



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

# HEALTH INFORMATION

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



ISBN 978-983-3887-26-2



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JANUARY 2008**

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ISBN: 978-983-3887-26-2

**Suggested citation:**

Institute for Public Health (IPH) 2008. The Third National Health and Morbidity Survey (NHMS III) 2006, Health Information. Ministry of Health, Malaysia

**Produced and Distributed by:**

The Third National Health and Morbidity Survey Project,  
Institute for Public Health,  
National Institutes of Health,  
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Published by Institute for Public Health, Ministry of Health, Malaysia



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

## HEALTH INFORMATION

### **Chapter I:**

General Health Information

### **Chapter II:**

Nutrition Labelling

### **Chapter III:**

Medication Labelling

### **Chapter IV:**

Organ Donation

### **Chapter V:**

Child Health Home - Based Card

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*This research project was sponsored by Ministry of Health,  
[Project Code: (P42-251-170000-00500(00500099) Sub code project: 42005000990001)]  
Institute for Public Health,  
Ministry of Health Malaysia.*



## LIST OF RESEARCH TOPICS

Topic1	Health Expenditure
Topic 2	Oral Health
Topic 3	Load of Illness
Topic 4	Health Utilization
Topic 5	Injury and Risk Reduction Practice
Topic 6	Physical Disability
Topic 7	Asthma
Topic 8	Dengue Prevention Practice
<b>Topic 9</b>	<b>Health Information</b>
Topic 10	Physical Activity
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Topic 17	Sexual Behaviour
Topic 18	Psychiatric Morbidity



## 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 and 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 STATEMENT**

This work is a joint effort of members from the various divisions in the Ministry of Health. They are the Health Education Division, Pharmaceutical Services Division, Institute for Health Behavioral Research, Institute for Health System Research and Institute for Public Health. With the cooperation of all members we have succeeded in producing this report. We are hopeful that the data and findings presented in this report will be useful to other stakeholders involved in health information.

## *A*CKNOWLEDGEMENT

The authors would like to express their sincere gratitude and appreciation to the National Health and Morbidity Survey Steering Committee and the Advisory Group for their guidance and support in the preparation and implementation of this survey. Our thanks also goes to Dr. Ahmad Faudzi Hj Yusoff, Principal Investigator and all the team members of the Third National Health and Morbidity Survey to made this report a reality.

Our sincere appreciation is also extended to all research team members, working group members, field support members, data processing members and other individuals, for their dedicated effort and commitment in carrying out all the functions related to Module A – General Health Information, B – Nutritional Labelling, C – Medication Labelling, D - Organ Donation, E - Child Health Home-Based Card under this Health Information Module. Their contribution has led to the accumulation of findings contained in this volume.

The authors greatly appreciate the contribution of Dr. Mohd Azahadi bin Omar for compiling and editing this report.

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## **ABBREVIATIONS**

CCT	Central Coordinating Team
CHHC	Child Health Home-Based Card
CI	95% Confidence Interval
EB	Enumeration Block
FI	Face to Face Interview
ID	Individual Identification
LFS	Labour Force Survey
LQ	Living Quarters
MOH	Ministry of Health
NHMS II	The Second National Health and Morbidity Survey
NHMS III	The Third National Health and Morbidity Survey
PPS	Probability Proportionate to Size
SQL	Structured Query Language
WHO	World Health Organization



## **1. INTRODUCTION**

The Health Information Module is a new module in the Third National Health and Morbidity Survey. This module is a compilation of several components of health information namely general health information, nutritional labelling, medication labelling, organ donation and child health home-based card. Each component in this module has its own specific objectives. Introduction for the specific components will be discussed respectively in the next section.

The survey was carried out on respondents 13 years and above for general health information, nutrition labelling and medication labelling. For organ donation, respondents were 18 and above. For child health home-based card, respondents with children of 13 and below were interviewed.

## **2. LITERATURE REVIEW**

Each component in this module has incorporated its own literature review. This is discussed in the respective section of each component.

## **3. OBJECTIVES**

### **3.1 General Objective**

To determine the attitude on organ donation and practices on health information, nutritional labelling child health home-based card and medication labelling among the community in Malaysia.

### **3.2 Specific Objectives**

3.2.1 To identify the needs of health information among the community in Malaysia.

3.2.2 To assess the attitude towards organ donation among the community in Malaysia.

3.2.3 To assess the practices of Malaysian community towards health information, nutritional labelling, child health home-based card and medication labelling.

3.2.4 To determine the accessibility of various sources of health information.

## **4. METHODOLOGY**

### **4.1 Scope of the Study**

Research problems, scopes and main issues to be included in NHMS III were obtained from discussions and feedbacks from Ministry of Health state health managers, as well as experts from the local universities and individuals. The main research team members of the NHMS III reviewed and studied closely the feasibility and practicality of the suggested research topics for this community-based household survey. Extensive literature review was initiated. Technical and research experts in relation to the identified research areas were consulted for further advice and comments. The main research group used the following criteria in considering the suggested scopes for this survey:

- i. The issue/problem is current or has potential high prevalence.
- ii. The issue/problem is focused on disease/disorders associated with affluence, lifestyle, environment and demographic changes.
- iii. The issue/problem is causing physical, mental or social disability.
- iv. The issue/problem has important economic implications.
- v. It is feasible to implement interventions to reduce the problem.
- vi. The information related to the issue/problem is not available through the routine monitoring system or other sources.
- vii. The information is more appropriately obtained through a nation-wide community survey, and
- viii. It is feasible to obtain through a nation-wide community-based survey.

The short-listed research topics then presented to the Advisory Group Members for further deliberation and decisions. These topics were later refined by the research team members based on the decisions made at the Advisory Committee meeting. It was tabled to the Steering Committee and 18 research topics were approved to be included in the NHMS III.

### **4.2 Sampling Design and Sample Size**

In calculating the sample size, stratification and sampling design, advice was sought from the Methodology Division Department of Statistics Malaysia as well as from several other biostatistics consultants.

#### **4.2.1 Sampling frame**

The sampling frame for this survey is an updated until 2004; an effort undertaken prior to the implementation of Labour Force Survey (LFS) 2004. In general, each selected Enumeration Blocks (EB) comprised of 8 sampled Living Quarters (LQ). The EBs was geographically contiguous areas of land with identifiable boundaries. Each contains about 80-120 LQs with about 600 persons. Generally, all EBs are formed within gazetted boundaries.

The EBs in the sampling frame was also classified by urban and rural areas. The classification into these categories was in terms of population of gazetted and built-up areas as follows:

<b>Stratum</b>	<b>Population of gazetted areas and built-up</b>
Metropolitan	75,000 and above
Urban Large	10,000 to 74,999
Urban Small	1,000 to 9,999
Rural	The rest of the country

For sampling purposes, the above broad classification was found to be adequate for all states in Peninsular Malaysia and the Federal Territories of Kuala Lumpur and Labuan. However, for Sabah and Sarawak, due to problems of accessibility, the rural stratum had to be further sub-stratified based on the time taken to reach the area from the nearest urban centre.

For the purpose of urban and rural analysis, Metropolitan and Urban Large strata are combined together thus referred to as 'urban' stratum, while for Urban Small and the various sub-divisions of the rural areas they are combined together to form to a 'rural' stratum.

#### **4.2.2 Sampling design**

A two stage stratified sampling design with proportionate allocation was adopted in this survey. The first stage sampling unit was the EB and within each sampled EB, the LQs were selected as second stage unit. One LQ was estimated to comprise of 4.4 individuals. All households (HH) and persons within a selected LQ were studied.

#### **4.2.3 Sample size**

The sample size was determined based on 95% Confidence Interval (CI) and the following factors were taken into consideration:

a) Expected prevalence rate

The prevalence rate of the health problems for Malaysia obtained from the National Health and Morbidity Survey II (NHMS II) were used to estimate the overall sample size. Using the previous finding of 10% prevalence rate, the initial sample size at the state level was calculated in order to come up with overall sample size. The size was further apportioned for each state using the probability proportionate to size (PPS) method.

b) Response rate of the NHMS II

The response rates, which ranged from 83 to 97% for the NHMS II of each state, were taken into consideration in the course of the determination of sample size.

c) Margin of error and design effect

As the factors of precision and efficient of the survey are paramount, the decision reached for the targeted margin of error is 1.2 and the design effect valued at 2. These values were used at the initial stage of the calculation of the sample size of each state.

The survey findings addressing the specific objectives of this survey are expected to be used for state level programmed planning. Thus, the calculation for the sample size has taken into consideration that the data is to be analyzed at the state level.

In addition to the major factors mentioned earlier, the availability of resources, namely, financial and human resources, and the time taken to conduct this survey also becomes part of the process of the determination of sample size.

### **4.3 Preparation of Field Areas and Logistic Support**

A number of state liaison officers were recruited in preparation for the survey proper. Strong networking with state liaison officers and District Health Officers (MOH and local authorities) from the areas sampled for the survey was established. Field scouts were mobilized from these areas to identify and tag the LQ's selected for the survey, as well as to inform the community and related government agencies of the importance and schedule of the planned survey. State liaison officers were also assisting Field Supervisors in the arrangement of transportation, accommodation and other logistics for the survey teams.

### **4.4 Method of Data Collection**

#### **4.4.1 The questionnaire**

A bi-lingual (*Bahasa Malaysia* and English) pre-coded questionnaire was designed, pre-tested and piloted prior to the survey. All research topics for the questionnaire are arranged into modules ranging from A to Z. Topics that are similar area are arranged into sub-modules under a particular module. Questions comprised of both close ended and open ended. The questions in each module were tailored to the target group.

The questionnaires were developed based on the requirements of the health information group and health information research topics involved. The face-to-face interview (FI) questionnaires consisted of two subtypes, i.e., the household questionnaire (orange) to be answered by the head of the household of the LQ selected, and the individual questionnaire to be answered by each member of the household. Four types of individual questionnaire were developed, to cater to the different age groups of less than 2 years old (pink), 2 to less than 13 years old (blue), 13 to less than 18 years old (yellow) and 18 years old and above (purple).

For those aged below 13 years old, the child's parents or guardians were responsible for answering on his or her behalf. Those aged 13 years and above were required to answer their respective questionnaires directly through the interview.

All the FI questionnaires have a consent form to be read and signed by the respondent or parent / guardian of the respondent. The outside cover of all questionnaires had to be filled with a unique individual identification (ID) number by the enumerator. The enumerator also had to fill his or her ID as well as the code for the outcome of the interview as part of the quality assurance process.

General Health Information (J), Nutrition Labelling (K), Medication Labelling (L), Organ Donation (M), Child Health Home-Based Card (H) were dedicated for the Health Information research topic. General Health Information (J), Nutrition Labelling (K) and Medication Labelling were dedicated for respondents aged 13 years old and above, Organ Donation (M) was dedicated for those aged 18 years old and above. While, Child Health Home-Based Card was dedicated for those below 13 years old.

#### **4.4.2 The interview**

As far as possible, all adult members who qualify from the selected LQ's were interviewed by the data collection team members. Parents or guardians were expected to provide information for their children aged 12 years and below (primary school). Interviews commenced early in the morning and lasted till late in the evening. A trained non-medical or paramedical interviewer conducted the interview. Where an interview had been unsuccessful due to the absence of the respondent at the selected LQ, repeat visits were conducted after leaving messages with neighbours or by other means for an appointment at a later date. A household member can only be classified as a non-responded after 3 unsuccessful visits.

### **4.5 Field Preparations**

Two main survey implementation groups had been formed: the Central Coordinating Team (CCT) and the field team. The CCT's main role was to monitor and coordinate the progress of implementation and provide administrative support in terms of financial and logistic arrangement for the field survey. The Field Teams were responsible to oversee and manage the field data collection process as well as undertake quality control.

The field data collection was conducted throughout Malaysia simultaneously, spanning within a continuous period of 4 months starting from April 2006. Teams were organized to move into 5 regions in Peninsular Malaysia, 2 regions in Sabah and 4 regions in Sarawak for data collections.

#### **4.5.1 Pilot study**

A pilot study was conducted on a sample of EB's (not included in the NHMS III) about 2 months prior to the actual nationwide survey. It was conducted in three different areas in and around the Klang Valley, namely Sepang, Klang and Bangsar. The population in these locations comprised of three distinct socio-demographic strata that are rural, semi-urban and urban respectively. The pilot study focused on the following aspects of the survey such as testing of the questionnaire, testing of the field logistic preparation, testing of the scouting activities and testing of the central monitoring and logistic support.

#### **4.5.2 Training of data collection teams**

A two weeks training course was held for field supervisors, team leaders, nurses and interviewers to familiarize them with the questionnaire, develop their interpersonal communication skills and appreciate the need for good teamwork. Briefing on the questionnaire, mock interview in the classroom and individual practice under supervision was conducted during the training.

## **4.6 Quality Control**

Quality control procedures for the data collection were done at two stages, field and central. Detail description of quality control process has been described in NHMS III protocol.

## **4.7 Data Management**

### **4.7.1 Data screening**

The following data screening exercises had been conducted at field and central levels prior to data entry:

- a) Field data screen by each interviewers at the end of his/her interview.
- b) Field data screen of each question by peer interviewers through exchanging questionnaire booklets.
- c) Field data screen by team leaders and field supervisors.
- d) Central data screening of the questionnaire by the quality control team.

### **4.7.2 Data entry**

The data entry system was developed to record the information collected during the data collection phase. It is a web based system that allows multiple simultaneous accesses to the database. The NHMS III used a double manual data entry method and any discrepancy between both entries was verified by the supervisors. The data entry started simultaneously with data collection (first week of April 2006) and was completed at the end of January 2007. The data entered was stored in the database according to the module. The databases were designed using Structured Query Language (SQL) which is a standard language for relational database management system.

### **4.7.3 Data analysis**

Data analysis was done by exporting the data into other analysis tools such as Microsoft Excel, SPSS and STATA. The data in database (text form) was exported to the Microsoft Excel form then to the SPSS and STATA. The raw data was cleaned and analysed according to the terms, working definition and dummy table prepared by the research groups. All the analysis process were monitored and advised by the NHMS III Statistics Consultant.

## **4.8 Definition of Terms/Variables**

### **i. Child health home-based card**

This card is given by the hospital staff after baby's birth before the baby is discharged or given by the health clinic staff when the baby or child visited the government clinic. This card comes in two colours, blue and pink. The blue coloured-card is labelled as KKK 1/92L and the pink coloured-card is labelled as KKK 1/92P. The blue card is for the boys and the pink card is for the girls. These cards are used during visits to the child health clinic.



**ii. Health information**

Information related to current health issues or problems which can be used as a guide by respondent in taking action towards their own health.



# CHAPTER I

## GENERAL HEALTH INFORMATION





## **ABSTRACT**

This study is a population survey conducted to find out the needs, practices and accessibility of health information among Malaysian community. Self-administered questionnaires were given to respondents aged 13 and above. In general, the results show that within a period of one month, the percentage of respondents who received health information was found to be around 44.9% to 46.9%. It is high among those aged 25-29 years old, who have higher educational level and internet usage. In terms of needs, the most popular type of health information sought is on hypertension, diabetes, cancer, healthy eating and dengue. Information on cancer was highly sought by females. Information on hypertension and diabetes was highly sought by those aged 30 and above. In terms of locality, urban people sought information on cancer, dengue, and healthy eating more than rural people. In terms of practices, 60.2% of respondents said that the health information that they get always convinced them to take action, while 35.4% are sometimes convinced to take action. Females aged 25-69, and those with tertiary education were the group easily convinced to take action. In terms of accessibility, the more popular channels of receiving this information are the television, newspapers, radio, magazines and pamphlets. Newspapers are the most popular source of health information for males while magazines are popular among females. Newspapers and magazines were also popular among those living in urban areas and those aged 20-59 years old. In conclusion health information seeking behaviour among the Malaysian community is still not very encouraging. The television, newspapers and radio are still the main sources of health information in the community even though the internet has been introduced for quite some time. The government should focus on increasing the awareness of the community to seek health information through the popular channels chosen by the community.

## **1. INTRODUCTION**

Health information is defined as information relating to current health issues or problems which can be used as a guide by respondents in taking action towards their own health. It may include information about a specific disease, medication, family health, environmental and occupational health, and ways to practice healthy lifestyle. The information may come from sources such as television, radio, newspaper, magazine, and other media. In this study the needs, practices and accessibility of health information among Malaysian are explored.

## **2. LITERATURE REVIEW**

Studies on health information seeking behaviour normally look at several socio-demography effects such as education, having illness, and living status (i.e. income level, locality) on health information seeking behaviour.

Lorence and Park (2007) try to examine how educational characteristics of health information seekers are associated with access to computers, the internet, and online health information. Specifically, whether there exist significant variations across identified health technology user groups regarding access to online health information, or there are differences between education levels have any influence on health seeking behaviour. Seeking information about one's health is a key coping strategy in health-promotive activities and psychosocial adjustment to illness (Lambert & Loiselle 2007).

## **3. OBJECTIVES**

### **3.1 General Objective**

To determine the practices on health information among the community in Malaysia.

### **3.2 Specific Objectives**

3.2.1 To identify the needs of health information among the community in Malaysia.

3.2.2 To assess the practices of Malaysian community towards health information.

3.2.3 To determine the accessibility of various sources of health information.

## **4. FINDINGS**

### **4.1 Received any Health Information a Month Before**

Overall, about 46.0% (CI: 44.9 - 46.9) of the respondents received health information. The proportions of male and female respondents who received health information are 46.0% and 45.8% respectively. There is no significant difference in the proportion between urban and rural residents. By age groups, those aged between 25-29 years old have the highest proportion of health information (49.5%). The proportion of information is significantly low among the elderly (60 years old and above) compared to those aged below 55 years old. In term of race, the proportion of Malays have significantly higher information (51.3%) compared to other races. Looking at marital status, those who are divorced or being widow/widower have significantly lower proportion (36.2% and 30.9% respectively) compared to those who are single or married (47.8% and 46.4%). Respondents with tertiary education have the highest proportion (62.3%) while those without education have the lowest proportion (25.0%). Those who use internet have significantly higher proportion (60.1%) than those who are not using internet (42.6%). In terms of household income, the proportion significantly increases with income level up to an income range RM 2000 to RM 2999. (Refer Table 4.1)

### **4.2 Popular Source of Health Information**

As there are, about 5.5 million households in Malaysia own television sets (Juliana 2006). This study showed that television is the most popular source of health information (36.3%), followed by newspaper (16.2%), radio (11.4%), magazine (3.5%) and pamphlet (2.4%). Surprisingly internet is not in the list of the five most popular source of health information. (Refer Table 4.2)

#### **4.2.1 Socio-demographic effect on popular source of health information**

By gender, there was no significant difference between males and females in choosing television and radio as a source of health information. Nevertheless, the proportion of males is higher than females for choosing newspaper as a source of health information while for magazine and pamphlet, the proportion of females is higher than males.

