29 years (n = 728, 20%), 50–59 years (n = 616, 17%), 60 and above (n = 436, 12%) and 16–19 years (n = 273, 7%). Most respondents (35%, n = 1291) had completed secondary education or obtained 11 years of schooling. Of the rest, 760 (21%) had obtained primary education, 618 (16%) had obtained 7–9 years of schooling or lower secondary education, 230 (6%) had obtained pre-university education (12–13 years of schooling), 500 (14%) had obtained tertiary education, 244 (7%) had no formal education and 31(1%) respondents did not answer that question. Profiling of employment status showed that 31% of the respondents (n = 1127) were full-time employed, 35% (n = 1281) were homemakers, 444 (12%) were self-employed, n = 196 (5.2%) were unemployed, 317 (9%) were students, 176 (4.8%) were retirees and the remaining 125 (3%) were part-time and non-paid workers. Seventy percent (n = 2584) of the respondents were married, 24% (n = 873) unmarried, 5% (n = 187) widowed and 1% (n = 22) divorced.

Prevalence of common mental disorders

The one-week prevalence for Common Mental Disorders (CMD), as diagnosed by the CIS-R in PROQSY format was 5.3% (n = 194, 95% confidence interval: 4.57–6.03) with mixed anxiety and depressive disorders being the most frequent diagnosis (Table 1). Of the 194 respondents with CMD, 44 (23%) had a secondary comorbid diagnosis. Mixed anxiety and depressive disorders were found to be the secondary diagnosis with highest prevalence rate. The details of diagnoses are given in Table 1.

Seven percent (n = 14) of those who were diagnosed to have CMD in this study stated that they had been diagnosed to have mental disorders by health professionals. Further analysis of this group of respondents with CMD showed that 55 respondents (28%) had contact with health professionals, 15 (8%) had utilized inpatient services and 49 (25%) had taken medications in the past one month prior to data collection. In summary, 36% of the respondents with CMD had utilized any of the health services. The purpose for contact or hospitalization and type of

medication taken were not investigated in this study. Almost a quarter (n = 51, 26%) did not seek any medical help in the past one month. The help-seeking behavior of this group could not be studied any further as 73 respondents with CMD (38%) did not answer these questions. Amongst those who responded, almost half did not utilize any health service.

Factors associated with presence of common mental disorders

Findings from the block model showed that demographic factors including female gender (adjusted OR = 1.9) and being divorced (adjusted OR = 3.95) were significantly associated with increased odds ratio for CMD, whereas the Chinese ethnic group had significantly lower odds ratio (adjusted OR = 0.27) compared to Malays. Socio-economic factors that were significantly associated with presence of CMD were dispossession of transport and difficulties in work. Dispossession of transport comprised two subgroups, namely using public transport (adjusted OR = 1.49) and other modes (adjusted OR = 3.50) such as walking or being dependent on others for transport and the latter had higher odds ratio. Presence of three life events in the past one-year period, namely, divorce/relationship break-up (adjusted OR = 2.58), irresolvable problem with friends or neighbors (adjusted OR = 4.35), and irresolvable financial difficulties (adjusted OR = 3.87) were significantly associated with CMD (Table 2). Factors that were found to be significantly associated with CMD in the final model were female gender, Indian ethnicity, being divorced, work difficulties and experiencing life events (Table 3). Dispossession of transport did not show any significant impact in the final model and was thus excluded.

Discussion

Prevalence of CMD

The findings from this analysis of the Malaysian Mental Health Survey (MMHS) data showed that 194 respondents (5%) met with criteria for ICD-10 diagnosis. Forty-four respondents were also given secondary diagnosis by the instrument. This prevalence rate for CMD obtained is within the range of 4.3–26.4% for one-year prevalence reported in national surveys from 21 countries conducted under the aegis of World Health Organization It is lower than the median rate reported of 12.2% (Handerson and Andrews, 2008). Most of those who were found to have CMD had not been diagnosed for mental disorders by healthcare professionals and did not seek any medical help in the last one month.

Factors associated with CMD

Findings from the block models shows that demographic factors, such as female gender and being divorced; socioeconomic factors, such as having difficulties at work and dispossession of transport; and experiencing life events, such as marital separation or relationship break-up; major financial problems; and serious problems with neighbors in the past one-year period were significantly associated with increase in the odds ratio for CMD. Chinese ethnicity showed an odds ratio of lower than 1. Those who had serious problems with friends or neighbors in the previous year had the highest odds ratio for CMD, 4.35; followed by divorcees, 3.95. Presence of serious financial problem also increased the odds ratio to 3.87. Work difficulty showed the next strongest association with the odds ratio of 3.58 for CMD. All other factors, such as female gender and relationship break-up showed a moderate impact by increasing the odds twofold.

