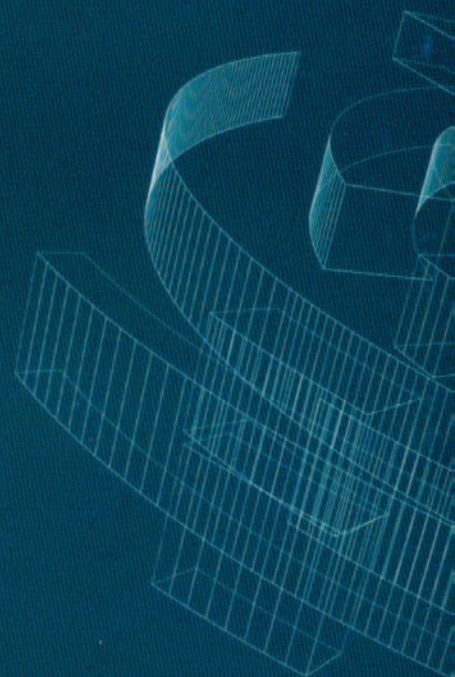




THE THIRD
NATIONAL HEALTH AND MORBIDITY SURVEY
2006
(NHMS III)

GENERAL FINDINGS

INSTITUTE FOR PUBLIC HEALTH
NATIONAL INSTITUTES OF HEALTH
MINISTRY OF HEALTH
MALAYSIA
2008



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THE THIRD NATIONAL HEALTH AND MORBIDITY SURVEY 2006 (NHMS III)

GENERAL FINDINGS

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MESSAGE FROM THE DIRECTOR GENERAL OF HEALTH MALAYSIA

Since independence, Malaysia has achieved remarkable progress economically and socially, notably in the health sector, through a well planned and comprehensive health care delivery system. However, Malaysia's health care system still has to grapple with many challenges, particularly the rising costs of health care and the increasing demands and expectations for quality care by our consumers. In this respect, the Ministry of Health formed the 'National Institutes of Health' to spearhead health research that will provide the body of evidence to help formulate health policies and create new tools to measure health impacts arising from the series of interventions made in the provision of health care. This will lead to an environment of better governance.

The first National Health & Morbidity Survey (NHMS) was conducted in 1986 by the Institute for Public Health (IPH) which is currently one of the research organizations under the umbrella of the National Institutes of Health (NIH). IPH was also given the task of conducting the second NHMS II in 1996 and the current NHMS III in 2006. Data and information gathered by these surveys are consistently and extensively been used by the Ministry of Health in formulating the Malaysian Health Plans and evaluating the intervention programmes.

The publication of the current NHMS III report would generate much interest amongst of all health care stakeholders in the country as well as international health organizations. It is my sincere wish that the data and information generated by NHMS III be fully distributed, discussed and utilized to enhance further the provision of health care in this country. The data generated on the national health and health - related prevalence would be useful in assessing the national health burden as well as allowing for international comparison of health systems achievements.

I would like to take this opportunity to congratulate all those directly involved in the conduct of the survey, namely members of the National Steering Committee, the Advisory Committee, Research Groups and the Working Committee for their untiring efforts in the planning and conduct of the survey as well as publication of the reports. I would like to specially place on record the Ministry's appreciation of the excellent work done by the Principal Investigator and his team and for their dedication and tenacious efforts in spearheading this project to fruition. The Ministry of Health is committed to conduct these National Health and Morbidity Surveys on a regular basis and hope that IPH will continue to provide the leadership in conducting future National Health and Morbidity Surveys in this country.

Thank you.



Tan Sri Datuk Dr Hj. Mohd Ismail Merican
Director General of Health, Malaysia.

MESSAGE FROM THE DEPUTY DIRECTOR GENERAL OF HEALTH (RESEARCH AND TECHNICAL SUPPORT)

The Research and Technical Support Programme of the Ministry of Health emphasizes the need for research in supporting decision making and planning the activities in the Ministry. Only then can we ensure that every decision made either in planning resources or providing services to the people is supported by evidence based information and ensuring better results and outcome. We would certainly prefer local expertise rather than depend on foreign experts to carry out local research.

Under the umbrella of the National Institutes of Health, the Institute for Public Health has actively been involved in conducting research in public health and the National Health and Morbidity Survey is one of the major research conducted by IKU. This is the third time IKU has been given the responsibility to conduct such a mammoth task. I am very pleased that a lot of improvement have been made in the way this survey was conducted based on the experience learnt during the first and second surveys. However, due to the nature of the community survey, not all diseases and health issues were able to be covered in this survey. The research teams had to conduct an extensive literature reviews for relevant and up to date information on the health status of the Malaysian population.

I believe that the information in these reports are extremely valuable to all decision makers at the National State and district levels as well as those interested in the health of the Malaysian population. It can be a tool in providing guidance in developing and implementing strategies for the disease prevention and control programme in Malaysia.

I would like to take this opportunity to congratulate the research team members who have successfully undertaken and completed this survey. I would also like to thank all individuals and agencies who directly or indirectly made the completion of this survey possible.

The Institute for Public Health again gained a feather in its cap by successfully completing the Third National Health and Morbidity Survey.



Datuk Ir. Dr. M. S. Pillay,
Deputy Director General of Health (Research and Technical Support).

MESSAGE FROM THE DIRECTOR OF INSTITUTE FOR PUBLIC HEALTH

This is the third time the Institute for Public Health (IPH) was given the task to conduct the National Health and Morbidity Survey. The frequency of the study is every 10 years and I am proud that the Institute is able to conduct the surveys successfully since it was first initiated in 1986.

I would like to take this opportunity to thank the Director-General of Health Malaysia, Tan Sri Datuk Dr. Hj. Mohd Ismail Merican, and the Deputy-Director General of Health (Research and Technical Support), Datuk Ir Dr. M.S. Pillay, whose invaluable support and guidance were instrumental in the successful completion of the third National Health and Morbidity Survey (NHMS III). Our appreciations are also extended to all members of the Steering Committee and the Advisory Committee of NHMS III.

I would like also to take this opportunity to congratulate the Principal Investigator and his Project Team Members in completing the NHMS III study and the publication of its report. The NHMS III was made possible through the collaboration of all agencies. The meetings, workshops and conferences that were organised, met their intended objectives and the hard work put up by the field staffs, ensured the three months data collection productive and successful.

My sincere gratitude also goes to Dr. Nirmal Singh, the former Director of the Institute for Public Health, Chairman of the Advisory Committee for his continuous support and guidance which contributed towards the successful completion of the study.

I hope the documentation of this report will be beneficial for future reference.

Finally, I would like to thank all those involved in the survey for a job well done, in making the NHMS III a success and finally producing the national report of this survey.



Dr. Yahya Baba,
Director, Institute for Public Health.

MESSAGE FROM THE PRINCIPAL INVESTIGATOR NHMS III

It is indeed a challenging task when the responsibility was given to me to conduct this survey. I learned the hard way and gained a lot of valuable experience in leading the survey. The survey also taught me lots of new techniques and how it should be addressed which is not available in the textbook. In doing so, I also learned the meaning of friendship and honesty, how to manage people involved and manage properly the given budget.

I would like to take this golden opportunity to thank the Director General of Health Malaysia, Tan Sri Datuk Dr. Hj. Mohd Ismail Merican, Chairman of the Steering Committee for giving me the confidence, valuable support and guidance for the success of this survey.

I would also like to thank the Deputy Director General of Health Malaysia (Research & Technical Support), Datuk Ir. Dr. M.S. Pillay as Co-chairman of the Steering Committee for his patience in seeing through the survey until its completion the production of the national report.

My sincere appreciation to current Director of Institute for Public Health (IPH), Dr. Yahya Baba and former Directors of IPH, Dr. Nirmal Singh, Dr. Sivashamugam and Dr. Sulaiman Che Rus for their trust in me to carried out this survey. Their support for the survey has resulted the smooth conduct and success of the survey.

Special thanks to all State Directors, State Liaison Officers, Field supervisors, Scouts, Data Collection Team members for their full cooperation and efforts to ensure the success of the data collection. My appreciation is also extended to the Assistant Principal Investigator, Dr. Mohd Azahadi Omar, Main Research Group members, members of the Working Committee, Data Management group members, Statistics Consultant, Research group members, Research Officers and Research Assistants for their patience and tolerance of my behaviour to ensure the success of the study. Nevertheless I acknowledge a lot more can be done in strengthening the study.

I believe this report will serve as a useful reference for future surveys and helps in improving the local data sources and also add new valuable information for the Ministry of Health to use in the planning process. I also would like to encourage all research members to participate in further analysis of the data and publish the findings in peer review journals.

Thanks to everyone.



Dr. Hj. Ahmad Faudzi Hj. Yusoff,
Principal Investigator, The Third National Health and Morbidity Survey,
Institute for Public Health.

*A***UTHOR'S ACKNOWLEDGEMENT**

Sincere gratitude and appreciation to Director General of Health, Malaysia as Chairman of the Steering Committee, Deputy Director of Health (Research & Technical Support) as the Co-chairman and the Steering Committee members for their guidance and support in preparation and implementation of this survey.

Appreciation are extended to Director, Institute for Public Health as Chairman of the Advisory Committee, Advisory Committee members, Directors of all State Health Department and all Senior Officers in the State Health Departments, NHMS III State Liaison Officers and their staffs whose cooperation and support in these survey enabled to be carried out successfully.

This report also dedicated especially to all individuals who have contributed their effort and commitment throughout the stages of planning, preparation stage, implementing the data collection, data management, data analysis and report writing of this complex and massive survey. Thousand of thanks to all of them in their contribution of ideas, suggestions, energy and the most important is their time which has no boundaries for the success of this survey.

This report describes overall finding in relation to socio-demographic characteristics of the respondents in this survey. It is the culmination of series of workshop of collaborative effort by the authors who have work hard to ensure the first publication of these NHMS III report on general findings.

In the process of preparing this report, special appreciation is extended to all Data Management Group and Main Research Group members for their dedicated effort and commitment in preparing for the final outcomes of the NHMS III.

The authors acknowledge and thank the contribution of Dr. Nirmal Singh and Dr. Sulaiman Che Rus for reviewing and editing this report.

For further improvement of this report, the authors welcome any comments, suggestions and enquire.

ABSTRACT

This report describes the general findings on NHMS III includes survey response rate, characteristics of the household and head of the household, study population and comparison with the projected population of 2006. Is also compares important findings in NHMS II with NHMS III results of survey.

This report provides a summary of the estimated national prevalence of health problems or specific disease included in various topics in the survey. In also describes important diseases by socio demographic characteristics.

SUMMARY SURVEY INFORMATION

Coverage:

- a) Dates of Fieldwork: April 2006 until end of July 2006 (August 2006: mopping up)
- b) Country: Malaysia involving all states
- c) Responsible Organization: Institute for Public Health, Ministry of Health, Malaysia.
- d) Observation Units: Individuals including heads of the household.

Universe Sampled:

- a) Location of Units of Observation: National and states
- b) Population: All ages are eligible in the living quarters in private households in Malaysia.

Methodology:

- a) Dimensions: Cross-sectional study
- b) The survey is conducted every ten years. (1986, 1996, 2006)
- c) Sampling Procedures: Multi-stages stratified random sampling
- d) Number of Sample Units: 2,150 sample unit with 56,710 respondents
- e) Method of Data Collection: Face-to-face interview; Self-Administered, Clinical and Physical measurements
- f) Weighting: Design and adjusted weight.

Language(s) of Written Materials:

- a) Study Questionnaires: Malay and English (Self Administered Questionnaires: include Tamil and Mandarin)
- b) Study Description: English
- c) Study Documentation: English

Survey Data:

- a) Depositor: Division Burden of Disease, Institute for Public health.
- b) Access Conditions: Terms and conditions of use applied.
- c) Contact: Principal Investigator NHMS III, faudzi@imr.gov.my, faud212003@yahoo.com

NHMS III Modules

Module A1:	Households Questionnaire
Module A2:	Socio-Demography
Module B:	Health Expenditure, Hospitalization, Private Health Insurance
Module C:	Oral Health
Module D:	Load of Illness & Health Services Utilization
Module E:	Injury and Risk Reduction Practice
Module F:	Physical Disability, Activities of Daily Living & Rehabilitation
Module G:	Asthma
Module I:	Dengue Prevention Practice
Module J:	General Health Information
Module K:	Nutritional Labelling
Module L:	Medication Labelling
Module M:	Organ Donation
Module N:	Physical Activities
Module O:	Tobacco Consumption and Alcohol
Module P:	Ischemic Heart Disease
Module Q:	Hypercholesterolemia
Module R:	Diabetes Mellitus
Module S:	Hypertension
Module T:	Infant Feeding Practice
Module U:	Nutritional Status
Module V1:	Women's Health
Module V2:	Pap Smear
Module W:	Tobacco Consumption
Module X:	Alcohol Consumption
Module Y:	Sexual Behaviour
Module Z:	Psychiatric Morbidity

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1. INTRODUCTION

The Third National Health and Morbidity Survey, 2006 (NHMS III 2006) was designed to provide data at both national and state level about the population living in private households in Malaysia. The sampling procedure for the 2006 survey was recommended by the Methodology Division, Department of Statistics, Malaysia. A two-stage stratified random sampling, proportionate to the population size was used to select the Enumeration Blocks (EBs) and the Living Quarters (LQs).

All household members which met the definition in the LQ were selected as eligible respondents based on the structured questionnaire prepared. Only heads of the households were interviewed using Module A1 questionnaires which the answers represents the information for the members of the household.

All eligible respondents who participate provide written consents before being interviewed by the data collection team. Each teams consisted of Interviewers and Nurses. They are supervised by a Team Leader and a Field Supervisor. They would arrange a visit to the selected LQs which had been tagged earlier by the Public Health Assistants.

The survey data collection was conducted from April until end of July 2006 and the month of August 2006 was reserved for mopping up. Data entry started simultaneously as and when the bundles of questionnaires were received from the field. Data cleaning was carried out before data being entered as double entry. This was followed by data analysis which was started as early as January 2007 with series of workshops organized with the objective of writing a preliminary report of the survey.

2. THE SAMPLING: ENUMERATION BLOCKS AND LIVING QUARTERS

The NHMS III utilized the sampling frame that is maintained by the Department of Statistics, Malaysia. Malaysia is divided into artificially created contiguous geographical areas called Enumeration Blocks (EBs). Each EB has on average about 100 living quarters (LQs). These EBs form the sampling frame for NHMS III.

A two-stage stratified random sampling proportionate to the population size was used to select the EBs and the LQs. At the first stage, the sample unit was the EB, while at the second stage, the sample unit was the LQ. One LQ was estimated to house 4.4 individuals. All persons in the selected LQ were included in this survey.

A total of 2,150 EBs and 17,251 LQs were randomly selected in this study by the Department of Statistics, Malaysia. Of these, 1424 EBs and 726 EBs were from urban and rural respectively. The numbers of LQs successfully visited were 15,519. A total of 56,710 individuals were interviewed during the period of data collection (Appendix 1: Figure 1).

3. THE LIVING QUARTER (LQ) SAMPLING UNIT

A total of 17251 LQs were identified during the field survey. A total of 15,519 LQs were successfully visited during the survey period while another 1,732 visits were unsuccessful. The reasons for this were; Locked LQs 308 (1.8%), Empty LQs 589 (3.4%), Demolished LQs 226 (1.3%), Unable to Locate LQs 103 (0.6%), Not a LQ 138 (0.8%), Dangerous LQs 6 (<0.1%), Language Problem 6 (<0.1%) and others 80 (0.5%) (Appendix 2: Tables 1).

3.1 LQ Response Rate (RR)

All 17,251 LQs identified were visited. An LQ was termed non-response after minimum of three visits by team members to each LQ were unsuccessful. Based on the sampling unit LQs, the overall response rate was 90.0%.

3.2 LQ Response Rate (RR) by State

The response rates ranged from 96.5% (P.Pinang) to 81.8% (Sarawak). Very high response rates (more than 90.0%) were observed in P.Pinang (96.5%), N.Sembilan (95.8%), Sabah (93.5%), Kedah (93.2%) and Selangor (91.0%). Response rate ranged between 80%-85% were noted in Sarawak (81.8%), Pahang (84.8%) and Terengganu (85.2%) (Appendix 2: Table 2).

3.3 Reasons for Non-Response of LQs by States

A total of 1478 LQs failed to interview. In Kelantan 4.5% were due to locked LQs, Pahang, (7.9%) and Sarawak (7.3%) due to empty premises, Sabah (3.2%) demolished LQs, Federal Territory (2.1%) unable to locate, Sarawak (1.8%) not as LQs, Kedah (0.5%) and Johor (0.1%) were categorized as dangerous LQs. While Johor, Terengganu and Sarawak (0.1%) due to language problem (Appendix 2: Table 3).

4. SURVEY RESPONDENTS

A survey respondent is the unit for analysis in this survey. A respondent was defined as a permanent resident who was present at the selected LQ at the first visit of data collection and had been in that particular LQ for at least 4 weeks. The permanent resident was then classified as an eligible respondent.

All eligible respondents were interviewed. Proxy interview was carried out for respondents who were less than 13 years old. The proxies were usually their parents. At least 3 visits were made to every LQ to canvass for all eligible respondents.

A total of 56,710 respondents were interviewed from 59,938 eligible individuals identified. A total of 1,828 (3.1%) individuals were not available after 3 visits and 1,400 (2.3%) eligible respondents were excluded from analysis because of refusal to participate to the modules but only response to socio-demographic module. Table 4.1 shows the distribution of the number of respondents by states. Table 4.2 shows the distribution of respondents' race and age group by gender.

Table 4.1: Distribution of respondents by states

State	No.of Respondents	%
Johor	6,278	11.1
Kedah	4,232	7.5
Kelantan	3,804	6.7
Melaka	1,389	2.4
N.Sembilan	2,072	3.7
Pahang	2,969	5.2
Pulau Pinang	3,067	5.4
Perak	4,257	7.5
Perlis	517	0.9
Selangor	9,487	16.7
Terengganu	2,537	4.5
Sabah	7,259	12.8
Sarawak	4,966	8.8
W.P Kuala Lumpur	2,962	5.2
W.P Labuan	914	1.6
Total	56,710	100.0

Table 4.2: Distribution of respondent by gender, age groups and race

		Race					
	Age group	Malays	Chinese	Indian	Other Bumis	Others	
Gender	Male	0-9	4,001	919	445	934	226
		10-19	3,341	917	386	742	150
		20-29	1,927	486	273	389	294
		30-39	1,650	571	256	418	222
		40-49	1,775	708	280	353	136
		50-59	1,452	653	214	216	58
		60-69	797	420	82	157	33
		70+	397	244	51	102	12
		Unclassified	10	3	2		7
		Sub-total	15,350	4,921	1,989	3,311	1,138
Female	0-9	3,733	826	428	966	234	
	10-19	3,442	830	431	720	173	
	20-29	2,359	610	362	597	325	
	30-39	2,186	718	355	532	322	
	40-49	2,332	862	370	454	152	
	50-59	1,666	738	295	242	64	
	60-69	882	450	116	159	29	

Table 4.2: Distribution of respondent by gender, age groups and race (continue)

	Age group	State				
		Malays	Chinese	Indian	Other Bumis	Others
	70+	535	295	68	109	16
	Unclassified	8	1	1	3	5
	Sub-total	17,143	5,330	2,426	3,782	1,320
Total	56710	32,493	10,251	4,415	7,093	2,458

5. COMPARISON BETWEEN STUDY POPULATIONS OF NHMS III WITH PROJECTED NATIONAL POPULATION REPORTED IN THE VITAL STATISTICS 2006

The adjusted weights were applied to all respondents to provide the estimated population. It was found that **56,710 respondents represented 21,095,810 of the** estimated population (weighted), as shown in Table 5.1.

