



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

ORAL HEALTH

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



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LIST OF RESEARCH TOPICS

Topic 1	Health Expenditure
Topic 2	Oral Health
Topic 3	Load of Illness
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Topic 5	Injury and Risk Reduction Practice
Topic 6	Physical Disability
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Topic 18	Psychiatric Morbidity

**THE THIRD
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ORAL HEALTH**

Chapter I:

Population Practices, Load of Illness and Its Impact and Oral Healthcare Utilisation

Chapter II:

Oral Healthcare Out-of-Pocket Expenditure

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The oral health module is a collaborative project between the Oral Health Division, Ministry of Health Malaysia and the Department of Community Dentistry, Faculty of Dentistry, University of Malaya

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Ministry of Health Malaysia.*

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**

The National Health and Morbidity Survey III (NHMS III) module on 'Oral Health' provides baseline data for use by all with interest in oral health. It is a collaborative project between oral health professionals and medical/health counterparts in the Ministry of Health Malaysia and in academia. The NHMS III provided the authors the opportunity to seek information on oral health alongside that of general health covering a large population base. The reference base population was about 21.1 million in year 2006. The study covered individuals in more than 15,500 private households. Implementation adhered to the common methodology of NHMS III.

This collaboration bodes well for future forays into areas of common or overlapping interests. Current approaches in managing population oral health issues emphasise the common risk approach which recognises the importance of integrating health and oral health promotion and preventive programmes/activities. The NHMS III affords a measure of comparison between reported oral health and general health by members of households so that there is better understanding of the links and inter-relationship between the two within a broad system perspective. This, hopefully, will lead to better and more equitable assignment of priorities in overall health decisions and policies.

Several oral health surveys conducted nationwide by the Ministry of Health, with and without collaboration from academia, have provided important clinical information on the oral health status of the population. Until recently, socio-dental data from these surveys have been limited to oral health impacts and utilisation. Hence, the existent wealth of normative data on oral health status can be further complemented by information on community's oral health-related behaviour and perception.

Various aspects are covered in this oral health module. This report has been divided into two separate chapters. The reader will find each chapter complete on its own. This is to ease reading and to enable easy reference and retrieval of information within each chapter. The first chapter covers population practices, impacts of oral health conditions on dimensions of quality of life, and oral healthcare utilisation. The second chapter covers household out-of-pocket oral healthcare expenditure with reference only to out-patient dental care. Definitions and aspects of methodology peculiar to each aspect of the module are described in the relevant chapters.

*A*CKNOWLEDGEMENT

The research team members extend their appreciation to the following for the successful completion of the 'Oral Health Module' under the NHMS III:

- The Director, Institute for Public Health, Ministry of Health, Malaysia, for the invitation and support to participate in the NHMS III,
- The former Director of Oral Health, Ministry of Health Malaysia, Dato' Dr. Wan Mohamad Nasir bin Wan Othman, for being the catalyst for the collaboration and for his input on the module items
- The present Director of Oral Health, Datin Dr. Nor'ain binti Abu Talib, for her on-going support and encouragement for the project
- The Dean of the Faculty of Dentistry, University of Malaya (UM), for the collaborative effort and support from the Department of Community Dentistry, UM
- The Principal Investigator and all members of the various NHMS III committees and teams
- The large number of research assistants who were responsible for data collection
- All personnel who were directly, or indirectly, involved in the survey at district, state and national level and last, but not least, to
- The ever-smiling Ms Norashibah binti Rashid for her patience and tolerance in managing all outputs from the oral health module group.

SUMMARY

The National Health and Morbidity Survey III (NHMS III) provided an opportunity to investigate and understand oral health within the context of general health. This is appropriate and important as oral health is integral to general health, and oral conditions are important co-morbidities. To better understand and manage oral health in the country, information gathered from the community are vital to complement information from other sources.

The oral health module enquired into toothbrush ownership, reading of food labels for sugar content (for respondents ≥ 18 years only), impact of oral discomfort/pain on quality-of-life dimensions in the past 4 weeks, and oral healthcare utilisation and consumption costs. Willingness to pay specific quantum for dental check-ups and/or treatment was also explored among respondents aged 18 years and above.

The module is one of 18 modules of the NHMS III study, and utilised a bi-lingual questionnaire to interview all members of selected households. The survey involved more than 15,500 households (HH) and more than 56,700 HH members. The sample was weighted to give a reference population of 21.1 million people (79.2% of the population of Malaysia in 2006). Parents/guardians responded for those aged ≤ 12 years. Major parameters included gender, location, age group, ethnicity, education and income levels. In the main, data were analysed and reported at the level of individuals.

Majority of Malaysians (94%) own their own toothbrushes, ownership being lower for the youngest (0-4) and the oldest (80+) populations at 70.2% and 68.5% respectively. However, 1.2% shared and 4.2% do not own toothbrushes.

Overall, very few Malaysian adults (≥ 18 years) read food labels for sugar (10.8%), with proportions decreasing with age. There is positive association with education and income levels for proportions reading food labels for sugar.

About 10% had pain of teeth/mouth in the past 4 weeks. There was no gender bias but reports were more frequent among the rural population (11.9%) than the urban (9.0%). Again, proportions were lower among the youngest (0-4) and the elderly group (65+). Chewing was most affected (50.2%), then sleep (23.6%). Impacts on appearance, speech, work, doing daily chores, socialising and study affected 3.8 - 13.1%. Of those who had experienced pain of teeth/mouth in the past 4 weeks, and had experienced an impact, 48% had at least one impact, averaging 3 days.

In the last year, 9,076 episodes of injuries were reported either singly or in combination. Of these injuries, 1.5% involved the oral and facial structures; occurring mainly on the road (14.9%) or at home (11.0%). Injuries were less common at school, workplaces or recreational places.

Overall, 22.9% of the population reported having dental episodes in the past 1 year (dental problems or check-up). Of these episodes, 53.2% were associated with pain. Care was sought in 71.3% of dental episodes. Although the rural population was more likely to have dental episodes, these were less likely to be associated with pain or seeking care.

The average number of dental episodes experienced per year was 29.4 episodes per 100 individuals - 29.1 in males and 29.6 in females. The average for the urban population was 27.4 episodes/100 individuals and 32.8 episodes/100 individuals for the rural.

There was a mean of 1.35 episodes in the past 1 year, being slightly but significantly higher in females (1.37) than in males (1.34), and in the rural population (1.42) than the urban (1.31).

The majority of first dental episodes (71.3%) were associated with either seeking dental check-ups/treatment and/or the purchase of medicine, proportions of those with pain being slightly higher (75.9%) than those with no pain (66.0%).

For those who sought care for the first dental episode, the majority were in public sector dental clinics (53.7%), followed by private (39.8%), self-care (5.2%) and traditional care (0.3%). However, sources of care differed slightly with pain experience. The majority with no pain for their first dental episode sought care at public sector dental clinics (63.5%) compared to private (29.7%), while for those with painful first dental episode almost equal proportions sought care at public (44.8%) and private (45.7%) sector facilities.

About 40% had made dental visits in the last two years - 19.5% in the last 1 year, 12.8% within 1-2 years ago, and 7.5% in the last two years in the school dental programme; while about 32% reported their last dental visit as more than 2 years ago. A substantial proportion (28.3%) claimed never to have visited a dental clinic.

The five most common reasons for not making a dental visit within the last two years were 'no problems (80.0%)', 'no teeth/false teeth (8.8%)', 'problems were not serious enough (6.5%)', 'too busy (1.1%)' and 'fear of dentists (1.0%)'.

Malaysians spent an estimated RM156.91 million out-of-pocket (OOP) to seek oral healthcare. The OOP expenditure for oral healthcare of adults 18 years and more accounted for 3.1% of the total healthcare expenditure estimated at RM3.88 billion. A high proportion of OOP expenditure came from urban residents (75.2%), adults aged 18-64 years (73.1%), Malays (57.3%), and females (54.6%). Percentage contributions from more developed states were generally higher than from less developed states. Income was proportionately associated with percentage contribution.

Per capita expenditure for oral healthcare was estimated at RM5.89. The per capita expenditure for adults aged 18-64 years (RM7.76) was about 2-3 times that for children (RM 2.55 for 0-6 years; RM 4.33 for 7-17 years) and almost twice that of the elderly of 65+ years (RM 3.14). The Chinese had the highest per capita contribution (RM8.12) with the lowest from the "Other Bumiputera" group (RM2.76). Per capita expenditure was higher for females (females RM6.07; males RM5.68); for Malaysians (Malaysians RM5.99, Non-Malaysians RM3.92); and for urban residents (urban RM7.00; rural RM3.98). Overall, per capita expenditure increased with education level, being highest among tertiary-educated individuals (RM17.94) compared to other levels (range RM3.97-7.30). Per capita expenditure was also proportionate to income level, from RM3.51 for the first income quartile to RM15.67 for the richest one-quarter. The Federal Territory of Kuala Lumpur (FTKL) had the highest per capita expenditure of RM16.30.

For Malaysians who had sought/received dental care, the mean OOP oral healthcare expenditure in the past 1 year per individual was RM38.07 (CI: 37.81 - 38.32). Females spent slightly more OOP (mean RM39.20) than males (mean RM36.79), and the urban population (mean RM45.58) more than rural (mean RM25.39). Mean OOP expenditure for dental care per individual was highest among the Chinese (RM66.11). Overall, children in pre-schools and in schools paid less OOP for oral healthcare (range RM20.01 - 23.56). Mean OOP expenditure for dental care was high among the toddler group (RM40.63) but was highest among the elderly of age 75+ (RM85.03).

Non-Malaysians who constitute 4.7% of the weighted sample paid significantly more for oral healthcare [mean RM42.59 (CI: 41.39 - 43.79)] than Malaysians [mean RM37.95 (CI: 37.69 - 38.21)]. Mean OOP oral healthcare expenditure increased proportionately with education level, with tertiary-educated individuals (RM84.12) paying about 3.5 times more than those with no formal education (RM26.00). Overall, mean oral healthcare OOP expenditure also increased proportionately by income quartile with the richest one-quarter of the population (RM79.44) paying on average more than 3 times that of the poorest one-quarter (RM24.96).

Mean OOP expenditure at private sector clinics (RM79.73) was about 8 times that of public sector facilities (RM9.11). Pain-related dental episodes cost more (RM41.81) than those with no pain experience (RM33.17). However, findings were opposite for adults aged 18 years and more, with pain-related episodes costing less (RM45.48) than those with no pain (RM57.35).

Of the estimated total household OOP oral healthcare expenditure, 63% was for treatment charges (including registration), 25.3% for purchase of medicines and 11.7% for 'other' costs.

Third party payments for dental care are rare, with only three individuals citing it. More than 60% of those ≥ 18 years were willing to pay RM30-50 for dental treatment; a smaller proportion (51.8%) was willing to pay RM10-20 for a dental check-up.

Of those who sought care, 99.9% had one episode with care, with almost the entire household OOP expenditure for oral healthcare (99.97%) reported for the first, and for the large majority, the only episode. Hence, the cost OOP per dental episode with care is almost the same as that reported per individual. Mean cost OOP per dental episode reported for the total population was RM38.06 (CI: 37.80 - 38.32) compared to RM38.07 (CI: 37.81 - 38.82) per individual. For adults aged 18 years and more, mean OOP expenditure was RM49.41 (CI: 49.04 - 49.78) per episode per individual.