In term of age group, the proportion is significantly lower for those aged 70 and above compared to those below age 70 in choosing television and newspaper for health information. There was no significant difference between age groups in choosing radio and pamphlet for health information while for magazine those aged between 15 to 44 years old have higher proportion of readers than the other age groups.

Going by race, Malays performed a higher proportion of viewers and readers in choosing television and magazine for health information. Chinese formed a significantly lower proportion in choosing pamphlet for health information whereas Other bumis form a higher proportion for radio and lower proportion for newspaper readership as compared to other groups.

Between different marital statuses, those who are divorced or being widow/widower form a significantly lower proportion for choosing television, newspaper and pamphlet for health information. Widowers also show a significantly lower proportion of radio listeners as compared to others. For magazine, those who are single show significantly higher proportion readership as compared to others.

The proportion who received all sources of information significantly increases with educational level.

By locality, there is no significant difference between urban and rural setting in choosing television, radio and pamphlet for health information while for newspaper and magazine, urban residents have significantly higher proportion than those in rural area.

Looking at different income groups, the proportion choosing health information is significantly lower among those with income below RM 700 for television, below RM 1000 for newspaper, below RM 2000 for magazine and below RM 400 for pamphlet as compared other income groups. There is no significant difference in the proportion between different income groups in choosing radio for health information.

### **4.3 Does the Health Information Convinces One to Take Action**

Among those who answered, 60.2% (CI: 59.2 - 61.2) said that health information they received always convinced them to take action, 35.4% (CI: 34.4 - 36.3) said they sometimes convinced them to take action and 4.4% (CI: 4.1 - 4.8) said they are not convinced at all to take action. (Refer Table 4.3)

#### **4.3.1 Socio-demographic profile of those having health information who were convinced to take action**

By gender, those having health information, females were more convinced than males to take action. Males having information were less convinced or sometimes convinced to take action.

In term of age groups who have health information, the high proportion of respondents who were always convinced to take action are among those aged 25 to 69 years old, with those aged 50 to 54 having the highest proportion (68.3%). There is no significant difference between different age groups for those who were sometimes convinced to take action or not convinced at all.

Between different races for those having health information, Other bumis have a significantly higher proportion of being convinced to take action. However, there is no significant difference in the proportion between the three major ethnicities (Malay, Chinese and Indian) who were convinced, sometimes convinced or not convinced at all to take action.

In term of marital status, those who were not married have a significantly lower proportion for being always convinced to take action while there was no significant difference encountered in the proportion between those married, divorcee or widow/widower for being always convinced, sometimes convinced or not convinced at all to take action.

Looking at educational level, respondents with tertiary level education have a significantly higher proportion for being always convinced and a low proportion for sometimes being convinced and not



convinced at all to take action as compared to those with secondary and primary education.

By locality, there was no significant difference between urban and rural residents and different income groups.

#### **4.4 The Five (5) Most Popular Type of Information Perceived to be Important**

Among those who answered the question, hypertension (18.1%) is the most popular type of information needed, followed by diabetes (15.8%), cancer (14.2%), healthy eating (11.8%) and dengue (10.8%). (Refer Table 4.4)

##### **4.4.1 Socio-demographic profile for selecting health information**

By gender, the proportion is high among males for seeking information on dengue while for females the proportion is high for information on cancer. There were no significant difference between males and females for information on hypertension, diabetes and healthy eating.

Looking at different age groups, the proportion was significantly higher among those aged 30 and above for seeking information on diabetes and hypertension. The proportion was significantly high among those aged 20 to 54 for seeking information on cancer while the proportion for seeking information on dengue was high among those aged 10 to 19 years old. The proportion of information on healthy eating was significantly low among those aged 60 and above.

Among the different races, Malays form a significantly high proportion seeking health information on hypertension, diabetes and cancer. Indians form a high proportion seeking health information on diabetes while Chinese form a significantly low proportion seeking health information on dengue.

In terms of marital status, the proportion of health information seeking on hypertension, diabetes and cancer were significantly high among married, divorcee or widow/widower while health information seeking on healthy eating and dengue were significantly high among unmarried and married respondents.

Looking at different educational level, the proportion of health information seeking on diabetes, cancer and dengue were significantly high among those with education. The proportion of health information seeking on healthy eating also significantly increase with educational level. Nevertheless, there were no significant differences on the proportion of health information seeking on hypertension between different educational levels.

Between urban and rural residents, the proportion of health information seeking on cancer and healthy eating were significantly high among urban residents while the proportion of health information seeking on dengue were high among rural resident. Nevertheless, there were no significant difference on the proportion of health information seeking on hypertension and diabetes between different localities.

Among different income levels, the proportion of health information seeking on cancer and healthy eating were significantly high among those with income RM 1000 and above while there were no significant difference between different income groups in the proportion of health information seeking on hypertension, diabetes and dengue.

## **4.5 Most Preferred Sources of Information**

Among those who answered, 65.6% (CI: 59.7 - 61.5) preferred television as their source of information, followed by radio [24.5% (CI: 23.8 - 25.2)], newspaper [20.4% (CI: 19.6 - 21.2)], health clinic [6.7% (CI: 6.3 - 7.1)] and magazine [6.6% (CI: 6.2 - 6.9)].

### **4.5.1 Socio-demographic profile on preferred sources of health information**

By gender, there were no significant difference between males and females in choosing television and newspaper as a preferred source of health information. Nevertheless, the proportion of males were higher than females for choosing radio as a source for health information while for magazine and health clinic, the females were significantly higher than males.

In terms of age group, the proportion is significantly lower for those aged 70 and above compared to those below age 70 in choosing television, radio and health clinic for health information. The proportion is significantly lower for those aged 65 and above in choosing newspaper and those aged 45 and above in choosing magazine for health information.

Looking at race, Malays form a higher proportion of those choosing television, magazine and health clinic as a preferred source of health information. Other bumis also form a higher proportion in choosing television, newspaper and magazine as a preferred source of health information but scored low for radio. Chinese has significantly low proportion in choosing health clinic as a preferred source of health information.

In terms of marital status, divorcees, widow/widower form a significantly lower proportion for preferring television and radio for health information. Widowers also showed significantly low proportion for preferring newspaper and magazine as compared to others. There was no significant difference in the proportion preferring health clinics for health information among the different marital groups.

In term of educational status, the proportion seeking preferred source of information significantly increases with educational level while between different educational levels. For newspaper and health clinic, the proportion increases by educational level from those without education until those with secondary education but the proportion drops among those with tertiary education.

By locality, there was no significant difference between urban and rural residents in preferring television, newspaper and magazine for health information. For radio, urban residents have a significantly higher proportion than those in rural areas and vice versa for health clinic as a preferred source of information.

Looking at the different income groups, the proportion was significantly lower among those with income below RM 400 for television and below RM 700 for radio as compared to other income groups. While for magazine, those with income below RM 400 have a significantly lower proportion as compared to with income RM 700 and above. There was no significant difference in the proportion between different income groups in preferring newspaper and health clinic for health information.

Table 4.1: Received any health information

Socio-demography	n	Estimated Population (N)	Prevalence (%)	95% CI	
				Lower	Upper
<b>Overall</b>	17,894	6,709,930	45.9	44.9	46.9
<b>Sex</b>					
Male	8,158	3,050,690	46.0	44.8	47.1
Female	9,736	3,659,240	45.8	44.7	46.9
<b>Age Group</b>					
10-14	1,070	394,270	48.0	46.0	50.3
15-19	2,285	841,123	48.7	46.9	50.4
20-24	1,828	687,132	48.2	46.1	50.2
25-29	1,807	688,385	49.5	47.6	51.5
30-34	1,717	644,947	48.8	46.8	50.7
35-39	1,678	630,188	47.0	45.1	49.0
40-44	1,858	698,987	48.8	46.9	50.6
45-49	1,626	616,195	47.0	45.1	49.0
50-54	1,392	525,010	46.0	43.8	48.0
55-59	1,053	397,771	42.8	40.5	45.0
60-64	650	242,044	39.5	37.0	42.1
65-69	502	186,054	35.6	32.9	38.4
70-74	257	95,169	29.2	26.1	32.4
75-79	117	42,804	24.0	20.1	28.0
80+	54	19,851	14.6	10.9	18.3
<b>Race</b>					
Malays	11,127	4,135,019	51.3	50.1	52.5
Chinese	2,951	1,187,286	38.3	36.5	40.1
Indians	1,398	561,773	44.1	41.8	46.4
Other bumis	1,880	630,598	41.6	38.5	44.6
Others	538	195,254	29.4	26.6	32.1
<b>Marital status</b>					
Not married	5,863	2,188,329	47.8	46.5	49.1
Married	11,148	4,190,888	46.4	45.3	47.5
Divorcee	263	100,419	36.2	32.7	39.8
Widow/Widower	564	209,285	30.9	28.6	33.1
Unclassified	56	21,008	43.2	34.6	51.8
<b>Educational status</b>					
None	923	325,562	25.0	23.3	26.8
Primary	5,644	2,080,089	40.7	39.5	41.9
Secondary	9,133	3,442,090	50.8	49.6	51.9
Tertiary	2,087	822,937	62.3	60.2	64.4
Unclassified	107	39,252	36.3	30.6	42.0
<b>Internet usage</b>					
Yes	4,299	1,671,349	60.1	58.5	61.6
No	13,582	5,033,682	42.6	41.5	43.6
<b>Residence</b>					
Urban	10,450	4,291,707	45.6	44.4	46.9
Rural	7,444	2,418,223	46.3	44.7	48.0

Table 4.1: Received any health information (continue)

Socio-demography	n	Estimated Population (N)	Prevalence (%)	95% CI	
				Lower	Upper
<b>Household income</b>					
Less than RM400	1,475	515,487	36.8	34.8	38.8
RM400 - RM699	1,740	632,187	42.3	40.5	44.1
RM700 - RM999	1,627	614,941	47.3	45.3	49.3
RM1000 - RM1999	3,014	1,161,330	51.3	49.7	53.0
RM2000 - RM2999	1,247	487,047	56.5	54.1	58.8
RM3000 - RM3999	444	176,321	56.1	52.2	59.9
RM4000 - RM4999	172	68,876	58.5	52.7	64.2
RM5000 & above	314	128,248	56.7	51.6	61.7

Table 4.2: The most popular source of health information

	Television					Newspaper					Radio					Magazine					Pamphlet				
	n	N	%	95% CI		n	N	%	95% CI		n	N	%	95% CI		n	N	%	95% CI		n	N	%	95% CI	
				L	U				L	U				L	U				L	U				L	U
<b>Overall</b>	14,244	5,353,114	36.3	35.4	37.2	6,161	2,381,504	16.2	15.5	16.8	4411	1,675,642	11.4	10.8	11.9	1350	513,433	3.5	3.3	3.7	944	356,833	2.4	2.2	2.6
<b>Sex</b>																									
Male	6,555	2,453,897	36.7	35.6	37.8	3,017	1,162,808	17.4	16.6	18.2	2,110	798,493	11.9	11.2	12.7	351	132,887	2.0	1.8	2.2	372	141,055	2.1	1.9	2.3
Female	7,689	2,899,217	36.0	34.9	37.0	3,144	1,218,696	15.1	14.4	15.8	2,301	877,148	10.9	10.3	11.5	999	380,536	4.7	4.4	5.1	572	215,778	2.7	2.4	2.9
<b>Age Group</b>																									
10-14	751	278,031	33.3	31.1	35.5	265	100,206	12.0	10.6	13.4	237	88,143	10.6	9.1	12.0	55	19,953	2.4	1.7	3.0	43	15,446	1.9	1.3	2.4
15-19	1,739	641,183	36.8	35.1	38.5	718	271,150	15.6	14.4	16.7	565	210,935	12.1	11.0	13.2	204	74,546	4.3	3.7	4.9	122	44,792	2.6	2.1	3.1
20-24	1,428	537,725	37.4	35.5	39.3	658	252,583	17.6	16.2	18.9	471	178,215	12.4	11.2	13.6	205	78,050	5.4	4.6	6.2	121	45,316	3.2	2.6	3.7
25-29	1,431	546,167	39.1	37.2	41.0	667	261,146	18.7	17.2	20.2	463	177,099	12.7	11.4	13.9	187	71,963	5.2	4.4	5.9	151	57,554	4.1	3.5	4.8
30-34	1,373	515,079	38.7	36.9	40.6	609	235,977	17.8	16.3	19.2	441	167,529	12.6	11.4	13.8	166	62,483	4.7	4.0	5.4	121	46,144	3.5	2.9	4.1
35-39	1,361	511,925	38.0	36.2	39.8	614	235,636	17.5	16.1	18.9	439	166,574	12.4	11.1	13.6	137	53,479	4.0	3.3	4.7	94	35,466	2.6	2.1	3.2
40-44	1,498	564,836	39.2	37.4	41.0	763	293,368	20.3	18.9	21.8	483	183,992	12.8	11.5	14.0	149	56,849	3.9	3.3	4.6	100	37,746	2.6	2.1	3.2
45-49	1,343	509,881	38.7	36.8	40.5	577	225,701	17.1	15.7	18.5	392	151,321	11.5	10.2	12.7	92	35,750	2.7	2.1	3.3	74	28,283	2.1	1.6	2.7
50-54	1,117	421,746	36.7	34.7	38.7	492	191,958	16.7	15.2	18.2	318	121,479	10.6	9.4	11.8	82	32,124	2.8	2.1	3.5	57	21,493	1.9	1.4	2.4
55-59	902	341,544	36.4	34.3	38.6	384	151,915	16.2	14.6	17.8	257	99,170	10.6	9.2	11.9	44	17,315	1.9	1.3	2.4	29	11,853	1.3	0.8	1.8
60-64	528	196,066	32.0	29.6	34.5	175	67,847	11.0	9.4	12.5	150	57,978	9.4	7.8	11.0	17	6,099	1.0	0.5	1.4	14	5,982	1.0	0.4	1.4
65-69	429	159,376	30.3	27.6	32.9	144	56,400	10.7	8.9	12.5	98	36,530	6.9	5.5	8.4	10	3,950	0.8	0.2	1.3	10	3,965	0.8	0.3	1.2
70-74	207	76,769	23.0	20.2	25.9	59	23,651	7.1	5.3	8.9	59	22,054	6.6	4.9	8.3	2	852	0.3	-0.1	0.6	6	2,393	0.7	0.2	1.3
75-79	92	34,224	18.7	15.1	22.2	26	10,072	5.5	3.5	7.5	24	9,398	5.1	3.1	7.1	0	0	0.0	0.0	0	1	335	0.2	-0.2	0.5
80+	45	16,542	11.1	8.0	14.2	10	3,893	2.6	1.0	4.2	14	5,225	3.5	1.6	5.4	0	0	0.0	0.0	0	1	485	0.3	-0.3	0.9

Table 4.2: The most popular source of health information (continue)

	Television						Newspaper						Radio						Magazine						Pamphlet																					
	n	N	%	95% CI			n	N	%	95% CI			n	N	%	95% CI			n	N	%	95% CI			n	N	%	95% CI																		
				L	U	95% CI				L	U	95% CI				L	U	95% CI				L	U	95% CI				L	U	95% CI																
<b>Race</b>																																														
Malays	9,127	3,389,177	41.7	40.5	42.9	3,674	1,396,185	17.2	16.4	18.0	2,436	924,596	11.4	10.7	12.1	891	335,150	4.1	3.8	4.5	634	239,253	2.9	2.7	3.2	3.2																				
Chinese	2,273	916,150	29.3	27.7	30.8	1,457	588,615	18.8	17.5	20.1	755	308,410	9.9	8.9	10.8	221	89,697	2.9	2.4	3.3	100	40,770	1.3	1.0	1.6	1.6																				
Indians	1,110	446,105	34.6	32.4	36.8	560	228,574	17.7	16.0	19.5	342	139,993	10.9	9.5	12.2	97	39,507	3.1	2.4	3.8	82	33,691	2.6	1.9	3.3	3.3																				
Other bumis	1,311	446,538	29.2	27.0	31.4	361	125,630	8.2	7.1	9.3	763	260,228	17.0	15.2	18.8	102	35,392	2.3	1.8	2.8	102	33,804	2.2	1.7	2.7	2.7																				
Others	423	155,144	23.0	20.5	25.6	109	42,500	6.3	5.0	7.6	115	42,414	6.3	4.9	7.7	39	13,687	2.0	1.4	2.7	26	9,315	1.4	0.8	1.9	1.9																				
<b>Marital status</b>																																														
Not married	4,457	1,666,928	36.1	34.8	37.3	1,943	742,363	16.1	15.2	16.9	1,488	561,109	12.1	11.4	12.9	518	193,587	4.2	3.8	4.6	332	124,221	2.7	2.4	3.0	3.0																				
Married	9,055	3,411,507	37.5	36.5	38.6	4,005	1,554,657	17.1	16.4	17.8	2,733	1,041,232	11.5	10.8	12.1	790	302,981	3.3	3.1	3.6	590	223,868	2.5	2.2	2.7	2.7																				
Divorcee	219	83,640	29.9	26.5	33.2	79	31,806	11.4	8.9	13.8	71	27,325	9.8	7.5	12.0	16	6,148	2.2	1.1	3.3	6	2,450	0.9	0.2	1.6	1.6																				
Widow/ Widower	469	174,774	25.3	23.1	27.4	116	45,476	6.6	5.4	7.8	107	41,542	6.0	4.8	7.2	21	8,669	1.3	0.7	1.8	16	6,294	0.9	0.5	1.4	1.4																				
Unclassified	44	16,265	26.2	19.6	32.8	18	7,202	11.6	6.5	16.8	12	4,433	7.1	3.3	11.0	5	2,048	3.3	0.4	6.2	0	0	0.0	0.0	0.0	0.0																				
<b>Educational status</b>																																														
None	709	253,005	19.0	17.5	20.5	81	31,491	2.4	1.8	2.9	242	86,411	6.5	5.5	7.5	6	2,361	0.2	<0.1	0.3	6	2,177	0.2	<0.1	0.3	0.3																				
Primary	4,538	1,680,161	32.7	31.5	33.8	1,554	592,955	11.5	10.8	12.2	1,304	488,230	9.5	8.8	10.2	279	103,951	2.0	1.8	2.3	195	71,962	1.4	1.2	1.6	1.6																				
Secondary	7,372	2,782,577	40.9	39.8	42.0	3,520	1,357,053	20.0	19.1	20.8	2,342	894,829	13.2	12.4	13.9	762	287,728	4.2	3.9	4.5	545	205,421	3.0	2.8	3.3	3.3																				
Tertiary	1,542	607,085	45.8	43.7	48.0	987	392,796	29.7	27.9	31.4	497	196,774	14.9	13.3	16.4	298	117,659	8.9	7.9	9.9	193	75,404	5.7	4.9	6.5	6.5																				
Non-Classified	83	30,296	20.5	16.4	24.6	19	7,209	4.9	2.6	7.2	26	9,398	6.4	3.9	8.8	5	1,735	1.2	0.1	2.2	5	1,869	1.3	0.2	2.4	2.4																				
<b>Residence</b>																																														
Urban	8,374	3,440,522	36.3	35.1	37.5	4,199	1,743,364	18.4	17.5	19.3	2,537	1,057,796	11.2	10.5	11.9	895	367,080	3.9	3.6	4.2	598	244,941	2.6	2.3	2.8	2.8																				
Rural	5,870	1,912,569	36.3	34.8	37.9	1,962	638,141	12.1	11.3	13.0	1,874	617,848	11.7	10.7	12.7	455	146,355	2.8	2.5	3.1	346	111,892	2.1	1.9	2.4	2.4																				