Table 5.1: Design and adjusted weights by state and urban/rural location

State	Urban		Rural		No. of respondents	Estimated population (weighted)
	Urban weight	Adjusted weight	Design weight	Adjusted weight		
Johor	354.3	350.4	335.0	350.0	6,278	2,426,331
Kedah	345.2	347.6	310.3	322.4	4,232	1,517,387
Kelantan	315.4	364.8	292.3	308.5	3,804	1,260,388
Melaka	396.6	422.8	368.0	376.8	1,389	570,983
N.Sembilan	392.3	310.5	361.1	298.8	2,072	752,900
Pahang	339.4	373.6	303.8	306.6	2,969	1,139,057
Perak	409.2	367.1	345.7	353.9	4,257	1,775,698
Perlis	376.9	372.7	334.5	335.0	517	191,277
P.Pinang	311.9	379.9	344.7	328.9	3,067	1,088,575
Sabah	315.3	341.0	293.8	394.9	7,259	2,225,514
Sarawak	315.2	364.2	288.8	296.7	4,966	1,937,030
Selangor	235.7	222.8	250.6	235.2	9,487	3,898,616
Terengganu	321.8	405.1	320.5	327.5	2,537	862,277
WPKL	349.3	336.8	-	-	2,962	1,165,814
WP Labuan	354.3	350.4	335.0	350.0	914	283,963
Pen. Malaysia	-	-	-	-	43,571	16,649,303
Malaysia	-	-	-	-	56,710	21,095,810

There are differences between the study populations (NHMS III) with the population in the vital statistics 2006. The differences could probably be attributed by the LQs refused for interview (1.5%), locked LQs (1.8%), empty LQs (3.4%), demolished LQs (1.3%), unable to locate LQs (0.6%), not a LQs (0.8%), identified as dangerous LQs (< 0.1%), language problem (< 0.1%) and others (0.5%). Lost occupants from living quarters contributed 10% to the differences. Other differences were probably due to exclusion of those who lived in institutions e.g hostels, hotels, shops, hospital and those who lived in remote areas.

The total estimated population (weighted) of this survey (NHMS III) was 21,095,810 while the projected population by vital statistics (VS) was 26,640,100.

5.1 Distribution of Study Population of NHMS III with Projected Population Reported In the Vital Statistics 2006 by States.

The differences between estimated population (NHMS III) and projected population 2006 (VS) are shown in Table 5.2. The distribution of the two populations by states was fairly comparable.

Table 5.2: Comparison between estimated population (NHMS III) and projected population (VS) by state.

State	NHMS III		Vital Statistics (2006)	
	Estimated population (weight)	%	Projected population	%
Johor	2,426,331	11.5	3,170,500	11.9
Kedah	1,517,387	7.2	18,819,00	7.1
Kelantan	1,260,388	6.0	1,530,700	5.7
Melaka	570,983	2.7	725,300	2.7
N,Sembilan	752,900	3.6	961,800	3.6
Pahang	1,139,057	5.4	1,454,900	5.5
Pulau Pinang	1,088,575	5.2	1,492,400	5.6
Perak	1,775,698	8.4	2,283,000	8.6
Perlis	191,277	0.9	228,000	0.9
Selangor	3,898,616	18.5	4,850,100	18.2
Terengganu	862,277	4.1	1,042,000	3.9
Sabah	2,225,514	10.5	2,997,000	11.2
Sarawak	1,937,030	9.2	2,357,600	8.8
W,P KL	1,165,814	5.5	1,580,000	5.9
W,P Labuan	283,963	1.3	84,900	0.3
Pen. Malaysia	16,649,303	79.0	21,200,600	79.6
Malaysia	21,095,810	100.0	26,640,100	100.0
Urban	13,350,036	63.3	16,838,500	63.2
Rural	7,745,774	36.7	9,801,700	36.8

5.2 Distribution of the Study Population of NHMS III with Projected Population Reported In The Vital Statistics 2006 by Age and Gender.

The distribution of the NHMS III study population was compared to Vital Statistics 2006 by age and gender as shown in Figure 5.1. There were 47.1% males and 52.9% females (M: F, 1.0:1) in NHMS III compared to 50.1% and 49.1% (M: F, 1.1:1) in the VS 2006 estimated population (Figure 5.2).

The 20-39 age groups had a relatively smaller proportion of males and females in study population NHMS III as compared to VS 2006. The differences could be reduced if 10% of the estimated population were able to be interviewed.

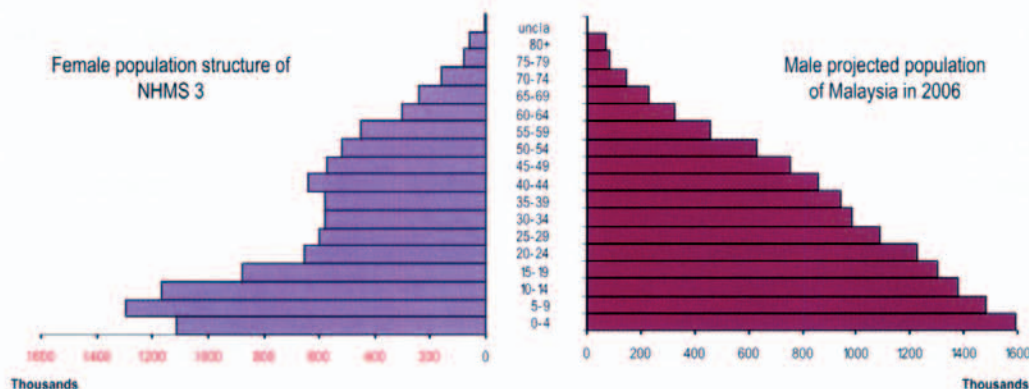


Figure 5.1: Comparison of male population structure of NHMS III with male projected population of Malaysia in 2006

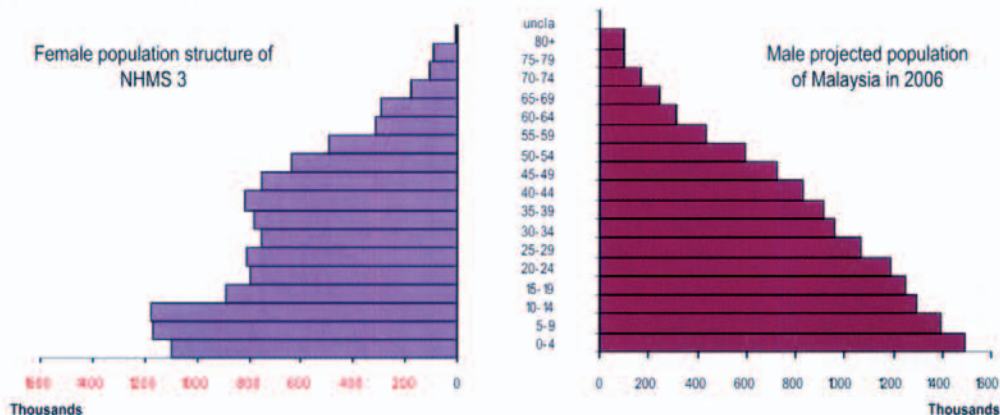


Figure 5.2: Comparison of female population structure of NHMS III with female projected population of Malaysia in 2006

5.3 Comparison of Citizenship of the Study Population of NHMS III with Projected Population Reported in the Vital Statistics 2006

There were 95.2% Malaysians in NHMS III compared to 93.1% in Vital Statistics 2006. Non-Malaysians in NHMS III were estimated at 4.7% compared to 6.9% of Vital Statistics. There were about 0.1% respondents which were unclassified in NHMS III because of refusal to answer (Table 5.3).

5.4 Ethnicity of the Study Population of NHMS III Compared with Projected Population Reported in the Vital Statistics 2006

The ethnic distributions of the two populations (excluding non-Malaysians) showed discrepancies ranging from 0.1% to 4.8%. The proportion of Chinese (20.3%) showed a lower coverage (4.8%) in NHMS III when compared to Vital Statistics 2006 (25.1%). The highest ethnic coverage among the Malaysians was the Malay (3.7%) higher than Vital Statistics 2006. (Table 5.3).

Table 5.3: Comparison of ethnicity between estimated population of NHMS III and vital statistics (2006)

Ethnicity	NHMS III		Vital Statistics (2006)	
	No. of estimated population	%	No. of projected population	%
Malay	11,650,230	58.0	13,475,100	54.3
Chinese	4,078,846	20.3	6,219,600	25.1
Indian	1,714,150	8.5	1,858,500	7.5
Other Bumiputra	2,361,346	11.8	2,931,400	11.8
Others	283,210	1.4	318,900	1.3
Total*	20,087,783	100.0	24,803,500	100.0
Malaysian	20,087,783	95.2%	24,803,500	93.1%
Non-Malaysian	1,008,027	4.7%	1,836,600	6.9%
Total population	21,095,810	100.0	26,640,100	100.0

*Total excluded non-Malaysian and unclassified citizenship

6. DESCRIPTION OF THE HOUSEHOLDS

A household was defined as a single or a group of people who live together in one living quarter, sharing the basic necessities of life. This includes eating from the same cooking pot. The people were considered as part of the household if they had been staying there for the past 4 weeks or at least 20 days.

Usually the head of household shares the same socio-demographic characteristics information as the family. A total of **15,519** households were interviewed, of which **9,519** were urban and **6,000** in rural areas.

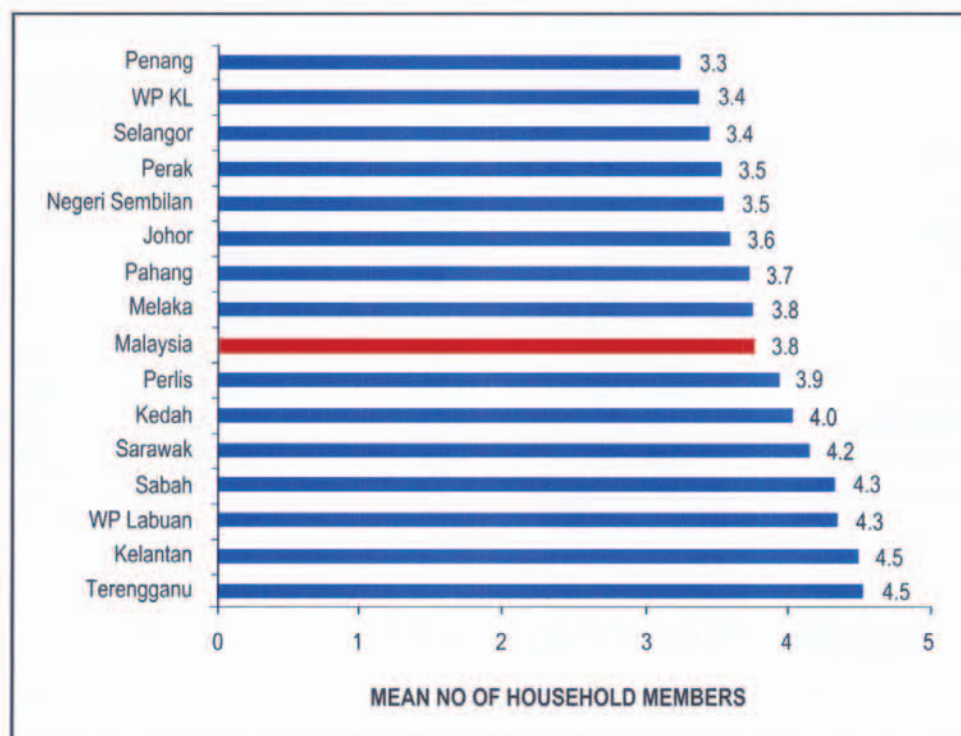
6.1 Household Size

On the average, there were 3.8 persons (CI: 3.7 - 3.8) per household in the surveyed population. The average household size in urban area were 3.6 persons (CI: 3.5 - 3.6) and 4.2 persons (CI: 4.2 - 4.1) in rural locations (Table 6.1).

Table 6.1: Mean household size by urban rural

Residence	Mean	CI (95%)	
		UL	UL
Urban	3.6	3.5	3.6
Rural	4.2	4.1	4.2
Overall	3.8	3.7	3.8

Eight states had mean household size of more than 4 persons and the reminder states ranges from 3.4 to 3.9 persons. Terengganu had the largest mean household size of 4.5 persons. (Figure 6.1)



Mean Number of Individual in the households for Malaysia: 3.8

Figure 6.1: Mean number of individual in the household by state

6.2 Family Types

The family types are classified as nuclear, extended, single household, non-related household members and unclassified. In the urban residential area, nuclear family constituted about 65.8%

Unclassified: In the urban residential area, nuclear family constituted about 65.8%

followed by extended family (17.2%), single household (12.8%) and non-related household members (3.7%). A similar proportion was observed in the rural area except the extended family type showed a higher percentage (20.8%). The overall percentage of nuclear family was 66.9%. The percentage of single household was higher in the urban area (12.8%) compared to rural (8.1%). Other household family types are shown in Figure 6.2.

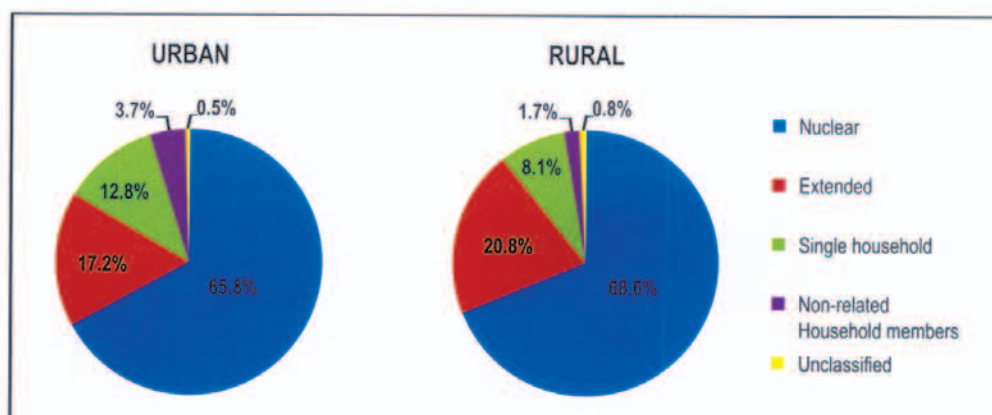


Figure 6.2: Percentages of family type in urban and rural

All ethnic groups showed more than half of the households were composed of the nuclear family type. Malays showed higher percentage (70.1%) of nucleus family type. Highest percentage of the extended family type was observed among Indians (23.0%) while the Chinese showed a highest percentage (14.0%) for single household. (Figure 6.3)

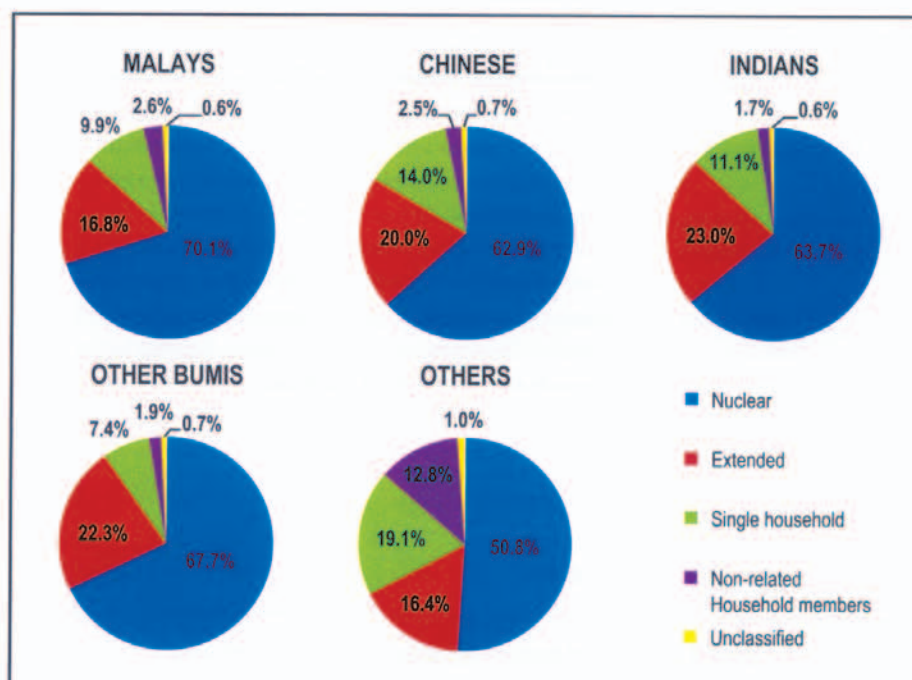


Figure 6.3: Percentages of family type by ethnic group

6.3 Types of Housings

Single (43.6%), single storey terrace (18.9%) and double storey terrace (11.6%) were among the commonest types of houses occupied by households in Malaysia (Figure 6.4). In rural areas, single house was the commonest type of house (72.5%) whereas in urban areas, single house (25.3%) and single storey terrace house (25.1%) are more common. Others types of houses are shown in Figure 6.5.

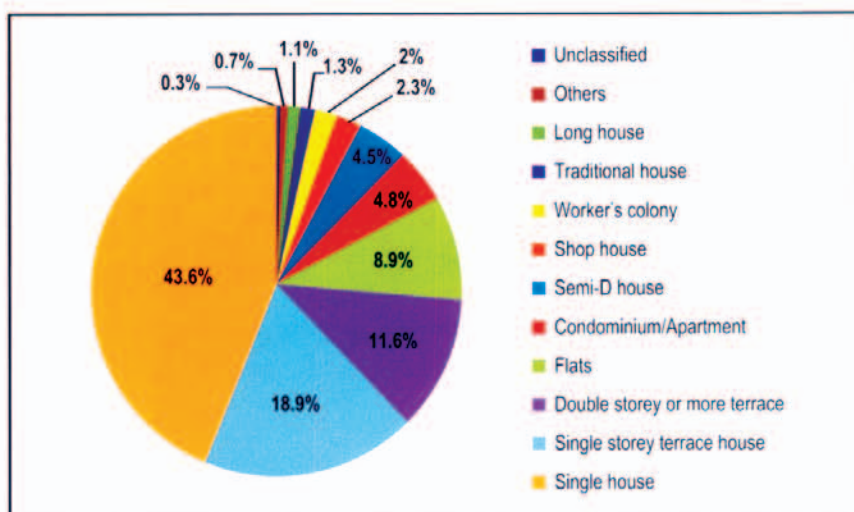


Figure 6.4: Types of house

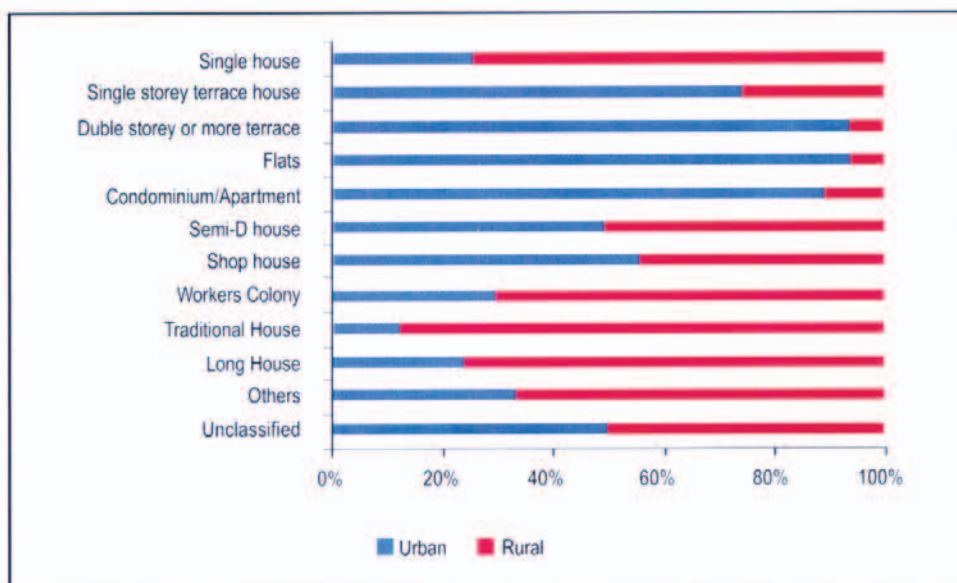


Figure 6.5: Types of houses by urban and rural distribution

6.4 Types of Housing Area

About 46.7% of the houses were located in housing estates while 39.4% in the villages. Other types of housing area are shown in Figure 6.6 and Figure 6.7.