In conclusion, majority of Malaysians own toothbrushes, but very few read food labels for sugar. Chewing and sleep were most affected among those with orofacial pain. Dental episodes can be distressing, yet majority delay dental visits until there is a problem. Utilisation is low at 22.9% overall. Utilisation and OOP expenditure for oral healthcare is associated with demographic and socio-economic factors. Generally, less privileged communities have lower per capita expenditure for oral healthcare. However, those in the less privileged to modest monthly income brackets seem to pay substantial amounts OOP for dental care. Adults were more willing to pay for dental treatment when in need rather than for preventive check-ups. Private sector dental care can incur substantial OOP expenditures. More time and effort must be invested to encourage preventive-oriented visits and to explore further avenues to ease OOP expenses for dental care among the less privileged. Private employers and those in higher income brackets should contribute more towards payment for oral healthcare. The issues of pervasive lack of perceived need for dental care, ownership of toothbrush, orofacial safety and injuries all call for greater efforts by the dental fraternity to encourage preventive dental visits, oral hygiene practices, toothbrush ownership as well as home and road safety.

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ABBREVIATIONS

CCT	Central Coordinating Team
CI	95% Confidence Interval
CPI	Consumer Price Index
EB	Enumeration Blocks
EPU	Economic Planning Unit
FI	Face to Face Interview
FT	Federal Territory
FTKL	Federal Territory of Kuala Lumpur
GOHAI	Geriatric Oral Health Assessment Index
HH	Household
ID	Individual Identification
JHEOA	<i>Jabatan Hal Ehwal Orang Asli</i>
LFS	<i>Labour Force Survey</i>
LQ	Living Quarters
MOH	Ministry of Health
NA	Not Applicable
NHES	National Household Health Expenditure Survey
NHMS II	The Second National Health and Morbidity Survey
NHMS III	The Third National Health and Morbidity Survey
NOHSA	National Oral Health Survey of Adults
OHC	Oral Healthcare
OHRQoL	Oral Health-Related Quality of Life
OOP	Out-of-Pocket
OTC	Over-the-Counter
PPS	Probability Proportionate to Size
QoL	Quality of Life
RM	<i>Ringgit Malaysia</i>
RV	Relative Value
SES	Socio – Economic Status
SQL	Structured Query Language
UM	University of Malaya
USA	United States of America
WHO	World Health Organization

GLOSSARY OF TERMS

Responses for owning toothbrush encompassed

- i. Own toothbrush = an individual has his/her own toothbrush (no sharing)
- ii. Sharing = if an individual is found to share his/her toothbrush with another member of the HH
- iii. Do not own toothbrush = an individual does not have a toothbrush

Load of illness from the perspective of oral health is defined as having dental pain and/or discomfort of the teeth and/or mouth in the past 4 weeks.

Dental pain is defined as 'any pain involving teeth and/or mouth'.

Having made a **dental visit** is defined as 'having had dental check-up / treatment / oral health promotion activities within the last 1 year at any public sector, or private sector facilities. This definition does not include self-care or traditional care.

The definition of a **dental episode** for items on oral healthcare utilisation is based on whether respondents had experienced dental problems and/or have had a dental check-up/visit in the last 1 year (Item 3 of the oral health module). Mean for dental episodes was based on the reported frequency of dental episodes (Item 3.1 of the oral health module). This differs from dental episodes reported for household out-of-pocket oral healthcare expenditure which are limited to dental episodes where care was sought/received.

A **dental episode** from the aspect of HH out-of-pocket expenditure for oral healthcare is defined as 'an event when an individual sought/received care for preventive reasons or for any condition or disease occurring or manifesting in the mouth'. The definition is conceptually equivalent to that of the NHHES '96 which defined a dental episode 'as an event (dental visit) when an individual received care for any disease or condition occurring or manifested in the mouth'.

Individuals who have '**sought/received care**' are defined as those who 'have sought/received dental check-ups and/or dental treatment, and/or who have purchased medicines, and/or undertook self-care and/or sought/underwent traditional care' for a dental episode in the past 1 year.

Public sector dental facilities include dental clinics of the Ministry of Health, Ministry of Defence, dental clinics in Universities under the Ministry of Higher Education, and dental clinics of the *Orang Asli* Department under the Ministry of Rural Development, as well as other public sector institutions. School dental service under the Ministry of Health was regarded as a public sector service but was coded separately so as to enable exclusion where warranted. Self-care and traditional care were coded separately.

Private sector facilities include those managed by Division I Dental Practitioners and dental shops/clinics managed by Division II Dental Practitioners.

A **Division I dental practitioner** is registered as a dental surgeon upon application to the Registrar of the Malaysian Dental Council in the prescribed form and holds any of the qualifications specified in relation to the qualifications under Section 12(1), 12(3) and 12(9) of the Dental Act 1971.

Division II dental practitioners are those who were trained through an apprenticeship system in the years before and after World War 2. They were allowed to practise due to shortage of qualified professionals in those years. The Division II Register has since been closed since 1972 following the enactment of the Dental Act 1971. Some of these registered Division II dental practitioners are still in practice today.

Mean out-of-pocket (OOP) expenditure for oral health is calculated based on individuals who had sought/received oral healthcare in the past 1 year, regardless of whether such care had incurred expenses or not.

Total OOP expenditure for oral healthcare includes aggregated payments made for registration and dental check-ups/treatment, purchase of medicine(s), and expenses incurred for incidentals related to the dental episode. These incidentals include transport, food, lodging, childcare or other expenses that facilitated the individuals to have the necessary care for the dental episode. Such incidental expenses also included opportunity costs in terms of loss of earnings or wages for those paid on an hourly / daily basis. OOP expenditure, however, does not include payments made by a third party or for expenses incurred that are consequently reimbursed to the individual by a third party who/which is not part of the same household.

Mean cost per episode is calculated based on those who sought care. Data from the first episode were used as these constituted 99.9% of all dental episodes and the sum OOP incurred was 99.97% of the total OOP expenditure.

CHAPTER 1

**POPULATION PRACTICES,
LOAD OF ILLNESS AND ITS IMPACT AND
ORAL HEALTHCARE UTILISATION**

1. INTRODUCTION

Malaysians are becoming more cosmopolitan, inquisitive and knowledgeable, and their increasingly sophisticated needs have embraced a growing realisation of the importance of oral health. It is recognised that oral health is important to the physical, mental and social well being of people. The causes of oral conditions are known and preventable through relatively simple and affordable health measures. It has also been shown that while treatment on an individual basis is feasible, it does not make great impact from the aspect of public health. Neglect in care by the individual may result in great financial cost to the individual and society.

Traditionally, oral health has been measured mainly by use of clinical indices for absence or presence of oral disease. Such normative assessments, without doubt, will vary with lay assessments of health and disease. Acculturation (characteristics of the culture of origin) may modify people's social norms, attitudes, values and behaviour and hence, may add significant value or explanation for variations in assessments of health/disease conditions between providers and their clients.

Recognising oral health conditions and their consequences, measuring clinical oral health status and their possible non-clinical outcomes have become increasingly important in dentistry. This measurement is particularly important for planning, monitoring and evaluation of oral healthcare and identifying predisposing characteristics of dental utilisation. Locker (1996) as quoted in Slade (1997) proposed three broad roles of oral health-related quality of life (OHRQoL) measures. The first is to demonstrate the effects of oral disorders to policymakers in terms which have more meaning than indices. The second is that such measures have theoretical value in developing and testing models for oral health and identifying determinants of health. Thirdly, such measures can, and should, be put to practical use in research, in public health and in clinical practice.

Disease conditions, including oral disease conditions, may warrant extra care and extra costs in terms of health expenditure, and may extort an emotional toll, time and wage losses. Untreated pain may impair careers, societal quality of life and affect people's ability to perform. Such conditions may lead to substantial economic and productivity loss to the nation. The oral health module in this National Health and Morbidity Survey III (NHMS III) seeks information on oral health outcomes in terms of functional activities (chewing, speech/talking), psychosocial activities (appearance, socialising) and routine daily activities (sleeping, working, schooling, carrying out daily household chores) from individuals of all age groups in selected private households. Additionally, utilisation patterns of healthcare as well as information on sources of, and perceived barriers to, care are important data for health policy decision making. Hence, the incorporation of items on utilisation of oral healthcare services in NHMS III.

This study is thus timely to assess and evaluate oral health population practices in terms of toothbrush ownership and reading of food labels for sugar, load of illness and impacts on peoples' lives, and oral healthcare utilisation. The inclusion of a module on oral health is testament to the recognition of the importance of oral healthcare provision in the national health agenda.

2. LITERATURE REVIEW

2.1 Population Practices in Oral Health

Data on ownership of toothbrush is prerequisite to further pursuing data on peoples' use of this important oral healthcare implement. In view of this, ownership of toothbrush has been incorporated as one of the fundamental health promotion goals in the Malaysian National Oral Health Plan for the year 2010 (Oral Health Division 2006).

The toothbrush is a common tool used to clean teeth and tooth brushing is still the most effective method to maintain healthy conditions of teeth and gingiva (Attin & Hornecker 2005). Tooth brushing twice daily is recommended by the majority of dentists to control plaque. Its importance is not only limited to the manual cleaning process, but more importantly it is regarded as a vehicle for application of anti-caries agents, such as fluorides. Being a simple device, its importance is often overlooked and underestimated. However, results from a USA survey (Cable News Network 2003), reported the toothbrush as the number one invention Americans could not live without "...*In a nation obsessed with sparkling teeth and minty-fresh breath, the lowly toothbrush is the king of inventions*". Hence, this simple oral hygiene care product has become indispensable in the lives of many people, and the report underlines the value placed on maintaining good oral hygiene in our daily lives.

Nutrition labels describe the nutrient content of foods and are intended to guide the consumer in food selection. Foods should be selected on the basis of consistency with dietary recommendations. Nutrition labelling by itself cannot solve nutrition problems but it should be seen as one of the elements of nutrition policy and envisaged in the larger perspective of consumer education, which in its turn is part of an overall development policy (Van der Wiingaart 2002).

The consumption of sugar and sugary foods and drinks is directly linked to the most prevalent of conditions, dental caries, and has indirect links to several systemic diseases such as diabetes mellitus. Therefore, consumer awareness in reading nutrition labels for carbohydrate content that includes sugar is important data not only for oral health, but also for health in general. Nutrition education and counselling for the purpose of reducing caries in children is aimed at teaching parents the importance of reducing high frequency of exposures to obvious and hidden sugars (Attin & Hornecker 2005).

2.2 Load of Illness and Impacts of Oral Conditions

Thus far, a number of instruments have been developed, validated and used in population oral health surveys to assess the functional, social and psychological outcomes of oral health condition (Slade 1997).

In Malaysia, oral health outcome measurement was first used on a nationwide basis in the National Oral Health Survey of Adults 2000 (NOHSA 2000) (Oral Health Division 2004). It was limited to adults aged 15 years and above. The Geriatric Oral Health Assessment Index (GOHAI) was translated into the Malay language and validated for use in 2004 among the elderly (Othman et al. 2006).