Females exhibited 1.91 times higher odds ratio for CMD compared to males, and the female-to-male ratio of around 2:1 for common mental disorders was also reported in other studies (Araya *et al*., 2001; Jenkins *et al*., 2003). This can be associated with nurturant roles played by females, which can impose strain and lead to poor mental health and morbidity (Gove, 1984). A study on domestic violence in Indian women pointed out that depression and suicidal ideation were common in abused women (Kaur and Garg, 2010). The contribution of domestic violence to the risk of CMD among women in this sample was not studied.

Ethnic variations indicate that Chinese had a lower risk of CMD in comparison to the Malays, whereas Indians exhibited higher risk. The Chinese are noted for under-reporting of depressive disorders to clinicians (Lubetkin *et al*., 2003) and in epidemiological surveys (Lin and Cheung, 1999).

Higher rates of CMD among divorced or separated people have also been reported in earlier studies (Araya *et al*., 2001; Jenkins *et al*., 2003). There has also been an increasing trend for divorce in Malaysia (Malaysian Ministry of Women, Family and Community Development, 2008). Experience of divorce or marital separation in the previous year also emerged as a significant life event, contributing to elevated risk

Table 2. Block model of sociodemographic characteristics associated with common mental disorders

Factor	N (%)	Prevalence of CMD (%, 95%CI)	Adjusted odds ratio	95% CI of adjusted odds ratio
a. Demographic factors (Factors reported are adjusted for all other factors in the block)				
Gender				
Male†	1413 (39)	3.6 (3.0–4.2)	1.00	1.39–2.62
Female	2253 (61)	7 (6.2–7.8)	1.91**	
Ethnicity				
Malay†	1977 (54)	7.1 (6.3–7.9)	1.00	
Chinese	983 (27)	2.0 (1.6–2.4)	0.269**	0.17–0.43
Indian	379 (10)	9.1 (8.2–10.0)	1.326	0.89–1.97
Other	327 (9)	0.9 (0.6–1.2)	0.140**	0.05–0.43
Marital status				
Married†	2584 (70)	4.4 (3.7–5.1)	1.00	
Unmarried	873 (24)	7.1 (6.3–7.9)	1.86**	1.34–2.56
Widowed	187 (5)	8.0 (7.1–8.8)	1.60	0.87–2.95
Divorced	22 (1)	14.3 (12.9–15.1)	3.95*	1.14–13.74
b. Socioeconomic factors (Factors reported adjusted for demographic block and other factors in the socioeconomic block)				
Mode of transport				
Own car†	1546 (42.2)	3.9 (3.3–4.5)	1.00	
Own motorcycle	1322 (36)	5.4 (4.7–6.1)	1.37	0.93–0.91
Public	748 (20.4)	7.4 (6.6–8.2)	1.49	0.99–2.24
Other‡	50 (1.4)	14.0 (12.9–15.1)	3.50**	1.47–8.34
Work difficulties				
No†	1507 (41.1)	3.6 (3.0–4.2)	1.00	
Yes	189 (5.2)	13.3 (12.2–14.4)	3.58**	2.19–5.86
Not applicable	1970 (53.7)	6.0 (5.2–6.8)	1.31	0.93–1.86
c. Life events in the past one-year period (Factors reported adjusted for demographic block and other factor in the life-event block)				
Divorce, marital separation/break-up of a serious relationship				
No†	3451 (94)	4.6 (3.9–5.3)	1.00	1.55–4.29
Yes	215 (6)	16.0 (14.8–17.2)	2.58**	
Major financial problem				
No†	3426 (93.5)	4.3 (3.6–5.0)	1.00	2.40–6.24
Yes	240 (6.5)	19.7	3.87**	
Serious problem with friends or neighbours				
No†	3527 (96)	4.5 (3.9–5.3)	1.00	2.52–7.48
Yes	139 (4)	25.0 (23.6–26.4)	4.35**	

*$P < 0.05$; **$P < 0.01$.

†Reference category; ‡Inclusive of walking and depending on others for transport.

CMD, common mental disorders.

of common mental disorders. Widowed subjects in this study did not show any significant variation. Eighty-one percent of the widowed subjects were aged 50 years and above, and the majority had been widowed for more than 6 years and therefore were less likely to be single parents supporting young children.

A review of surveys of common mental disorders from developed countries showed that being socially less privileged is associated with higher risk for mental disorders (Fryers *et al*., 2003). Socioeconomic determinants included in the study were family income, ownership of own house and possession of transport; however, respondents were reluctant to reveal the exact family income. Lack of vehicle ownership and use of public transport was associated with high rates of common mental disorders. Car owners had the lowest rate (4.1%) for CMD. These findings are similar to those of the British household survey which showed that access to two cars was associated with lowest frequency of neurotic disorders (Lewis *et al*., 2001). In Malaysia, however, this factor was found to be insignificant after inclusion of other factors, such as serious financial problems. House ownership, which was also inversely associated with neurotic disorders in the British population (Lewis *et al*., 2001), did not have a similar impact on the Malaysian population.