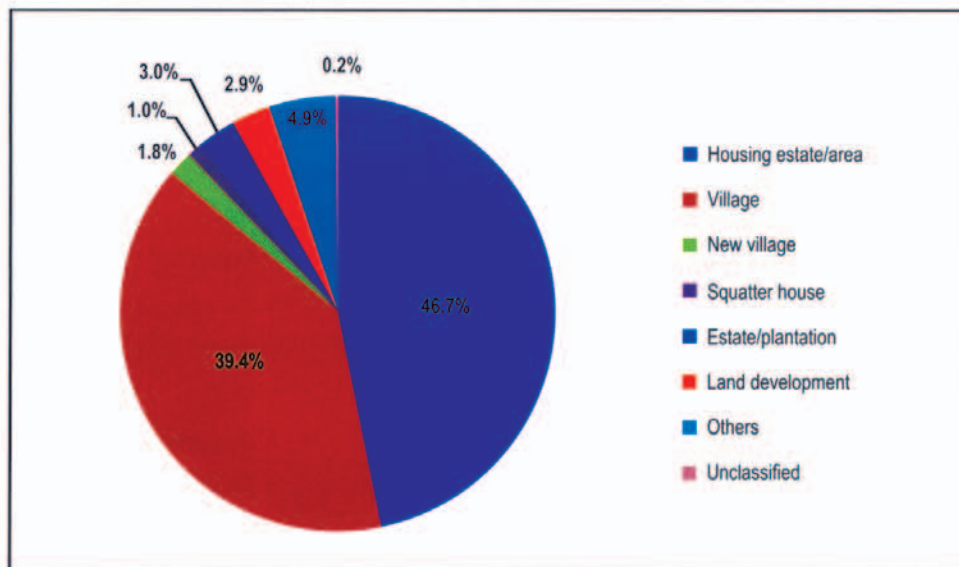


Figure 6.6: Types of housing area

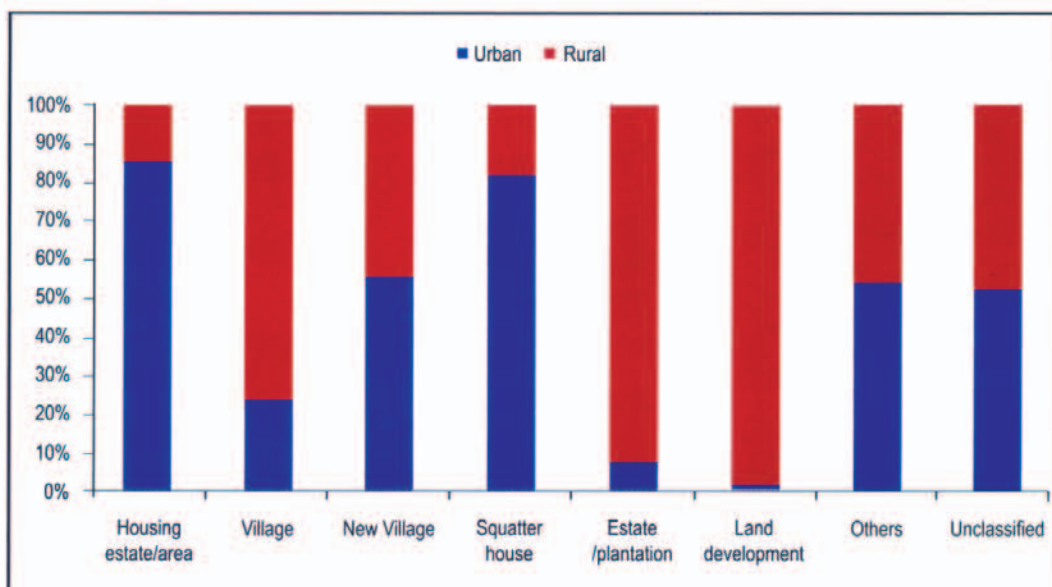


Figure 6.7 Types of housing area by urban and rural

6.5 Sources of Water Supplies

The main source of water supply was tap water (91.3%). A small proportion of household used well (3.3%) and gravity feed system (2.7%) as their main source of water supply (Figure 6.8).

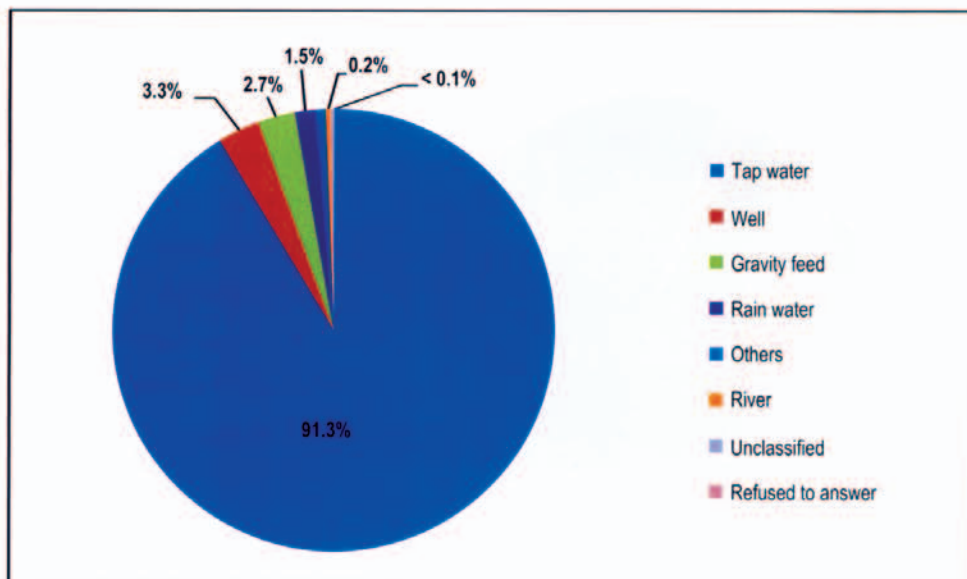


Figure 6.8: Sources of water supplies

The main source of water supply was tap water for both urban (97.5%) and rural (78.9%) areas. Rain water, well, river and gravity feed were common in rural area as compared to urban area (Figure 6.9). Gravity feed system was the alternative source of water supply (7.2%) followed by well water (6.8%) in rural area.

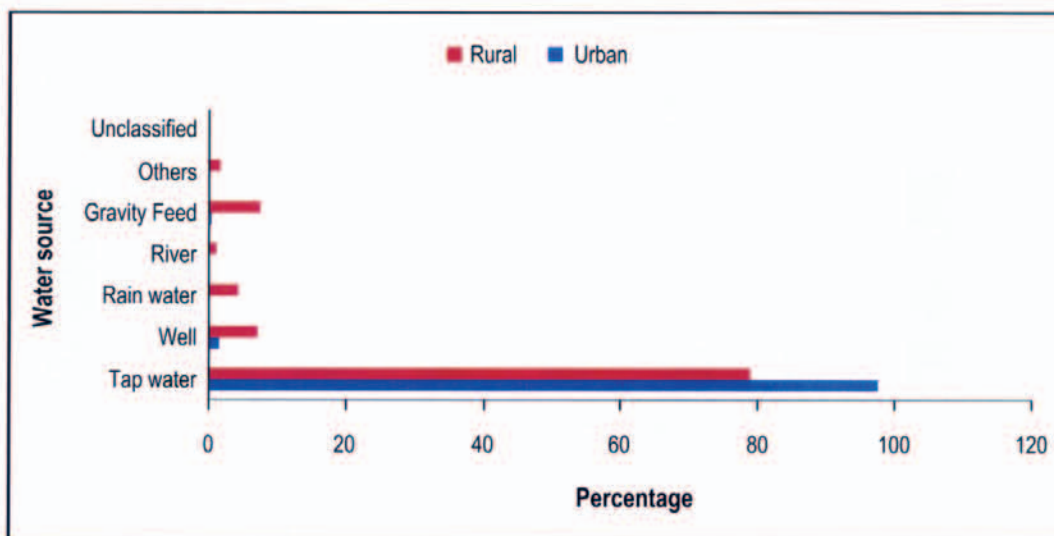


Figure 6.9: Percentage of main source of water supply in urban and rural

Tap water supplies coverage were more than 90.0% in all states except Kelantan (50.3%), Sabah (66.5%) and Sarawak (83.6%). For the state of Kelantan, well water supply was an alternative source of water supply accounting for 35.4%. In Terengganu about 11.4% used well water supply. In Sabah various sources of water supply were used beside tap water supply. They were rain water (12.1%), gravity feed (11.0%), well water supply (5.3%) and river (3.0%). Details of other main sources of water supply by state are shown in Figure 6.10.

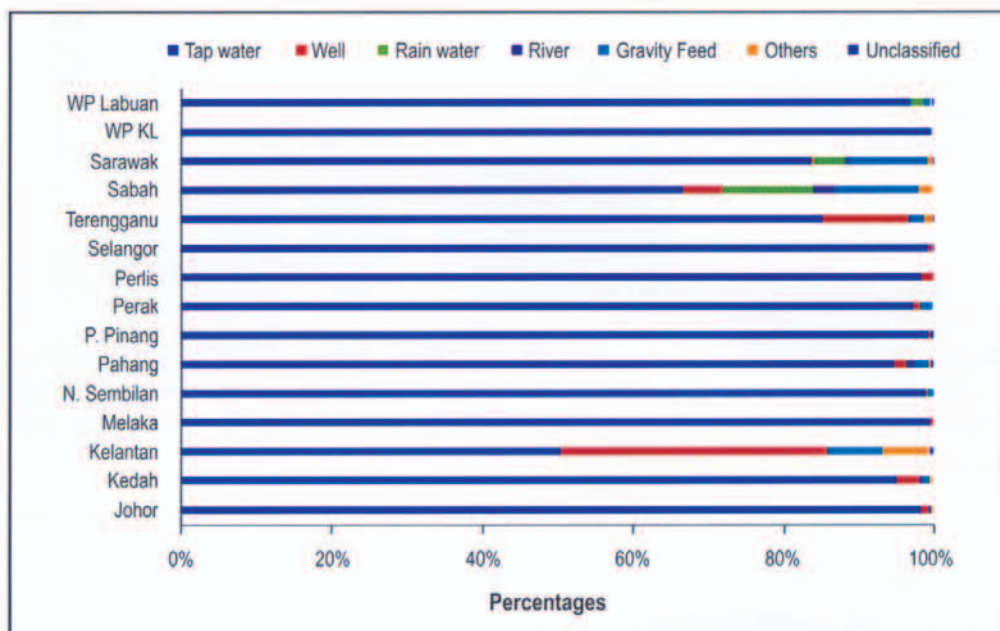


Figure 6.10: Sources of water supply by states

6.6 Water Consumptions

About 52.3% of the household consumed boiled unfiltered water from water department. Some of the households (25.6%) consumed filtered and boiled water from the water department. Only 0.2% consumed water from other sources which were not boiled and unfiltered (Table 6.2).

Table 6.2: Types of water consumed

Type of water normally consume	Frequencies	%
Water from the water department		
Boiled but unfiltered	8,095	52.3
Filtered but boiled	3,823	25.6
Filtered but unboiled	762	5.0
Unboiled and unfiltered	108	0.7
Water from other sources (Except bottled water)		
Boiled but unfiltered	1,241	6.8
Filtered but boiled	228	1.3

Table 6.2: Types of water consumed (continue)

Type of water normally consume	Frequencies	%
Filtered but unboiled	53	0.3
Unboiled and unfiltered	24	0.2
Boiled water that purchased		
Mineral water	814	5.3
Drinking water	131	0.9
RO water	102	0.7
Unclassified	86	0.6
Others	51	0.3
Total	15,519	100.0

6.7 Methods of Waste Disposals

Garbage collection by the Town Council was the commonest method of disposing wastes (64.2%). This was followed by open burning (26.0%). (Figure 6.11) In rural areas, open burning (55.7%) was the commonest when compared to other methods of garbage disposal practiced by Malaysians' households. (Figure 6.12)

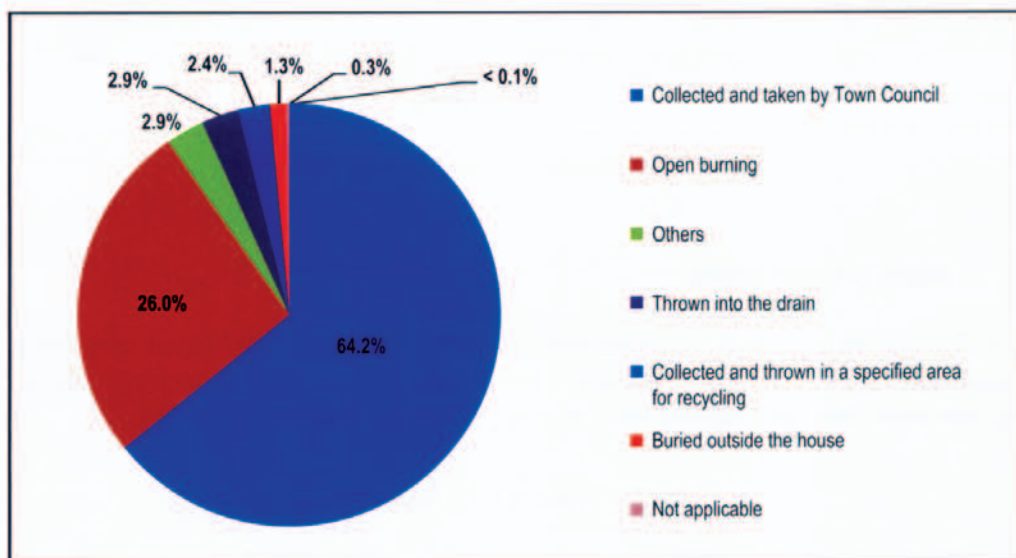


Figure 6.11: Methods of waste disposal

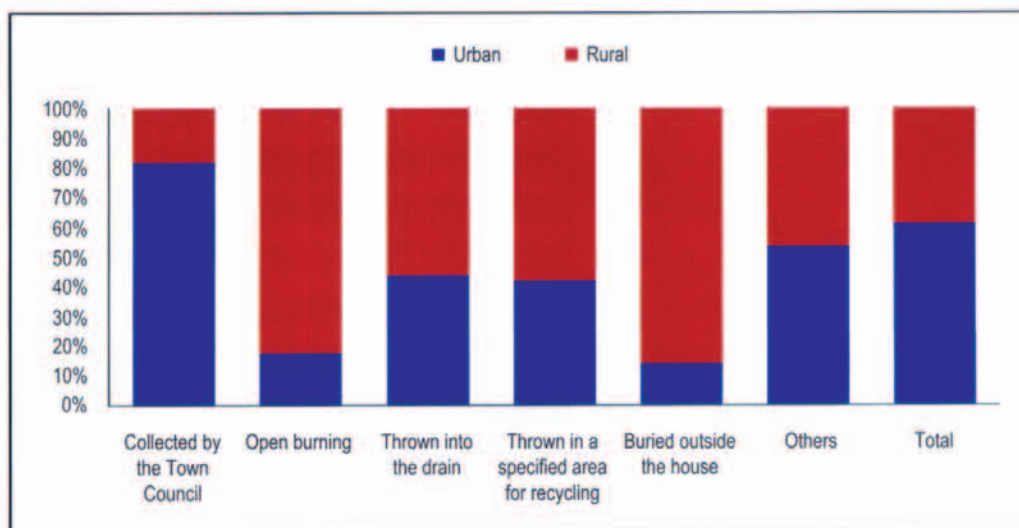


Figure 6.12: Methods of waste disposal by urban and rural

6.8 Types of Toilets Used

Flush toilets were the most common type of toilet used by household (Figure 6.13). The common flush toilet types are flush toilet with septic tank (37.4%), pour flush toilet (31.4%) and flush toilet which connected to main sewerage system (28.0%). In rural, pour flush toilet (59.2%) show a higher percentage compare to other type of toilets. (Figure 6.14)

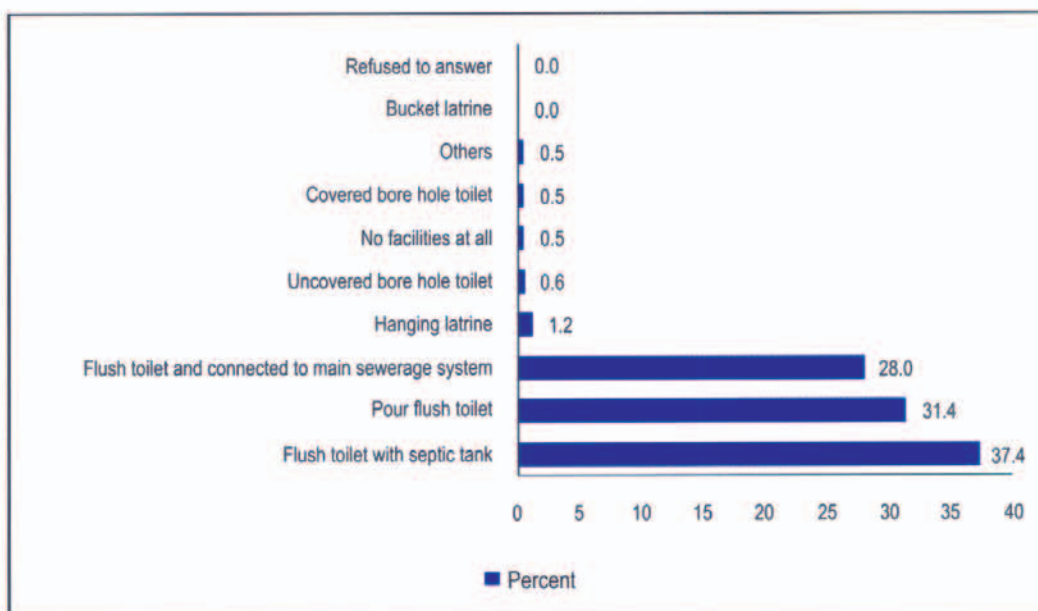


Figure 6.13: Types of toilets used by households

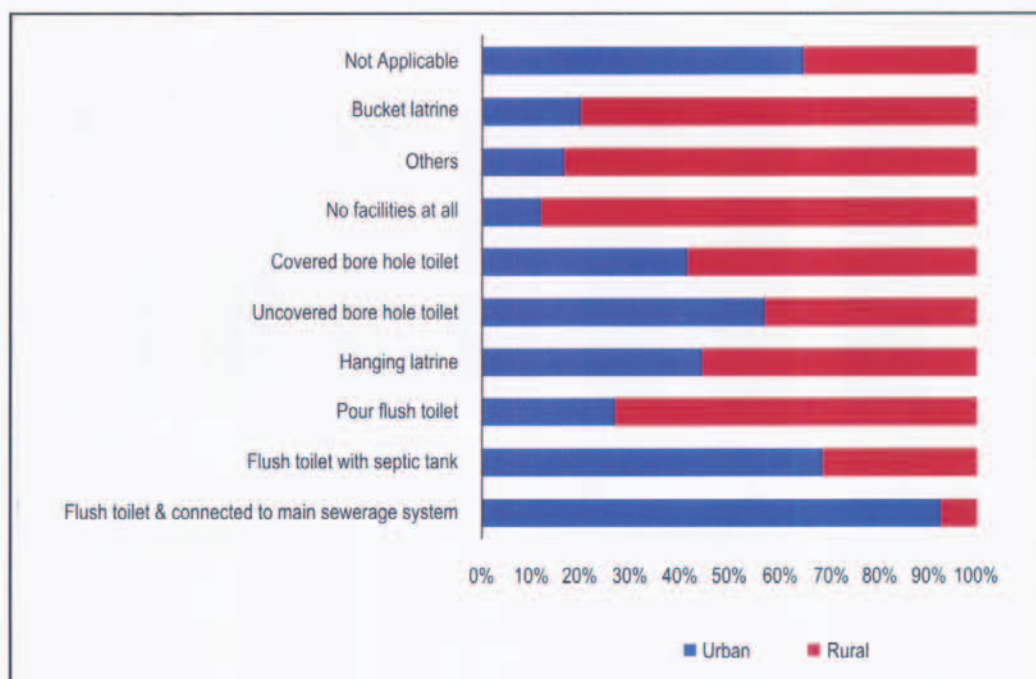


Figure 6.14: Urban rural distribution of types of toilets

6.9 Toilets Locations and Usage

Most of the household had private toilets inside the house (78.7%). About 10.5% of the household had private toilet located outside the house. A small proportion of households' shared toilets located either inside or outside the house. (Table 6.3)