Pain in the teeth, mouth, face or head usually has a local cause and is commonly associated with dental condition or treatment. Pain that relates to the face and mouth is encompassed by the term orofacial pain. The term 'oral pain' is often limited to pain within the mouth, while 'facial pain' includes pain whose origin is below the orbitomeatal line, above the neck and anterior to the ears.

In Malaysia, there is a dearth of data on orofacial pain in diverse age groups. In NOHSA 2000, pain of teeth and gums (22.7%), and other parts of mouth (18.1%) in the last 4 weeks were found comparable to a study on health personnel, which reported 25% with orofacial pain and 21% having experienced oral discomfort (Norlida 2003).

A higher prevalence of orofacial pain (46.3%) was found among the preschool group (Azizah 2001). This is not unexpected as there is high caries prevalence (76.2%) among preschool children (Oral Health Division 2006). This is contrary to that for older children as a study by Jaafar et al. (1997) quoted in Azizah (2001) reported low oral pain prevalence (27.3%) among 12-13 year olds.

Findings from several local studies on impact of orofacial conditions are shown in Table 2.1.

Table 2.1: Impact of oral conditions from several local studies

SURVEY	NOHSA (2000)	Norlida (2003)	Azizah (2001)
Group/Age group	Adult (15-69)	Oral Health personnel [Mean age 35.46 (sd 9)]	Preschool (5-6 year)
Pain of teeth and gums (%)	22.7	-	-
Orofacial pain (%)	-	11.7	46.3
Most common disrupted activities (%)	Sleep (81.1)	-	Chewing (78.9)

While infrastructure and urbanisation have improved in Malaysia, there is still high numbers of casualties due to accidents in Malaysia. Statistics from the Royal Malaysian Police Department reported 50,194 casualties due to motor vehicle accidents in year 2000. The incidence rate has been reported at 107 per 10,000 populations (Norasyikin 2004). A local study in three selected hospitals found that domestic injuries are frequently seen in younger children while older children are mostly involved in motor vehicle accidents (Rahman et al. 2007). The largest single cause of serious home injuries were falls associated with design features of buildings and homes. Prevention of home injury is important as they may lead to injuries of orofacial structures.

2.3 Oral Healthcare Utilisation

Utilisation studies serve as important tools for health policy decision making (Manski et al. 2001) and two previous national health surveys (Oral Health Division 2004; NHHES'96 Team 1999) included national estimates of dental utilisation. The NHMS III marks the third of such endeavour in this country.

It has been reported that in the United States of America national surveys show that slightly over 40% had at least one dental visit during 1977, 1987 and 1996 and that higher utilisation rates were associated with females, higher education levels, higher socio-economic status and the urban locality (Manski et al. 2001).

3. OBJECTIVES

3.1 Population Practices in Oral Health

3.1.1 General objective

To determine oral health-related practices in terms of ownership/sharing of toothbrush and reading nutrition labels for sugar content.

3.1.2 Specific objectives

- a) To determine the proportion of population owning/sharing toothbrush by individual characteristics – age, gender, ethnic group, location, education level, income, state.
- b) To determine proportion of population aged 18 years and above that read nutrition labels for carbohydrate content including sugar when buying or receiving food.
- c) To determine characteristics of households (HH) that read nutrition labels for carbohydrate content (including sugar) when buying or receiving food.

3.2 Load of Illness and Impact of Oral Conditions

3.2.1 General objective

To gauge the burden of morbidity due to facial pain and injuries in relation to other morbid conditions and its impact on daily living activities for decision making.

3.2.2 Specific objectives

- a) To assess the prevalence of orofacial pain.
- b) To assess the impact of orofacial pain on daily activities (eating/chewing, speech, appearance, sleep, socialising, work, studies/school and daily chores).
- c) To assess the prevalence of injuries involving orofacial structures within the last 1 year.
- d) To explore common places of occurrence of orofacial injuries.

3.3 Oral Healthcare Utilisation

3.3.1 General objective

To determine individual behaviour (quantitative and qualitative aspects) in the utilisation of oral healthcare facilities.

3.3.2 Specific objectives

- a) To determine the proportion of individuals reporting oral health problems and or dental check-up (dental episodes) in the last 1 year.

- b) To determine the frequency of oral health problems or dental check-ups (dental episodes) in the last 1 year.
- c) To determine the proportions of dental episodes which are related to dental pain.
- d) To determine the proportion of dental episodes where care was sought.
- e) To determine the sources of care by dental episodes.
- f) To determine the reasons for not seeking care.
- g) To compare oral healthcare utilisation for the years 1996, 2000 and 2006.

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 were 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 were 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:

Stratum	Population of gazetted areas and built-up
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 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 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.

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 Methodology for Oral Health Module

The sampling design and process and logistics of the survey were according to standard NHMS III protocol. The oral health module was developed based on the requirements for oral health information for the country.

The module, as part of the NHMS III study, utilised a bilingual questionnaire administered by trained personnel. Parents/guardians responded for subjects aged 12 years and below. Parameters used for the oral health modules included gender, location (urban/rural), age groups (age by 5 years), specific age groups used for oral health data for local and international comparison (5, 6, 12, 16, 0-4, 5-6, 35-44, 65-74, 75+), ethnic group (Malays, Chinese, Indian/Pakistani, Other Bumiputera and Others), marital status, citizenship status, educational levels (tertiary, secondary, primary, no formal education), occupational status, income range as defined by the Economic Planning Unit. Attributes for HHs are based on information and responses of the head of HH.

The questionnaire was for all age groups of household (HH) members of selected HH except for nutrition labelling, which was targeted only for respondents 18 years and above.

4.9 Definition of Terms/Variables for Oral Health

Data was collected and analysed on an individual level for toothbrush ownership, load of illness and the impacts of oral health status, nutrition labelling (18 years and more only) and reported dental episodes.

Responses for owning toothbrush encompassed

- i. Own toothbrush = an individual has his/her own toothbrush (no sharing)
- ii. Sharing = if an individual is found to share his/her toothbrush with another member of the HH
- iii. Do not own toothbrush = an individual does not have a toothbrush

Dental pain is defined as '*any pain involving teeth AND / OR mouth*'.

The definition of a **dental episode** for items on oral healthcare utilisation is based on whether respondents had '*experienced dental problems and/or have had a dental check-up/visit in the last 1 year*' (Item 3). Mean for dental episodes was based on the reported frequency of dental episodes (Item 3.1). This definition differs from dental episodes reported for household out-of-pocket oral healthcare expenditure which are confined to dental episodes where care was sought/received among the weighted sample.

Individuals who have '**sought/received care**' are defined as those who '*have sought/received dental check-ups and/or dental treatment, and/or who have purchased medicines, and/or undertook self-care and/or sought/underwent traditional care*' for a dental episode in the past 1 year.

Oral healthcare utilisation also involved the items on whether dental treatment had been sought before, the last dental visit, the sources of care, reasons for and barriers to care.

Having made a **dental visit** is defined as 'having had dental check-up / treatment / oral health promotion activities within the last 1 year at any public sector, or private sector facilities, and this definition does not include self-care or traditional care'.

Public sector dental facilities include dental clinics of the Ministry of Health, Ministry of Defence, dental clinics in Universities under the Ministry of Higher Education, and dental clinics of the *Orang Asli* Department under the Ministry of Rural Development, as well as other public sector institutions. School dental service under the Ministry of Health was regarded as a public sector service but was coded separately so as to enable exclusion where warranted.

Private sector facilities include those managed by Division I Dental Practitioners and dental shops/clinics managed by Division II Dental Practitioners.

All definitions may be found in the **Glossary**.

5. FINDINGS

5.1 Population Practices in Oral Health

Oral health population practices encompass information on ownership of toothbrushes and reading of labels pertaining to sugar contents in foodstuffs. This survey provides the first nationwide data on toothbrush ownership.

5.1.1 Toothbrush ownership at individual level

The sample was weighted to represent 21.1 million people and respondents comprised 98.9% of the weighted sample. Of those who responded, the proportion professing to own a toothbrush was very high, with 94% claiming to own toothbrush, 1.2% citing sharing toothbrush and 4.2% professing to not having one (Figure 5.1).

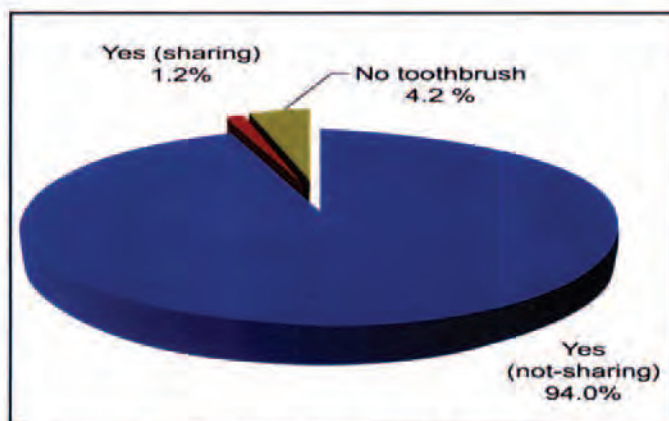


Figure 5.1: Toothbrush ownership at individual level

Subsequent findings are reported for non-sharing ownership of toothbrushes. Ownership of toothbrush was slightly higher among females (94.5%) than males (93.4%) and among urban dwellers (94.8%) than those in rural areas (92.6%). There were small variations in toothbrush ownership by ethnic group but the Other Bumiputera group exhibited the lowest percentage ownership (Table 5.1).

Table 5.1: Percentage toothbrush ownership (non-sharing) by gender, location and ethnic group

Variable	Percentage (%)	95% CI	
		Lower	Upper
ALL	94.0	93.7	94.2
Gender			
Male	93.4	93.1	93.7
Female	94.5	94.2	94.8
Location			
Urban	94.8	94.5	95.1
Rural	92.6	92.1	93.0
Ethnic Group			
Malays	94.1	93.8	94.4
Chinese	95.1	94.6	95.6
Indians	94.9	94.2	95.7
Other Bumiputera	91.1	90.1	92.0
Others	92.5	91.0	93.9

Ownership of toothbrush by individuals was found to be lowest at both ends of the age spectrum at 70.2% for toddlers (0-4 years) and 68.5% for those aged 80 years and above. In general, there was high percentage toothbrush ownership among all age groups from 5 years upwards but percentage ownership decreased with age from age 60 years and more (Figure 5.2).