Table 3. Final multivariate model for characteristics associated with common mental disorders

Factors	Prevalence of CMD (%, 95%CI)	Adjusted odds ratio	95% CI of adjusted odds ratio
Gender			
Male†	1413 (39)		
Female	2253 (61)	1.79**	1.27–2.53
Ethnicity			
Malay†	1977 (54)	1.00	
Chinese	983 (27)	0.38**	0.23–0.61
Indian	379 (10)	1.40*	0.92–2.11
Other	327 (9)	0.16**	0.05–0.51
Work difficulties			
No†	1507 (41.1)	1.00	
Yes	189 (5.2)	3.49**	2.09–5.84
Not applicable	1970 (53.7)	1.32	0.92–1.90
Divorce, marital separation			
No†	5.0 (4.3–5.7)	1.00	
Yes	17.2 (16.0–18.4)	2.52**	1.60–3.97
Major financial problem			
No†	4.6 (3.9–5.3)	1.00	
Yes	20.8 (19.5–22.1)	3.02**	2.01–4.53
Serious problem with friends or neighbours			
No†	4.9 (4.2–5.6)	1.00	
Yes	25.2 (23.8–26.6)	3.99**	2.49–6.38

*$P < 0.05$; **$P < 0.01$.
†Reference category.
All variables are controlled for each other.

Seventy percent of the respondents stated that they were living in their own house.

Presence of serious problem with friends and neighbors and lower friendship ties showed a marked increase in the odds ratio for CMD. A study on neighborhood social capital and CMD (assessed with GHQ) in England and Scotland, showed that in deprived households, medium and low friendship ties with neighbors were significantly associated with increased risk for CMD in comparison to high friendship ties (Stafford *et al*., 2008). The impact of social capital was significant after controlling for other measurement of poverty, such as presence of financial problem and work difficulties.

Experiencing three life events in the past one-year period was found to significantly increase the odds ratio for CMD. A review by Paykel (2003) showed that rates of life events were increased in those with unipolar depression as compared to controls preceding onset of depression.

Mental health needs of society

Seven percent of the respondents who were diagnosed with CMD had been previously diagnosed with a mental disorder by health professionals. This finding has serious implications in terms of mental health education, healthcare utilization and mental health professional training. Stigma associated with having a mental health problem is an important reason why people do not seek psychiatric help, while they would seek medical help. Under-detection of psychiatric illnesses by medical professionals would be another factor, especially if patients present with physical complaints. A review by Blair *et al*. (2003) noted that patients with depression commonly present themselves to primary care settings with predominant physical complaints, mainly pain, rather than psychological distress. High comorbidity of physical complaints with common mental disorders was also found in our earlier study on medical help-seeking behavior among Malaysians (Krishnaswamy *et al*., 2009b). Just as there is inequitable distribution of psychiatric services in the country, so is there an inequitable distribution of programs for increasing psychiatric literacy in the country.

Limitations of the study

The MMH Survey is the first epidemiological survey of common mental disorders in Malaysia. This is also the first time the CIS-R instrument, a diagnostic tool administered by lay interviewers, has been used in Malaysian population. Some difficulties encountered

were related to the sensitivity of some questions, which may have resulted in lower response rates to those questions (e.g. suicidal ideations) and possibly under-reporting of certain diagnostic categories. Physical inaccessibility to remote parts of the country, especially Sarawak, and difficulty in interviewing the selected respondents who could not be contacted resulted in choosing a neighborhood control.

Malay literacy level varied across ethnic groups, especially among the less-educated and elderly population, although all could speak communicable Malay. In some instances, this was compensated by the use of the existing Mandarin and Tamil translations of the CIS-R instrument for specific terminology. There was an excess of female respondents in the sample by 10%. Two respondents were randomly selected from each household. In some households, the selected male respondents could not be met after three visits at different times because they had left for work The data was weighted for gender to correct the gender proportion in the sample and provide findings that were not biased towards females.

The MMHS is the first population-based survey in Malaysia using the CIS-R instrument. Its strengths and limitations have been acknowledged and.several associated factors that increase the risk for CMD have been identified.

Acknowledgments

This study was funded by the Ministry of Science Technology and Innovation, Malaysia through Intensification of Research in Prioritized Area (IRPA) grant (RPA 06-02-02-0034/PR0031/05-01). We gratefully acknowledge Prof. Dr Glyn Lewis, Prof. John Copeland, Department of Statistics, National University of Malaysia Hospital, Penang General Hospital, Sibu General Hospital, Kuching General Hospital, University Science Malaysia Hospital (HUSM) and S.K. Kwa, Ismail D, Zainab M, Rohayah H, Bharathy A, L.K. Lee and all medical officers who helped to train the enumerators.

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