Table 6.3: Location and usage of toilet

Location and usage of toilet	Frequency	%
Inside the house used by one household	12,215	78.7
Outside the house, used by one household	1,633	10.5
Inside the house used by more than one household	1,004	6.5
Outside the house, used by more than one household	390	2.5
Inside and outside the house used by one household	118	0.8
Inside the house used by one household or more than one household	33	0.2
Inside and outside the house used by more than one household.	29	0.2
Inside and outside the house used by one or more household	9	0.1
Inside the house used by more than one household and Outside the house, used by one household	7	0.1
Outside the house, used by one or more household	1	0.0
Refused to answer	23	0.2
Others	57	0.4
Total	15,519	100.0

6.10 Location of Toilets from Well Water Supply

About 5.1% of household used a pour flush toilets, bore hole toilets (covered/uncovered) or hanging latrine. The mean distance from toilet types [(pour flush, bore hole toilet (covered/uncovered) or a hanging latrine)] to well water supply was 36.6 meters. Among those who responded (n=749), 91.1% claimed that their distance well water supply to the toilet types were less than 50 meter and only 8.9% were more than 50 meter. (Table 6.4)

Table 6.4: Distance of toilet from well water supply

Distance (Meters)	No.	%
Less than 10	368	49.1
10 - 19	173	23.1
20-29	81	10.8
30-39	49	6.5
40-49	11	1.5
More than 50	67	8.9
Total	749	100.0
Not Applicable	14,770	
Total	15,519	

6.11 Distribution of Local Health Services

In Peninsular Malaysia, the average distance of the nearest government hospitals from households' house was 13.8 km. Sarawak had the furthest mean distance (26.4km) from nearest government hospital. The mean distance from Government Clinic in Peninsular Malaysia was 4.3km compared to Sarawak of 9.8km. For the mean distance private hospital, Sabah showed the furthest distance (222.6km) followed by Labuan (202.9km). Sarawak also had the furthest mean distance (18.5km) from private clinic followed by Sabah (9.7km), WPKL showed a shortest mean distance to private clinic (1.3km) as shown in Figure 6.15. Detailed mean distance distribution by urban and rural is shown in Table 6.5.

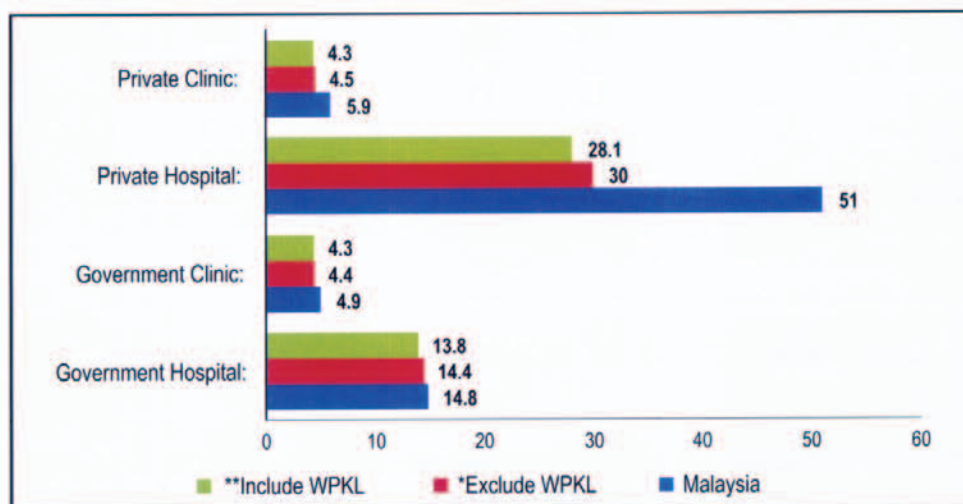


Figure 6.15: Mean distance (km) of the nearest health facilities from household house

Table 6.5: Mean distance (km) of the nearest health facilities from household house by urban and rural

	Urban			Rural		
	Mean(km) Distance	CI		Mean(km) Distance	CI	
		LL	UL		LL	UL
Government Hospital						
Pen.Malaysia*	11.1	10.3	12.0	21.3	20.1	22.5
Pen.Malaysia**	10.6	9.8	11.5	21.3	20.1	22.5
Sabah	8.5	6.9	10.1	22.3	19.1	25.5
Sarawak	10.9	9.4	12.5	40.9	32.9	48.9
WPKL	6.3	5.6	7.0	-	-	-
WPLabuan	5.5	4.8	6.2	9.4	7.8	10.9
Malaysia	10.5	9.7	11.2	23.7	22.2	25.1
Government Clinic						
Pen.Malaysia*	4.9	3.8	5.9	5.3	4.5	6.1
Pen.Malaysia**	4.2	3.4	5.0	4.7	4.4	5.1
Sabah	4.8	3.9	5.7	7.7	6.4	9.1
Sarawak	6.7	5.6	7.8	12.8	9.8	15.8
WPKL	3.3	2.8	3.8	-	-	-
WPLabuan	3.4	2.5	4.2	5.2	3.5	6.9
Malaysia	4.3	3.7	4.9	6.1	5.6	6.6
Private Hospital						
Pen.Malaysia*	18.0	16.1	20.0	56.0	51.9	60.0
Pen.Malaysia**	17.9	16.0	19.9	55.8	51.7	59.8
Sabah	216.3	176.8	255.9	229.7	194.0	265.3
Sarawak	15.3	7.4	23.1	134.9	109.7	160.1
WPKL	4.9	4.2	5.6	-	-	-
WPLabuan	203.5	197.9	209.0	202.2	200.2	204.3
Malaysia	32.2	28.1	36.4	89.5	82.2	96.8
Private Clinic						
Pen.Malaysia*	2.9	2.2	3.6	10.0	9.1	10.9
Pen.Malaysia**	2.2	2.1	2.3	9.4	8.6	10.2
Sabah	3.9	3.0	4.7	16.2	13.4	18.9
Sarawak	5.2	4.1	6.3	30.9	26.0	35.9
WPKL	1.3	1.1	1.4	-	-	-
WPLabuan	6.6	5.4	7.9	11.7	9.1	14.4
Malaysia	2.5	2.3	2.6	13.0	11.9	14.0

*Exclude WPKL **Include WPKL

7. CHARACTERISTICS OF HEADS OF HOUSEHOLDS

The Head of household was defined as any adult who monitors and manages his or her household. There were 66.4% males and 33.6% females as heads of households. More than half (58.0%) of the heads of the household were within the age group of 30-54 years old. Half of them were Malays

(54.6%) followed by Chinese (22.7%), Indians (8.7%), Other Bumis (9.7%) and Others (4.4%). Majority of the heads of the household were Malaysian (94.7%) and 62.7% were Muslims. More than three-quarter (78.3%) of the heads of the households were married. Nearly half of the heads of the households acquired secondary educational level, 10.6% achieved tertiary level. About 18.3% of the head of the households worked as service worker and shop, 14.3% were housewives and 11% work in technical and associates area. Senior official and manager accounted for 2.9% while Professionals group about 8.2%. Among the heads of the households, 8.2% were unemployed. Socio-demographic characteristics of the Heads of the household are described in Table 7.1.

Table 7.1: Socio-demographic characteristic of the heads of household

Socio-demographic	Characteristics	No.	%
Gender	Male	10,351	66.4
	Female	5,168	33.6
Age group	15-19	163	1.1
	20-24	699	4.6
	25-29	1,237	8.1
	30-34	1,459	9.5
	35-39	1,714	11.0
	40-44	2,097	13.5
	45-49	1,936	12.5
	50-54	1,784	11.5
	55-59	1,535	9.9
	60-64	1,024	6.5
	65-69	880	5.6
	70-74	525	3.3
	75-79	270	1.7
	>=80	158	1.0
	Unclassified	38	0.2
Citizenship	Malaysian	14,646	94.7
	Non-malaysian	858	5.2
	Unclassified	15	0.1
Ethnic groups	Malays	8,570	54.6
	Chinese	3,289	22.7
	Indian	1,269	8.7
	Other Bumis	1,672	9.7
	Others	719	4.4
Religion	Islam	9,966	62.7
	Christian	1,398	8.9
	Buddha	2,848	19.6
	Hindu	1,037	7.1
	Others	248	1.6
	Unclassified	22	0.2
Marital status	Not Married	1612	10.6
	Married	12,172	78.3
	Divorcee	484	3.1
	Widow/Widower	1,172	7.4
	Not Applicable	23	0.1
	Unclassified	56	0.4

Table 7.1: Socio-demographic characteristic of the heads of household (continue)

Socio-demographic	Characteristics	No.	%
Educational Level	None	1,631	9.9
	Primary	4,995	31.5
	Secondary	7,156	47.0
	Tertiary	1,566	10.6
	Unclassified	171	1.1
Working status	Senior Official & Manager	427	2.9
	Professionals	1,216	8.2
	Technical & Associate	1,666	11.0
	Clerical Workers	694	4.6
	Service Workers & Shop	2,791	18.3
	Skilled Agricultural & Fishery	1,728	10.0
Socio-demographic Characteristics	Craft & Related Trade Workers	855	5.6
	Plant & Machine Operator	1,219	7.9
	Elementary Occupations	873	5.3
	Housewife	2,196	14.3
	Unemployed	1,290	8.2
	Unclassified	564	3.7

7.1 Household Monthly Income

Household monthly income is the average monthly income for the whole family. Comparison of the household monthly income between NHMS II and NHMS III, revealed a decrease in percentage for family who earned less than RM 1999 and increased percentage for families who earned more than RM 2000 per month. (Table 7.2)

Table 7.2: Comparison of percentages household monthly income between NHMS II and NHMS III

Household Income (RM)	%	
	NHMS II	NHMS III
Less Than RM400	17.8	14.1
RM400 - RM699	15.5	12.4
RM700 - RM999	12.6	12.3
RM1000 - RM1999	27.2	26.3
RM2000 - RM2999	12.2	14.2
RM3000 - RM3999	6.0	6.7
RM4000 - RM4999	3.4	3.3
RM5000 & Above	5.4	6.6
Unclassified/refused to answer	-	4.1

7.1.1 Average Household Monthly Income

Majority of households earned monthly income of less than RM 500 (21.2%). This was followed by income group of RM 500 to RM 999 (17.6%), RM 1000-RM 1499 (15.3%) and RM 1500-RM 1999 (11.0%). About 30.6% had income of more than RM 2000 and 4.1% unclassified or refused to

answer. The mean household monthly income by socio-demographic characteristics is shown in Table 7.3 (Appendix 2: Table 6).

Table 7.3: Distribution of NHMS III household monthly income

	Frequency	%
< RM 500	3,291	21.2
RM 500 - 999	2,731	17.6
RM 1000 - 1499	2,374	15.3
RM 1500 - 1999	1,712	11.0
RM 2000 - 2499	1,482	9.5
RM 2500 - 2999	716	4.6
RM 3000 - 3499	752	4.8
RM 3500 - 3999	287	1.8
RM 4000 - 4499	392	2.5
RM 4500 - 4999	121	.8
RM 5000 & above	1,031	6.6
Total	14,889	95.9
Unclassified/refused to answer	630	4.1
Total	15,519	100.0

7.2 Willingness to Pay for Health

On average, each household was willing to pay RM 125 (CI: 119 - 131) monthly for health. (Median: RM 60 and mode: RM 100). The percentile for willingness to pay is (25.0%: RM 30), (50.0%: RM 60), (75.0%: RM 120) and (90.0%: RM 250). The mean in willingness to pay for health by socio-demographic characteristics are described in detail in Appendix 2: Table 7.

7.3 Willingness to Pay for Private Clinic Outpatient Care

On the average each household was willing to pay RM 75 (CI: 72 - 78) monthly for visits to private clinic for outpatient care. (Median: RM 50 and mode is RM 50). The percentile for willingness to pay is (25.0%: RM 20), (50.0%: RM 50), (75.0%: RM 100) and (90.0%: RM 150). The mean in willingness to pay for visits to the private for out-patient care by socio-demographic characteristics are being described in detail in Appendix 2: Table 8.

8. INDIVIDUAL SURVEY RESPONDENT

8.1 Response Rate

The total number of individuals in the sampled household were 59,938. Not all the individuals in the sampled household were interviewed during the visit. 5.4% (3228) were excluded as the study population. Among the 3228, 1828 (3.1%) respondents were unable to be interviewed because they were absent during the visit. 1400 (2.3%) refused to answer the questionnaire on specific modules and responded **ONLY** to the Socio-Demographic module. Reasons for exclusion are as described below. (Table 8.1). Therefore, non-response rate of the individual study population were 2.4%.

Table 8.1: Reasons for exclusion of the eligible respondents as a study population

Reasons	%
Outstation	17.9
Refuse to be interview	14.8
Busy	12.8
Working	9.5
Mental problems	7.0
Uncontactable	5.8
No reason given	3.5
Not in the house	3.0
ILL	2.9
Language problem	2.7
No interest to participate	2.3
Don't want to be disturb	1.9
Admitted to hospital	1.4
Others reason	14.8
Total	100.0

The total numbers of non respondents were 1400. Majorities were Malaysians (86.0%), and, 53.0% of them lived in at rural areas. Among the states, Sabah (20.4%) showed the highest percentage of non respondents (Appendix 2: Table 9).

8.2 Characteristics of Non-Respondents.

The total numbers of non respondents were 1400. About 52.0% were male and 47.0% were female. About 11% belonged to age group less than 4 years. Among the races, Malays (51.4%), Chinese (16.7%), Indians (5.6%), Other Bumis (18.6%) and Others (7.6%). Majority were Malaysian (86.0%), 53.0% of them lived in the rural area. Sabah (20.4%) had the higher percentage among the states followed by Selangor (19.3%), Johor (9.9%) and Sarawak (9.4%). About 73.0% had a tertiary education and 39.0% were married. Demographic characteristics among the non-response individual is describe in detailed in Appendix 2: Table 9.

9. SOCIO-DEMOGRAPHIC CHARACTERISTICS OF THE STUDY POPULATION (INDIVIDUAL RESPONDENTS)

The total number of the study population (individual respondents) included in the survey analysis are 56,710. The figure contributed about 94.6% of eligible respondents.

9.1 Distribution of the Study Population by State

Selangor shows highest percentages of coverage of the study population [$n=9487(16.7\%)$] and Perlis shows the lowest coverage of the study population [$n=517(0.9\%)$]. Other states as describe in Table 9.1.

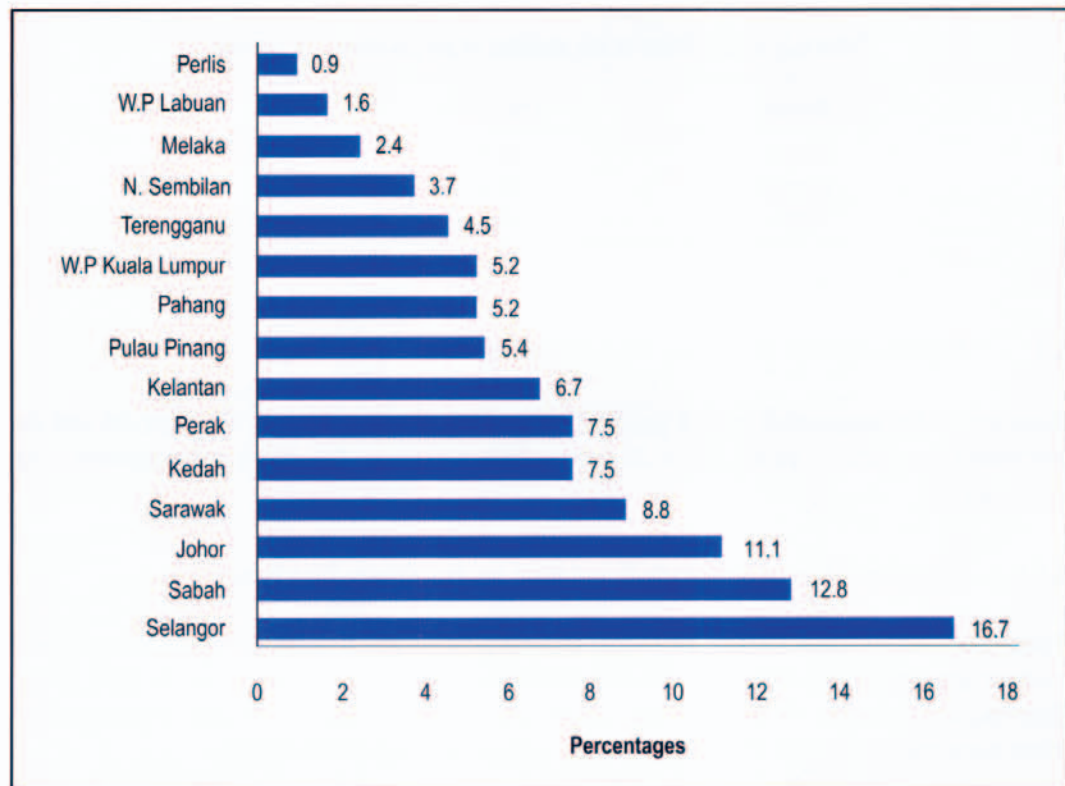


Figure 9.1: Distribution of the number of respondents by state

9.2 Distribution of the Study Population by Residence

57.7% of the study population was in urban area and 42.3% in rural area, as in Table 9.1.

Table 9.1: Distribution of the number of respondents by residence

Residence	Frequency	%
Urban	32,734	57.7
Rural	2,3976	42.3
Total	56,710	100.0

9.3 Distribution of the Study Population by Gender

About 52.9% of respondents were females and 47.1% were male, as in Table 9.2.

Table 9.2: Distribution of the number of respondents by gender

Gender	Frequency	%
Male	26,709	47.1
Female	30,001	52.9
Total	56,710	100.0

9.4 Distribution of the Study Population by Age

Mean age of the respondent is 28.6 years old (s.d= 20.6 years), Median is 25 years old and the Percentiles are (25%: 11 years), (50%: 25 years), (75%: 44 years). The oldest age was found to be 110 years old.

9.4.1 Characteristics of the Study Population by Age Group Distribution

It was observed in Figure 9.2, that the overall study population had a relatively higher percentage of younger age group (Less than 15 years old). Comparing the age group distribution by state, it was observed that Kelantan, Terengganu and Sabah had relatively higher percentage of younger age group compared to Wilayah Persekutuan Kuala Lumpur, Penang and Selangor.