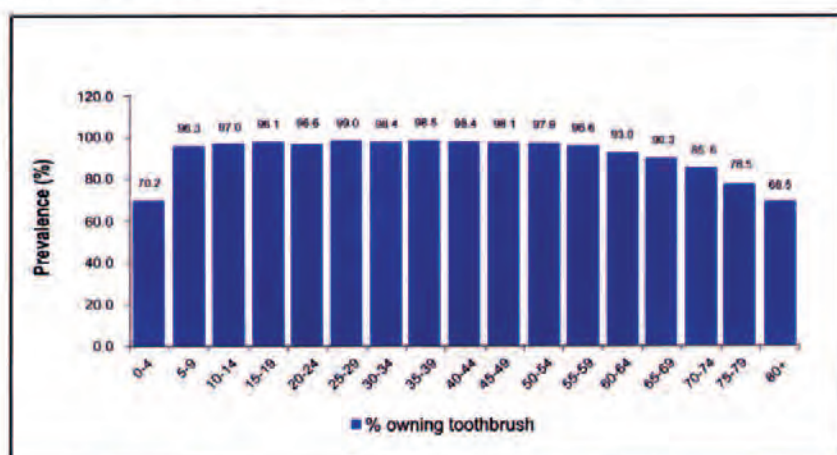


Figure 5.2: Percentage of toothbrush ownership by age group

The graph below (Figure 5.3) exaggerates the small variations by education level and income quartiles of the weighted sample. There seems to be a pattern associated with socio-economic status where toothbrush ownership increases with higher education level and higher income quartile.

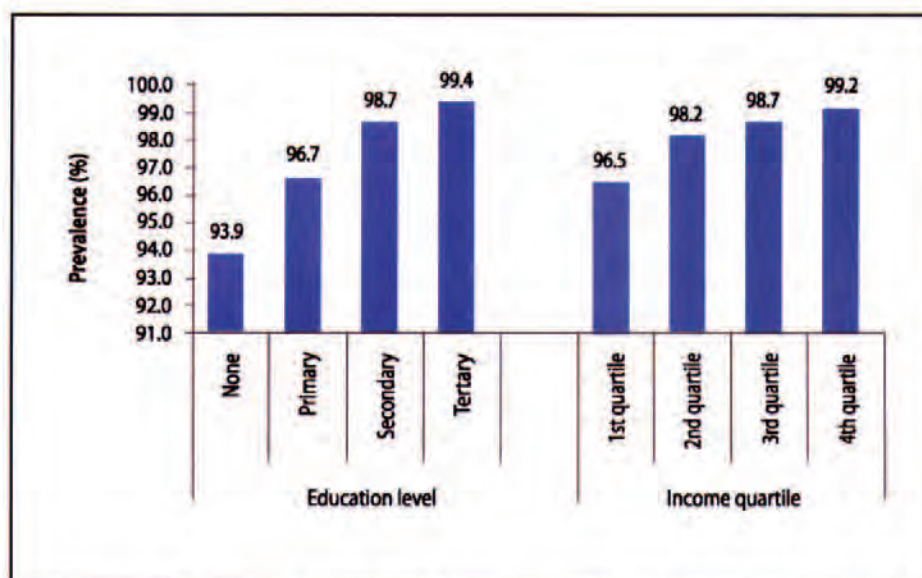


Figure 5.3: Percentage ownership of toothbrushes (non-sharing) by education level and income quartile

Similarly, variations in toothbrush ownership were small by state, with the highest in the Federal Territory of Kuala Lumpur (96%) and the lowest in Sabah (92.1%).

5.1.2 Reading nutrition labels

a) Individual level

This item was targeted for subjects 18 years and above who comprised 61.3% of the weighted sample. A total of 10.8% of adults 18 years and more read food labels for sugar content and more females (11.6%) read labels for sugar compared to males (9.8%). The population in urban areas seem to be more aware of sugar in foods (12.3%) compared to those in the rural areas (8.2%) (Table 5.2).

Table 5.2: Percentage reading nutrition labels by gender and location (18 years and more)

Variable	%	95% CI	
		Lower	Upper
ALL	10.8	10.3	11.3
Gender			
Male	9.8	9.3	10.5
Female	11.6	11.0	12.2
Location			
Urban	12.3	11.7	13.0
Rural	8.2	7.5	8.8

Less than one-fifth of young adults aged 18-19 years (17.2%) read nutrition labels, after which proportions reading labels decreased with increase in age (Figure 5.4).

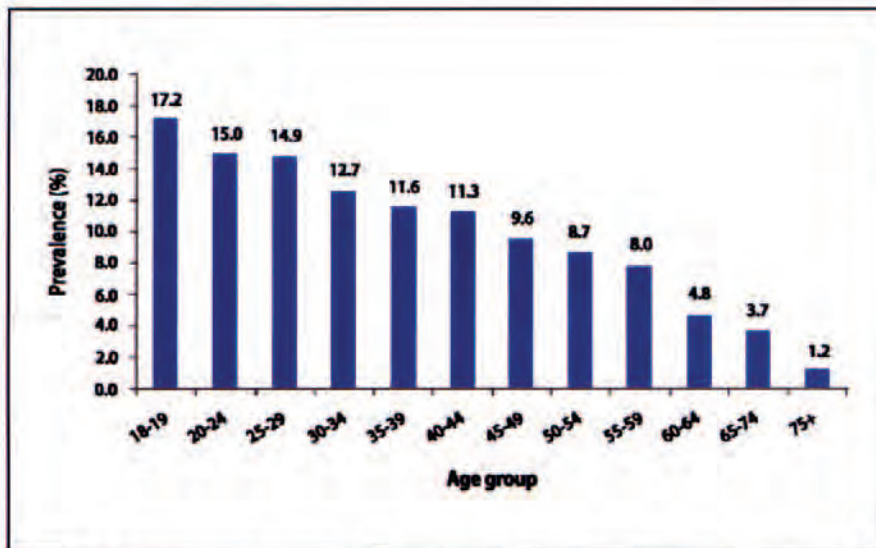


Figure 5.4: Percentage reading nutrition labels by age group (18 years and more)

Those who are concerned and read food labels for sugar content are more likely to be living in urban areas (12.3%), Malays (12.3%), young adults aged 18-29 years (15.4%), females (11.6%), of tertiary education (25.1%) and of an individual income of RM 5,000 and above (22.9%).

b) Household level

The proportion of household (HH) heads who responded to the item on reading nutrition labels for food contents which includes sugar was 11.3% (4,177). HH heads with tertiary education (25.1%), who were professionals (21%) and in the richest quartile (19.4%) were more likely to read nutrition labels (Figure 5.5).

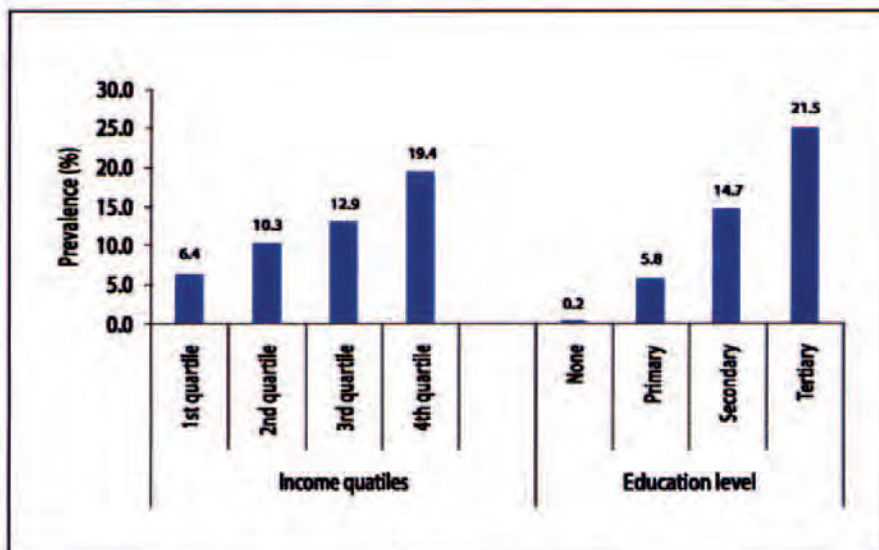


Figure 5.5: Percentage reading nutrition labels by education level and income quartile of head of HH

5.2 Load of Illness and Impacts of Oral Conditions

This section focuses on oral health problems and their impacts on daily activities which are considered as dimensions of Quality of Life (QoL); namely the physical aspects (sleeping, chewing, speech, working, schooling, undertaking daily HH chores), and psychosocial aspects (appearance, socialising). These include characteristics of orofacial injuries.

Load of illness from the perspective of oral health is defined as having dental pain and/or discomfort of the teeth and/or mouth in the past 4 weeks.

5.2.1 Population with dental pain/problems (within the last 4 weeks)

A total of 98.9% of the sample responded to this item. Of those who responded, 10% reported having orofacial pain in the past 4 weeks (Table 5.3). Findings were similar between males (9.9%) and females (10.1%). Orofacial pain occurrence was also highest among the Malays (11.5%) and lowest among the Chinese (6.2%).

Table 5.3: Distribution of occurrence of pain/problems of teeth and mouth in the last 4 weeks by gender, location and ethnic group

Variable	Having orofacial pain within the last 4 weeks			
	N	%	Yes	
			95% CI	
			Lower	Upper
ALL	5,757	10.0	9.7	10.4
Gender				
Male	2,685	9.9	9.5	10.3
Female	3,072	10.2	9.8	10.6
Location				
Urban	2,940	9.0	8.6	9.4
Rural	2,817	11.9	11.4	12.4
Ethnic				
Malays	3,750	11.5	11.1	11.9
Chinese	641	6.2	5.7	6.8
Indian	411	9.3	8.4	10.3
Other Bumiputera	716	10.1	9.4	11.0
Others	239	9.6	8.3	11.0

By age group, orofacial pain was reported lower at both ends of the age spectrum at 5.0 - 5.4% among the toddler group and those aged 60 and above compared to other age groups (10.0 - 15.7%).

Orofacial pain experience was higher among the rural population (11.9%) compared to the urban (9.0%) (Table 5.3).

Those with secondary education had a higher load of illness in the past 4 weeks [11.7% (CI: 11.2 - 12.7)] compared to all other education levels (range 7.1 - 10.4%).

Variations are small across income quartiles. Overall, reports of pain/problems of teeth and mouth seem to decrease with higher income, from 11.5% among the poorest one-quarter to 9.9% among the richest one-quarter.

Reports of orofacial pain were about two-fold higher among populations in the east coast states of Kelantan, Terengganu and Pahang and also in Kedah (ranging from 12.7 - 16.1%) compared to the more urbanised states of Perak, Pulau Pinang, Federal Territory Kuala Lumpur and Johor (less than 10%) (Figure 5.6).

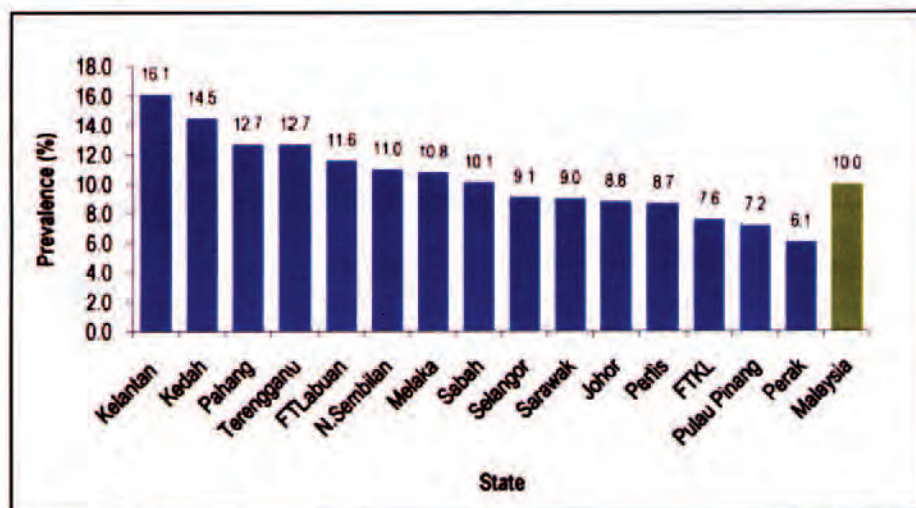


Figure 5.6: Distribution of occurrence of pain/problems of teeth and mouth in the last 4 weeks by state

5.2.2 Population with disrupted activities

Almost half of the respondents with oral health problems in the last 4 weeks reported disruption of one type of daily activity (48.4%), with decreasing proportions citing multiple activities affected (Table 5.4). These daily activities affect quality of life (QoL) of people and hence, are regarded as dimensions of QoL. Mean number of disrupted activities was 2.1.