Table 4.2: The most popular source of health information (continue)

Household Income	Television					Newspaper					Radio					Magazine					Pamphlet				
	n	N	%	95% CI	U	n	N	%	95% CI	U	n	N	%	95% CI	U	n	N	%	95% CI	U	n	N	%	95% CI	U
				L	U				L	U				L	U				L	U				L	U
Less than RM400	1,204	423,383	30.1	28.3	31.9	329	119,453	8.5	7.6	9.5	393	138,727	9.9	8.7	11.1	68	24,427	1.7	1.3	2.2	45	16,085	1.1	0.8	1.5
RM400 - RM699	1,436	522,993	34.9	33.2	36.7	549	205,329	13.7	12.5	14.9	428	155,928	10.4	9.3	11.5	107	40,054	2.7	2.1	3.2	86	31,763	2.1	1.7	2.6
RM700 - RM999	1,351	511,111	39.3	37.4	41.2	605	234,028	18.0	16.5	19.4	409	157,426	12.1	10.9	13.3	126	48,882	3.8	3.1	4.4	92	34,313	2.6	2.1	3.2
RM1000 - RM1999	2,399	926,618	40.8	39.2	42.4	1,309	511,754	22.5	21.2	23.8	795	311,627	13.7	12.6	14.8	234	90,441	4.0	3.4	4.5	218	83,935	3.7	3.2	4.2
RM2000 - RM2999	983	387,432	44.8	42.4	47.2	582	228,558	26.4	24.4	28.4	355	139,036	16.1	14.3	17.8	131	49,804	5.8	4.7	6.8	81	31,223	3.6	2.8	4.4
RM3000 - RM3999	319	126,870	40.2	36.5	44.0	248	99,226	31.5	28.0	35.0	103	41,898	13.3	10.8	15.8	45	17,911	5.7	4.1	7.3	23	8,883	2.8	1.7	3.9
RM4000 - RM4999	131	52,137	44.3	38.5	50.0	95	38,193	32.4	26.8	38.1	35	13,981	11.9	7.9	15.8	15	5,841	5.0	2.4	7.6	12	5,005	4.3	1.9	6.6
RM5000 & above	229	93,697	41.3	36.4	46.2	161	65,929	29.1	25.1	33.1	66	27,121	12.0	8.8	15.1	33	13,519	6.0	4.1	7.9	22	8,912	3.9	2.3	5.6

**Table 4.3: Does health information convinces one to take action**

	Always convinced					Sometimes convinced					Not at all					
	n	N	%	95% CI L U	n	N	%	95% CI L U	n	N	%	95% CI L U	n	N	%	95% CI L U
<b>Overall</b>	10,591	3,974,390	60.2	59.2 61.2	6,224	2,335,405	35.4	34.4 36.3	785	291,261	4.4	4.1 4.8				
<b>Sex</b>																
Male	4,685	1,755,143	58.4	57.1 59.8	2,933	1,094,668	36.5	35.2 37.7	411	153,264	5.1	4.6 5.7				
Female	5,906	2,219,247	61.7	60.4 62.9	3,291	1,240,738	34.5	33.3 35.7	374	137,997	3.8	3.4 4.3				
<b>Age Group</b>																
10-14	487	180,916	47.0	43.8 50.2	459	168,378	43.8	40.6 47.0	98	35,555	9.2	7.5 11.0				
15-19	1,080	399,859	48.3	46.1 50.6	982	359,000	43.4	41.2 45.6	186	68,757	8.3	7.1 9.6				
20-24	997	373,666	55.0	52.6 57.5	703	265,451	39.1	36.8 41.4	106	39,761	5.9	4.7 7.1				
25-29	1,081	410,947	60.7	58.1 63.2	626	239,380	35.3	32.8 37.8	71	27,143	4.0	3.1 5.0				
30-34	1,070	400,560	63.1	60.7 65.5	558	211,108	33.3	30.9 35.6	62	23,013	3.6	2.7 4.5				
35-39	1,055	394,993	63.6	61.2 66.1	553	208,291	33.6	31.1 36.0	46	17,341	2.8	2.0 3.6				
40-44	1,205	450,048	65.2	62.9 67.6	574	219,861	31.9	29.5 34.2	54	20,102	2.9	2.1 3.7				
45-49	1,043	395,612	65.1	62.6 67.5	529	199,638	32.8	30.4 35.2	33	12,751	2.1	1.4 2.8				
50-54	934	352,878	68.3	65.6 70.9	399	150,312	29.1	26.5 31.7	37	13,630	2.6	1.8 3.5				
55-59	681	258,118	66.0	62.9 69.0	325	122,627	31.3	28.4 34.3	29	10,578	2.7	1.7 3.7				
60-64	413	153,851	65.2	61.2 69.1	201	75,284	31.9	28.1 35.7	19	6,930	2.9	1.6 4.2				
65-69	307	114,177	62.7	58.2 67.2	162	60,279	33.1	28.7 37.5	22	7,712	4.2	2.4 6.0				
70-74	146	54,515	58.3	52.3 64.3	93	34,159	36.6	30.7 42.4	13	4,796	5.1	2.4 7.9				
75-79	69	25,878	62.6	53.8 71.4	39	13,899	33.6	25.1 42.2	5	1,542	3.7	0.5 7.0				
80+	23	8,374	47.2	32.7 61.6	21	7,737	43.6	29.2 57.9	4	1,649	9.3	0.6 18.0				



Table 4.3: Does health information convinces one to take action (continue)

	n	Always convinced				Sometimes convinced				Not at all					
		N	%	95% CI		N	%	95% CI		N	%	95% CI			
				L	U			L	U			L	U		
<b>Race</b>															
Malays	6,578	2,450,632	60.1	58.9	61.3	3,902	1,448,855	35.5	34.4	36.7	488	178,309	4.4	3.9	4.8
Chinese	1,637	661,279	56.9	54.7	59.2	1,112	446,408	38.4	36.2	40.6	139	54,043	4.7	3.8	5.5
Indians	826	335,059	60.6	57.7	63.6	477	189,484	34.3	31.4	37.2	70	27,972	5.1	3.9	6.3
Other bumis	1,262	424,095	68.1	65.4	70.8	535	177,953	28.6	26.1	31.1	59	20,427	3.3	2.4	4.2
Others	288	103,325	55.4	50.5	60.3	198	72,706	39.0	34.3	43.7	29	10,509	5.6	3.5	7.8
<b>Marital status</b>															
Not married	2,945	1,104,825	51.3	49.7	52.8	2,411	895,781	41.6	40.1	43.0	418	154,858	7.2	6.4	8.0
Married	7,116	2,660,768	64.7	63.6	65.9	3,523	1,332,552	32.3	31.2	33.4	331	122,952	3.0	2.6	3.3
Divorcee	168	64,806	66.4	60.4	72.4	75	28,277	29.0	23.2	34.7	12	4,527	4.6	1.9	7.4
Widow/Widower	340	127,507	62.5	58.4	66.7	187	68,627	33.7	29.7	37.7	21	7,748	3.8	2.2	5.4
Unclassified	22	8,465	42.8	29.3	56.3	28	10,168	51.3	37.7	64.9	3	1,176	5.9	-0.7	12.6
<b>Educational status</b>															
None	556	195,430	61.9	58.4	65.5	292	104,568	33.1	29.7	36.6	45	15,526	4.9	3.5	6.4
Primary	3,200	1,179,720	57.8	56.3	59.4	2,036	750,322	36.8	35.3	38.2	298	110,023	5.4	4.8	6.0
Secondary	5,406	2,037,861	60.0	58.8	61.3	3,221	1,215,197	35.8	34.6	37.0	381	141,884	4.2	3.7	4.6
Tertiary	1,364	537,449	66.2	64.1	68.3	637	251,414	31.0	28.9	33.0	59	23,110	2.9	2.1	3.6
Non-classified	65	23,931	62.1	52.8	71.3	38	13,904	36.1	26.9	45.2	2	718	1.9	-0.8	4.5

Table 4.3: Does health information convinces one to take action (continue)

	n	Always convinced				Sometimes convinced				Not at all				
		n	%	95% CI L U	n	%	95% CI L U	n	%	95% CI L U	n	%	95% CI L U	
<b>Residence</b>														
Urban	6,158	2,529	59.8	58.6 61.1	3,699	59.8	34.8 37.1	435	7.1	3.8 4.2	177,940	4.2	3.8 4.7	
Rural	4,433	1,444	60.9	59.2 62.6	2,525	60.9	32.8 35.9	350	7.9	4.2 5.4	113,321	4.8	4.2 5.4	
<b>Household Income</b>														
Less than RM400	860	301	59.5	56.7 62.4	526	59.5	33.4 39.0	61	7.0	3.2 5.3	21,523	4.3	3.2 5.3	
RM400 - RM699	1,020	371	59.8	57.2 62.3	616	59.8	33.3 38.3	75	7.3	3.4 5.5	27,730	4.5	3.4 5.5	
RM700 - RM999	973	366	60.9	58.3 63.4	547	60.9	32.0 37.0	74	7.6	3.6 5.7	27,986	4.7	3.6 5.7	
RM1000 - RM1999	1,901	729	63.6	61.7 65.6	972	63.6	31.0 34.8	104	5.5	2.8 4.2	39,862	3.5	2.8 4.2	
RM2000 - RM2999	848	330	68.5	65.7 71.2	354	68.5	26.1 31.4	34	4.0	1.9 3.7	13,471	2.8	1.9 3.7	
RM3000 - RM3999	283	111	67.9	60.0 69.3	138	67.9	27.4 36.7	15	5.3	1.7 4.9	5,706	3.3	1.7 4.9	
RM4000 - RM4999	114	45	67.9	60.8 75.0	51	67.9	24.0 38.0	2	1.8	-0.4 2.7	754	1.1	-0.4 2.7	
RM5000 & above	202	82	64.8	58.9 70.7	101	64.8	27.2 38.7	7	3.5	0.7 3.8	2,854	2.3	0.7 3.8	

Table 4.4: The most popular type of health information

	Hypertension					Diabetes					Cancer					Healthy eating					Dengue					
	n	N	%	95% CI		n	N	%	95% CI		n	N	%	95% CI		n	N	%	95% CI		n	N	%	95% CI		
				L	U				L	U				L	U				L	U				L	U	L
<b>Overall</b>	7,152	2,674,427	18.1	17.5	18.7	6,213	2,332,132	15.8	15.2	16.4	5,535	2,088,509	14.2	13.7	14.7	4,670	1,740,026	11.8	11.3	12.3	4,293	1,585,754	10.8	10.3	11.2	
<b>Sex</b>																										
Male	3,266	1,222,172	18.3	17.5	19.0	2,857	1,070,829	16.0	15.3	16.7	1,803	679,799	10.2	9.6	10.7	2,087	777,013	11.6	11.0	12.2	2,172	799,379	12.0	11.4	12.5	
Female	3,886	1,452,256	18.0	17.3	18.7	3,356	1,261,303	15.7	15.0	16.3	3,732	1,408,709	17.5	16.8	18.2	2,583	963,013	12.0	11.4	12.5	2,121	766,375	9.8	9.3	10.2	
<b>Age Group</b>																										
10-14	99	36,233	4.3	3.5	5.2	91	34,223	4.1	3.3	4.9	201	74,302	8.9	7.7	10.2	249	92,839	11.1	9.8	12.5	379	139,879	16.8	15.2	18.4	
15-19	339	125,129	7.2	6.4	8.0	307	114,705	6.6	5.8	7.3	615	228,457	13.1	12.1	14.1	578	213,080	12.2	11.2	13.3	691	253,036	14.5	13.4	15.6	
20-24	478	178,841	12.4	11.3	13.6	450	169,639	11.8	10.7	12.9	644	243,429	16.9	15.6	18.3	504	189,471	13.2	12.0	14.4	420	154,789	10.8	9.7	11.8	
25-29	494	187,165	13.4	12.1	14.7	443	168,923	12.1	10.9	13.3	626	237,351	17.0	15.7	18.3	483	182,955	13.1	11.9	14.3	418	159,000	11.4	10.3	12.5	
30-34	657	243,957	18.3	16.9	19.8	560	208,610	15.7	14.4	17.0	556	208,633	15.7	14.4	17.0	459	169,537	12.8	11.6	13.9	398	147,254	11.1	10.0	12.2	
35-39	726	271,063	20.1	18.7	21.6	583	218,594	16.2	14.9	17.6	605	228,916	17.0	15.7	18.3	468	172,999	12.8	11.7	14.0	406	149,288	11.1	10.0	12.2	
40-44	919	343,538	23.8	22.3	25.3	815	305,224	21.2	19.7	22.7	648	243,379	16.9	15.6	18.2	520	195,030	13.5	12.4	14.7	399	148,052	10.3	9.3	11.3	
45-49	882	333,210	25.3	23.7	26.9	775	293,963	22.3	20.7	23.8	547	208,270	15.8	14.5	17.1	444	164,792	12.5	11.3	13.7	361	133,136	10.1	9.1	11.1	
50-54	808	304,508	26.5	24.8	28.2	717	268,516	23.4	21.7	25.0	431	164,032	14.3	13.0	15.5	349	129,886	11.3	10.1	12.5	300	112,414	9.8	8.7	10.9	
55-59	663	247,501	26.4	24.5	28.3	601	223,571	23.9	22.0	25.7	311	118,308	12.6	11.2	14.0	279	105,932	11.3	9.9	12.7	225	83,408	8.9	7.8	10.0	
60-64	414	154,664	25.0	22.7	27.3	362	138,403	22.0	19.9	24.2	142	55,284	8.9	7.5	10.4	144	52,796	8.5	7.1	9.9	131	46,021	7.4	6.2	8.7	
65-69	351	129,375	24.6	22.1	27.0	275	102,256	19.4	17.2	21.6	115	43,066	8.2	6.7	9.7	102	37,934	7.2	5.8	8.6	89	32,004	6.1	4.7	7.4	
70-74	177	65,874	19.8	17.1	22.5	139	52,131	15.6	13.1	18.2	53	19,912	6.0	4.4	7.5	57	20,674	6.2	4.6	7.8	48	17,398	5.2	3.7	6.7	
75-79	103	37,942	20.7	17.0	24.3	65	24,393	13.3	10.2	16.4	27	10,094	5.5	3.4	7.6	25	8,766	4.8	2.9	6.6	24	8,745	4.8	2.9	6.7	
80+	42	15,428	10.4	7.3	13.4	30	10,980	7.4	4.8	10.0	14	5,076	3.4	1.6	5.2	9	3,434	2.3	0.8	3.8	4	1,331	0.9	<0.1	1.8	





## **5. DISCUSSION**

The research team measure access to health information amongst Malaysians based on their access during the last one month. The questions asked may result in under reporting of the information on access to health information among Malaysian (i.e. 46% respondents received health information). A longer time frame (i.e. last one year, last 6 months) could not be given because this would results in 'recall bias'.

Internet is still not being regarded as a popular source of health information though the government has undertaken efforts to increase the use of internet among Malaysians. Television is still the primary source of health information among Malaysians.

The types of health information sought or received by Malaysians are information on chronic diseases (i.e. hypertension, diabetes, and cancer), dengue (popular vector borne disease in Malaysia) and healthy eating. These results are expected because hypertension and diabetes are prevalent amongst Malaysians and healthy eating is essential in control of hypertension and diabetes.

## **6. CONCLUSION**

In conclusion, health information seeking behaviour among the Malaysian community is still not so encouraging. The television, newspapers and radio are still the main sources of health information in the community even though the internet has been introduced for quite some time. The government should focus on increasing the awareness of the community to seek health information through the popular channels chosen by the community.

## **7. RECOMMENDATIONS**

- 7.1 Health information delivery through radio need to be improved as there is still demand for it.
- 7.2 Gender-based health information should utilize 'gender-oriented' health information source like newspaper (for men) and magazine (for women).