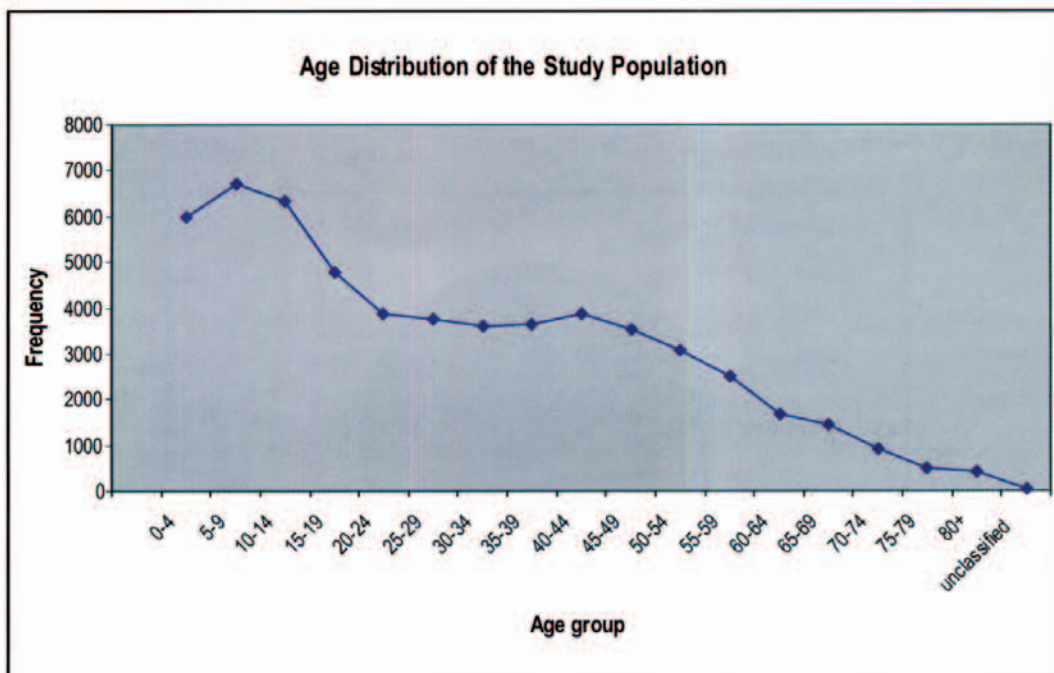


Figure 9.2: Distribution of age group of study population

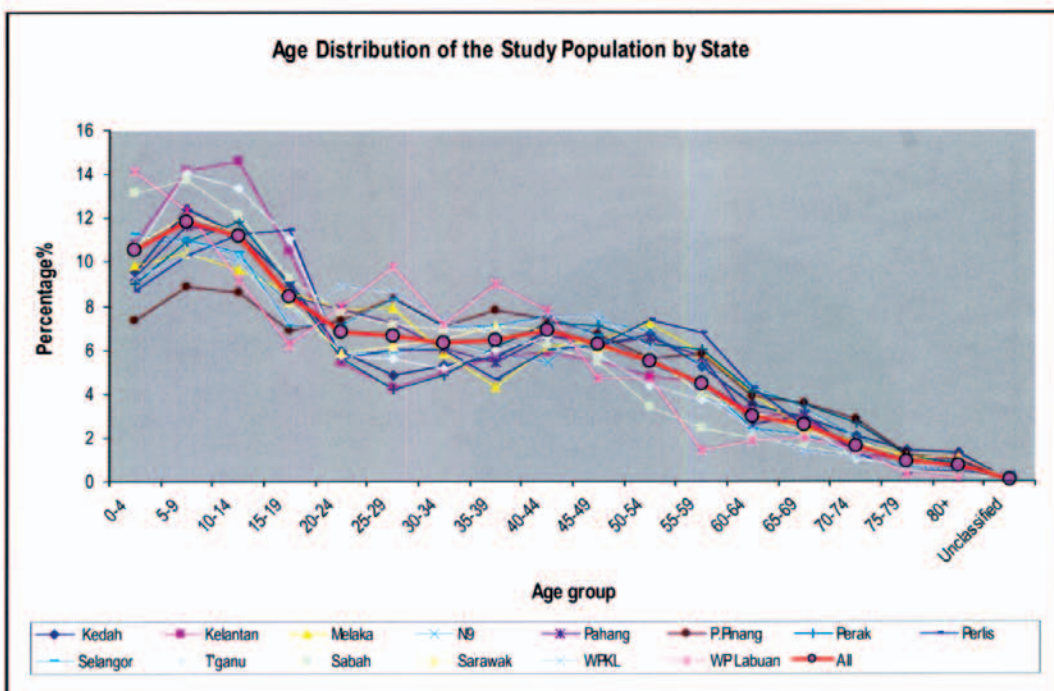


Figure 9.3: Age distribution of the study population by state

9.5 Distribution of the Study Population by Race

Malays contributed about 57.3% of study population followed by Chinese (18.1%), Other Bumis (12.5%) and Indians (7.8%).

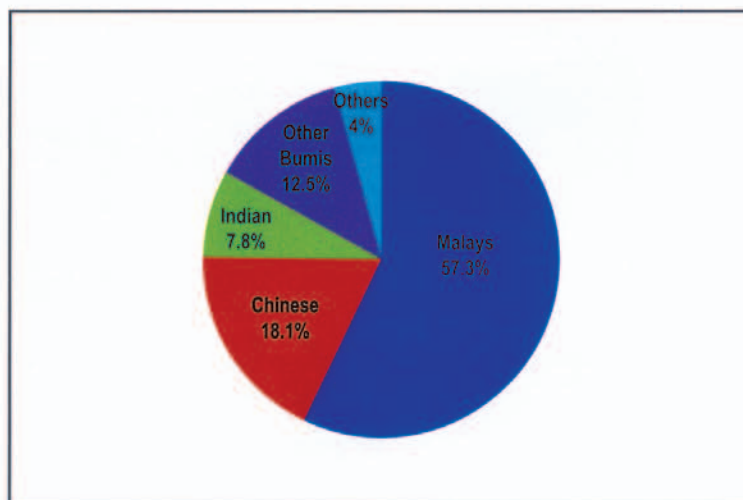


Figure 9.4: Distribution of respondents by race group

9.6 Distribution of the Study Population by Religion

In terms of religion, 67.4% of the study populations were Muslims, 15.5% Buddhists, 9.1% Christians, 6.4% Hindus and others (1.5%).

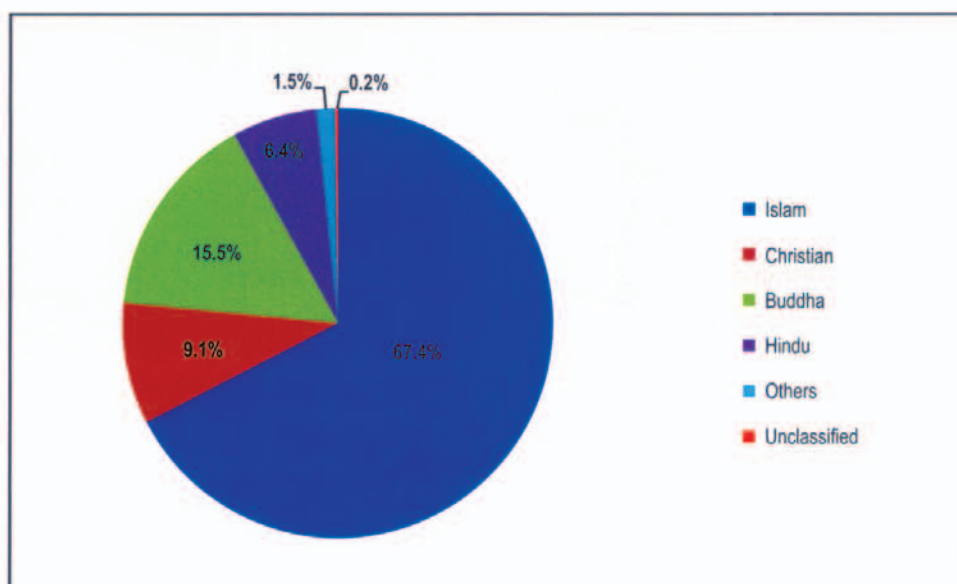


Figure 9.5: Distribution of the respondents by religion

9.7 Distribution of the Study Population by Citizenship

Among the individual respondents, 95% were Malaysian. Only 5% were non-Malaysian. Indonesian contributed 3.0%, Thais (0.2%), Philippines (0.8%) and Singaporean (0.1%). (Table 9.3)

Table 9.3: Distribution of the number of respondents by citizenship

Citizenship	Frequency	%
Malaysian	53,847	95.0
Thai	115	0.2
Indonesian	1,692	3.0
Singapore	31	0.1
Philippines	462	0.8
Bangladesh	24	0.0
Others	473	0.8
Refused To Answer	1	0.0
Total	56,645	99.9
Unclassified	65	0.1
Total	56,710	100.0

9.8 Distribution of the Study Population by Educational Status

Educational status of the respondents were obtained from completed years of formal education and the status was categorized into No Education (21.7%), Primary Education from 7 to 12 years (37.5%), Secondary Education from 13 to 18 years (34.4%) and Tertiary Education from more than 12 years (6.0%). A small proportion (0.5%) was in the unclassified group.

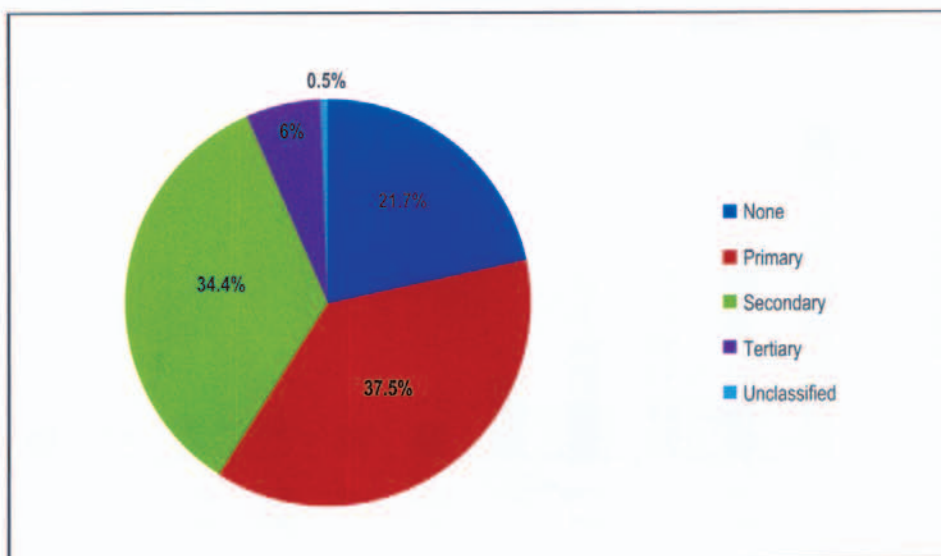


Figure 9.6: Distribution of the number of respondents by educational status

9.9 Distribution of the Study Population by Marital Status

Among the respondents, 43.3% were married and 22.1% unmarried. Those who reported to be divorced were 1.3% and 3.3% are widow or widower (Figure 9.7).

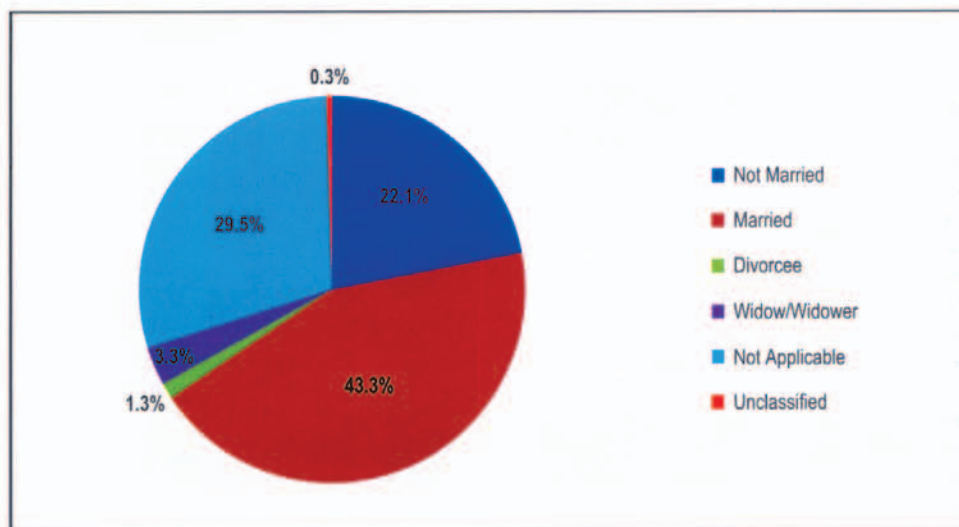


Figure 9.7: Distribution of respondents by marital status

9.10 Distribution of the Study Population by Monthly Income

The average income for the study population was RM 1,239 with percentiles of (25.0%: RM 500), (50.0%: RM833) and (75.0%: RM 1500). Individuals who earned income less than RM 500 monthly contributed highest percentage (11.4%) among the others income group.

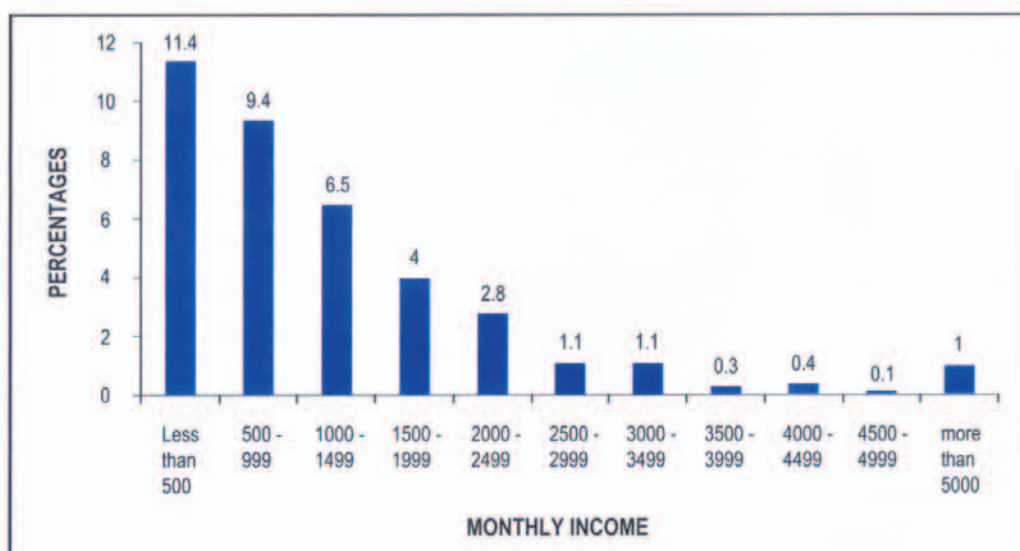


Figure 9.8: Distribution of the respondents by monthly income

9.11 Distribution of the Respondents by Occupation

Among those who revealed their occupational status, Housewife (20.4%) showed a highest percentage followed by Service and Shop Workers (14.3%). Detailed list of occupational status were describe detailed in Figure 9.9.

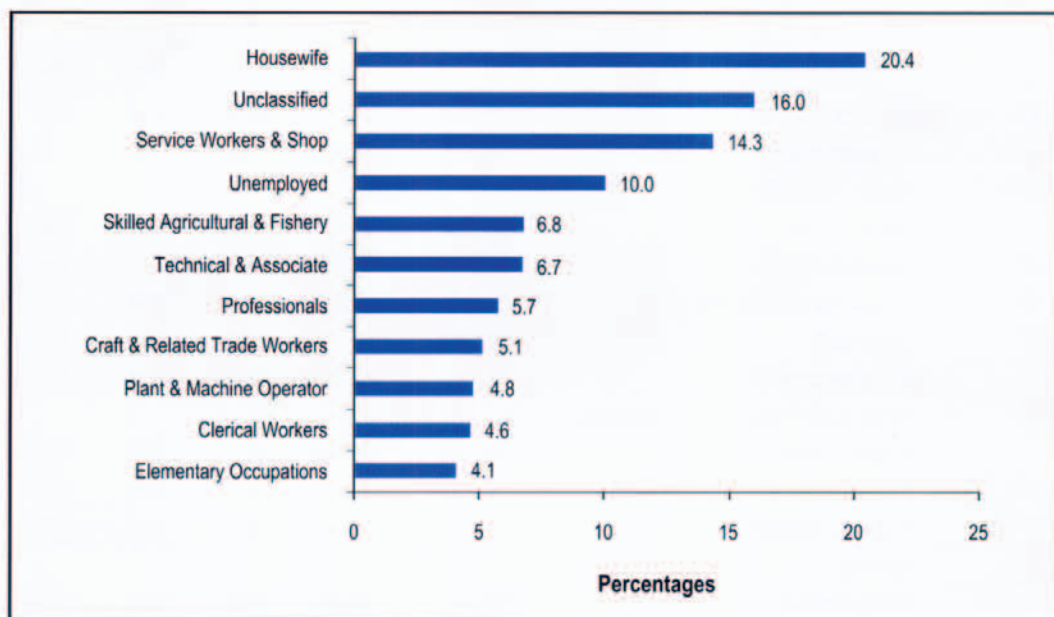


Figure 9.9: Distribution of respondents by occupation

10. RESPONSES TO THE MODULES

Table 10.1: Respondents to each module

Module	Scope	Total no. of eligible person*	Respondent		Non-respondent	
			No	%	No	%
A1	Socio-demography	15773	15519	98.4	254	1.5
A2	Personal background information	56,710	56,710	100	0	0
B1	Health expenditure (18 years old)	34,539	34065	98.6	474	1.4
B2	Hospitalisation	56,710	55,919	98.6	791	1.4
B3	Private health insurance	34539	34005	98.5	534	1.6
C	Oral health	56,710	55,719	98.2	991	1.8
D1	Acute respiratory illness	56,710	55,872	98.5	838	1.5
D2	Acute and chronic recent illnesses & health services utilisation	56,710	55,748	98.3	962	1.7
E1& E2	Injury & risk reduction practices	56,710	55,774	98.3	936	1.7
F	Physical disability	56,710	55,716	98.2	994	1.8
G	Asthma (18 years old)	34,539	34,289	99.3	250	0.7
	(< 18 years old)	22,131	22,112	99.9	19	0.1
H	Child health home-based card (< 13 years old)	16,748	16,530	98.7	218	1.3
I	Dengue (13 years old)	39,922	35,443	88.8	4,479	11.0
J	General health information (13 years old)	39,922	39,496	98.9	426	1.1
K	Nutrition labeling (13 years old)	39,922	39,506	99.0	416	1.0
L	Medication labeling (13 years old)	39,922	39,504	99.0	418	1.1
M	Organ donation (18 years old)	34,539	34,216	99.1	323	0.9
N	Physical activities (18 years old)	34,539	33,933	98.3	606	1.8
O	Tobacco consumption and Alcohol (18 years old)	34,539	34,305	99.3	234	0.7
P	Ischemic heart disease (18 years old)	34,539	34,298	99.3	241	0.7

Table 10.1: Respondents to each module (continue)

Module	Scope	Total no. of eligible person*	Respondent		Non-respondent	
			No	%	No	%
Q	Hypercholesterolemia (18 years old)	34,539	34,416	99.6	123	0.4
R	Diabetes (18 years old)	34,539	34,539	100	0	0
S	Hypertension (18 years old)	34,539	33,976	98.4	563	1.6
T	Infant feeding (< 2 years old)	2,303	2,198	95.4	105	4.6
U	Nutritional status (18 years old)	34,539	33,465	96.9	1,074	3.1
	(< 18 years old)	22,131	22,032	99.6	99	0.5
V1	Breast health awareness (Women 18 years old)	19,081	18,902	99.1	179	0.9
V2	Pap smear (Women 18 years old)	19,081	18,898	99.0	183	1.0
W	Tobacco Consumption (13 - < 18 years old)	5,383	3,321	61.7	2,062	38.3
X	Alcohol Consumption (13 years old)	39,922	20,958	52.5	18,964	47.5
Y	Sexual Behavior (13 years old)	39,922	27,864	69.8	12,058	30.2
Z	Psychiatric Morbidity (5 - < 16 years old)	14,156	11,949	84.4	2207	15.6
	(16 years old)	36,519	23,460	64.2	13,059	35.8