Table 5.4: Frequency distribution of daily activities affected among respondents who reported pain/problem of teeth or mouth in the last 4 weeks

No. of Daily Activities Affected	n	%	Mean No. of Daily Activities Affected	95% CI	
				Lower	Upper
1 activity	1,662	48.4	2.1	2.1	2.2
2 activities	803	23.4			
3 activities	426	12.4			
4 activities	250	7.3			
5 activities	143	4.2			
6 activities	94	2.7			
7 activities	38	1.1			
8 activities	15	0.4			

The most disrupted daily activity/event was chewing (50.2%), followed by sleep (23.6%), impact on appearance (13.1%) and speech (12.3%). Proportions with impacts on other daily activities varied from 3.8 - 8.2% (Table 5.5).

Table 5.5: Ranked percentages with daily activities affected and mean days involved

Variable	% with Daily Activities Affected	95% CI		Mean No. of Days Involved	95% CI	
		Lower	Upper		Lower	Upper
Chewing	50.2	48.7	51.7	3.3	3.2	3.5
Sleep	23.6	22.4	24.9	2.9	2.7	3.2
Appearance	13.1	12.2	14.1	3.2	3.0	3.5
Speech	12.3	11.4	13.2	3.2	2.9	3.5
Socialising	8.2	7.5	9.0	3.1	2.7	3.5
Household chores	6.8	6.2	7.5	3.4	2.9	3.9
Work	5.9	5.3	6.5	2.8	2.5	3.1
Studies	3.8	3.3	4.3	2.7	2.3	3.2

In general, impacts of orofacial pain in the past 4 weeks and the mean number of days affected vary across socio-demographic variables of gender, location, age, education, income, employment status and states.

a) Chewing

Chewing affected half of the population who reported pain/problems in the past 4 weeks (Table 5.5). The mean number of days affected was 3.3 days. There were no differences by gender and location.

Overall, proportions of population reporting chewing problems increased with age from age 5 years onwards, but were high among the toddler group (53.7%). The lowest proportions with chewing problems appear to be among schoolchildren, especially those in the primary years (Figure 5.7).

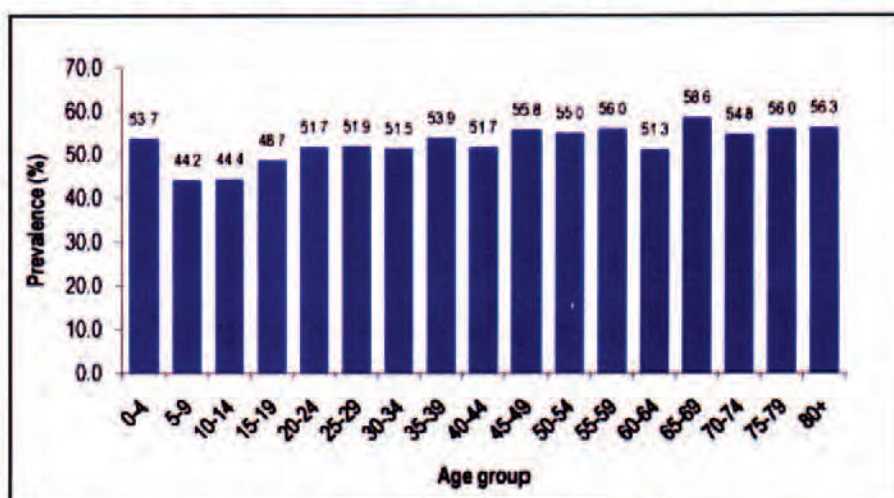


Figure 5.7: Proportions with disrupted chewing in the last 4 weeks by age group

There were small variations of impact by ethnic group with the Other Bumiputera group reporting higher chewing disruption (55 - 57%) than the other groups (range 48 - 50%). There was no particular pattern by income quartiles (range 50 - 54%) or by states. Overall, reported chewing problems seemed to increase with education level (range 48.4 - 52.7%).

b) Sleep

Sleep disruption affected almost one quarter of the population who reported problems in the past 4 weeks (23.6%) and mean number of days affected was 2.9 days (Table 5.5).

There were no differences by gender, although the rural population reported sleep disruption (25.5%) more than urban (22.2%). Percent sleep disruption by age group ranged from 16.2 - 27.7%. It is noted that lower proportions of school-going children aged 5 to 14 reported sleep disruption. Overall, lower proportions reported sleep disruption in the older age groups of 65+ years, although there appears to be more of those aged 70-74 reporting disrupted sleep.

c) Appearance

A total of 13.1% of the population who reported pain/problems with teeth/mouth in the past 4 weeks cited an impact on appearance with mean number of 3.2 days affected (Table 5.5).

Those reporting an effect on appearance were more likely females (13.6%), living in rural areas (14.3%) and of age more than 40 years.

The age group reporting the lowest impact of oral conditions on appearance was those aged 70-74 (5.6%) (Figure 5.8).

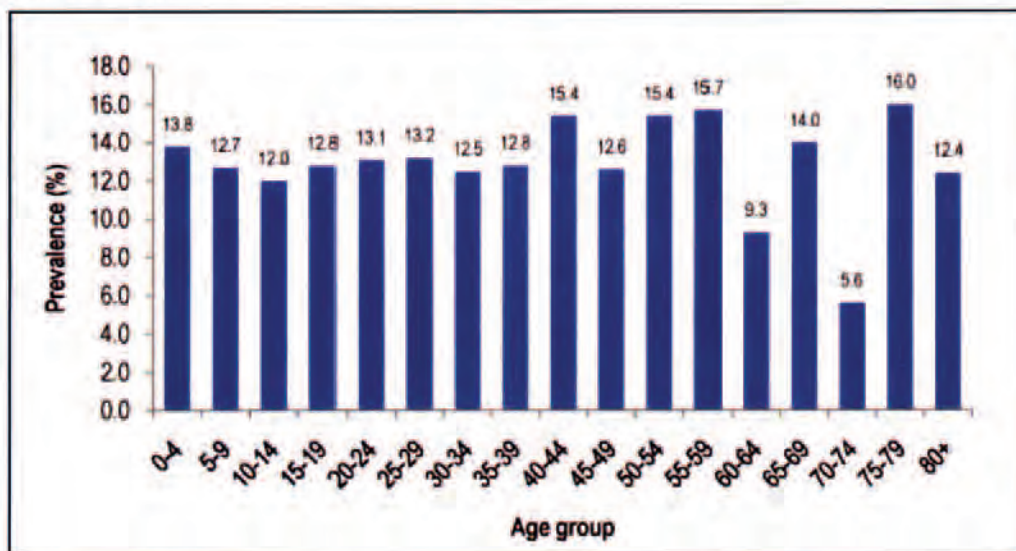


Figure 5.8: Proportion reporting appearance affected in the last 4 weeks by age group

More Indians and other groups (Other Bumiputeras and 'Others') exhibited high appearance impact (15 - 16%) compared to Malays and Chinese (6 - 13%). There seems to be no particular pattern by education level - those with no formal education and secondary education level reported less (<13%)

than those with primary and tertiary education level (>13%). No trend was observed between income quartile and appearance impact but the lowest proportion citing impact on appearance was among the richest one-quarter (9.9%).

d) Speech

Disruption of speech was reported less (12.3%) than that for chewing, sleep and appearance, with a mean of 3.2 days affected (Table 5.5). Females and rural populations reported higher proportions of speech disruptions. Overall, and similar to chewing, impact on speech peaked in the elderly of age 65-69 years (17.1%) and was lowest among those aged 75-59 years (Figure 5.9).

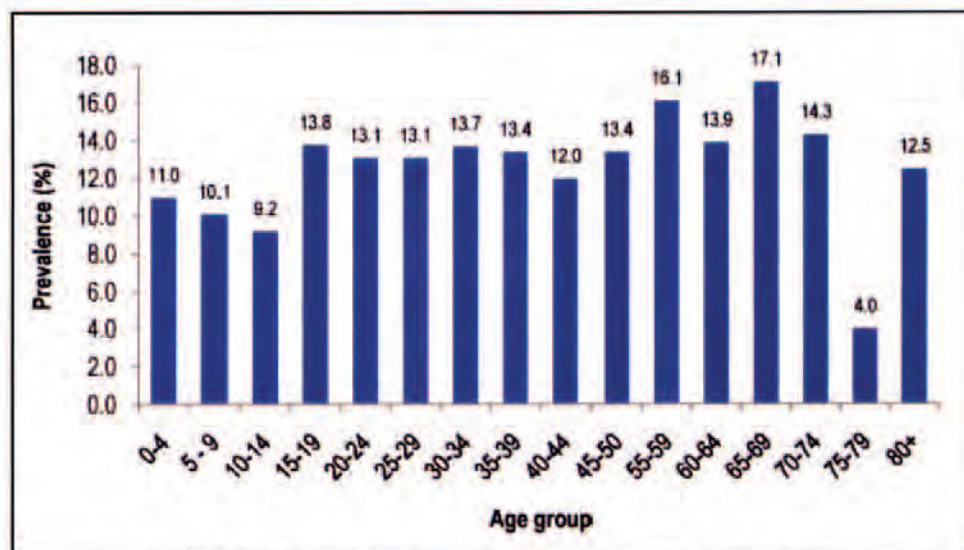


Figure 5.9: Distribution of speech in the last 4 weeks by age group

Speech disruption was reported to be low in less educated populations (11.2%) and was negatively related to income – proportions citing speech disruption decreased as income quartile increased.

e) Socialising

A total of 8.2% of the population with pain/problems in the past 4 weeks reported socialisation problems, with a mean of 3.1 days affected (Table 5.5). These were more likely females (9.0%), and those in rural areas (9.4%). Impact on social life was found to be associated with education level and inversely associated with income quartile (Figure 5.10).