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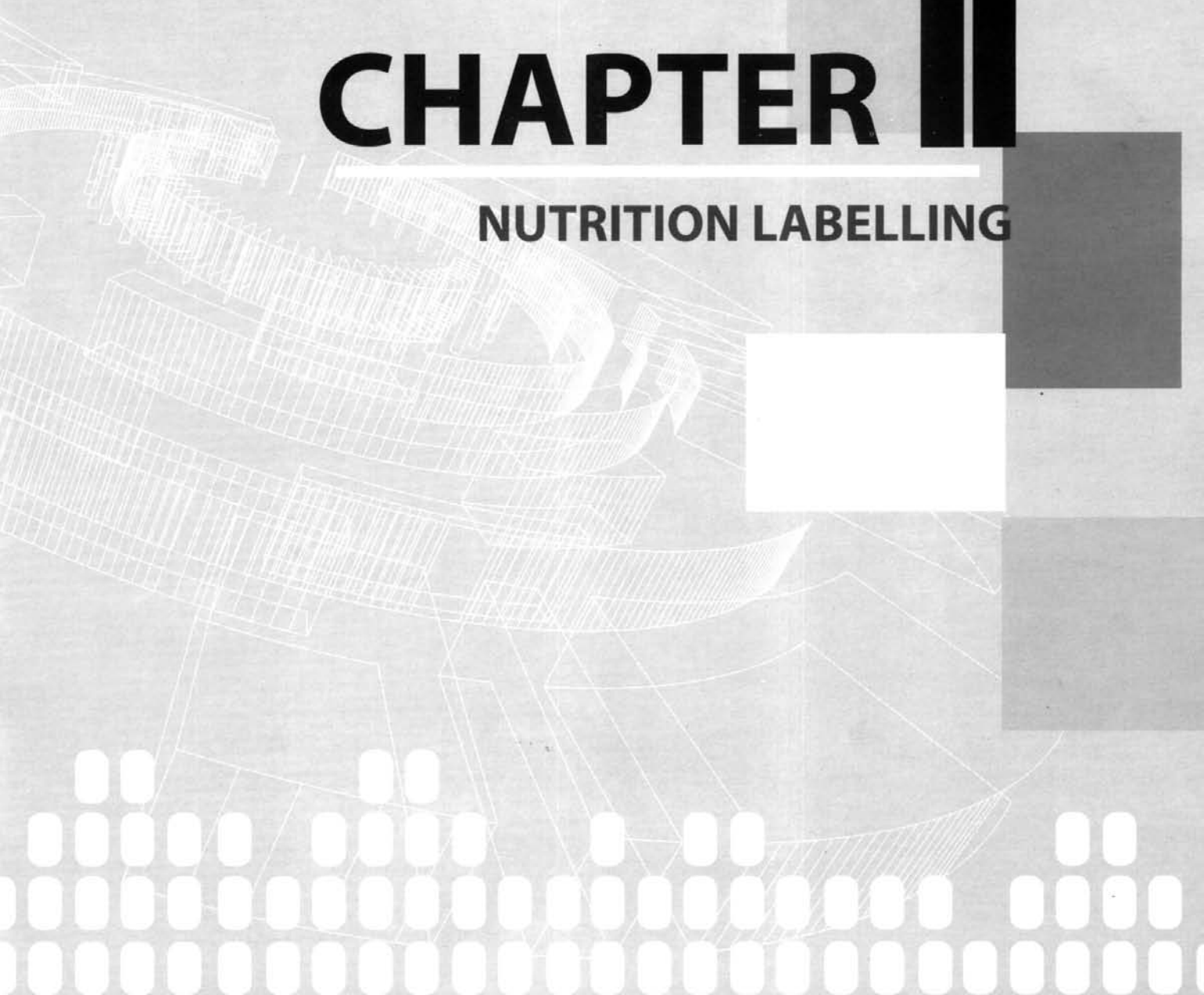
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# CHAPTER II

## NUTRITION LABELLING





## **ABSTRACT**

In Malaysia diet-related health problems have increased dramatically over the last few years. Consequently, nutritional labelling has emerged as an important aspect of consumer's food purchase decisions. Nutritional content in food products is considered to be necessary to selection of choice of healthy diet.

To practice healthy eating, public awareness and knowledge on nutritional information of the food content is very important. In fact, healthy eating is one of the components of the healthy life style campaign conducted by the Ministry of Health.

This study was carried out to assess the practices of seeking information on nutritional labelling among the community. The total number of respondents who responded to questions on nutritional labelling was 39,506. In general, the percentage of respondents who stated that they always read the nutrition label was 54.5%, sometimes read the nutrition label was 23.7% and never read the nutrition label was 19.3%. The educational status of respondents who read the nutrition label was in the following order, tertiary (74.5%), secondary (65.0%), and followed by primary (47.0%). By vocation the professional, technical and associate, and senior managerial staff position showed the highest percentage of frequently reading nutrition label, attributing to 73.6%, 73.2% and 70.5% respectively.

The percentage of respondents who stated that they always understand nutrition label was 60.6%, sometimes understand 33.9% followed by never understand 5.5%. More than two-thirds (68.1%) of the respondents who frequently read nutrition label were the internet users.

The most popular information on food that respondents read was the expiry date, which is not considered as nutritional labelling. Positive responses for expiry date was over 70% while less than 15% of the responses actually read nutritional information such as energy (7.18%), fat (14.8%), carbohydrate (11.4%), vitamin (12.3%), salt (8.1%), mineral contents (6.5%), food additives (6.2%), and others (6.2%). Only 27 respondents actually read all the six elements of nutritional labelling.

In conclusion, few people really read nutritional information in nutritional labelling and of those, 60% always understood the labelling. Most of them only read the expiry date which is actually food labelling. Thus, more health promotion effort on encouraging people to read nutritional information should be emphasized. Governments, international partners, civil society, non-governmental organizations and the private sector have vital roles to play in shaping healthy environment and making healthier diet options affordable and easily accessible. Initiatives by the food industry to reduce the fat, sugar and salt content of processed foods and portion sizes, to increase introduction of innovative, healthy, and nutritious choices, and to review current marketing practices could accelerate health gains worldwide.

## **1. INTRODUCTION**

In Malaysia diet-related health problems have increased dramatically over the last few years. Consequently, nutritional labelling has emerged as an important aspect of consumers' food purchase decisions. Nutritional content in food products is considered to be a credence attribute.

Healthy eating is one of the components of the healthy life style campaign. To practice healthy eating, public awareness and knowledge on the nutritional information of the food content is very important. Consumers who are more concerned about nutrition and health are more likely to make use of nutritional labels.

## **2. LITERATURE REVIEW**

There has been no consistency in the results of studies conducted regarding the determinants of label use. There was also no consensus on the effect of age, income, or working status on nutritional label use. However, education and gender (i.e. being female) have been found to positively affect label use.

The more knowledgeable the individual, the easier they would find it to encode information, thereby making further information acquisition easier (MacInnis & Jaworski 1991). It appears that consumers who are more concerned about nutrition and health care are more likely to use nutrition labels (Andreas et al. 2006).

Consequently, consumers on a special diet, organic buyers, and those aware of the diet-disease relation are more likely to search for on-pack nutrition information than others. The type of household also has an effect on label use (Ribeaux & Poppleton 1978). Specifically smaller households and households with young children are more likely to engage in nutrition information search behaviours.

The consumer who attach importance to price are less likely to use labels but those who attach importance to nutrition are, as expected, more likely to search for nutritional information. Many studies have found that nutrition knowledge has significant impact on nutrition label use.

In general, it has been found that nutritional label use affects purchasing behaviour mainly because consumers want to avoid the negative nutrients in food product.

WHO projects that by 2015, approximately 2.3 billion adults will be overweight and more than 700 million will be obese. Once considered a problem only in high-income countries, overweight and obesity are now dramatically on the rise in low and middle-income countries, particularly in urban settings (World Health Organization 2007).

The fundamental cause of obesity and overweight is an energy imbalance between calories consumed on one hand, and calories expended on the other hand. Today the estimated numbers of overweight people around the world are increasing rapidly and the dangers of this health hazard have become more apparent. Nutrition label can assist obese people to make the right choices about their nutrition

requirement. It was shown that nutrition label use was significantly higher among respondents who were women, older, educated beyond high school, and obese (Satia et al. 2005).

One of the reasons that cause overweight and obesity is the lack of knowledge, attitude and practice on nutritional intake.

### 3. OBJECTIVES

#### 3.1 General Objective

To determine the attitude and practices among the community towards health information provided by the Ministry of Health (MOH).

#### 3.2 Specific Objectives

3.2.1 To assess the attitude on nutritional labeling among the community in Malaysia.

3.2.2 To assess practices of the Malaysian community towards nutritional labeling.

### 4. FINDINGS

#### 4.1 Practice Reading Nutrition Label Every Time Buying / Receiving Food

The study of National Health and Morbidity Survey 3: Nutritional Labeling was carried out among the community above 13 years old to assess the practices of seeking information on nutritional labeling among the community. The total number of respondents who responded to questions on nutritional labelling was 39,506 (99%).

In general the percentage of respondents who stated that they always read nutrition label was high (54.5%), sometimes read nutrition label (23.7%), never read nutrition label was (19.3%) and don't know (2.5%).

**Table 4.1: Practice of reading nutrition labels**

Practice	% of Responses	Yes, always % (95% CI)	Yes, some times % (95% CI)	No % (95% CI)	Don't Know %
Read labels	96.6	54.5 (CI: 53.0-55.3)	23.7 (CI: 23.2-24.3)	19.3 (CI:18.7-19.9)	2.5

Among those who always read the labels, there were more males, (53.3%) as compared to females (55.6%).

By age group, the 25-29 (66.2%) shows a higher proportion as compared to the other age group in always reading the labels.

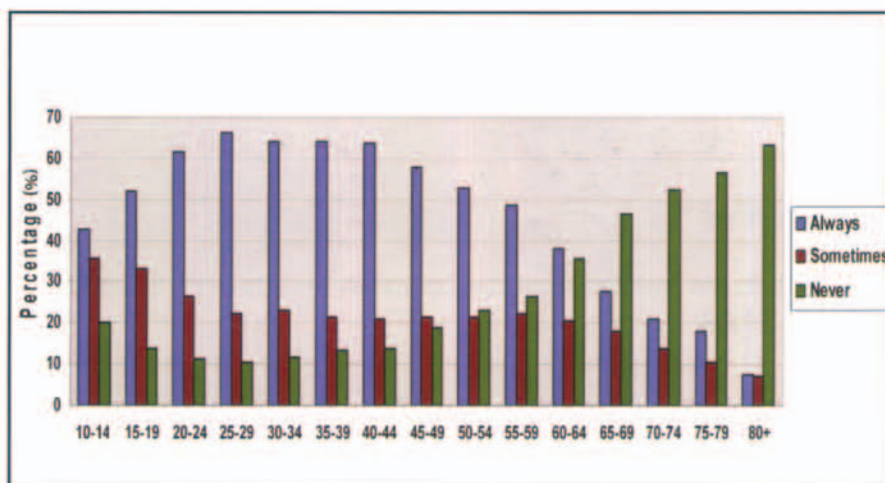


Figure 4.1: Practice reading nutrition labels by age

By ethnic group, the Indians, [58.6% (CI: 56.8 – 61.0)] are higher compared to the other ethnics. Malays [58.6% (CI: 57.7 - 59.5)], Chinese, [47.2% (CI: 45.6 - 48.8)] other Bumis, [49.1% (CI: 47.0 - 51.2)] in reading nutrition labels.

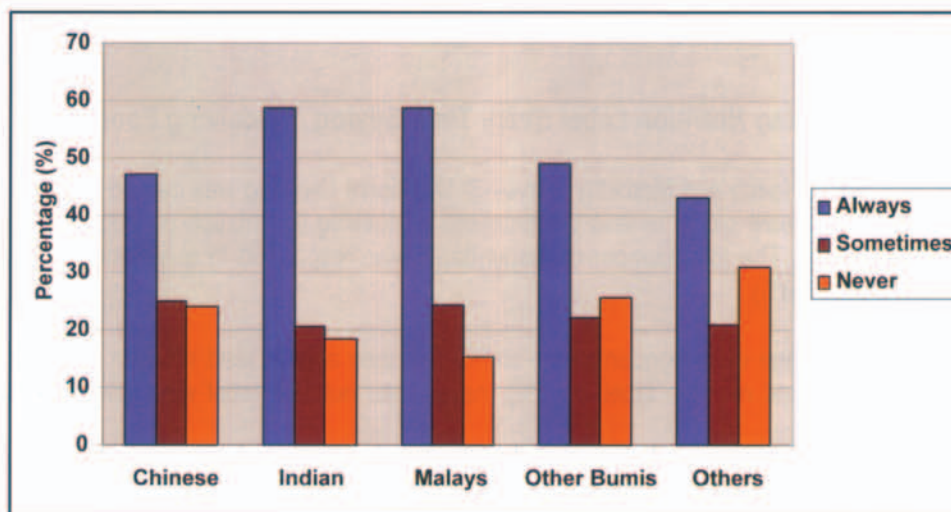


Figure 4.2: Practice reading nutrition labels by ethnicity



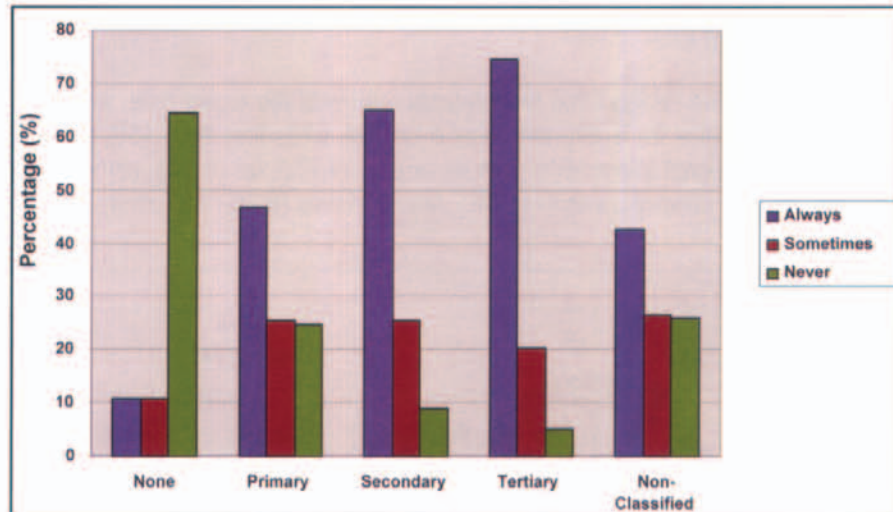


Figure 4.3: Practice reading nutrition labels by educational status

The survey showed that most respondents who always read the nutrition label have a tertiary education level [74.5% (CI: 72.8 - 76.1)]. This was followed by those with secondary education [65.0% (CI: 64.1 - 65.9)], and primary [46.9% (CI: 45.9 - 47.9)] while by citizenship, the Malaysians [55.3% (CI: 54.6 - 56.1)] is higher compared to non Malaysian [40.4% (CI: 37.6 - 43.2)].

In terms of the respondent's profession, the professionals, technical and associate, and senior managerial position showed the highest percentage for reading nutrition label always with 73.6%, 73.2% and 70.5% respectively.

More than two-thirds (68.1%) of the respondents who always read nutrition label were the internet users.

By residence most of the urban respondents (57.2%) read nutrition labels as compared to the rural respondents (49.8%). More than half of the respondents with household income > RM1000 always read the nutritional labels.

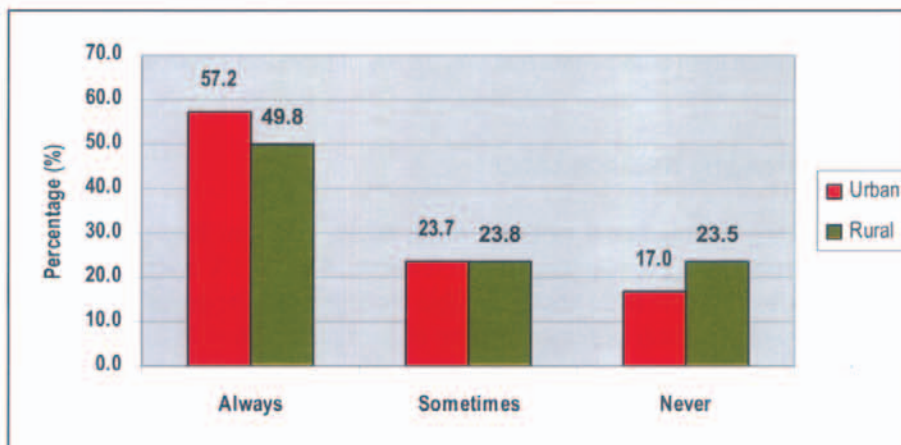


Figure 4.4: Practice reading nutrition labels by residences

## 4.2 Types of Labelling been Read

The most popular information on food that respondents read was the expiry date, which is actually a food label. Responses positive for expiry date was over 70% while less than 15% of the responses were actually reading nutritional information such as energy (4.7%), fat (9.7%), carbohydrate (7.5%), vitamin (8.2%), salt (5.3%), mineral contents (4.3%), food additives (6.2%) and others (6.2%).

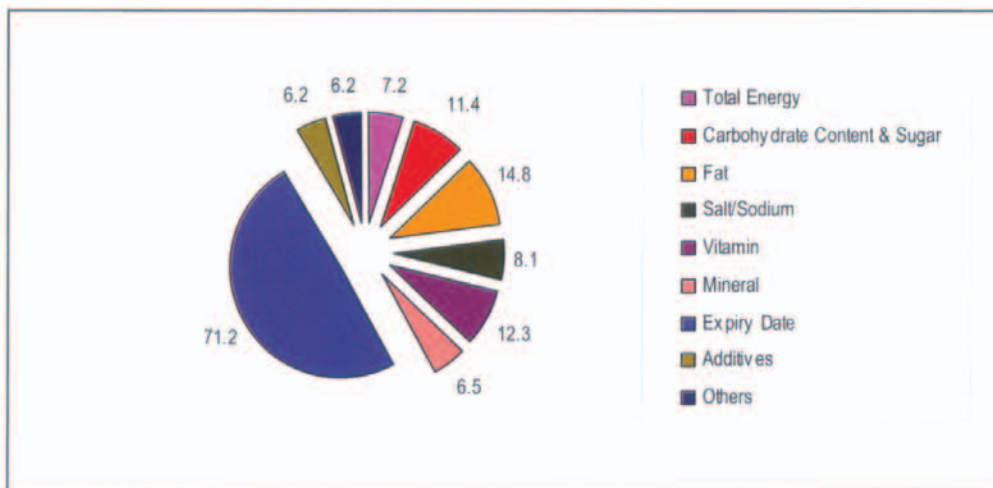


Figure 4.5: Types of nutrition labels being read

There were only 27 respondents who read the entire six nutrition labels item (total energy, carbohydrate content and sugar, fat, salt/sodium, vitamin, mineral).

By ethnicity, 18 (66.7%) responses were Malays, 7 (25.9%) of them were Chinese, 1 an Indian and 1 (3.7%) other Bumis.

Majority of the respondents (66.7%) had secondary education, 22.2% had tertiary education followed by 11.1% of them with primary education.

Most of them (81.5%) were from urban areas and only 18.5% of them were from rural areas.

## 4.3 Understand Reading Nutrition Label

In term of understanding the nutritional labelling, about 60.6% said that they understood the label whilst 33.9% said sometimes, 5.5% said they did not understand and 0.1% don't know. MacInnis and Jaworski (1991) proposed that the more knowledgeable the individual, the easier they would find it to encode information, thereby making further information acquisition easier.



Table 4.2: Overall understand reading nutrition label

Practice	% of Responses	Yes, always (%)	Yes, some times (%)	Never (%)	Don't Know (%)
Understanding of labels	76.9	60.6	33.9	5.5	0.1

By ethnicity, Indians 65.4% (CI: 62.7 - 68.1) were higher in understanding nutritional label as compared to the Chinese 59.7% (CI: 57.8 - 61.7) and the Malays 59.6% (CI: 58.3 - 60.9).