11. ESTIMATED NATIONAL PREVALENCE FOR HEALTH PROBLEMS / DISEASES IN NHMS III

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III

1. Diabetes Mellitus	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Overall Diabetes Mellitus (≥ 30 yrs)	8.3	7.8 - 8.7	14.9	14.4 - 15.5
Overall Diabetes Mellitus (≥ 18 yrs)	-	-	11.6	11.2 - 12.0
<ul style="list-style-type: none"> Prevalence showed an increasing trend with age. Higher in urban population (12.1%) compared to rural population (10.5%). Large differences among States: Negeri Sembilan (15.3%), Malacca (15.2%), Penang (14.9%) with Sabah (4.9%). Highest among Indians with 19.9%, followed by Malays (11.9%) and Chinese (11.4%). Majority of those affected were primary education or less. Senior Officials and Managers, housewives and unemployed showed higher prevalence. 				
Known Diabetes (≥ 30 yrs)	5.7	5.4 - 6.1	9.5	9.1 - 9.9
Known Diabetes (≥ 18 yrs)	-	-	7.0	6.7 - 7.3
Newly Diagnosed Diabetes (≥ 30 yrs)	2.5	2.3 - 2.7	5.5	5.2 - 5.8
Newly Diagnosed Diabetes (≥ 18 yrs)	-	-	4.5	4.3 - 4.8
<ul style="list-style-type: none"> Males (5.1%) recorded higher prevalence than female (4.1%). No significant difference with regards to ethnic groups. Senior Officials and Managers (8.3%) showed the highest prevalence followed by Professionals (5.2%). Others job categories showed prevalence between 3.7%-5.0%. 				
Impaired Fasting Glucose (≥ 30 yrs)	4.3	4.0 - 4.7	4.7	
Impaired Fasting Glucose (≥ 18 yrs)	-	-	4.2	4.0 - 4.5
<ul style="list-style-type: none"> Highest among Indian (5.2%), Chinese (5.1%) and Malays (4.0%). Highest in WPKL (6.1%), Penang (6.1%) and Perak (5.0%). Higher in Urban than Rural (4.5% vs 3.8%). Higher in Males (5.2%) than Females (3.5%). 				
Eye examination among known diabetes	<ul style="list-style-type: none"> 45.1% of the people with known diabetes checked by doctors, Out of this; 32.9% checked less than 1 year ago, 49.7% between 1-2 year & 17.4% checked more than 2 years ago. 			
Complications	<ul style="list-style-type: none"> 4.3% had lower limb amputation. 3.4% had stroke. 1.6% had dialysis or kidney transplant. 			

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

2. Hypertension	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Hypertension (≥ 18 yrs)	-	-	32.2	31.6 - 32.8
<ul style="list-style-type: none"> Higher in male (33.3%) than female (31.0%). Highest among Malays (33.9%), Chinese (32.4%) and Indians (29.4%). 				
Hypertension (≥ 30 yrs)	29.9	29.1 - 30.7	42.6	41.8 - 43.3
<ul style="list-style-type: none"> Higher in female than male (43.4% vs 41.7%). Highest among Malays (45.4%), Chinese (40.6%) and Indians (40.0%). 				
Hypercholesterolemia	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Hypercholesterolemia	-	-	20.6	20.1 - 21.3
<ul style="list-style-type: none"> Higher in females (22.8% vs 18.6%) than males. Highest among the Malays (24.8%), Indians (12.1%) and Chinese (19.3%). Mean total cholesterol was 4.5 mmol/L. 				
3. Nutritional Status (Adult)	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
a) Underweight	25.2	24.5 - 25.7	8.5	8.2 - 8.9
b) Normal weight	-	-	48.4	47.7 - 49.0
c) Overweight	16.6	6.1 - 17.1	29.1	28.6 - 29.7
<ul style="list-style-type: none"> Highest among Indians (33.2%), Malays (29.8%) and Chinese (28.5%). High among 'senior officers & managers' (37.7%), 'technical & associate' (34.4%) and housewives (32.8%). 				
d) Obesity	4.4	4.1 - 4.7	14.0	13.6 - 14.5
<ul style="list-style-type: none"> Highest among Indians (17.7%), Malays (16.6%) and Chinese (8.7%). Highest among housewives (20.3%). 				
e) Abdominal Obesity by waist circumference	-	-	41.2	40.5 - 41.9
<ul style="list-style-type: none"> Higher in females (49.2%) than males (31.7%). 				
f) Malnutrition (≥ 60 yrs) by calf circumference	-	-	26.7	25.1 - 28.4
<ul style="list-style-type: none"> Higher in males (31.7%) than females (22.6%). 				
Nutritional Status (Children)	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
a) Normal Weight for Age	-	-	81.4	80.8 - 82.0
b) Underweight	-	-	13.2	12.6 - 13.9

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

c) Overweight	-	-	5.4	5.0 - 5.7
<ul style="list-style-type: none"> The prevalence of underweight in rural and urban was comparable (6.9% and 5.9%). Malays had the highest prevalence of underweight compared to other ethnic groups. Underweight tended to be higher in households with monthly income less than RM 2000. The prevalence of overweight increased with age until 10-13 years after which the level declined. Malays had the highest prevalence of over weights (3.0%) compared to other ethnic groups (Chinese 1.1%, Indians 0.6%). 				
d) Normal Height for Age (cm)	-	-	80.5	79.7 - 81.2
e) Stunted (cm)	-	-	15.8	15.1 - 16.6
f) Tall (cm)	-	-	3.7	3.4 - 4.0
<ul style="list-style-type: none"> The prevalence of stunting and wasting was slightly higher among boys than girls. The prevalence of stunting and wasting was higher in urban area compared to rural area. Malays had the highest prevalence of stunting and wasting compared to other ethnic group. 				
		NHMS II		NHMS III
4. Asthma (Adult)	Prevalence	95% CI	Prevalence	95% CI
	%		%	
Asthma	4.1	3.8 - 4.4	4.5	4.3 - 4.8
<ul style="list-style-type: none"> The disease was more prevalent among Indians (6.7%) followed by Malays (5.6%). By States, Malacca (6.6%) recorded highest prevalence followed by Kedah (6.3%) and Pahang (5.8%). Rural population (4.9%) reported higher prevalence than urban population (4.3%). Females (4.8%) recorded higher prevalence than male (4.2%). The disease prevalence showed increasing with age. The results showed that in adults, asthma was more prevalent among lower income group, lower education level and the unemployed. 67.8% of asthmatics visited the doctor due to an asthma attack or acute breathlessness in the last 12 months. 20.0% of asthmatics visited the emergency department (ED) for acute asthma exacerbation in the last 12 months. 10.0% of asthmatics were admitted to the ward due to acute asthma exacerbation. 32.1% of asthmatics reported that they had school / work day's loss. 46.4% of asthmatics reported that they were not on inhalers. 				
		NHMS II		NHMS III
Asthma (Children)	Prevalence	95% CI	Prevalence	95% CI
	%		%	
Overall Asthma	-	-	7.1	6.7 - 7.6
<ul style="list-style-type: none"> Highest among Malays (8.1%) than Indians (7.4%), Other Bumiputera's (6.8%) and Chinese (4.3%). Higher in males than females (7.7% vs 6.6%). Predominant in children 15 years and above (8.3%). Higher in urban than rural area. 69.0% asthmatics did not have any long term follow-up. 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

<ul style="list-style-type: none"> 82.1% of asthmatics had unscheduled visit to doctors. 32.2% of asthmatics had visited the emergency department for asthma exacerbation. 14.3% of asthmatics was hospitalized. 52.8% of asthmatics missed schools with an average day loss of 3.61 days. 66.7% of asthmatics was not on any medication. 				
5. Smoking (Adult)	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
a) Current Smoker (CDC definition)	-	-	21.5	21.0 - 22.0
<ul style="list-style-type: none"> Higher in rural (26.2%) than in urban (18.9%). Highest in Perlis (33.1%), Pahang (27.4%) Kelantan (27.3%) & Lowest in KL (15.7%) More among males (46.4%) than females (1.6%). Malays (24.0%), other Bumis (24.8%), Chinese (16.2%), Indians (13.7%). Highest among respondents in their 20s & 30s. Mean initiation age: 18.6 years old (male : 18.3, female : 22.6). 				
b) Current Smoker (NHMS II definition)	24.8	24.1 - 25.4	22.8	22.3 - 23.3
c) Ex-smoker	-	-	5.4	5.1 - 5.6
d) Passive smoker	-	-	21.5	20.9 - 22.1
Smoking (Adolescent)	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Current Smoker (CDC Definition)	-	-	8.7	7.7 - 9.8
<ul style="list-style-type: none"> Highest prevalence in Sarawak (13.0%), Pahang (12.9%) & Johor (12.1%). Lowest prevalence in Penang (2.3%). Rural (11.5%) > urban (6.9%). Males (16.6%) > females (0.7%). Malays : 10.9% & Other Bumis : 10.5%. Prevalence increased with age, from 3.5% in 13 years old to 15.5% in 17 years old. Mean Initiation age: 13.6 years old. (male: 13.5, female: 14.4). 				
Alcohol Consumption (≥ 13 yrs & all ethnics)	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Current drinker	-	-	7.4	6.9 - 8.0
<ul style="list-style-type: none"> Highest in Sarawak (15.0%), W.P Labuan (12.4%), and W.P Kuala Lumpur (12.1%). Higher among males (11.8%) than females (3.6%). Chinese reported highest prevalence (23.8%), followed by the Other Bumis (16.0%), Indians (12.9%) and Malays (0.7%). Highest prevalence among the senior officer/ manager (24.8%). Mean age started to drink alcohol was 21.0 years old, (males 20.7 years old, females 21.6 years old). The prevalence of binge drinker was 30.6% (CI: 28.4 - 32.9). 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

6. Psychiatric Morbidity (Adults \geq 16yrs)				
a) Psychiatric Morbidity				
<ul style="list-style-type: none"> Unadjusted prevalence was 11.2%. Females had significantly higher rates than males (12.1% vs 10.4%). Older people (70 - 74 years of age), and the youngest (16 - 19 years of age) showed prevalence's 19.5% and 14.4% respectively. The lowest rate was among the married group. People with no education and those in the lowest income group had higher prevalence. 				
b) Insomnia				
<ul style="list-style-type: none"> 13.9% of the respondents had acute insomnia and 47.7% had chronic insomnia. 				
c) Suicidal Ideation				
<ul style="list-style-type: none"> Overall, there was a 6.3% rate of acute suicidal ideation and 25.8% rate of chronic suicidal ideation. The 16 - 24 years age group had the highest prevalence of suicidal ideation of 11.0%. 				
Psychiatric Morbidity (Children & Adolescents 5 - <16 yrs)				
<ul style="list-style-type: none"> Estimated prevalence was 20.3% Males (21.6%) were significantly higher than females (19.1%). Significantly higher psychiatric morbidity among children and adolescent from households with income lower than RM 3000. Rural location had higher prevalence than urban (21.2% vs 19.7%). 				
7. Sexual Behaviour (\geq 13 yrs)				
<ul style="list-style-type: none"> Among the respondents who revealed their sexual orientation, their sexual practices were 95.8% heterosexual, 1.1% female homosexual (Lesbians), 0.9% male homosexual (Gay) and 2.2% bisexual. 97.0% claimed that they carried out one type of sexual practices as compared to 3.0% who carried out two types of sexual practices (sexual practice: vaginal, oral, anal sex). ONLY 35.8% were knowledgeable about STI. ONLY 49.6% were knowledgeable of HIV transmission. 50.8% felt that they can be protected against HIV by using condom correctly every time they have sex. 94.5% did not practice high risk sexual behaviour. 16.7% who had sex with prostitute did practise safe sex. 				
8. Load of Illness				
Acute Respiratory Infection	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Upper Respiratory Infection (URI)	-	-	18.0	17.5 - 18.5
Lower Respiratory Infection (LRI)	-	-	0.5	0.4 - 0.5
Acute Respiratory Infection (ARI) all ages	-	-	18.2	17.5 - 18.5
Acute Respiratory Infection (ARI) - below 5 yrs old	39.3	37.7 - 40.9	28.8	27.4- 30.2

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

<ul style="list-style-type: none"> Indians showed highest prevalence of ARI (22.9%). Median duration of sickness was 3 days. 30.8% reported that their daily activities were affected by ARI. 60.6% seek treatment when having ARI. Majority went to private hospitals and clinics for ARI treatment (45.8%). The median cost spent from out of pocket expenditure (OOP) for ARI treatment was RM 3.00. 				
Acute Diarrhoeal Diseases	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Acute Diarrhoeal Diseases (ADD)	-	-	5.0	4.8 - 5.2
<ul style="list-style-type: none"> Incidence of ADD higher in Rural (5.5%) to Urban (4.7%). Others Bumis showed highest incidence (5.8%). Duration of ADD from 1-7 days with mean of 2 days. 25.5% of the population with ADD reported taken time off or absent from school. Time off ranged between 1-7 days with mean of 1.8 days. 43.3% sought treatment for the illness. 41.9% sought treatment at private clinics. 20.5% sought treatment at Government Clinics. 53.4% did not seek treatment though the illness was mild and did not warrant treatment. 				
Chronic Pain	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Chronic Pain	-	-	7.1	6.7 - 7.4
<ul style="list-style-type: none"> Females contributed a higher percentage than males. The prevalence increased with increasing age; 21.5% were more than 75 years. Highest among Indians with lowest prevalence among Chinese. Highest in the lower income group and educational status. It was reported that 16.0% interfered with work, study and daily activities. 				
Recent Illness	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Recent Illness / Injury	29.5	28.8 - 30.3	23.6	22.9 - 24.3
<ul style="list-style-type: none"> Males contributed a higher percentage than females (24.3 % vs 22.9%). Higher in rural than urban (25.5% vs 22.4%). Highest among Indians (27.0%). 				
9. Injury & Safety				
Home Injury	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Home Injury	2.5	2.3 - 2.7	6.5	6.2 - 6.8

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

<ul style="list-style-type: none"> Higher among those living in rural areas (7.4%) as compared to those in urban areas (5.9%). The prevalence among females was higher (6.8%) than males (6.1%). The prevalence was highest in the 0-4 years group (11.8%), then declined with age and was lowest at 45-54 years group (3.7%). More than 80.0% of home injuries occurred at five locations: garden (28.0%), kitchen (24.9%), living room (14.7%), bathroom (7.5%) and stairs (7.2%). Majority of injuries at home were due to falls (63.4%). 16.7% affected their ability to go to school, work or play. 4.9% needed hospital admission for at least one night. 				
Road Traffic Injury	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Road Traffic Injury	2.5	2.3 - 2.7	4.4	4.2 - 4.6
<ul style="list-style-type: none"> Injury prevalence was significantly higher among those living in the rural areas (4.8%) compared to urban dwellers (4.1%). Prevalence rates higher among males (6.4%) compared to females (2.5%). The prevalence was significantly higher among those aged between 15 to 24 years old (11.1%) as compared to other age groups. By ethnicity, the highest prevalence rate was among Indians (6.1%) and Malays (5.0%). Common injuries acquired among those injured on the road were cuts (50.7%) and bruises (29.2%). Injuries on the road occurred commonest among motorcycle users (61.1%), out of which 81.1% involved the riders. 39.7% affected their ability to go to school, work or play. 16.6% needed hospital admission for at least one night. 				
Workplace Injury	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Workplace Injury	3.0	2.7 - 3.3	4.8	4.5 - 5.1
<ul style="list-style-type: none"> Prevalence significantly higher among those living in the rural areas (5.8%) as compared to those in urban areas (4.3%). Significantly higher among males (6.0%) compared to females (3.1%). Prevalence declined with age, and was significantly highest among those aged between 18 to 24 years of age (8.1%). Non Malaysians had significantly higher injury prevalence (7.2%) than Malaysians (4.6%). By occupation, the highest prevalence of injury was among plant and machine operators and assemblers (8.6%), followed by elementary occupations (6.8%) and craft and related trade workers (6.7%). More than 75.0% of the injuries sustained at the workplace were injuries classified as others (30.0%), superficial injuries (25.9%), sprain (10.9%) and multiple injuries (10.6%). Majority of the injuries at the workplace (76.0%) were attributed to these common causes; injuries while handling, lifting or carrying (36.2%), fall or slip on the same level (16.6%), struck against object (13.3%), and other causes (10.5%). 7.9% needed hospital admission for at least one night. 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

Recreational Injury	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Recreational Injury	-	-	1.7	1.6 - 1.9
<ul style="list-style-type: none"> Higher among males (2.9%) as compared to females (0.7%). Prevalence rate increased with age until those age 15 to 24 years (highest) after which the prevalence declined with age. Nearly 90.0% of injuries at recreational areas occurred in these three locations: playground (61.7%), sports facilities (16.9%) and recreational parks (10.6%). The commonest cause of injuries was due to falls (91.3%). 21.0% of the injuries affected their ability to go to school, work or play. 5.8% needed hospital admission for at least one night. 				
Injury at School	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Injury at School	-	-	7.0	6.5 - 7.6
<ul style="list-style-type: none"> Prevalence was significantly higher among those residing in urban areas (7.7%) compared to rural areas (5.9%). Males (8%) had significantly higher prevalence of injuries at schools compared to females (5.8%). By age group, those aged 15 to 17 years old (8.5%) had significantly higher injury prevalence compared to those aged 7 to 14 years (6.6%). Nearly 80.0% of injuries at schools were due to accidents/unintentional (79.8%) and 16.2% were due to injuries caused by others. 				
First Aid Training	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Exposure to First Aid	-	-	25.6	24.9 - 26.3
<ul style="list-style-type: none"> Exposure was significantly higher among those living in urban areas (28.6%), males (29.9%), Malaysians (26.6%), Malays (30.5%) and those with tertiary education (57.0%). Exposure to first aid increased significantly with level of education, was higher among younger age groups and those with higher personal and household income. 				
Cardiopulmonary Resuscitation (CPR)	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Exposure to CPR education	-	-	19.0	18.4 - 19.7
<ul style="list-style-type: none"> Exposure was significantly higher among those living in urban areas (21.4%) compared to rural residents (14.7%) and also among males (23.1%) as compared to females (15.7%). The proportion of exposure to CPR education was also significantly highest among Malays (23.5%) compared to all other ethnicities, Malaysians (19.9%) compared to non-Malaysians (4.7%) and those with tertiary education (47.6%). 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