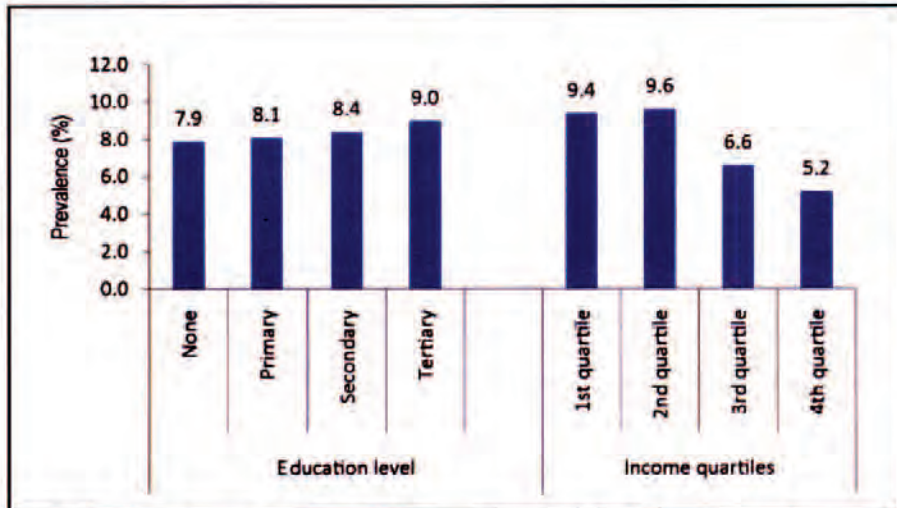


Figure 5.10: Proportions with socialisation problems by education level and income quartile

f) Daily household chores

Impact on daily household chores was reported by 6.8% of the population with pain/problems in the past 4 weeks with mean of 3.4 affected days (Table 5.5).

Those reporting disrupted HH chores were more likely females (8.9%), living in rural areas (7.3%), adults aged 30 and more (10 - 12%), and housewives (14.7%). Reports of such disruption decreased as level of education increased. The richest income quartile (4.6%) was less likely to report such disruptions.

g) Work

This item was limited to those employed only. Of those employed, 5.9 % reported work disruption and mean number of days affected was 2.8 days. Work problems seem to be highest among young adults in their 20s (range 10.1 - 12%) and among those aged 45-49 years (13.3%). Although there seems to be no particular association with education level, work problems decreased with income quartile, with the highest reported among those in the 1st and 2nd income quartiles (range 14.4 - 15.5%) and subsequently decreasing to the richest one-quarter of the weighted sample (8.7%).

h) Schooling/studying

Only 3.8% of those who were still schooling or studying and with a dental problem in the past 4 weeks reported disruption of school/study. The reported mean days affected was 2.7. There were no differences by gender or location. However, a higher proportion of older school going children aged 16 years reported disruption of schooling (13%) compared to younger children (range 1.1 - 9.3%).

The impact was less likely for adults who were still studying (0.3 - 2.0%).

5.3 Injuries and Safety (Within the Last One Year)

The item on injuries and safety was based on recall for the past 1 year. In the last one year, 9,076 episodes of injuries were reported by respondents (N=55,774). Majority reported injuries at home (6.7%) and on the road (4.4%), with injury cases at workplace, recreational park/area and school being low (1%) (Table 5.6).

Table 5.6: Place of injuries in the last one year

Places of injuries	Reported injuries*			Reported orofacial injuries*	
	N	n1	%	n2	% of n1
Home	55,593	3,742	6.7	386	11.0
Road	55,624	2,450	4.4	330	14.9
Recreational	55,141	960	1.7	60	6.7
Workplace	21,609	1,010	1.8	64	7.0
School	13,674	914	1.6	86	10.3

*Subject may report one or more episodes injuries occurred at single or multiple places

5.3.1 Population with orofacial injuries

Of the population that reported injuries, very few (1.5%; 808) reported involvement of the orofacial structures (Table 5.7). Males were more likely to report orofacial injuries (2.1%) than females (0.8%). Indians (2.1%) reported higher orofacial injuries than other ethnic groups, and better educated populations appeared less likely involved compared to other education levels (0.5 - 0.8%).

Table 5.7: Orofacial injuries by gender, residence and education level

Variables	N	n	Having orofacial injuries within the last one year		
			%	Yes	
				Lower	Upper
Overall	55,139	808	1.5	1.3	1.6
Gender					
Male	25,883	561	2.2	2.0	2.3
Female	29,256	247	0.8	0.7	1.0
Residence					
Urban	31,853	443	1.4	1.3	1.5
Rural	23,286	365	1.6	1.4	1.8
Education Level					
None	10,937	166	1.5	1.3	1.8
Primary	14,632	160	1.1	0.9	1.3
Secondary	17,786	215	1.2	1.0	1.4
Tertiary	3,321	25	0.8	0.5	1.2
Unclassified	369	2	0.5	0.1	1.8

A U-shaped pattern was observed for prevalence of orofacial injuries by age group (Figure 5.11). There were a higher proportion of orofacial injuries reported among toddlers and these steadily decreased with age, only to peak again at 75-59 years.

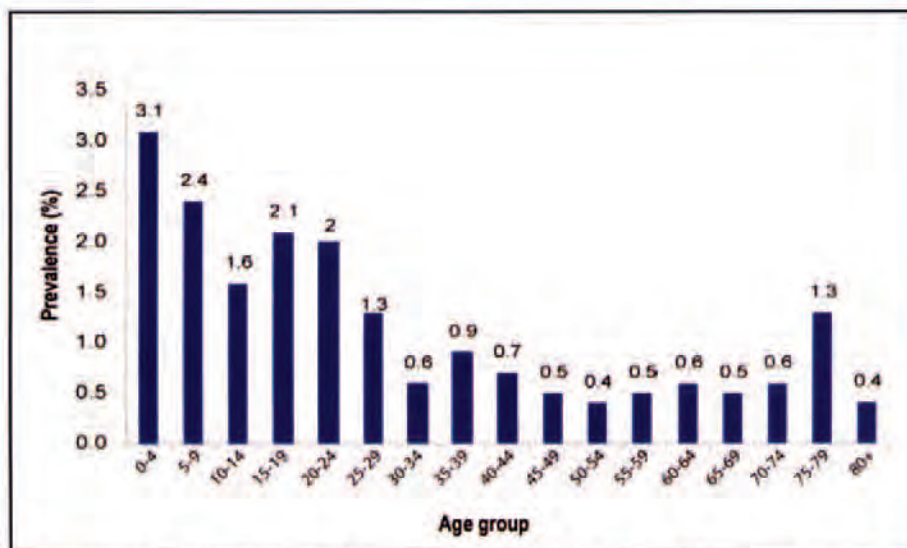


Figure 5.11: Proportion of population with orofacial injuries by age group

5.3.2 Place of occurrence of orofacial injuries

Of the injuries reported in the homes, 11.0% reported involvement of orofacial structures. Similarly of those on the road, 14.9% involved orofacial injuries. More than 10% of injuries in school, 7% at the workplace and 6.7% at recreational areas involved structures of the orofacial region.

a) Orofacial injuries on the road

Among the weighted sample reporting orofacial injuries on the road, majority were males (76.9%), in urban areas (59.5%), Malays (66.9%) and those who are still single (48.8%). Such orofacial injuries were more likely reported by younger people peaking at age 15-19 (21.2%) and gradually decreased to as low as 1.0% at 75-79 years.

b) Orofacial injuries at home

Majority reporting orofacial injuries at home were males (60.3%), living in urban areas (58.9%), and Malays (57.6%). Such injuries seemed to decrease as education and income levels increased. Orofacial injuries were more likely sustained by toddlers and preschool children, and were lowest among the elderly aged 65 onwards.

c) Orofacial injuries at school

Among children of preschool and school going ages reporting orofacial injuries in school, the majority were males (68%), in urban areas (67%) and among preschool and lower secondary children (range 44.1% - 39.5%) compared to older children in secondary school.

d) Orofacial injuries at the workplace

Of those employed, higher occurrence of orofacial injuries at the workplace were again reported by males (86.4%), in urban areas (53.2%), by Malays (42.2%), of secondary level education (61.5%). Such injuries seem to decrease with age and income level.

e) Orofacial injuries at recreational places

A higher occurrence of orofacial injuries at recreational places were reported in urban areas (67.7%), and by males (81.0%).

5.4 Oral Healthcare Utilisation**5.4.1 Oral health problems/dental check-up (dental episodes) in the last 1 year**

Overall, 22.9% of the weighted sample of 21.1 million reported dental episodes (either dental problems/check-ups) in the last 1 year. There were no gender differentials but there were slightly higher reports of episodes by the rural population (24.4%) than the urban (22.0%). Malays were most likely to report dental episodes (25.4%) while the Chinese (17.8%) and 'Others' (17.7%) reported the lowest. Reports of dental problems were low in the very young and the elderly, while the primary and secondary school-going group had the highest proportions reporting dental episodes.

Dental episodes were highest at both ends of the education level scale - among those with tertiary education (28.5%) and those with no formal education (26.8%). Episodes were also higher in the less urbanised states of Kedah and Kelantan (31.9%) and Terengganu (28.8%).

There were increasing proportions of reported dental episodes with higher income level, being highest for the RM 4500-4999 income group (34.0%).

5.4.2 Frequency of dental episodes

The number of reported episodes ranged from 1 - 24 but the majority reported less than three episodes - 77.3% with only 1 episode, 15.7% with 2 episodes, 5.3% with 3 episodes and 1.7% with 4 - 24 episodes.

The mean number of dental episodes was 1.35 with slight gender differences (males 1.3; females 1.4), and slightly higher for the rural population (1.4) compared to the urban (1.3). These are best shown as rates. For the weighted sample, the average number of dental episodes experienced per year was 294 episodes per 1000 individuals, with 291 episodes per 1000 in males, and 296 episodes per 1000 in females. In the urban population, an average of 274 episodes per 1000 was experienced with a corresponding figure of 328 per 1000 in the rural population.

The variation in mean number of dental episodes was very small among the ethnic groups, varying from 1.3 - 1.4.

The weighted sample in states like Negeri Sembilan, Pulau Pinang and Perak had lower mean number of dental episodes (all mean of 1.2) compared to Kedah (1.4 - 1.5), Kelantan (1.3 - 1.4), Melaka (1.3 - 1.4), Pahang (1.3 - 1.4), Terengganu (1.3 - 1.4), Sabah (1.26 - 1.33), and Sarawak (1.3 - 1.5).

Income also appeared to have a bearing on mean number of dental episodes. Those in the lowest income group of less than RM400 had higher mean number of dental episodes than those in the RM3000-3999 and above RM5000 brackets.

5.4.3 Dental episodes related to dental pain

Considering the majority, 77.3%, reported less than three episodes, further enquiries were made on the experience of pain and seeking of care associated with the first three episodes.

Overall, more than half (53.2%) of episodes were related to pain - 53.2% in the first episode, 29.2% in the second and 47.8% in the third. Episodes were more often associated with pain in males (53.9% males, 52.6% females) and among the urban population (53.6% urban, 52.6% rural). The 10-14 age group (37.5%), the Chinese (49.4%), those with no formal education (39.3%), populations in the states of Perak (39.1%), Sarawak (41.8%) and Perlis (42.8%) had the lowest proportion of episodes associated with pain. The highest percentage of painful episodes were among the elderly aged 80 years and above (75%), among populations in Melaka, (66.4%), and the Federal Territory Kuala Lumpur (61.6%), among 'Others' (64.5%), and the widowed (63.8%).