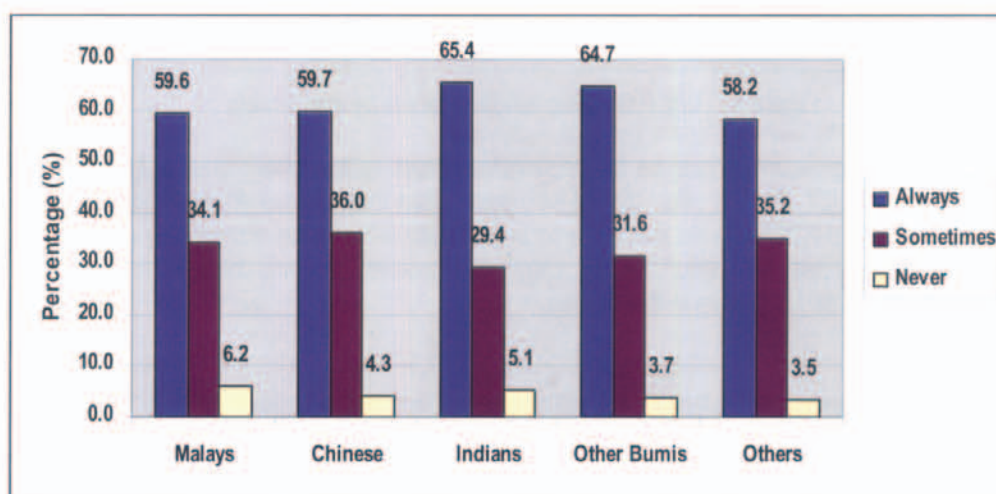


Figure 4.6: Understand reading nutrition labels by ethnicity

As compared to marital status, there was a significant difference between those who were married, 62.0% (CI: 60.9 - 63.1) and those who were not married, 58.4% (CI: 57.1 - 59.8); that is those who were married have a better understanding of nutrition labels.

By age group, there is a significant difference between young adults age 25–29 [64.3% (CI: 62.3 - 66.2)] and those between 50–54, [58.2% (CI: 55.9 - 60.5)] in understanding reading nutritional labelling. Andreas et al. (2006) stated that there was no consensus on the effect of age, income, or working status on nutritional label used.

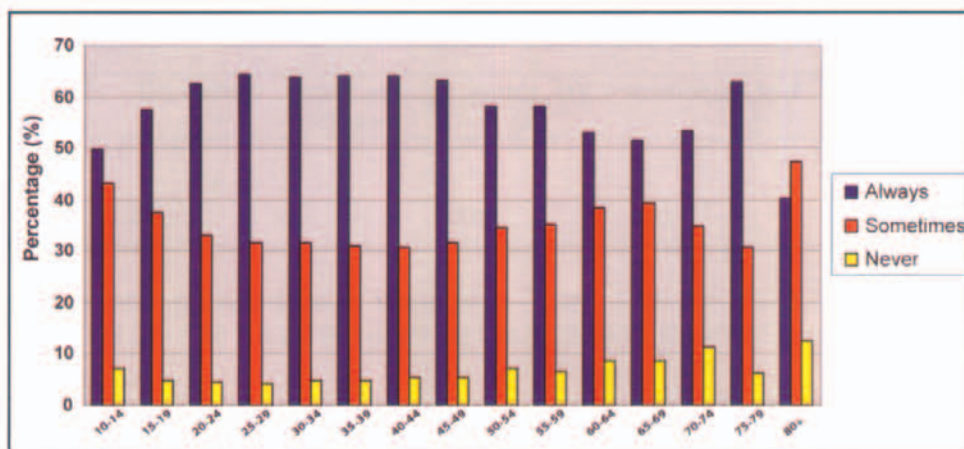


Figure 4.7: Understanding nutrition labels by age groups

There was also a significant difference between respondents in the urban area [62.0% (CI: 60.7 - 63.3)] and rural area [57.7% (CI: 56.2 - 59.3)] who stated that they always understand nutrition label. Cornell and Crawford (1988) stated that the amount of health information received by urban residents from all sources declined with age, whereby older men received far less information than younger men. However, this was not shown in this survey.

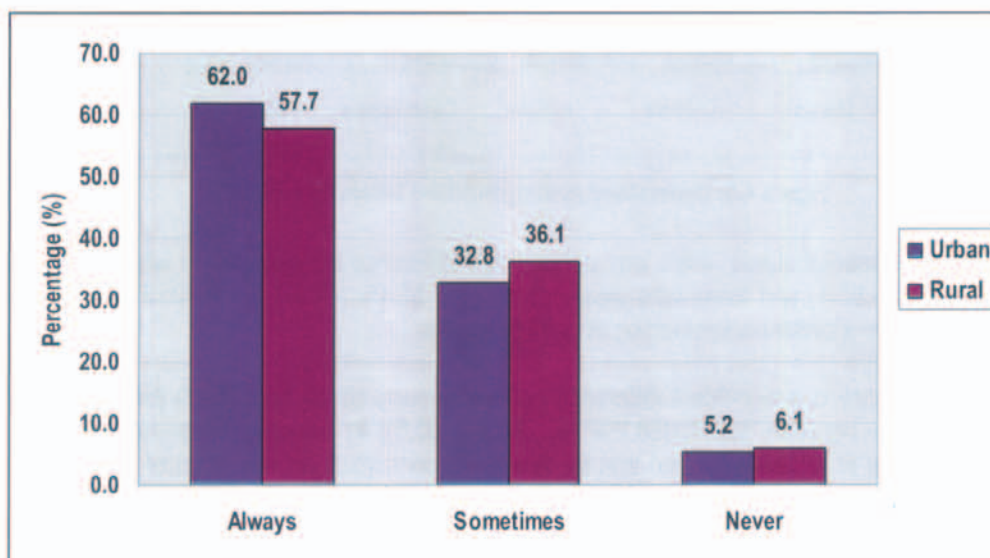


Figure 4.8: Understanding nutrition labels by residences

Among the respondents, those who stated that they sometimes understood the label were 33.9% (CI: 33.0 - 34.7). By educational status, those with no education were, [46.1% (CI: 42.3 - 39.3)], had primary, [38.1% (CI: 36.9 - 39.3)], secondary, [32.4% (CI: 31.4 - 33.8)], followed by tertiary education, [26.2% (CI: 24.3 - 28.1)].

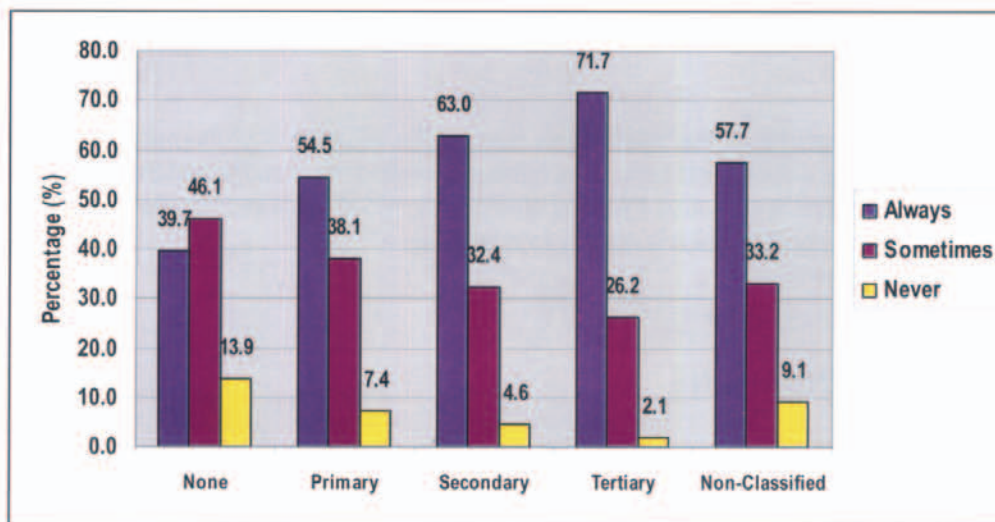


Figure 4.9: Understanding nutrition labels by educational status

About 5.5% of the respondents stated they never understand nutrition label. Of this, [13.9% (CI: 11.3 - 16.5)], had no education, followed by primary, [7.4% (CI: 6.7 - 8.1)], secondary, [4.6% (CI: 4.2 - 5.1)], tertiary education, [2.1% (CI: 1.6 - 2.6)]. Rothman et al. (2006) stated that poor label comprehension was highly correlated with low-level literacy and numeric skills, but even patients with higher literacy could have difficulties interpreting labels.

## 5. DISCUSSION

There were 27 respondents who really read all the six items (total energy, carbohydrate content and sugar, fat, salt/sodium, vitamin, and mineral) of the nutritional labelling. Less than 15% of the respondents read each of the nutritional information in nutrition labelling. However, 60% of them always understood the labels. The proportion in reading nutrition information significantly increases with the increase in educational status. Most of them only read the expiry date which is actually food labelling. Moorman and Matulich (1993) found that high knowledge levels did indeed facilitate information acquisition but also that, when health motivation is high, those with higher health knowledge will perform more health behaviors than individuals with lower knowledge levels. Andreas et al. (2006) stated that consumers who are more concerned about nutrition and health are more likely to use nutritional labels.

## **6. CONCLUSION**

In conclusion, less than 1% of the respondents read all the information of the nutritional labelling. Below 15% of the respondents read each of the nutritional information in nutritional labelling. However, about 60% of the respondents stated that they always understood when reading the labels. Most of them only read the expiry date which is actually food labelling.

## **7. RECOMMENDATIONS**

The public need to be educated on the importance of reading nutritional labelling. More educational efforts on encouraging people to read nutritional information should be emphasized. Governments, international partners, civil society, non-governmental organizations and the private sector have vital roles to play in shaping a healthy environment and making healthier diet options affordable and easily accessible.

Initiatives by the food industry to reduce the fat, sugar and salt content of processed foods and portion sizes, to increase innovative, healthy, and nutritious choices, and to review current marketing practices could accelerate health gains worldwide.



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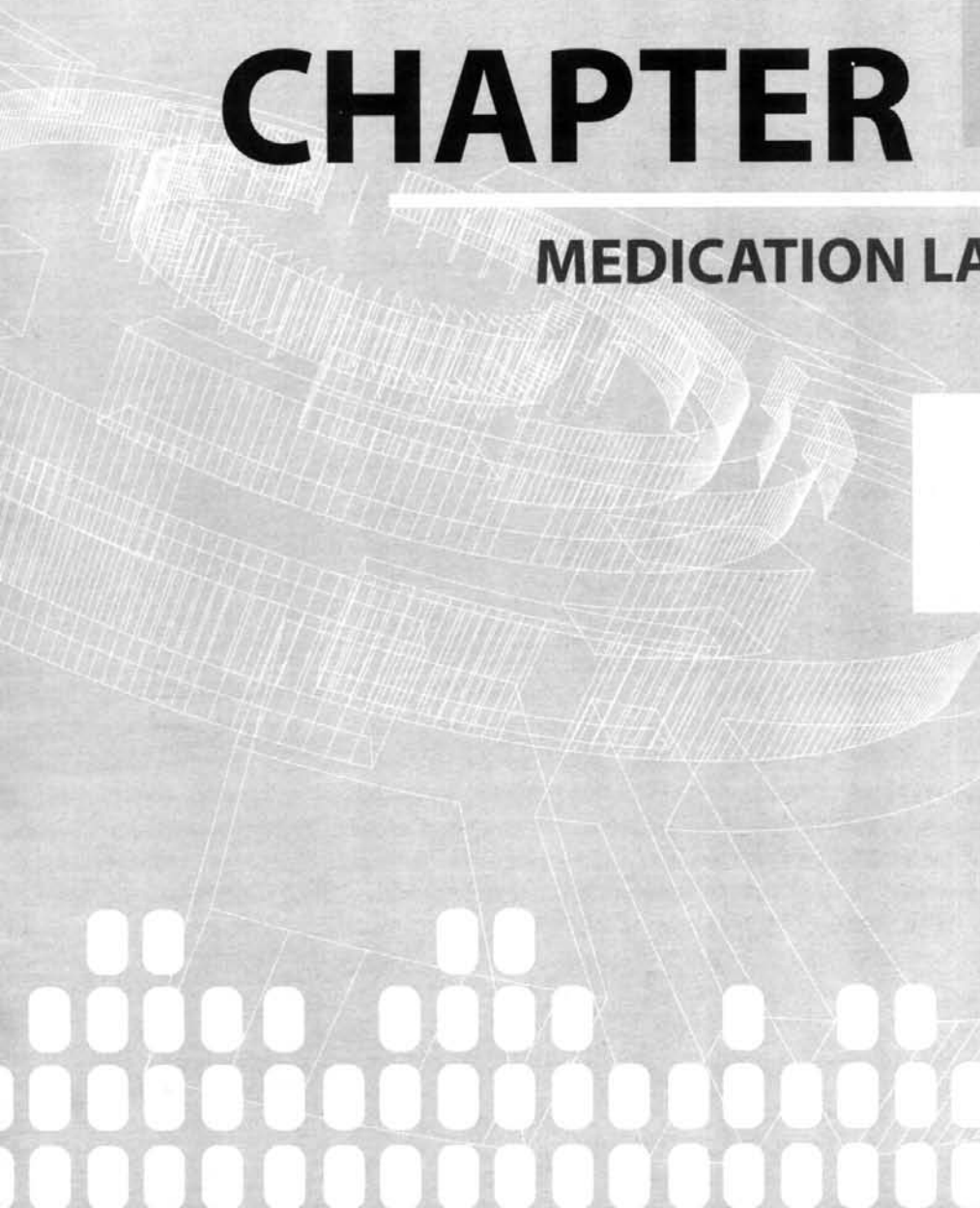
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# CHAPTER

# III

## MEDICATION LABELLING







## ABSTRACT

Labelling of medication is one of the requirements under the law. Furthermore, understanding of medication labels is important to avoid medication errors and related adverse events.

This study is a survey to assess the attitude and practice of the population towards medication labelling. Generally, it was found that the percentage of respondents who always or sometimes read medication labels was 61.1% and 19.0% respectively. There were 16% who did not read their medication labels at all. Those with tertiary (79.9%) followed by secondary education (71.4%) also read medication labels the most. Among those who always read medication labels, the technical and associates, (79.5%), followed by the professional (79.0%) and senior official and managerial (74.4%) groups are the top most three groups. The information that respondents found most important to read was the dose of the medicine (21.4%), followed by how to take or use (19.6%) and frequency of taking (18.4%). The respondents claimed to have understood the labels on their medication with 64.1% stating that they always understand the labels while 32.8% understood the labels sometimes. Although most respondents can understand their medication labels always or sometimes, a high percentage (60.0%) still sought for clarification about their medicines.

In conclusion, whilst the majority (61.1%) of the respondents claimed that they read medicine labels, reading medicine labels is not a common practice amongst a sizable number of respondents (16%). About one-third of the respondents could only understand their medicine labels some of the time only. Those with higher education levels and holding higher positions could understand better and has a tendency to know more about their medicines.

The findings showed that effort should be made towards improving medicine label literacy among the community and to educate patients and consumers on the importance of understanding more about their medicines. There is a need to study about patients' understanding of medicine labels and requirements that aid better understanding.

## **1. INTRODUCTION**

Labelling of prescriptions and over-the-counter medications is one of the requirements under the Poison Act, 1952. This requirement is important as labels provide information to patients and consumers on the correct and proper use of medications.

Understanding of medication labels is imperative to avoid medication errors and related adverse events. Better understanding of medication labels will also lead to optimal use of medication by patients. Davis et al. (2006) mentioned 'patients' literacy and their ability to understand medication information are increasingly seen as a 'safety issue'. Understanding medication labels plays a part in protecting the public from harm, which can arise from improper use.

Although labels provide adequate information, laypersons may not be able to understand medication labels due to several reasons, which could include the technicality of the information and lack of functional literacy on their part. In this study only the practice and attitude regarding medication labels by laypersons are explored.

## **2. LITERATURE REVIEW**

Medicines are being taken by most people at some point in their life. But taking medicines is not as simple as it may seem. Reading and comprehending medication labels are part of the skills that are required to be imparted to consumers and patients. Understanding instructions on medication labels enable consumers or patients to use medicines correctly and rationally.

There have been findings to show that age and education level are related to reading and understanding medication labels. Younger patients with better education have been shown to influence comprehension of reading and ability to understand labels. However, there are no studies to show that gender has any effect.

In Sweden, it was found that 9.4% out of 492 community-based elderly people aged 77 and above, could not read instructions on a medication container (Beckman et al. 2005). Among the Swedish elderly population taking medicines, it was found to be a complex task that hinders the taking of medicines accurately due to cognitive, physical or visual limitations.

Nabors et al. (2005) assessed factors related to label reading of over-the counter medication for young people. The respondents consisted of high school and college students. Most of them read labels and package inserts to learn more about their medications. When reading labels, participants were interested in information about side effects, ingredients, dosage instructions and symptoms treated by the medication.

Zucollo and Liddell (1985) found that 60% of their study patients who are elderly patients had problems reading their medication labels and the same percentage did not have a clear understanding of the directions on the labels. Their study was conducted prior to the patients' discharge.

Davis et al. (2006), found that literacy is associated with understanding of medication label; whereby misunderstanding of medication label is more common in those with lower literacy. Patients with lower literacy skills also demonstrated a lower rate of correct interpretation of eight commonly used prescription warning labels as compared with those with higher literacy skills (Wolf et al. 2006).

### **3. OBJECTIVES**

#### **3.1 General Objective**

To determine attitude and practices among the community towards health information provided by the Ministry of Health (MOH).

#### **3.2 Specific Objective**

To assess attitude and practices among the community towards medication labelling.

### **4. FINDINGS**

The total number of respondents who were asked about medication labelling was 39,504 and this constitutes 99.0% of eligible respondents. However, the percentage of responses to different questions differs.

#### **4.1 Reading Label**

There were altogether 37,581 responses, and the percentage of respondents who always read medication labels was 61.1% (CI: 60.3 - 61.9) and sometimes read medication labels was 19.0% (CI: 18.5 - 19.6), whenever they receive or buy medicines. Some [16.0% (CI: 15.5 - 16.5)] of the respondents did not read their medication labels at all (Figure 4.1). Around 4% of the respondents did not know, were not sure or refused to answer.

There was no difference between males and females in those who always or never read labels. Of those who always read medication labels, the highest percentage, 71.4% (CI: 69.7 - 73.1) falls under the 25–29 age group, followed by the 35–39 age group [70.1% (CI: 68.4 - 71.8)] and the 20 – 24 age group [68.5% (CI: 66.8 - 70.1)].