<ul style="list-style-type: none"> Exposure to CPR increased significantly with level of education and decreased significantly with age with the highest proportion of exposure among those aged 18 to 24 years old (29.3%) and lowest among those aged 65 years old and more (3.5%). 				
Occupational Safety and Health (OSH) Training	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
OSH Training (among working pop)	-	-	33.6	32.6 - 34.6
<ul style="list-style-type: none"> The proportion was significantly higher among those residing in urban areas (37.3%), males (35.5%) and those with tertiary education (42.2%). 				
Personnel Protective Equipment (PPE)				
<ul style="list-style-type: none"> The overall proportion of workers who were provided with PPE amongst those who required it was 38.9%. The proportion that was provided with PPE was significantly higher among those living in the urban areas (41.0%), males (44.6%), non-Malaysians (45.7%), those with secondary education (45.3%) and craft and related trade workers (60.7%). The use of PPE all the time amongst those provided with it was 85.1%. 				
Helmet Usage	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Correct helmet usage	-	-	56.5	55.5 - 57.5
<ul style="list-style-type: none"> Higher among males (62.7%), Malaysians (57.6%), those with secondary education (61.1%), those living in rural areas (57.5%) and Indians (62.4%). 				
Seat belt usage	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Use seat beat all the time	-	-	71.3	70.5 - 72.1
<ul style="list-style-type: none"> Seatbelt usage was significantly higher among those living in the urban areas (74.7%), Malaysians (72.6%), males (72.9%), Chinese (79.2%), those with tertiary education (83.1%) and married individuals (74.7%). 				
10. Physical Disability	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Overall physical disability	-	-	0.6	0.6 - 0.7
<ul style="list-style-type: none"> Proportion of males (0.8%) with disability was more than females (0.5%). Distribution of types of disabilities were as followed: head, face and neck only (19.1 percent), one upper limb only (12.3 %), one lower limb only (18.8%), both lower limbs only (13.5%), one upper and one lower limb only (16.2%), all four limbs (7.9%) and other combinations (12.2%). Majority (59 percent) were due to acquired causes. With regards to registration with Department of Social Welfare, only 32.4 percent were registered, mainly comprising of children. Majority (59.1%) did not attend any rehabilitation programmes. 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

11. Physical Activity	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Overall physical inactivity	-	-	43.7	42.9 - 44.5
<ul style="list-style-type: none"> • 35.3% males were inactive compared to 50.5% females. • 45.6% urban adults were not active physically compared to 40.1% rural adults. • Chinese was highest for inactivity (47.1%), followed by Indians (44.5%), others bumi (44.1%) and Malays (42.4%). • The physical inactivity increased by age. • The highest prevalence of inactivity were in unemployed group (60.8%), followed by housewives (54.4%). The least inactive was skilled agricultural and fishery (25.3%) and elementary occupations (27.0%). • Selangor had the highest population prevalence of physical inactivity (52.1%), followed by Kuala Lumpur (51.8%) and least were Pahang (31.4%) and Terengganu (32.3%). • By domains of physical inactivity, the prevalence of physical inactivity for working, traveling and leisure time were 72.6%, 72.1% and 85.7% respectively. 				
12. Women's Health				
a) Breast examination	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Any method (≥ 18 yrs)	-	-	70.4	69.5 - 71.1
Any method (≥ 20 yrs)	46.9	45.8 - 48.0	71.2	70.4 - 72.0
Clinical Breast Examination (CBE)				
(≥ 18 yrs)	-	-	51.8	50.9 - 52.6
Clinical Breast Examination (≥ 20 yrs)	31.1	30.0 - 32.1	53.5	52.6 - 54.4
Mammogram (≥ 18 yrs)	-	-	7.57	7.1 - 8.1
Mammogram (≥ 20 yrs)	3.7	3.2 - 4.1	7.86	7.36 - 8.36
Breast-self Examination (BSE)				
(≥ 18 yrs)	-	-	57.1	56.2 - 58.0
Breast-self Examination (≥ 20 yrs)	34.2	33.2 - 35.3	57.6	56.7 - 58.5
<ul style="list-style-type: none"> • Selangor reported the highest prevalence of women who had breast examination (75.1%), while the least was Sabah (59.9%). • There was a higher prevalence of breast examination by all methods among respondents living in the urban area, as compared to respondents living in the rural areas. • Among the various ethnic groups, Malay women reported the highest rate of breast examination by any method (74.4%). This was largely contributed by BSE. The prevalence for CBE and mammogram examination however was highest among Indians and Chinese. • 56.9% obtained information regarding BSE from medical personnel. • 78.6% did BSE at least once a month. 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

b) Pap smear	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Pap smear examination (≥ 18 yrs)	-	-	43.7	42.9 - 44.6
Pap smear examination (≥ 20 yrs)	26.0	25.1 - 26.9	45.7	44.8 - 46.6

- Perlis had the highest prevalence of women who undergone pap smear examination (57.7%) whilst Sabah had the least (35.3%).
- The overall prevalence of pap smear examination among women living in rural area (45.0%) was slightly higher than those in urban areas (43.1%).
- The highest prevalence of pap smear was among Chinese women (50.5%) followed by other Bumis (45.5%), Malays (43.6%), Indians (37.2%) and 'others' (24.7%).
- Majority of women had pap smear examination in government facilities (68.8%) as compared to private facilities (30.3%).
- 42.8% of women who had pap smear done were because of self awareness.
- Among those who married and did not have pap smear done, 21.0% gave reasons of; no further information on pap smear, 15.2% fear to pained, 16.8% busy.
- Among women who had undergone pap smear, 59.8% had this examination done within the last 3 years.

13. Oral Health

- Majority of Malaysians (94.0%) owned their toothbrushes, ownership being lowest for the youngest (0-4) and the oldest (75+) population (about 70.0%).
- Very few (≥ 18 years only) read food labels for sugar (10.8%), proportions decreasing with age.
- About 10.0% had pain of teeth/mouth in the past 4 weeks. Chewing was most affected (52.4%), then sleep (25.1%). Impact included on appearance, speech, work, doing daily chores, socializing and studies (7-14%).
- More than half had ≥ 2 impacts, averaging 3 days. Overall, 22.9% reported dental episodes (DE) in the last year, with a mean of 1.35 DE.
- Care was sought/medicine purchased for 71.3% of DE. Majority (53.6%) sought care at public facilities (including 23.8% under the School Dental Service); 39.7% at private facilities, 5.2% self-care, 0.3% traditional treatment and others 1.2%.
- More than 53.2% DE was pain-related.
- Only 19.5% made a dental visit in the last year, 20.3% visited >1-2 years ago, (7.5% in school).
- More than 31.9% did not visit in the last 2 years and 28.3% had never made a dental visit.
- The five most common reasons for not making a dental visit in the last 2 years were 'no problems (80.0%)', 'no teeth/false teeth (8.8%)', 'dental problems not serious enough (6.5%)', 'too busy (1.1%)' and 'fear of dentists (1.0%)'.
- Mean out-of-pocket (OOP) expenditure per individual who sought care in the last year was RM51.04; RM66.63 for ≥ 18 years.
- The highest OOP dental expenditure was in urban populations, among the Chinese, among females and the middle aged adults and toddler group.
- Mean OOP dental expenditure was 4 times more in private facilities (RM87.69) than in public (RM23.68). Third party payments for dental care is rare, only three individuals cited it.
- More than 60.0% of those ≥ 18 years were willing to pay RM30-50 for dental treatment; a smaller proportion (about 51.8%) were willing to pay RM10-20 for a dental check-up.

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

14. Infant Feeding	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Ever breast fed	88.6	87.2 - 90.1	95.0	93.8 - 96.0
Exclusive breast feeding	29.0	26.7 - 31.3	19.3	15.5 - 23.7
Predominant breast feeding	10.0	8.4 - 11.6	19.7	15.6 - 24.7
Complementary breast feeding	46.9	44.4 - 49.5	46.7	41.2 - 52.2
15. Dengue Prevention Practices				
a) Knowledge on dengue transmission				
<ul style="list-style-type: none"> 81.5% knowledgeable, 0.8% answered wrongly, 17.6% did not know. Population in Sabah & Sarawak were less knowledgeable compared to other states. Urban respondents (83.5%) had higher knowledge than rural respondents (77.9%). Among ethnic groups, Malays showed higher percentage (88.1%) of knowing the transmission on dengue. Malaysians, non-married & higher socio-economic status had better knowledge. 88.6% knew Aedes mosquito transmits dengue. 78.7% could identify at least one indoor breeding site. 88.2% could identify at least one outdoor breeding site. 70.4% knew that a fine can be imposed on them if mosquito larva found in their premises. 				
b) Attitude towards fogging & other control activities				
<ul style="list-style-type: none"> 95.6% would allow health authority to inspect their houses for mosquito larvae while 4.0% refused. 95.4% agreed health authority doing the larviciding inside their premises. 92.5% allowed fogging to be done in their houses. Malacca & Federal Territory KL had the lowest percentage of respondents who would allow fogging to be done in their houses. Chinese showed the lowest percentage of respondents who allow fogging in the house (84.6%). Muslims (95.1%) had the highest percentage who allowed fogging to be done. The highest income group (RM 5000 and above) and Senior Official & Manager group showed the highest percentage of NOT allowing fogging in their houses. (10.3%). 				
c) Attitude towards community participation				
<ul style="list-style-type: none"> 42.1% claimed there were no community cleanup projects in their area. 13.9% participated in community cleanup projects in their area every time, 13.8% sometimes and 9.0% seldom. 21.4% said never involved in such activity. FTKL (54.6%) were the least involved in organizing community clean-up project followed by Kedah (52.0%). 				
d) Dengue prevention practices				
<ul style="list-style-type: none"> 47.7% chose aerosol spray as preventive methods followed by mosquito coil (22.1%). Urban Community reported higher preventive practices higher than rural community. Younger age group reported higher preventive practices than older age group (>40 years). Tertiary education reported higher preventive practices than no formal education group. Higher income group showed better preventive practices compared to the lower income group. 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

16. Health Information
a) General Health information
<ul style="list-style-type: none"> 45.9% of respondents received health information. The most popular types of health information were on hypertension (12.3%), diabetes (10.7%), cancer (9.5%), healthy eating (8.0%) and dengue (7.3%). The most popular channels of receiving this information were television (41.4%), newspapers (17.9%), radio (12.8%), magazines (3.9%) and pamphlets (2.7%). A total of 60.2% of respondents said that the health information that they obtained always convinced them to take action, while 35.4% sometime convinced them to take action. 4.4% of respondents who received health information had no any effect on them.
b) Nutritional labelling
<ul style="list-style-type: none"> The percentage of respondents who stated that they always read nutrition label was 54.5%, sometimes read nutrition label 23.7% and never read nutrition label was 19.3%. The educational status of respondents who read the nutrition label more were in the following order; tertiary (74.5%), secondary (65.0%), and primary (46.9%). Professional, technical and associate, and senior managerial position showed highest percentages for always reading nutrition label always with prevalence 73.6%, 73.2% and 70.5% respectively.
c) Medication labelling
<ul style="list-style-type: none"> The percentage of respondents who always or sometimes read medication label whenever they received or buy medicine were 61.1% and 19.0% respectively. Only 16.0% did not read at all the medication label. The information that respondents found most important to read were dosage of medication (21.4%), followed by direction use (19.6%) and dosage frequency (18.4%). 64.1% respondents claimed to have always understood the label on the medication while 32.8% sometimes understood the label. Although most respondents could always or sometimes understand the medication label, a high percentage (60.0%) sought for clarification about the medicine.
d) Organ donation
<ul style="list-style-type: none"> Overall 15.6% received information on organ donation less than 3 months before this study being conducted. In general, 54.0% had received information on organ donation within a period of more than three months. Only 1.5% respondents agreed to pledge as organ donors. When asked for the reasons not to pledge, majority of the respondents gave the reasons as scared (39.3%), followed by uncertainty due to religion (10.9%), against religious practice (10.5%), suffering of the corpse (6.3%), and objection from family (2.9%) and did not know where to register (2.6%). 20.5% of the respondents agreed that the organ donation information could influence to pledge organ.
e) Home based card
<ul style="list-style-type: none"> 97.0% of respondents received child health home based card. Most of the respondents obtained the card from government hospitals/clinics (88.1%) and 11.8% obtained it from private hospitals/clinics. Only 23.5% respondents agreed to pay for the card.

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

<ul style="list-style-type: none"> A total of 54.2% agreed to pay if the price of the card was less than RM5. More than fifteen percent (15.9%) agreed to pay if the price of the card was in the range of RM5-RM10. If the price was within RM10-RM20, 4.2% was willing to pay and only 2.3% was willing to pay if the price was RM20 and above. 				
17. Health Utilization				
a) Health seeking behaviour for recent illness	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Seeking treatment for recent illness (<14 days)	42.5	41.4 - 43.6	58.1	57.1 - 59.1
<ul style="list-style-type: none"> High among young age group 0 - 4 years (75.9%) and age group 5 - 9 years (69.2%). Higher among females (59.3%). Highest among Indians (67.7%). Low among secondary education (51.2%) and not married (42.9%). 72.9% seek treatment within 24 hours of illness. Mean distance to seek care was 5.7km (median : 3 km). Longer mean distance in Sabah, Sarawak, Pahang and rural area. Mean travelling time was 14.4 minutes (Highest in Sarawak : 29.90 min). 83.5% used own transport. 85.3% seek ambulatory services (with 62.1% of them used private facilities). Among those not seeking care, 66.2% perceived the illness was mild, 24.7% able to self-medicate. 13.5% bypassed nearest clinic (NHMS II : 56.6). Among those who bypassed, 59.8% due to poor quality of care, 34.3% due to inaccessibility. 				
b) Hospitalization	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Hospitalization	7.2	7.0 - 7.5	5.0	4.8 - 5.2
<ul style="list-style-type: none"> Highest prevalence among those 60 years & above. Highest among Indians (7.1%), widowers (7.5%), lower education (6.4%). Lower prevalence in Sabah (3.5%) & Labuan (3.7%), Sarawak (3.6%). 82.6% admitted to public hospitals. 				
c) Ambulance services	NHMS II		NHMS III	
	Prevalence %	95% CI	Prevalence %	95% CI
Used of ambulance services	-	-	2.5	2.3 - 2.8
<ul style="list-style-type: none"> Urban 2.0% vs rural area 2.9%. 90.8% reported using MOH's ambulance. 4.1% ambulance provided by private sector. 1.2% used Red Crescent's ambulance service. 11.4% of those who used the ambulance service encountered problems (out of this; 53.5% due to late arrival, 12.9% unfriendly services). 				

Table 11.1: Summary of estimated national prevalence of health problems/diseases included in NHMS III (continue)

18. Health Expenditure	NHMS II	NHMS III
	Amount (Billion)	Amount (Billion)
Overall Out-of-pocket (OOP) expenditure excluding dental (≥ 18 yrs)	-	RM 3.76 Billion
Overall Out-of-pocket (OOP) expenditure (all ages)	RM 3.82 Billion	-
Per capita amount of Overall OOP excluding dental	RM 180 Million	RM 179 Million
OOP expenditure for health promotion(≥ 18 yrs)	-	RM 2.97 Billion
OOP expenditure for ambulatory care(≥ 18 yrs)	-	RM 0.54 Billion
OOP expenditure for hospitalization (≥ 18 yrs)	-	RM 0.17 Billion
OOP expenditure for training on health(≥ 18 yrs)	-	RM 0.04 Billion
OOP expenditure for self-care (≥ 18 yrs)	-	RM 0.03 Billion
Insurance Premium (≥ 18 yrs)	-	RM 2.996 Billion
<ul style="list-style-type: none"> • Per capita amount of overall OOP was RM 141.00. • 93.0% of OOP for health promotion was spent at private facilities. • 70.0% of OOP for ambulatory care was spent at private facilities. • 62.0% of OOP for hospitalization was spent at private facilities. • 51.0% of OOP for training on health was spent at private facilities. 		

GLOSSARY OF TERMS

Enumeration block (EB)

An artificially created contiguous geographical area with specific boundaries (either natural or artificial), which do not straddle administrative boundaries. An EB, on the average covers about 100-120 household surveys.

Eligible respondents

Household members whom for the past 4 weeks or at least 20 days, have been staying at the living quarter visited.

Head of household

Any adult who are monitors and manages his or her household.

Household

A single or a group of people who living together in one living quarter, sharing the basic necessities of life. This includes eating from the same cooking pot. The people are considered as part of the household if they have been staying there for the past 4 weeks, at least 20 days.

Living Quarters (LQ)

A structure permanent or temporary, separated and independent for the purpose of living. One LQ is estimated to comprise of 4.4 individuals.

Non respondents

Household members who fulfill one of these criteria's;

- a) Household members whom after 3 visits, have been absent from his / her living quarter.
- b) Household members who answered only the socio-demography module but did not responded to other modules.

Proxy interview

If a child is less than 13 years old, his parents (either mother or father), will answer the questionnaire on his / her behalf. This is referred as proxy interview.

State:

A geographical area with defined borders gazetted to be under one administration.

Urban / Rural location

An area classified according to population within the gazette area. In this survey, metropolitan and large urban are combined and referred to as "urban" stratum while small urban and all categories of rural are combined as "rural" stratum.

Schooling / employment status

Schooling or employment status has been categorized as below:

- a) **Completed primary school**
Individuals who have complete primary school.
- b) **Did not complete primary school**
Individuals who have received primary school education but did not completed until Standard 6.
- c) **Has not completed primary school**
Individuals who are still receiving primary school education at the time of interview
- d) **Not schooling**
Individuals who are never attended formal schooling.

OCCUPATION

(Malaysia Standard Classification of Occupations 1998, Manpower Department, Ministry of Human Resources Malaysia)

Major Group 1: Legislators, Senior Officials and Managers

*Legislators, senior officials and managers:-
(Skill Level Not Available)*

- a) Determine, formulate, direct or advise on government policies, as well as those of special-interest organizations.
- b) Formulating laws, public rules and regulations, policies and legislation as well as oversee their implementation.
- c) Representing and acting on behalf of the Government,
- d) Plan, direct and co-ordinate the policies and activities of enterprises or organizations or their internal departments or sections.

Major Group 2: Professionals

(Fourth Skill Level)

Professional's duties are:

- a) Increase the existing stock of knowledge,
- b) Apply scientific or artistic concepts and theories,
- c) Teach about the foregoing in a systematic manner, or engage in any combination of these three activities.

Major Group 3: Technicians and Associate Professionals

(Third Skill Level)

Technician and associate professionals:

- a) Perform technical and related tasks connected with research,
- b) Apply scientific or artistic concept and operational methods and government or business regulations, and
- c) Teach at certain education levels.

Major Group 4: Clerical Workers

(Second Skill Level)

Clerical workers:

- a) Record, organize, store and retrieve information related to the work in question,
- b) Compute financial, statistical and other numerical data,
- c) Perform a number of client-oriented clerical duties especially in connection with money-handling operations, travel arrangements and business information and appointments.

Major Group 5: Service Workers and Shop and Market Sales Workers

(Second Skill Level)

Service workers and shop and market sales workers provide:-

- a) Personal and protective services related to travel, housekeeping, catering and personal care,
- b) Protection against fire and unlawful acts,
- c) They pose models for artistic creation and display, or demonstrate and sell goods in whole sale or retail shop and similar establishments as well as at stalls and markets.

Major Group 6: Skilled Agricultural and Fishery Workers

(Second Skill Level)

Skilled agricultural and fishery workers:

- a) Grow and harvest field or tree and shrub crops,
- b) Gather wild fruit, herb and vegetable,
- c) Breed, tend and hunt animals,
- d) Produce a variety of animal husbandry products,
- e) Cultivate, conserve and exploit forests,
- f) Breed or catch fish and cultivate or gather other forms of aquatic life for sale or delivery on a regular basis to wholesalers, marketing organizations or at markets.

Major Group 7: Craft and Related Trade Workers

(Second Skill Level)

Craft and related trade workers apply their specific knowledge and skills:

- a) In the fields of mining and construction, form metal and erect metal structures,
- b) Make, fit, maintain and repair machinery, equipment or tools,
- c) Carry out printing work
- d) Produce or process foodstuffs, textiles, or wooden, metal and other articles.

The work is carried out by hand and by hand-powered and other tools which are used to reduce the amount of physical effort and time required for specific tasks, as well as to improve the quality of the products. The tasks calls for an understanding of all stages of the production process, the materials and tools used, and the nature and purposed of the final product.

Major Group 8: Plant and Machine-Operators and Assemblers

(Second Skill Level)

Plant and machine-operators and assemblers:

- a) Operate and monitor industrial and agricultural machinery and equipment,
- b) Drive and operate trains, motor vehicles and mobile machinery and equipment, or assemble products from component part according to strict specifications and procedures.