5.4.4 Dental episodes where care was sought

Limiting analysis to the first three episodes, 71.3% of those with episodes sought/received care. A higher proportion of those with painful episodes sought care (75.9% with pain, 66.0% no pain).

Care was sought more by population in urban areas (73.5%) than in rural (67.9%). Highest proportion of the problems/episodes with care were seen in adults aged 30-64 years, among Indians (80.7%) and Chinese (72.8%), and among those at either end of the education level - no formal education (75.0%) and tertiary education (78.4%) as well as among those with income more than RM4500; proportions increasing with successively higher income quartile groups. Proportions of dental episodes where care was sought/received were highest in the states of Penang (81.9%), Melaka (79.2%), and Selangor (76.2%).

Proportions seeking care in association with an episode were lowest in the 15-19 age-group, the elderly aged 75 years and more, in Other Bumiputera (63.8%) and 'Others' (66.6%), the unemployed (58.8%), among those earning less than RM500 (65.7%) and in the states of Negeri Sembilan (63.9%), Sarawak (63.9%) and Sabah (65.2%).

5.4.5 Sources of care

Considering only the first episode, overall the sources of care, in order of preference, are private dental clinics (39.8%), government dental clinics of the Ministry of Health (MOH) (27.7%), school dental clinics (24.3%), self care (5.2%), dental clinics of the Armed Forces (1.3%), registered dentist (1.0%), other sources of care (0.9%), traditional care (0.3%), dental clinics of universities (0.3%) and dental clinic of the Department of Aboriginal Affairs (*JHEOA*) (0.1%) (Figure 5.12).

If care under the school dental programme is excluded, then the choice of sources of care will be: government dental clinics (36.7%), private (51.3%), self-care (6.9%), armed forces (1.7%), registered dentist (1.4%), other sources (1.2%) traditional care (0.4%), university (0.4%) and JHEOA (0.1%) (Figure 5.12).

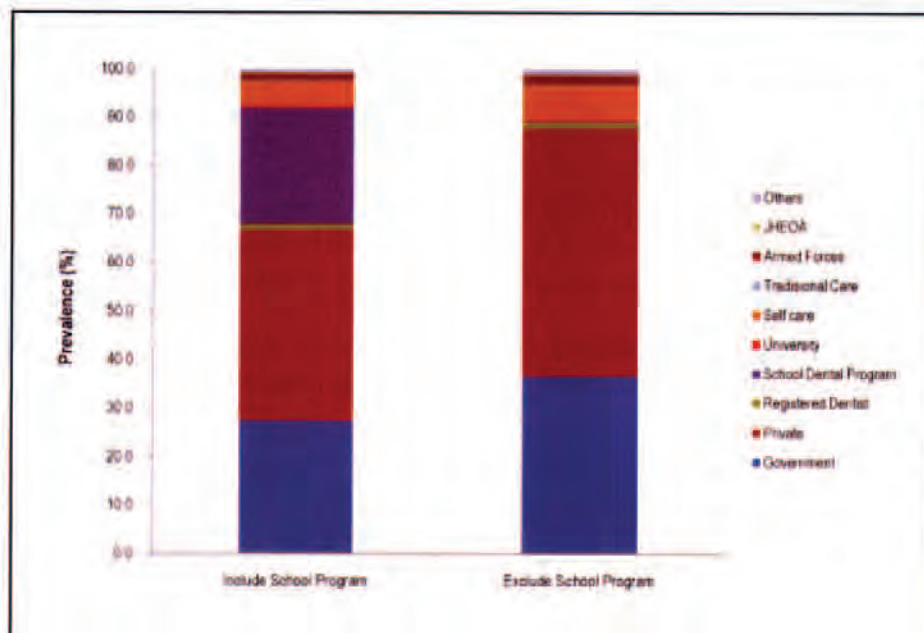


Figure 5.12: Sources of care

If sources of care are re-categorised into public sector facilities (dental facilities of the MOH, the school programme, dental clinics in universities, the Armed Forces, and JHEOA), private sector facilities (dental clinics of Division 1 practitioners or dental clinics/shops of Division II practitioners), self care, traditional care and other sources, the public sector facilities become the largest source of care (53.7%) followed by private sector clinics (39.8%), self-care (5.2%), and traditional care (0.3%) (Figure 5.13). Other sources of care (0.9%) were not specified.

There was no obvious gender differential except the slight preference shown for private care by females (41.1% females, 38.5% males) and for self care by males (6.4% males, 4.1% females). The rural population showed greater utilisation of public sector facilities (62.4%) compared to urban (48.6%) while the urban population showed higher rates of utilisation of private facilities (45.8% urban, 29.9% rural). Higher proportion of the rural population also resorted to self care compared to their urban counterparts (6.4% rural, 4.4% urban).

Public sector facilities were most often utilised by the Other Bumiputera group (67.0%) and least by the Chinese (38.1%) while utilisation of private facilities was highest by Chinese (57.9%). Self-care, traditional care and seeking care from other sources were seldom reported, but those that were reported were more among the Malays, the Other Bumiputera group and Others.

Utilisation of public sector facilities was high in the school-going age bands of 5-19 years, and low in the 20-59 age groups. Conversely, utilisation of private facilities was lowest in the 10-14 age group (12%) but high in the 20 - 59 age bands (49.6 - 58.6%), being highest in the 35-39 age group (58.6%).

Use of public sector facilities was inversely related to education level while that of private facilities was directly related to education level. Use of public sector facilities appears to be inversely related to income, while use of private sector facilities appears to be directly related to income. Hence, low income groups were more likely to use public sector facilities while higher income groups more private sector facilities.

Populations in states like Perlis (67.9%), Perak (66.7%) and Sarawak showed the highest utilisation rates for public sector facilities, while those in the Federal Territory Kuala Lumpur (61.0%), Selangor (50.1%) and Penang (49.5%) recorded high rates of utilisation of private sector facilities.

If the school dental programme is excluded, the 5 main categories of providers are private (52.7%), public sector (38.9%), self-care (6.9%), others (1.2%) and traditional care (0.4%) (Figure 5.13).

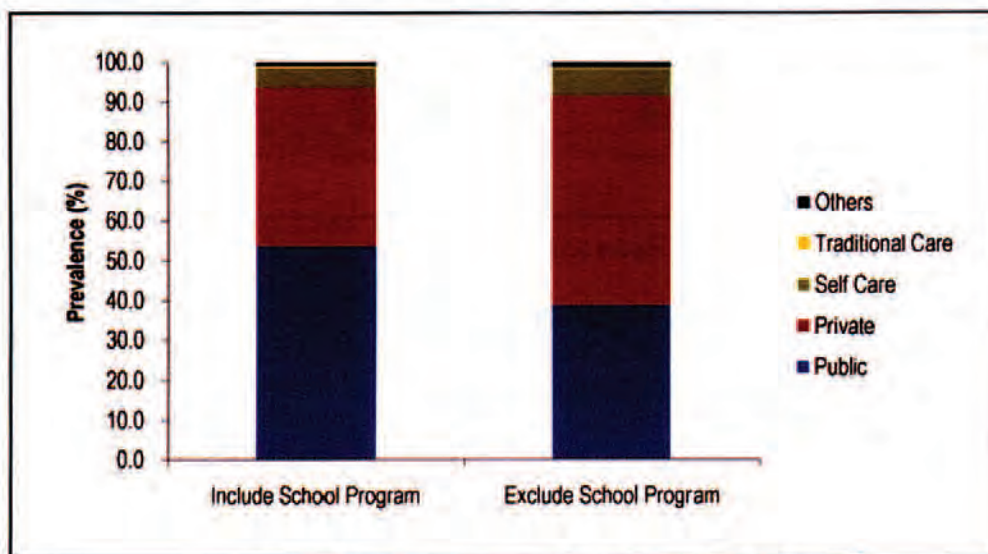


Figure 5.13: Main sources of care (re-categorised)

If care under the school dental programme is excluded from analysis, the dominance of care shifts towards the private sector but utilisation trends within each socio-economic status (gender, urban/rural locality, income, education etc.) characteristic is largely maintained.

Sources of care are influenced by the presence or absence of pain. Of those with pain, more than three-quarters (75.9%) sought check-up or bought medicine. The proportion population reporting sources of care for painful episodes were in the order of private sector clinics (45.7%), MOH clinics (33.4%), school programme (10.0%), self-care (6.4%), armed forces (1.4%), registered dentist (1.2%), other (1.1%), traditional treatment (0.4%), university clinic (0.3%) and lastly JHEOA (0.1%) (Figure 5.14).

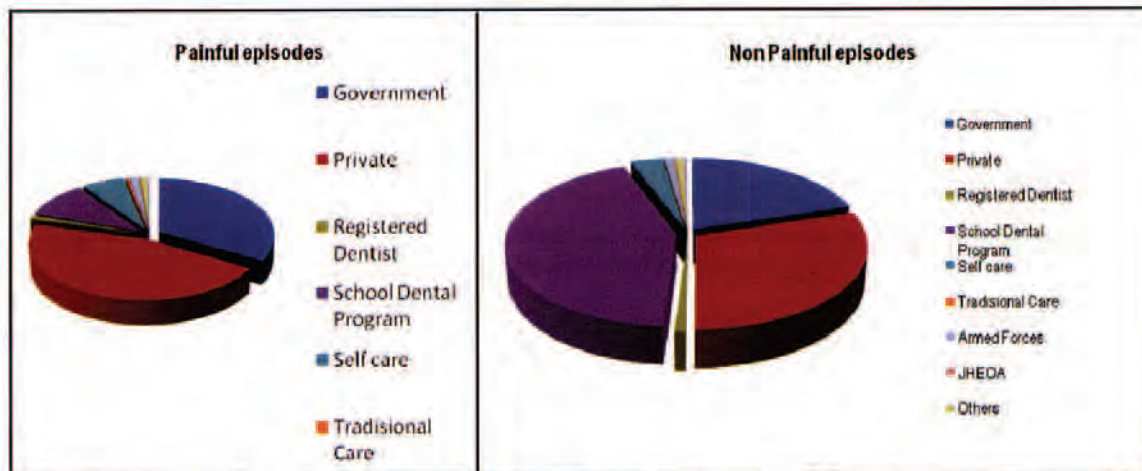


Figure 5.14: Sources of care for painful and non-painful episodes

The weighted sample reporting sources of care for dental episodes with no pain were in the following order: the school programme (43.2%), private sector clinics (29.7%), MOH clinics (20.3%) self-care (3.5%), Armed Forces (1.0%), registered dentist (0.8%), others (0.8%), dental clinics in universities (0.3%) and JHEOA (0.1%) (Figure 5.14).

In the absence of pain those most likely to seek care are those in the middle aged group, (compared to those who are elderly or young), the Indians followed by the Malays and least likely in the Other Bumiputera group, and most likely in Penang (80.4%), Kedah (73.6%) and Kelantan (71.5%). Those in the highest income group of RM5000 and more were most likely to seek care even when there is no pain (78.2%) than any other groups and those least likely are those in the RM4000-4999 income group and less than RM400 group.

It is interesting to note that the Indians were the most likely to seek care in episodes with (86.1%) and without (74.2%) pain. In the Federal Territory Kuala Lumpur care was most likely to be sought for episodes with pain (88.2%) and least likely when there was no pain (55.0%).