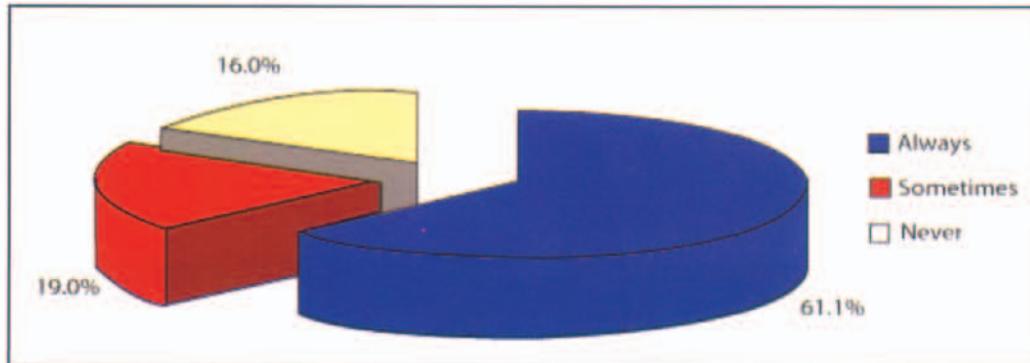


Figure 4.1: Reading medication label by frequency

Education level is associated with the reading of labels. Among those who always read medication labels (as shown in Figure 4.2) those with tertiary [79.9% (CI: 78.3 - 81.5)] and secondary [71.4% (CI: 70.6 - 72.3)] education have higher percentage.

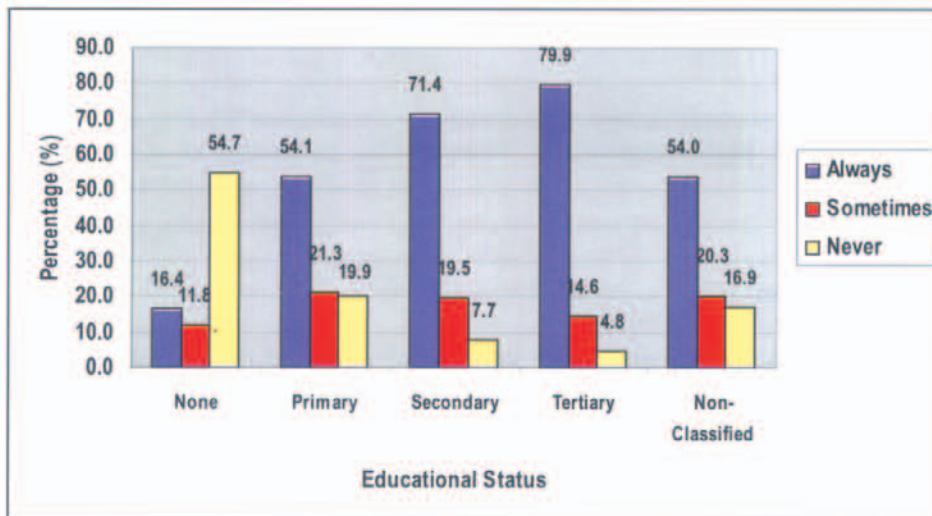


Figure 4.2: Reading medication labels by educational status



There are significant differences among all groups of education levels. Slightly more than half of the respondents who had no education [54.7% (CI: 52.8 - 56.5)] never read medication. Technical associates (79.5%), professionals (79.0%), followed by senior official and managerial groups (74.4%) are also among the highest which always read medication labels. Significantly more people living in urban areas [62.9% (CI: 61.9 - 63.9)] always read medication labels as compared to those living in rural areas [57.9% (CI: 56.8 - 59.0)] as shown in Figure 4.3.

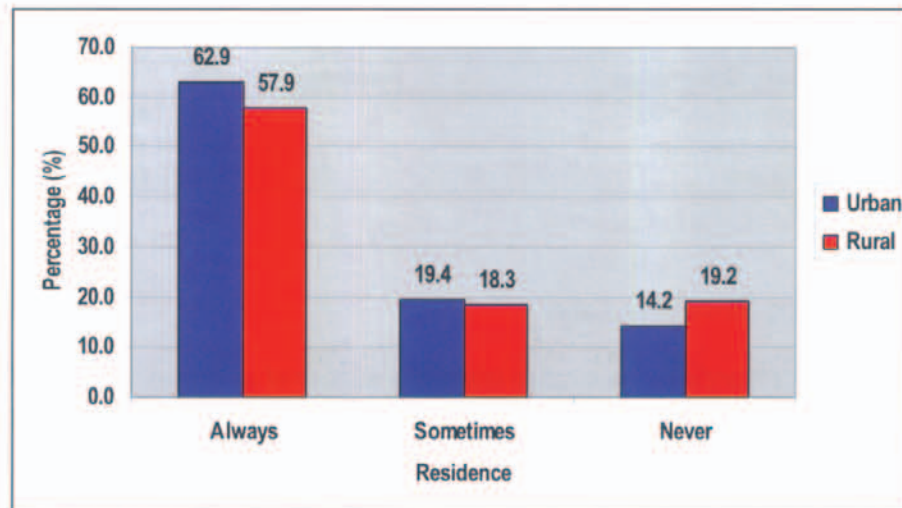


Figure 4.3: Reading medication labels by place of residence

## 4.2 Types of Information on Label Reading

Information on the medication label that is important for the layperson to read include the name of the medicine, indication, dosage and frequency, route of administration, expiry date, storage conditions and registration number.

The information that respondents found most important to read was the dosage 47.7% (CI: 47.1 - 48.7), followed by the method of administration 43.2% (CI: 42.4 - 44.0) and frequency 40.8% (CI: 42.4 - 44.0) as shown in Table 4.1. There was significant difference in the importance of knowing the dosage as compared to the other information. The least important information for the respondents was the expiry date (21.8%), storage conditions (3.8%) and registration number (1.3%), as shown in Table 4.2.

There were 31,232 respondents being asked about types of information on medication label being read. Of these only 60 (0.2%) respondents read all the eight types of information on the label. There was equal number of respondents from urban and rural areas. By education level, 26 had tertiary, 24 secondary, and 10 primary education level. None of those without education read all the items in the label. The Malays (51) are the highest among the respondents to read all the items, followed by the Chinese (6). Among others, only 2 Bumis and 1 Indian read all the items in the labels.

**Table 4.1: Types of information on labelling most read**

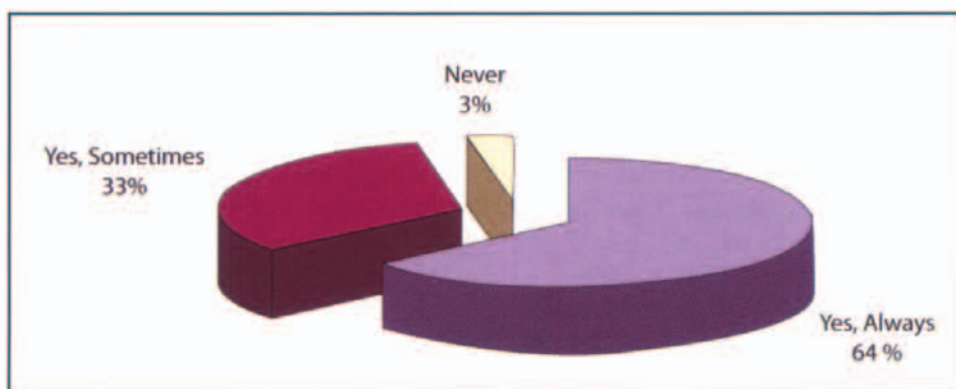
Types of Information	Percentage (95% CI)
Dosage	47.7 (CI: 47.1 - 48.7)
Method of administration	43.2 (CI: 42.4 - 44.0)
Frequency	40.8 (CI: 40.0 - 41.7)

**Table 4.2: Types of information on labelling least read**

Types of Information	Percentage (95% CI)
Registration number	1.3 (CI: 1.1 - 1.4)
Storage condition	3.8 (CI: 3.5 - 4.1)
Expiry date	21.8 (CI: 21.1 - 22.4)

### 4.3 Understanding Medication Label

As regards to the understanding of medication labels, the number of responses was 31,134, which made up 78.8% of the respondents. As shown in Figure 4.4, 64.1% (CI: 63.3 - 65.0) of the respondents claimed they always understood the labels while 32.8% (CI: 32.0 - 33.6) claimed they understood sometimes. Only a small number of respondents, 3.0% (CI: 2.7 - 3.3) claimed they did not understand at all.



**Figure 4.4: Understanding medication label by frequency**

Among the respondents who always understood their medication labels, those aged 80 and above had the lowest percentage at 35.4% (CI: 24.5 - 46.3), as compared to the other age groups, whose percentage ranges from 54.4% (CI: 50.7 - 58.1) to 67.8% (CI: 66.0 - 69.6). However, 55.0% (CI: 44.0 - 66.0) of the elderly over 80 stated that they understood their medication label sometimes. Therefore, this gives an opportunity to improve the level of understanding of medication label for this group by giving detail explanation.



The professionals [72.6%, (CI: 70.5 - 74.7)], the technical associates group [72.4% (CI: 70.4 - 74.4)] and senior officers and managers [68.4% (CI: 64.3 - 72.4)] are the groups having the highest level of understanding medication labels compared to other occupational groups. Likewise, those with tertiary education [73.8% (CI: 71.9 - 75.6)] have the highest comprehension of medication labels, which is significantly higher compared to the other levels of education (Figure 4.5).

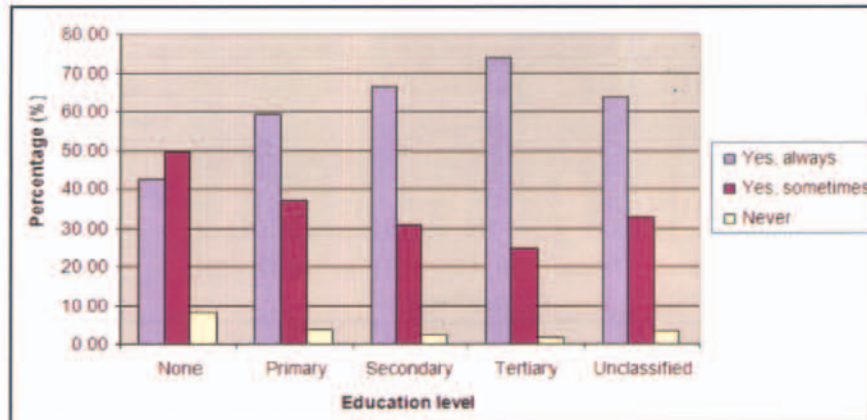


Figure 4.5: Understanding medication label by educational level

#### 4.4 Clarification on Medication Labels

As shown in Figure 4.6, more than half [60.0% (CI: 59.1 - 60.8)] always sought clarification about their medications, while nearly a quarter (23.8%) only sometimes sought clarification. However 15.4% never sought clarifications.

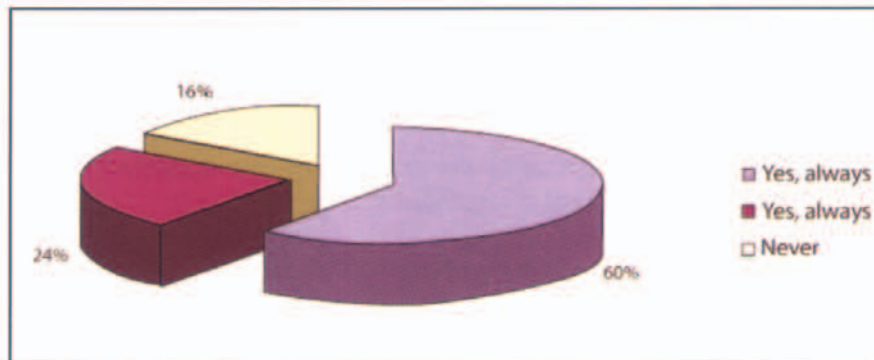


Figure 4.6: Asking for clarification of medication label by frequency

More females (60.9%) than males (58.9%) always sought for clarification about their medications, but this is not significant. Although those with tertiary education are considered more knowledgeable, most of them [66.8% (CI: 65.0 - 68.6)] sought clarification about their medicine. This is significantly different compared to those with secondary [60.2% (CI: 59.2 - 61.3)] and primary [57.3% (CI: 56.2 - 58.5)] education (as shown in Figure 4.7). Those with no education are also inclined to always ask about their medication.

Technical associates (67.6%) and the professional groups (66.9%) are also the ones shown to seek for more clarification on their medicines.

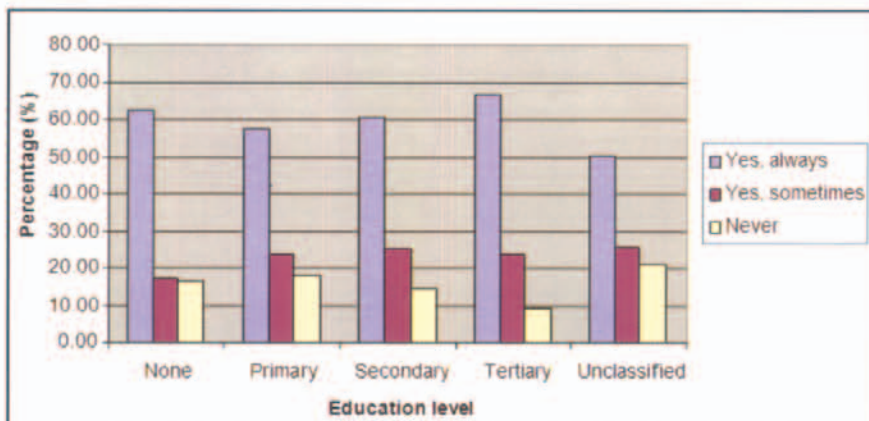


Figure 4.7: Asking for clarification of medication label by level of education

Among those stated that they never ask for any clarification on their medication, the highest are among the teenagers 13–19 years old [67.2% (CI: 23.6 - 34.3)] and those above 80 years old at 23.5% (CI: 19.2 - 27.9). The unemployed [18.7% (CI: 17.3 - 20.1)] is another group that did not clarify about their medication.

## 5. DISCUSSION

In general, urban residents having higher education, better occupation are associated with the reading and understanding of medication labels. These findings correspond to the findings of Koo et al. (2006), whereby it was found that the interest in reading and seeking written medicine information were influenced among others by health literacy levels and occupation.

While the majority (61.1%) of the respondents claimed that they read medication labels, it is not a common practice among a sizable number of respondents (16%).

About one-third of the respondents could only understand their medication labels some of the time only. Understanding of medication labels is predominantly a problem among the elderly. As pointed out by several studies (Davis et al. 2006; Wolf et al. 2006), medication labels can be confusing to the lay people and this leads to the misunderstanding of the labels. Therefore, it is expected that they would seek clarification. However, those who did not seek more information about their medication label are common among elderly above 80 years old, teenagers and the unemployed. Therefore, the strategy for education on medication should include these groups.



## **6. CONCLUSION**

While the majority of the respondents (61.1%) claimed to read medication labels, 16% (comprising mainly those without education) never did so. Respondents, who read medications labels are likely to be more educated, hold higher positions and are urban residents.

Most respondents who read labels could understand the labels but about one-third (33%) could only understand some of the time only. Respondents with higher education level and holding higher positions are more likely to have better understanding and are inclined to find out more about their medication.

Only 60 respondents read all the eight items on the medication label. There was an equal number of respondents from urban and rural areas. None of those without education read all the items in the label. The Malays (51) are the highest among the respondents to read all the items, followed by the Chinese (6).

## **7. RECOMMENDATIONS**

The findings showed that efforts should be made towards improving medication label literacy among the community and to educate patients and consumers on the importance of understanding more about their medicines. More emphasis should also be given to the elderly group and those with lower literacy.

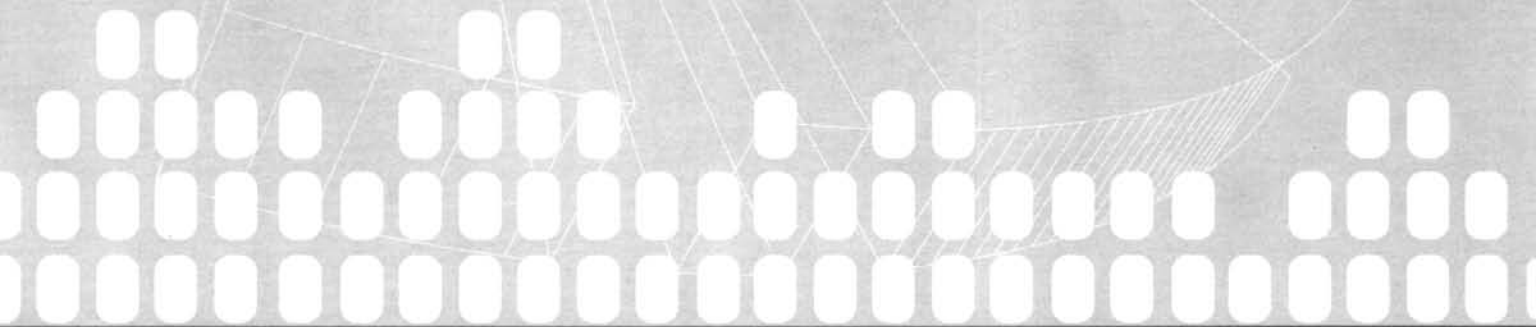
A follow-up study should be done on the real understanding of patients and consumers of their medication labels. The study could give a better understanding on the requirement to be placed on the medication labellings label and whether other means, such as pictorial illustrations would be a useful method for labelling. Furthermore, understanding the patients' level of comprehension on medication labelling will enable more efficient counselling methods and hence better interventions especially for the elderly and lower education level.

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# CHAPTER IV

ORGAN DONATION





## **ABSTRACT**

Organ donation is the gift of ones body parts after death for the purpose of transplantation. Transplantation is an operation which involves the replacement of diseased and defective organs and tissues with healthy ones from donors. The commonly transplanted organs are kidneys, heart, liver, lungs and pancreas. Based on International Organ Donation Rate 2004, only 1.1 per million population/year of Malaysians donate their organs after death. One of the main reasons behind the poor rate of organ pledgers in Malaysia is lack of awareness about the importance and urgency of organ pledging.