The work mainly calls for experience with and an understanding of industrial and agricultural machinery and equipment as well as ability to cope with machine-paced operations and to adapt to technological innovations.

Major Group 9: Elementary Occupations

(First Skill Level)

Elementary occupations perform simple and routine tasks which mainly require the use of hand-held tools and in some cases considerable physical effort.

Major Groups 10: Armed Forces

(Skill Level Not Available)

Members of the armed forces are personnel who are currently serving in the armed forces and are not free to accept civilian employment. They include regular members of the army, navy, air force and other military services. Those who are excluded are persons in civilian employment or government bodies concerned with defense issues such as police (other than military police); custom inspectors, members of borders or other armed civilian services and members or military reserves which are currently inactive.

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APPENDIX

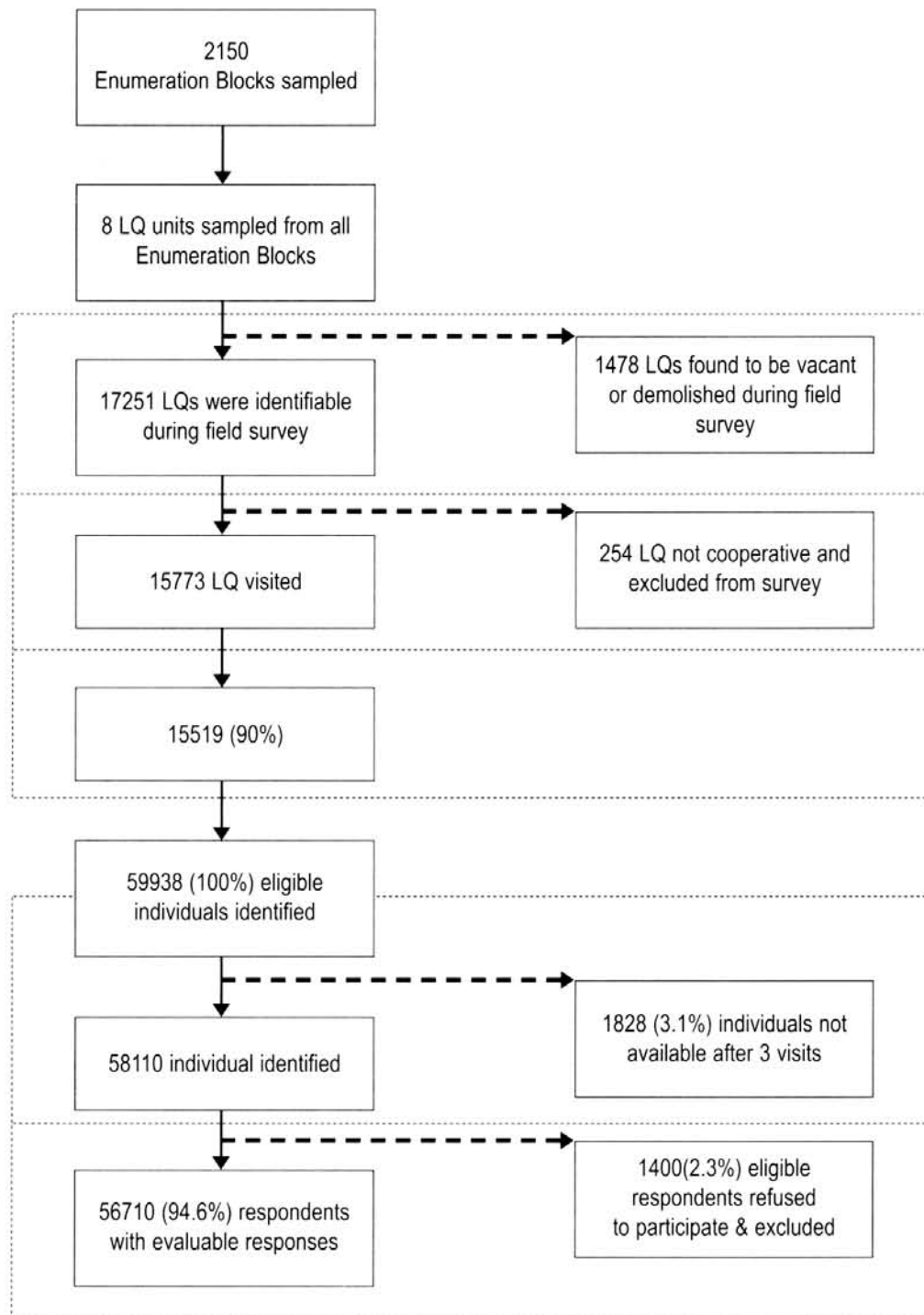


APPENDIX

- Appendix 1:** Figure 1 - NHMS III survey profile
- Appendix 2:** Table 1 - Number of EB and LQ selected in NMHS III and reasons for unable to interview
Table 2 - Response rates of LQs by states
- Appendix 3:** Table 3 - Reasons of unable to interview LQ shown by highest percentage state
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Appendix 1

Figure 1: NHMS III survey profile



Appendix 2

Table 1: Number of EB and LQ selected in NMHS III and reasons for unable to interview

	Number (%)
Total EBs	2,150
Total LQs	17,251
Successful LQs (RR)	15,519 (90%)
Refused LQs	254 (1.5%)
Unable to interviewed LQs:	1,478 (8.6%)
a. Locked	308 (1.8%)
b. Empty	589 (3.4%)
c. Demolished	226 (1.3%)
d. Unable to locate	103 (0.6%)
e. Not LQs	138 (0.8%)
f. Dangerous LQs	6 (<0.1%)
g. Language problem	6 (<0.1%)
h. Others	80 (0.5%)

Table 2: Response rates of LQs by states

State	Selected LQ	LQ (Successful)	LQ (Refusals)	LQ (Unable to interview)
Perlis	152	136 (89.5%)	5 (3.3%)	11 (7.2%)
Kedah	1224	1141 (93.2%)	14 (1.1%)	69 (5.6%)
P.Pinang	968	934 (96.5%)	10 (1.0%)	24 (2.5%)
N.Sembilan	640	613 (95.8%)	1 (0.2%)	26 (4.1%)
Melaka	464	417 (89.9%)	13 (2.8%)	34 (7.3%)
Johor	2024	1818 (89.8%)	34 (1.7%)	172 (8.5%)
Pahang	952	807 (84.8%)	10 (1.1%)	135 (14.2%)
Terengganu	664	566 (85.2%)	8 (1.2%)	90 (13.6%)
Kelantan	968	863 (89.2%)	5 (0.5%)	100 (10.3%)
Perak	1512	1305 (86.3%)	43 (2.8%)	164 (10.8%)
W.P.K.L	1024	901 (88.0%)	22 (2.1%)	101 (9.9%)
Selangor	3096	2814 (91.0%)	45 (1.5%)	197 (6.3%)
Sabah	1984	1855 (93.5%)	2 (0.1%)	111 (6.0%)
Sarawak	1528	1250 (81.8%)	42 (2.7%)	236 (15.4%)
Total	17251	15519 (89.7%)	254 (1.5%)	1478 (8.6%)

Appendix 3

Table 3: Reasons of unable to interview LQ shown by (highest percentage) state

Reasons Unable to interviewed	State	N+1478
Locked	Kelantan	4.5%
Empty	Pahang	7.9%
	Sarawak:	7.3%
Demolished	Sabah	3.2%
Unable to locate	Federal Territory	2.1%
Not a LQs	Sarawak	1.8%
Dangerous LQs	Kedah	0.5%
	Johor	0.1%
Language problem	Johor	0.1%
	Terengganu	
	Sarawak	

Table 4: Distributions of the number of respondents by state

State	Number	%
Johor	6,278	11.1
Kedah	4,232	7.5
Kelantan	3,804	6.7
Melaka	1,389	2.4
N.Sembilan	2,072	3.7
Pahang	2,969	5.2
Pulau Pinang	3,067	5.4
Perak	4,257	7.5
Perlis	517	0.9
Selangor	9,487	16.7
Terengganu	2,537	4.5
Sabah	7,259	12.8
Sarawak	4,966	8.8
W.P Kuala Lumpur	2,962	5.2
W.P Labuan	914	1.6
Total	56,710	100.0

Appendix 4

Table 5: Distribution of respondents by race, age group and gender

			Race				
			Malay	Chinese	Indians	Other Bumis	Others
Gender	Male	0-9	4,001	919	445	934	226
		10-19	3,341	917	386	742	150
		20-29	1,927	486	273	389	294
		30-39	1,650	571	256	418	222
		40-49	1,775	708	280	353	136
		50-59	1,452	653	214	216	58
		60-69	797	420	82	157	33
		70+	397	244	51	102	12
		Unclassified	10	3	2	0	7
		Total	15,350	4,921	1,989	3,311	1,138
	Female	0-9	3,733	826	428	966	234
		10-19	3,442	830	431	720	173
		20-29	2,359	610	362	597	325
		30-39	2,186	718	355	532	322
		40-49	2,332	862	370	454	152
		50-59	1,666	738	295	242	64
		60-69	882	450	116	159	29
		70+	535	295	68	109	16
		Unclassified	8	1	1	3	5
		Total	17,143	5,330	2,426	3,782	1,320
Total		56,710	32,493	10,251	4,415	7,093	2,458

Appendix 5

Table 6: Mean household monthly income by socio-demographic characteristics

Socio-Demographic Characteristics	Mean (RM)	[95% CI]	
		LL	UL
Household Income	1877	1818	1936
Residence			
Urban	2250	2163	2337
Rural	1140	1097	1183
Gender			
Male	2012	1942	2081
Female	1602	1526	1678
Race			
Malays	1713	1650	1776
Chinese	2588	2428	2748
Indian	2150	1985	2314
Others Bumis	1205	1102	1307
Others	1299	1147	1450
State			
Johor	1855	1751	1958
Kedah	1367	1248	1487
Kelantan	1128	1018	1238
Melaka	1989	1743	2234
N.Sembilan	1866	1666	2067
Pahang	1431	1282	1580
Penang	2119	1935	2303
Perak	1466	1368	1564
Perlis	1154	964	1344
Selangor	2544	2362	2725
Terengganu	1340	1167	1513
Sabah	1356	1108	1605
Sarawak	1759	1533	1985
WPKL	2972	2563	3381
WP Labuan	2143	1717	2570
Citizenship			
Malaysian	1914	1853	1975
Non-Malaysian	1193	1031	1356
Unclassified	2295	991	3600
Education			
None	810	752	868
Primary	1234	1188	1281

Table 6: Mean household monthly income by socio-demographic characteristics (continue)

Socio-Demographic Characteristics	Mean (RM)	[95% CI]	
		LL	UL
Secondary	1955	1899	2011
Tertiary	4320	4001	4640
Unclassified	2423	973	3872
Unclassified	1942	1432	2452
Marital status			
Not Married	1550	1451	1648
Married	2018	1949	2087
Divorcee	1262	1124	1401
Widow/Widower	1064	974	1154
Not Applicable	2204	914	3493
Unclassified	1894	1303	2485
Occupation			
Senior Official & Manager	5325	4735	5916
Professionals	3804	3534	4074
Technical & Associate	2250	2156	2344
Clerical Workers	1903	1772	2033
Service Workers & Shop	1962	1843	2081
Skilled Agricultural & Fishery	885	834	935
Craft & Related Trade Workers	1357	1276	1438
Plant & Machine Operator	1638	1562	1715
Elementary Occupations	1088	1005	1170
Housewife	1444	1363	1525
Unemployed	1069	960	1179
Unclassified	1600	1384	1817

Appendix 6

Table 7: Mean cost in willingness to pay for health by socio-demographic characteristics of the household

Willing to pay for health	Mean Cost (RM)	[95% Confident Interval]	
		LL	UL
Household	119	115	123
State			
Johor	110	102	117
Kedah	107	95	120
Kelantan	79	69	90
Melaka	130	106	154
N.Sembilan	105	89	121
Pahang	109	91	127
Pulau Pinang	146	130	162
Perak	86	78	93
Perlis	77	58	96
Selangor	168	154	182
Terengganu	93	79	107
Sabah	90	82	97
Sarawak	93	79	108
WP KL	145	127	164
WP Labuan	133	109	158
Residence			
urban	136	130	142
rural	84	80	89
Gender			
Male	124	119	129
Female	108	102	114
Race			
Malay	112	107	116
Chinese	155	144	166
Indian	132	119	145
Other Bumis	77	71	84
Other	90	71	109
Religion			
Islam	108	104	113
Christian	121	108	134
Buddha	152	141	163
Hindu	128	113	144
Others	96	66	126
Unclassified	85	43	128

Table 7: Mean cost in willingness to pay for health by socio-demographic characteristics of the household (continue)

Willing to pay for health	Mean Cost (RM)	[95% Confident Interval]	
		LL	UL
Citizenship			
Malaysian	121	117	125
Non-Malaysian	82	65	99
Unclassified	168	11	326
Educational Level			
None	58	53	64
Primary	90	85	95
Secondary	125	120	130
Tertiary	213	196	231
Not applicable	173	108	238
Marital status			
Not Married	92	84	101
Married	127	122	132
Divorcee	90	76	104
Widow/Widower	79	70	88
Not Applicable	156	81	230
Unclassified	131	70	191
Income			
Less Than RM400	31	29	33
RM400 - RM699	53	50	56
RM700 - RM999	70	65	74
RM1000 - RM1999	98	94	102
RM2000 - RM2999	144	137	152
RM3000 - RM3999	187	172	202
RM4000 - RM4999	216	196	235
RM5000 & Above	353	324	382
Unclassified	97	70	124
Occupation			
Senior Official & Manager	270	230	310
Professionals	199	182	216
Technical & Associate	143	133	153
Clerical Workers	125	113	137
Service Workers & Shop	120	113	127
Skilled Agricultural & Fishery	68	63	74
Craft & Related Trade Workers	85	75	96
Plant & Machine Operator	107	97	117
Elementary Occupations	80	71	89
Housewife	103	95	111
Unemployed	92	79	105
Unclassified	91	72	109

Appendix 7

Table 8: Mean cost willingness to pay for visit to private clinic for outpatient care by socio-demographic characteristics

Willing to pay for visit Private Clinics	Mean Cost (RM)	95% Confident Interval	
		LL	UL
Household	75	72	78
State			
Johor	72	64	81
Kedah	70	59	81
Kelantan	48	41	55
Melaka	52	39	65
N.Sembilan	47	37	56
Pahang	63	53	73
Pulau Pinang	102	89	115
Perak	59	52	65
Perlis	53	39	67
Selangor	108	98	118
Terengganu	62	51	74
Sabah	63	57	68
Sarawak	82	65	98
WP KL	54	41	66
WP Labuan	96	72	119
Residence			
urban	85	81	90
rural	54	51	58
Gender			
Male	78	74	82
Female	69	64	74
Race			
Malay	70	66	73
Chinese	93	85	102
Indian	85	76	95
Other Bumis	63	54	72
Other	58	43	72
Religion			
Islam	69	65	72
Christian	85	73	96
Buddha	92	84	101
Hindu	78	69	86
Others	67	43	92
Unclassified	48	19	78

Table 8: Mean cost willingness to pay for visit to private clinic for outpatient care by socio-demographic characteristics (continue)

Willing to pay for visit Private Clinics	Mean Cost (RM)	95% Confident Interval	
		LL	UL
Citizenship			
Malaysian	77	73	80
Non-Malaysian	47	36	59
Unclassified	123	-25	272
Educational Level			
None	41	37	45
Primary	56	52	60
Secondary	80	76	84
Tertiary	131	117	144
Not applicable	106	47	164
Marital status			
Not Married	58	52	65
Married	80	76	84
Divorcee	58	48	68
Widow/Widower	53	46	59
Not Applicable	63	34	92
Unclassified	93	38	148
Income			
Less Than RM400	25	21	28
RM400 - RM699	34	32	36
RM700 - RM999	45	42	48
RM1000 - RM1999	61	58	63
RM2000 - RM2999	89	83	94
RM3000 - RM3999	117	106	128
RM4000 - RM4999	138	122	154
RM5000 & Above	224	196	252
Unclassified	59	41	78
Occupation			
Senior Official & Manager	151	131	172
Professionals	134	118	150
Technical & Associate	91	84	99
Clerical Workers	82	71	93
Service Workers & Shop	72	67	77
Skilled Agricultural & Fishery	42	38	45
Craft & Related Trade Workers	54	48	61
Plant & Machine Operator	66	59	72
Elementary Occupations	55	48	62
Housewife	68	61	76
Unemployed	59	49	69
Unclassified	58	44	71

Appendix 8

Table 9: Characteristics of non-response study population (N=1400)

Gender	Number	%
Male	729	52.1
Female	659	47.1
Total	1,388	99.1
Unclassified	12	0.9
Total	1,400	100.0

Age group	Number	%
0-4	153	10.9
5-9	108	7.7
10-14	138	9.9
15-19	113	8.1
20-24	97	6.9
25-29	89	6.4
30-34	93	6.6
35-39	105	7.5
40-44	120	8.6
45-49	101	7.2
50-54	75	5.4
55-59	54	3.9
60-64	46	3.3
65-69	37	2.6
70-74	22	1.6
75-79	26	1.9
80 and above	23	1.6
Total	1,400	100.0

Race	Number	%
Malay	720	51.4
Chinese	234	16.7
Indian	79	5.6
Other Bumis	261	18.6
Others	106	7.6
Total	1,400	100.0

Religion	Number	%
Islam	880	62.9
Christian	126	9.0
Buddha	189	13.5
Hindu	67	4.8
Others	138	9.9
Total	1,400	100.0

Marital Status	Number	%
Not Married	287	20.5
Married	551	39.4

Table 9: Characteristics of non-response study population (N=1400) (continue)

Divorcee	23	1.6
Widow/Widower	49	3.5
Others	490	35.0
Total	1,400	100.0
Citizenship	Number	%
Malaysian	1,202	85.9
Non Malaysian	62	4.4
Unclassified	136	9.7
Total	1,400	100.0
Education	Number	%
No education	19	1.4
Primary	202	14.4
Secondary	51	3.6
Tertiary	1,022	73.0
Not applicable	106	7.6
Total	1,400	100.0
State	Number	%
Johor	139	9.9
Kedah	100	7.1
Kelantan	96	6.9
Melaka	46	3.3
N.Sembilan	61	4.4
Pahang	38	2.7
Pulau Pinang	35	2.5
Perak	79	5.6
Perlis	3	0.2
Selangor	270	19.3
Terengganu	48	3.4
Sabah	286	20.4
Sarawak	131	9.4
W.P Kuala Lumpur	44	3.1
W.P Labuan	24	1.7
Total	1,400	100.0
Residence	Number	%
Urban	652	46.6
Rural	748	53.4
Total	1,400	100.0
Income	Number	%
Less than RM 400	68	4.9
RM 400 - RM 699	47	3.4
RM 700 - RM 999	43	3.1
RM 1000 - RM 1999	96	6.9
RM 2000 - RM 2999	32	2.3
RM 3000 - RM 3999	18	1.3
RM 4000 - RM 4999	6	0.4

Table 9: Characteristics of non-response study population (N=1400) (continue)

RM 5000 & above	9	0.6
Unclassified	372	26.6
Not Applicable	709	50.6
Total	1,400	100.0

Occupation	Number	%
Senior Official & Manager	8	0.6
Professionals	33	2.4
Technical & Associate	64	4.6
Clerical Workers	28	2.0
Service Workers & Shop	78	5.6
Skilled Agricultural & Fishery	43	3.1
Craft & Related Trade Workers	14	1.0
Plant & Machine Operator & Assembler	25	1.8
Elementary Occupations	33	2.4
Housewife	141	10.1
Unemployed	93	6.6
Unclassified	500	35.7
Not applicable	340	24.3
Total	1400	100.0