In this study on organ donation information among the public 15.6% of Malaysians received information on organ donation less than 3 months before this study was conducted. In general, 54% had received information on organ donation within a period of more than three months. Only 1.5% respondents agreed to pledge as an organ donor. When asked the reasons for not pledging, majority of the respondents gave the reason as scared (39.3%), followed by uncertainty due to religion (10.9%), against religious practice (10.5%), suffering of the corpse (6.3%), objection from family members (2.9%) and did not know where to register (2.6%). The study also showed that 20.5% of the respondents agreed that the organ donation information could influence them to pledge as organ donors. In conclusion, this study shows that only some people have religious or cultural objections to donate organs and also objection from family members, but majority of them are scared to donate their organ. This shows that current information on organ donation is still ineffective to influence public to become organ donors.

## **1. INTRODUCTION**

Organ donation is the gift of one's body parts after death for the purpose of transplantation. Transplantation is an operation which involves the replacement of diseased and defective organs and tissues with healthy ones from donors. The commonly transplanted organs are kidneys, heart, liver, lungs and pancreas, while the transplantable tissues are bones, skin, eyes and heart valves. A single donor can save the lives of many people. The organ transplantation only begins after brain death/death has been confirmed by two (2) registered doctors. The doctors involved with the certification of death are in no way not involved in the transplant operation.

## **2. LITERATURE REVIEW**

The organ and tissue removal process is done in a sterilized condition, as though the surgery is performed on a living person. Once the organs and tissues are removed, the body is cleaned, covered, and returned to the family. The organ donation will not delay the burial and it can go on as with other deaths.

According to Shaikh (2005), organ and tissue transplantation is a revolutionary treatment that has proven to be successful in saving lives. Through such transplantation, patients with certain terminal diseases have new hope of continuing to live. Some of the organs and tissues could be obtained from living donors but the main source is cadavers. However, there is lack of cadaveric donors due to several reasons such as lack of understanding among the general public on organ transplants and also lack of public understanding on the definition and concept of brain death. Due to the shortage of cadaveric donors, the first heart transplant in Malaysia could only be carried out on December 1997.

Based on International Organ Donation Rate 2004, only 1.1 per million population/year of Malaysians donate their organs after death. As a comparison, 33.6 per million of the population/year were organ donors in Spain (Source: National Transplant Resource Centre). One of the main reasons behind the poor rate of organ pledgers in Malaysia is lack of awareness about the importance and urgency of organ pledging.

All religions oblige sincere and voluntary organ donation:

**Muslims:** According to the National Fatwa Committee 1970, organ transplant is obligatory for Muslims (Ismail 1999). The Islamic teachings and fatwas allow all types of organ and tissue transplantation, if certain required conditions are met (JAKIM).

**Christian:** Therefore if the usefulness of our bodily organs can be extended beyond our earthly existence for the benefit of those who remain here, we should do all we can to make this possible (The Christian Federation of Malaysia).

**Buddhist:** The Purpose of Life is to serve others. The body and soul are separated at death. Organ donation process is no opposition to Buddhist teachings (Buddhist Association of Malaysia).

Hindu: The soul is immortal and is only housed in the physical body. If the body cannot sacrificed for others, it has not lived purposefully (Swami Guhabba of Devine Life Society).

The Japanese students, Bagheri et al. (2003), in their study found that the high value of life among Japanese society and the willingness to be a donor, bring hope that giving correct medical information and proper public education can increase social acceptance of organ transplantation from the brain dead in Japan.

Beutal et al. (2006), through a study found that consent to organ donation was associated with younger age and higher social class. The knowledge of the determinants identified with existing fears and concerns are helpful not only for informing the public, but also for the dialogue with the next of kin of potential donors.

Manninen and Evans (1985), in their study on public attitude and behavior regarding organ donation found that nearly 94% of population had heard about organ transplantation but only 19% carried donor cards and this can be concluded that people are very supportive but not enthusiastic about organ transplantation.

### **3. OBJECTIVES**

#### **3.1 General Objective**

To determine the attitude and practices among community on health information provided by Ministry of Health (MOH).

#### **3.2 Specific Objective**

To assess the attitude on organ donation among communities in Malaysia.

## **4. FINDINGS**

Organ transplantation has been the subject of much attention. Unfortunately little has been published about public attitudes toward organ donation. To better document public perceptions on organ donation, in the Third National Health and Morbidity Survey an organ donation survey was carried out among the communities above 18 years old to assess in terms of:

- i) receiving information on organ donation,
- ii) willing to pledged as organ donors and
- iii) availability of information on organ donation after death can influence organ donors.

The total number of respondents who responded the questions on organ donations were 34,216.

### **4.1 Receiving Information on Organ Donation**

Overall 15.6% (CI: 15.0 - 16.2) respondents received information on organ donation less than 3 months before this study is being conducted. In general, 54.0% (CI: 53.0 - 54.9) received information on organ donation more than 3 months before the study started.

By age groups, those aged between 15-19 years old have the highest proportion (17.3%) in receiving information on organ donation less than 3 months, followed by the age groups between 40-44 years old (17.0%) and 25-29 years old (16.9%). However those aged between 25-29 years old have the highest proportion (57.5%) in receiving information on organ donation for more than 3 months, followed by age groups between 40-44 years old (57.3%) and 45-49 years old (57.0%).

Among ethnicity, there is significant difference among Malays, Chinese and Indians in receiving information on organ donation. For less than 3 months, 17.1% (CI: 16.3 - 17.9) Malays received information on organ donation followed by 16.7% Indians and 13.9% (CI: 12.9 - 14.9) Chinese as shown in Table 4.1. However in receiving information on organ donation for more than 3 months before this study the same pattern was shown with Malays [60.0% (CI: 58.8 - 61.1)], Indians (57.5%) followed by Chinese [49.0% (CI: 47.2 - 50.8)].

There is significant difference among respondents with tertiary education, secondary education and primary education in receiving information on organ donation. Respondents with tertiary education received 21.5% (CI: 20.0 - 23.1) information on organ donation in less than 3 months followed by 17.3% (CI: 16.5 - 18.1) with secondary education and 13.6% (CI: 12.8 - 14.4) primary education as shown in Table 4.2. The same pattern showed in the receipt of organ donation information for more than 3 months with 65.1% (CI: 63.1 - 67.1) with tertiary education, followed by 60.7% (CI: 59.6 - 61.8) with secondary education and 49.0% (CI: 47.7 - 50.2) with primary education.

A total of 22.2% professionals received information on organ donation in less than 3 months followed by 20.9% senior official and manager and 19.7% technical and associates. In receiving information on organ donation more than 3 months it is highest among the clerical workers (64.8%), followed by technical associates (64.2%) and professionals (61.9%).



Those who used the internet have significantly higher proportion (63.6%) than those who are did not use the internet (52.0%).

**Table 4.1: Ethnicity in receiving information on organ donation**

<b>Ethnicity</b>	<b>Percentage (95% CI)</b>
Malays	17.1 (CI: 16.3 - 17.9)
Chinese	13.9 (CI: 12.9 - 14.9)
Indians	16.7 (CI: 14.9 - 18.5)
Other bumis	13.1 (CI: 11.7 - 14.5)
Others	9.6 (CI: 7.8 - 11.3)

**Table 4.2: Education level in receiving information on organ donation**

<b>Education level</b>	<b>Percentage (95% CI)</b>
Tertiary	21.5 (CI: 20.0 - 23.1)
Secondary	17.3 (CI: 16.5 - 18.1)
Primary	13.6 (CI: 12.8 - 14.4)

## 4.2 Pledge as an Organ Donor

When asked to pledge as an organ donor only 1.5% respondents agreed. Pledging is highest among the 25-29 age groups (2.1%), followed by 35-39 age groups (2.0%) and 40-44 age groups (1.9%). Significantly the Indians agreed most with 3.9% (CI: 3.1 - 4.7) followed by 2.0% (CI: 1.7 - 2.4) Chinese and 1.1% (CI: 0.6 - 1.2) Malays.

There are significant differences among groups of education level. Respondents with tertiary education is the highest to agree to pledge with 4.3% (CI: 3.6 - 5.0), followed by 1.6% (CI: 1.4 - 1.8) with secondary education and 1.0% (CI: 0.8 - 1.2) with primary education. The senior officers and managers are the highest to agree to pledge as organ donors with 4.0%, this is followed by the professionals (3.4%) and technical associates (2.7%).

Urban respondents agreed to pledge more than those in the rural areas with 1.9% (CI: 1.7 - 2.1) and 1.0% (CI: 0.8 - 1.1) respectively.

## 4.3 Availability of Information to Influence Pledging as an Organ Donor

When asked whether the information available currently can influence one to become a pledger, 20.5% respondents agreed and it is highest among the age groups between 15-19 years old with 33.9% (CI: 31.5 - 36.4), followed by age groups between 20-24 years old [29.2% (CI: 27.5 - 30.8)] and 25-29 years old [24.4% (CI: 22.9 - 25.9)].

The Indians with 39.1% (CI: 36.7 - 41.5) agreed that information is available to influence pledgers followed by 19.1% (CI: 18.4 - 19.8) Malays. However among the other religion, 39.7% (CI: 37.1 - 42.3) Hindus agreed followed by 22.2% (CI: 20.4 - 24.1) Christians and 19.2% (CI: 18.5 - 19.8) Muslim.

The tertiary education group is the most to agree (26.3%) followed by 23.6% with secondary education that information is available to influence to pledge. Senior official and managers are the most agreeable with 24.9% followed by 24.8% professionals group and 23.4% craft and related trade workers.

#### 4.4 Reasons Given Not to Pledge

When asked for reasons not to pledge, majority of respondents were scared (39.3%), followed by uncertainty due to religion (10.9%), against religious practice (10.5%), corpse suffering (6.3%), objection from family (2.9%) and not knowing where to register (2.6%). Only 1.2% respondents said it is due to no support from health staff. These findings are shown in Figure 4.1.

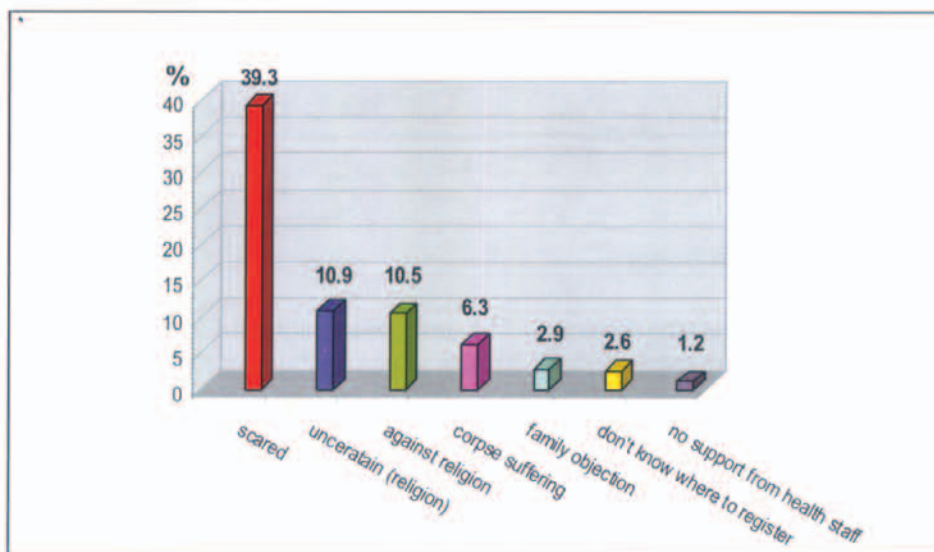


Figure 4.1 Reasons for refusal to pledge as an organ donor

Male proportion is higher than female for religious reasons (12.6% and 9.0% respectively) and family objections (3.4% and 2.5% respectively). The female proportion is higher than male for being scared (46.6% and 29.8% respectively). By age groups, those aged below 19 years old have higher proportion for being scared (51.6%) and lower proportion for religious reasons (5.6%) compared to other age groups. By ethnicity, Malay has higher proportions for religious reasons (12.1%) and lower proportion for being scared (33.2%) compared to other ethnics. Urban residents have significantly higher proportion for family objection than rural with 3.2% and 2.4% respectively. Rural residents have significantly higher proportion for being scared (42.6%) and corpse suffering (7.6%). The proportion significantly decreases with education level for being scared and uncertainty (due to religion).

## **5. DISCUSSION AND CONCLUSION**

Organ donation is the charitable act/gift of an organ to help someone who needs a transplant (Ibrahim 2007). Kidneys, heart, liver, lungs, pancreas, small bowel, corneas, heart valves and bones can all be transplanted (Abu Bakar 2007). The best way to ensure that your wishes are carried out is to inform your family of your desire to donate (Mayo 2007). It was shown that more than 95% of families would consent to organ donation if they knew it was the wish of their loved one (Ibrahim 2007). This study shows that majority of the respondents did receive information regarding organ donation. However not many would like to be an organ donor. Only some people have religious, cultural objections or objection from family members to donate organs, but the main reason is that the public is scared to be an organ donor. Current information on organ donation is still unable to influence public to become organ donors. This shows that the public awareness regards of organ donation is still low. The government, non government organizations, the public sectors, community leaders and the public should play an important role in creating awareness of organ donation.

## **6. RECOMMENDATIONS**

Suggestions that can be done to create awareness among the public to become an organ donors are as below:

- i. Health promotion or education programs or campaign on organ donation should focus on ways to eliminate fears among the public to be an organ donor.
- ii. The frequency of current information delivery on organ donation should be increased.
- iii. Health promotion or education programs or campaign on organ donation should focus on ways to eliminate fears among the public to be an organ donor.
- iv. The frequency of current information delivery on organ donation should be increased.
- v. Further study should be conducted to facilitate the effectiveness in health promotion and education programs or campaign on organ donation.

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# CHAPTER V

CHILD HEALTH HOME-BASED CARD



## **ABSTRACT**

The Ministry of Health planned to advocate a life long child home-based card to the community from current used card system which is meant for children 2 years old and below. The proposed home-based card requires more pages and subsequently additional funds. To ease the burden, they proposed the cost could be paid by the community. This study was carried out to assess the practices of keeping the child home-based card and the willingness of the community to pay for the proposed life long child home-based card.

Overall, 97% of respondents were given the child health home-based card mainly from government hospitals (88.1%) and private clinics (11.8%). Among the recipients of the card, about 87.5% still retain the card with them. The retention among the Chinese (90.7%) is significantly higher as compared to the other ethnic groups except the Indians. In terms of willingness to pay for the card, 23.5% of the respondents did not agree to pay for the card. Even though more than 70% of the respondents agreed to pay for the card nevertheless only 54.2% agreed to pay out for less than RM5. About 83.6% of the respondents stated that they bring along the card every time they visit the clinic.

In conclusion, most of the people in Malaysia were given the child home-based card and they still retain them. The majority of them received the card from government hospitals. More than 70% of the respondents could produce the card and above 80% bring along every time they visit the clinic. Thus the government should consider the strategy of advocating life long home-based card to the community.



## **1. INTRODUCTION**

The Ministry of Health plans to advocate life long child health home-based card to the community from the current child home-based card for children 2 years old and below to life long. The proposed child health home-based card needs more pages and subsequently additional funds. To ease the burden, they proposed that the cost be born by the community. This study was carried out to assess the practices of keeping child health home-based card for children below 13 years old and the willingness of the community to pay for the proposed life long child health home-based card among the Malaysian community.

## **2. LITERATURE REVIEW**

The use of lifelong healthcare card is being seen as a way to the empowerment of individuals towards their own health. Therefore, the government is promoting the use of the child health home-based card for life. However to conduct this project, the public needs to support the use of the card. Towards this end, it was proposed that there should be cost-sharing by the community on the use of the card.

The use of the card has been foreseen to have many advantages. Information-seeking behaviour manifests in individuals as a response to a stimulus that is perceived as either a challenge or a threat (Timmins 2006). Seeking information about one's health as a main coping strategy in health-promotive activities and psychosocial adjustment to illness has been increasingly documented (Lambert & Loiselle 2007). The use of a lifelong health card held by the patients is one of the strategies to keep one's health history and serve as a screening tool by healthcare providers.

Provision of health-care is also now described as 'needs-based', rather than 'service-based'. The rate of consultation by doctors was found to be significantly higher for children with a medical card as compared to children without card (Fallon et al. 2007). This finding shows a positive needs-based attitude towards health-seeking behaviour by parents of children that have medical cards.

## **3. OBJECTIVES**

### **3.1 General Objective**

To determine the attitude and practices among the community towards health information provided by Ministry of Health Malaysia (MOH).



### 3.2 Specific Objectives

3.2.1 To assess attitude on Child Health home-based Card (CHHC) among community in Malaysia.

3.2.2 To assess practices of Malaysia community towards Child Health Home-based Card (CHHC).

## 4. FINDINGS

### 4.1 Given Child Health Home-Based Card (n = 16,001)

The total number of respondents who responded to questions on the module of the child health home-based card was 16,530 (98.7%). Overall 97.0% of respondents were given the CHHC. There was no significant different between sex, age group, ethnicity, religion and by residence. On the other hand there was a significant difference between those without education 72% (CI: 64.7 - 80.6) and primary education 96.8% (CI: 96.2 - 97.3).

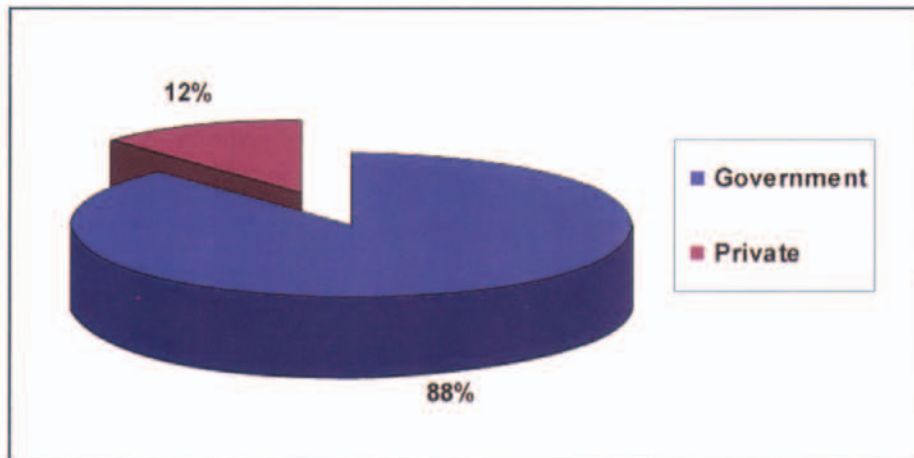


Figure 4.1: Source of obtaining child health home-based card

### 4.2 Source of Obtaining the Card (N = 14,243)

Among those who obtained the card, most were from government hospitals (88.1%), and 11.8% were from private clinics, and 0.1% did not respond, not sure and don't know and this is shown in Figure 4.1.

There were 91.1% (CI: 90.0 - 92.1) Malays followed by Indians 83.2% (CI: 79.8 - 86.6) and Chinese 68.7% (CI: 65.5 - 72.0) who obtained the card, and there is significance difference between the ethnic groups as shown in Figure 4.2.

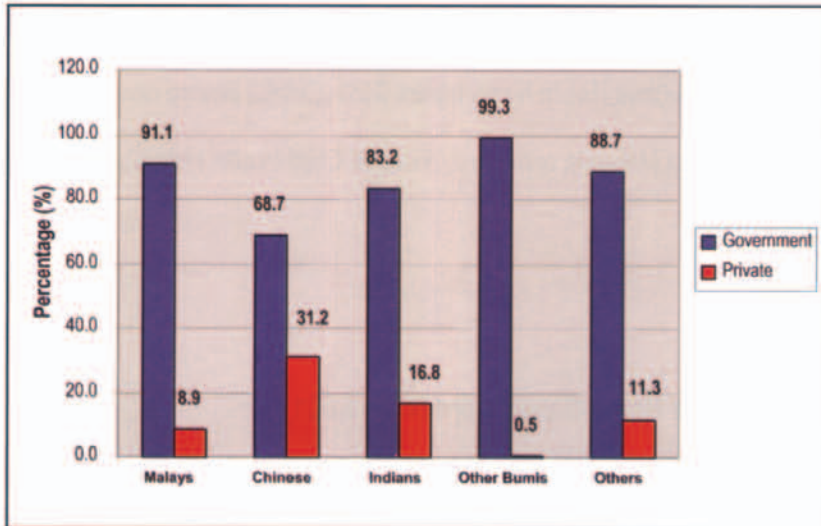


Figure 4.2: Obtaining child health home-based card by ethnicity

This study also showed that there was a significant difference between Malaysians [88.3% (CI: 87.4 - 89.3)] and non Malaysians [75.1% (CI: 67.3 - 82.9)], rural [97.2% (CI: 96.5 - 97.8)] and urban areas [82.3% (CI: 80.8 - 83.8)] in terms of obtaining the CHHC as shown in Figure 4.3. Respondents with household income less than RM1000 mostly received (more than 90%) their CHHC from government health facilities.

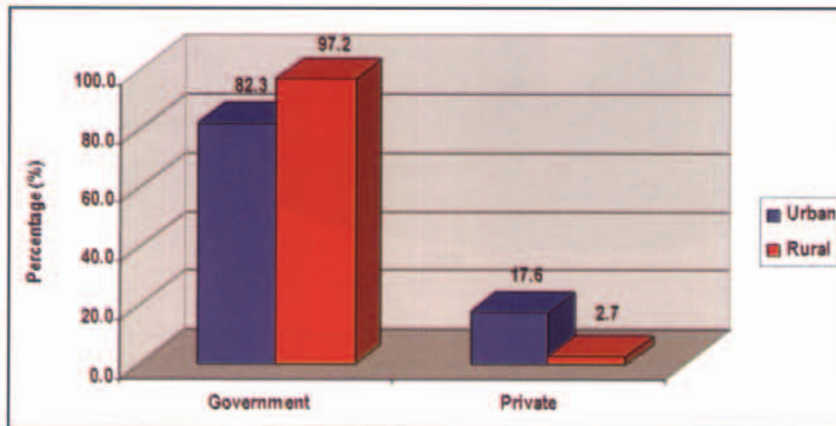


Figure 4.3: Sources and place of obtaining child health home-based card by residences

### 4.3 Retention of the Card (N = 13,937)

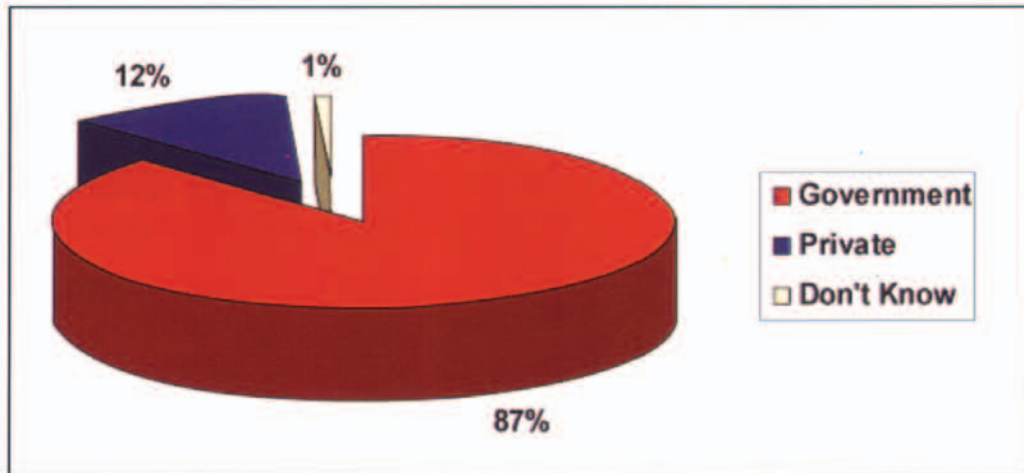


Figure 4.4: Overall still keeping the child health home-based card

Among those who have the card, 87.5% (CI: 86.8 - 88.3) still retain the card with them. In retention of the card there was no significant difference between sexes, but there was a significant difference by age group; whereby the percentage of retention are: age group 0-4 [96.7% (CI: 96.2 - 97.2)], age group 5-9 [86.8% (CI: 85.7 - 87.8)] and age group 10-14 [74.7% (CI: 73.0 - 76.3)]. By ethnicity there was significance difference between Malays [87.2% (CI: 86.2 - 88.2)] and Chinese [90.7% (CI: 89.2 - 92.3)] in retention of the card as shown in Figure 4.5.

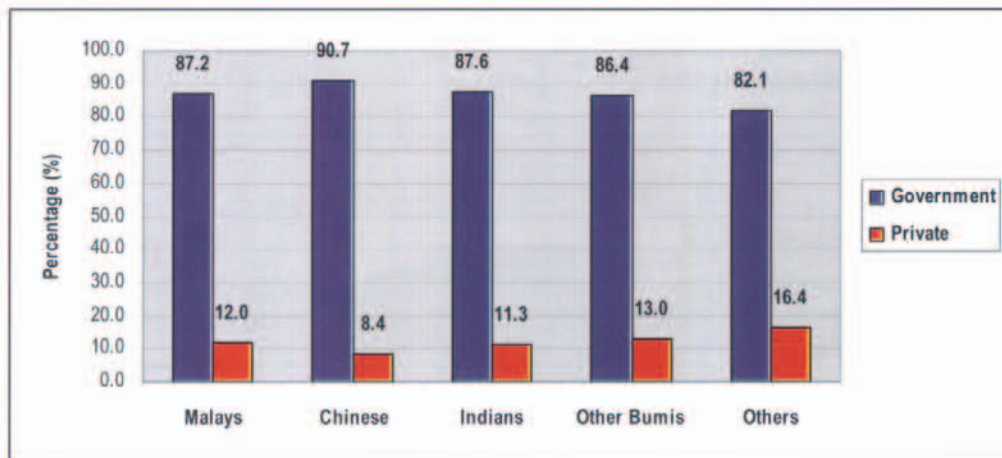


Figure 4.5: Retention of child health home-based card by ethnicity

This study also showed that there was a significant difference between Malaysians [87.8% (CI: 89.0 - 88.5)] and non Malaysians [75.1% (CI: 69.0 - 81.2)] in retaining the CHHC. Urban residence [88.4% (CI: 87.4 - 89.4)] also showed significant difference from rural residence [86.1% (CI: 84.9 - 87.4)] in retaining the CHHC as shown in Figure 4.6.



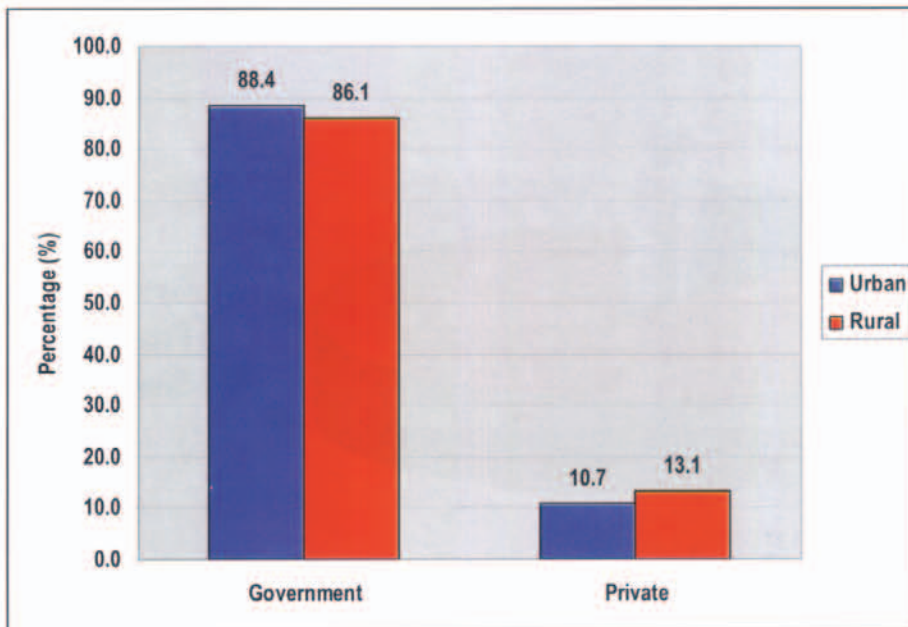


Figure 4.6: Retention of child health home-based card by residences

#### 4.4 Ability to Show the Card (N = 10,351)

There were 73.2% (CI: 72.4 - 75.1) respondents who could show the card when asked to, whilst 26.3% (CI: 25.0 - 27.6) could not produce the card and 0.5% was unknown (Figure 4.7). Among who were able to show the card, Muslims, with 74.0% (CI: 72.4 - 75.5) are significantly different from the other religion groups. There was no significant different by citizenship and educational status of the respondents who could show the card.

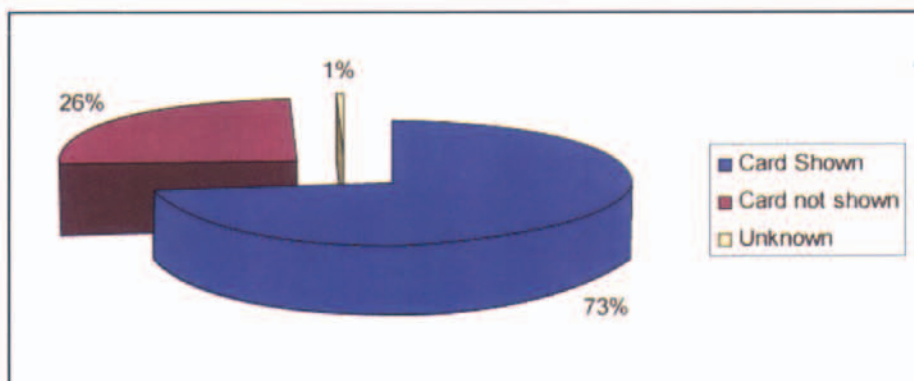


Figure 4.7: Overall could show the child health home-based card

By residence, there was a significant different between rural [79.7% (CI: 77.9 - 81.5)] and urban [68.1% (CI: 68.1 - 71.8)] dwellers who could produce the CHHC, as shown in Figure 4.8.

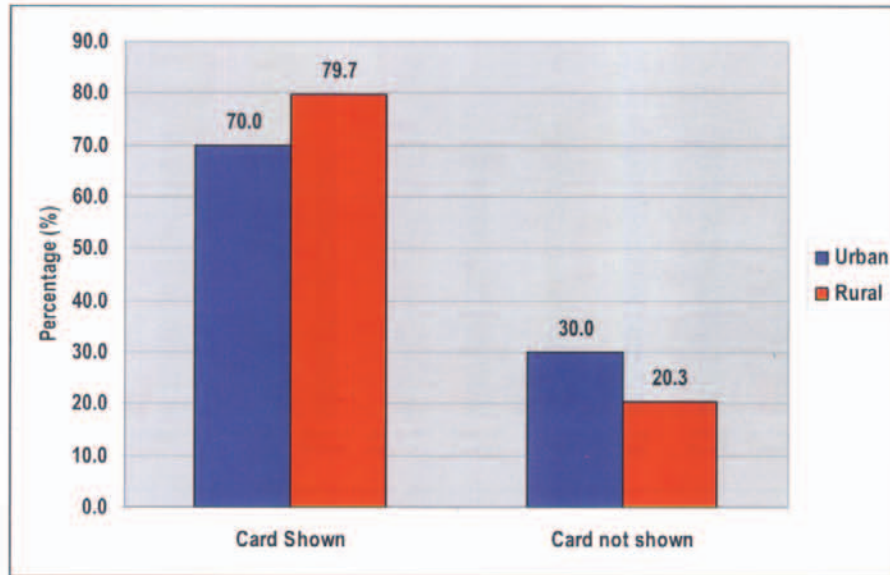


Figure 4.8: Could show the child health home-based card by residences

#### 4.5 Bringing along the Child Health Home-Based Card Every Time Visiting the Clinic (N = 11,441)

Among the respondents overall 83.6% claimed that they bring along the child health home-based card every time to the clinic. The study showed no significant differences by sex, educational status, residences, household income and citizenship.

Table 4.1: Overall responses on bringing along the child home- based card every time to the clinic

Practice (n = 11,441)	Percentage (95% CI)
Bringing along the card every time visit clinic	83.6 (CI: 82.5 - 84.6)

On the other hand, for children in the following age groups: there was a significant difference by age group between 0-4, 5-9, and 10-14, the percentage of parents who bring the CHHC to the clinic every time are 93.7% (CI: 93.0 - 94.5), 78.5% (CI: 76.9 - 80.1) and 73.2% (CI: 71.0 - 75.5) respectively. By religion there were Christians 89.5% (CI: 87.0 - 92.0) Muslims 83.0% (CI: 81.7 - 84.3), Buddhists 82.3% (CI: 79.5 - 85.1) and Hindus 82.3% (CI: 78.6 - 86.1) who bring along the CHHC every time to the clinic, but only Christian are significantly different from another religious groups. There was no significant different between citizenship, educational status and place of residence.

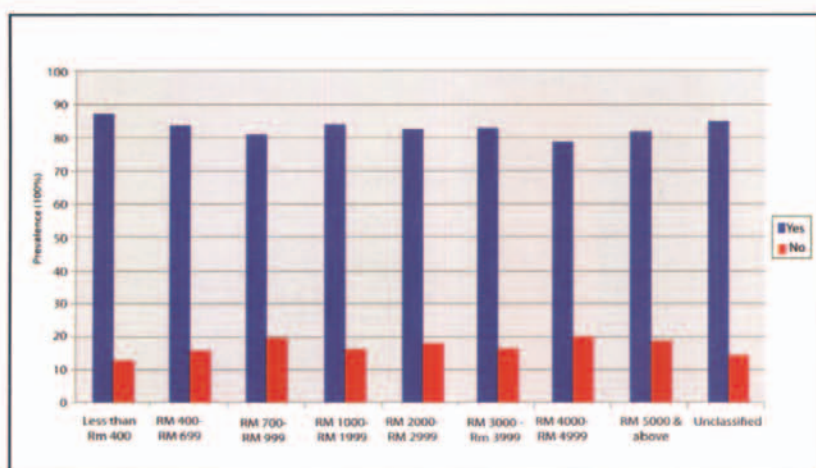


Figure 4.9: Overall bringing along the child health home-based card every time to the clinic by income status

#### 4.6 Willing to Pay for Home-Based Card (N = 16,477)

On willingness to pay for the card, 23.0% of respondents did not agree to pay, and there was no significant difference by sex or respondents age group of children.

By ethnicity, the willingness to pay for the card were highest in Malays [23.2% (CI: 21.5 - 24.9)] and Indians [15.0% (CI: 11.5 - 18.4)]. By religion more Muslims [24.2% (CI: 22.5 - 26.0)] and Christians [26.9% (CI: 22.6 - 31.1)] are willing to pay for the card and they are significantly higher than Buddhists [18.4% (CI: 15.5 - 21.4)] and Hindus [16.7% (CI: 12.6 - 20.9)]. More rural people [28.1% (CI: 25.7 - 30.4)] are not willing to pay compared to urban residents [20.5% (CI: 18.7 - 22.3)]. More non Malaysians [41.0% (CI: 32.1 - 49.8)] are not willing to pay for the card compared to Malaysians [23.0% (CI: 21.6 - 24.4)].

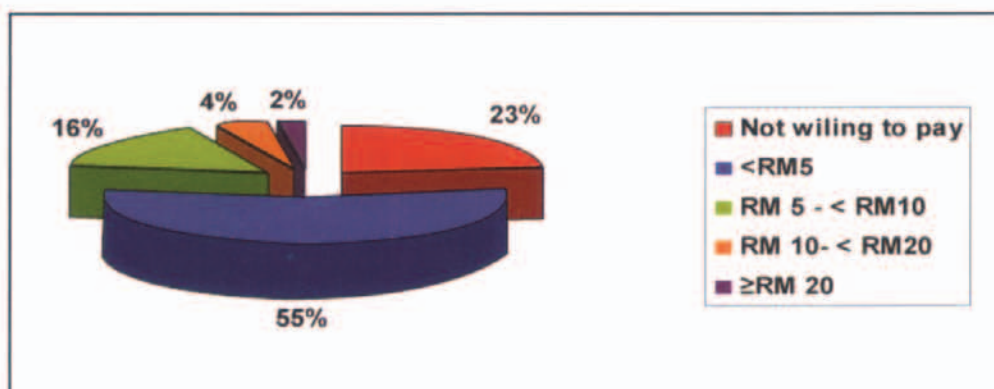


Figure 4.10: Willingness to pay for the child health home-based card

#### **4.7 Amount Willing to Pay**

Majority (76.6%) of the respondents agreed to pay for the card, but most (55%) were only willing to pay less than RM 5. There was no significant different between sex, age group, educational status, ethnicity, religion, and residences for those who agreed.

### **5. DISCUSSION**

Most of the people in Malaysia were given the child home-based card and they still retain them. Majority of them received the card from government hospital. More than 70% of the respondents could show the card and above 80% bring along every time they visit the clinic. More Malaysians and urban residents were willing to pay as compared to non Malaysians and rural residents. However among those Malaysians and urban residents the amount that they are willing to pay is less than RM 5.

### **6. CONCLUSION**

The plan to make people pay for the card is not very encouraging because the finding showed that majority of the people was not willing to pay for the card.

### **7. RECOMMENDATIONS**

There should be further discussion on the need to charge the parents for the home-based card and the amount to be charged.

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