5.4.6 Last visit to dental clinic

Slightly more than one third of the population reported a dental visit within the last two years (39.8%) - 19.5% within the last 1 year, 12.8% between 1 - 2 years and 7.5% within the last 2 years in the school programme. About one third of the population (31.9%) had their last dental visit more than two years ago and the remaining 28.3% reported never having made a dental visit (Figure 5.15).

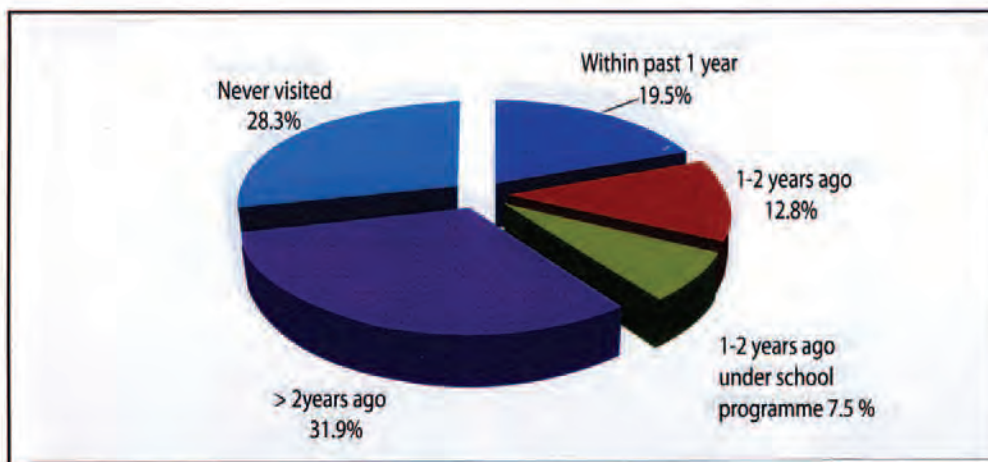


Figure 5.15: Last visit to dental clinic

Visits within the last two years were higher among females (40.6%), the urban population (40.7%), and among Malays (42.8%) and Indians (42.8%). Those aged 10-14 (79.6%) were the most likely to have had a dental visit 1 - 2 years ago and within 2 years under the school programme.

Those with tertiary education (50.6%) or with no formal education (57.7%) were more likely to have had a visit within the last two years. Higher income groups were more likely to have made dental visits within the last two years, while the low and middle income groups were more likely to have visited more than two years ago. Those in the lowest income group of RM400 or less were the most likely (30.9%) never to have made any dental visit at all. Professionals, technical and clerical workers were the groups with the highest proportions of dental visits within the last year.

Perlis topped the list with 54.6% of its population reporting visits within the last two years, followed by Kelantan (44.9%). Terengganu (13.3%) and Melaka (13.7%) reported the highest proportions with visits under the school programme within the last two years. Penang had the highest proportion (40.3%) with visits more than 2 years ago while the highest proportions that had never made any dental visits were in Sabah (49.2%) and Sarawak (35.0%).

5.4.7 Reasons for not seeking care

The five most cited reasons for not seeking care were there were 'no problems (80.0%)', 'no/false teeth (8.8%)', 'problems were not serious (6.5%)', 'too busy (1.1%)' and 'fear (1.0%)' (Figure 5.16).

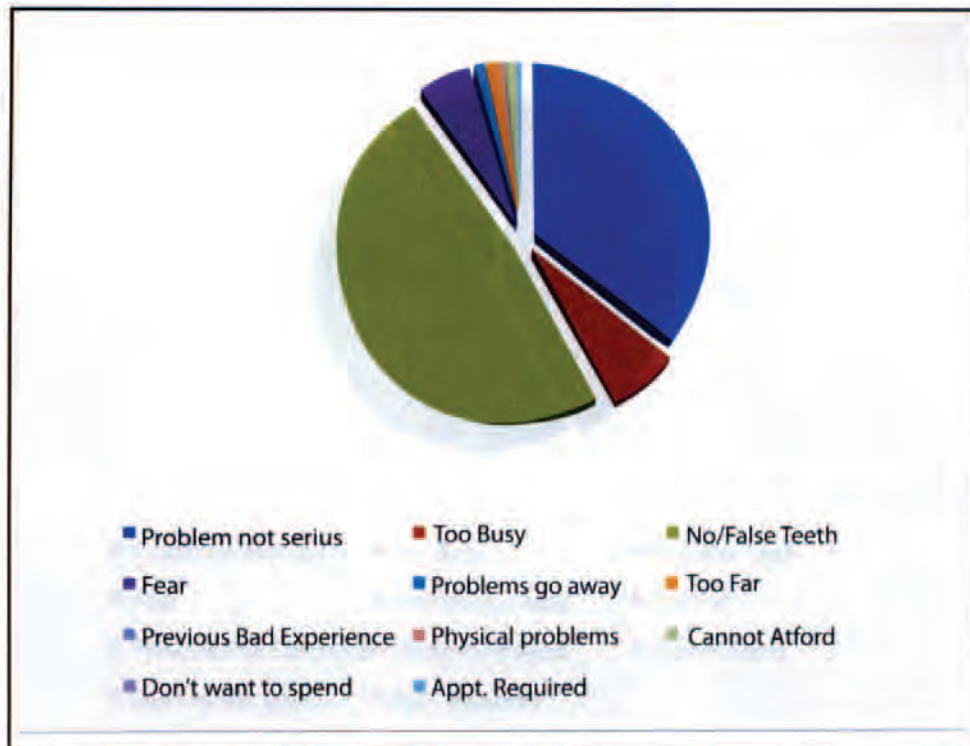


Figure 5.16: Reasons for not seeking care within past 2 years

6. DISCUSSION

6.1 Population Practices in Oral Health

One of the goals of the National Oral Health Plan 2010 is for all Malaysians to own a toothbrush by 2010 (Oral Health Division 2006). This survey provides the baseline data for identifying percentage toothbrush ownership. It is seen that the majority of Malaysians claimed to own toothbrushes. Education and income levels seem to be proportionate with percentage toothbrush ownership although the variation is small. The small variation indicates that almost all are aware of the importance of owning this simple oral hygiene implement. However, the overall high percentage of toothbrush ownership should not negate the need to target efforts to increase awareness among those who are sharing toothbrushes or who do not own one.

Owning a toothbrush is a totally different matter from using it. The oral health module had not included an item on use of toothbrush as it would have been difficult to validate the response. It is thus not possible to elicit use of toothbrush from this study. A study on representative samples of 11-, 13- and 15-year-olds across 32 countries found large differences in prevalence of reported tooth brushing ranging from 16-80% for boys and 26-89% for girls (Maes et al. 2006). Data across countries are also

inconsistent. In some countries, the prevalence of more-than-once-a-day tooth brushing increased with age, while in others it declined. High occupational status and family affluence were clearly related to higher prevalence of more-than-once-a-day tooth brushing. It was concluded that within the European continent and in North America, gender, family affluence and parental occupation were significantly associated with tooth brushing frequency among adolescents (Maes et al. 2006).

With consistent oral health promotion efforts, particularly in the school programme, to reduce and limit the amount and frequency of sugary foods/drinks consumption, there is interest on whether such messages have filtered through to the population. This is especially of interest with reference to young adults who have passed through the school system. Hence, the relatively small proportion of 10.8% of adults who read labels for sugar content is a bit disappointing, as it reflects a general lack of interest of consumers in nutritional values of foodstuffs that they purchase for themselves and their families. There is only slight variation by gender, again indicating that targeting mothers as agents of change have not made much in-roads in this aspect. Again education and income range are associated with pro-active behaviour of reading food labels.

6.2 Load of Illness and Impact on Dimensions of Quality of Life

The present study had shown that 1 in 10 had orofacial pain in the preceding month. However, under or over reporting cannot be ascertained as this is self-reported.

In this study, reported pain is seen to be quite high among preschool children and also among young adults aged 20-24 years. This scenario concurs with results from the national oral health studies on preschool children (Oral Health Division 2006) and on adults (Oral Health Division 2004). These are of concern to the public sector oral health services as efforts among pre-school children thus far to control dental caries have had very slow impact in controlling dental caries in this group, indicating that much disease occur in the years when such children are not captive under the public sector services. Hence, health promotion efforts must continue to target parents/minders especially mothers as agent of change in controlling oral diseases in very young children. The study on preschool children in 2005 took note of such status and made relevant recommendations to consolidate services to children in kindergartens (Oral Health Division 2006). However, judging by the low proportions and small variations by gender of those reading labels for sugar, these may still prove uphill tasks as it would seem that Malaysians in general, are still quite unconcerned about impacts of oral diseases on young children.

Higher proportions of young adults reporting orofacial pain also indicate a need for oral healthcare for those who have recently left school and who have, in the majority, had access to the school dental programme. There is again, a need to encourage utilisation of dental services for prevention and to ease access to oral health services for this group who might still be studying and who are probably not financially stable enough to obtain private sector care.

The fact that toddlers and the elderly, who generally have fewer dentition, report lower proportions with pain clearly indicates the link between dentition status and orofacial pain.

6.3 Disruption of Activities

About half of those with orofacial pain in the last month claimed disruption of one or more daily or social activities. Hence, although 10% population with orofacial pain may not be a high prevalence, the situation must be viewed from the aspect of impact on dimensions that affect people's quality of life. Findings show that while orofacial pain problems among toddlers and the elderly are low, the proportion of disrupted activities, however, are high. Therefore, future studies on orofacial pain must encompass more than just reporting prevalence, and expand into areas of impact of such pain on daily life.

Eating is part of life's social function and enjoyment. The association between orofacial pain and dentition status is linked to higher proportions reporting disrupted chewing function among the elderly and toddlers. The oral health survey on adults (NOHSA 2000) reported chewing problems as most prevalent among the edentulous and those with fewer than 20 teeth. The high rate of chewing problems among toddlers deserve public concern as it has been reported that untreated oral disease contributes to weight loss, growth and the cognitive development of young children (Sheiham 2006).

Findings of higher activity disruption among females, and the rural population are similar to that for adults from the NOHSA 2000 findings (Oral Health Division 2004). Results for impact on appearance also concur with that of NOHSA 2000 (13.1% impact on appearance in this study compared to 12.3% of adults avoiding smiling/laughing in NOHSA 2000). The results for Chinese reporting lower rates of work disruption also concur with that from NOHSA 2000.

6.4 Injuries and Safety (Within the Last One Year)

The item on orofacial injuries was incorporated as part of a different module and had inquired on injuries and places of occurrence first before eliciting proportions with involvement of orofacial structures. Analysing within this limitation produces a low prevalence of 1.4% of the living population sustaining injuries in the orofacial region. However, readers need to bear this aspect in mind as this study cannot ascertain the burden of such injuries among fatalities.

6.5 Orofacial Injuries by Places of Occurrence

Orofacial injuries reportedly took place most commonly on the road (14.9%) followed by at home (11.0%) and at school (10%). This is not in agreement with a Ministry of Health Report (Hejar & Rosnah 2002) that revealed that majority of injuries occurred at home and on the road.

This study reported higher prevalence of orofacial injuries at home affecting mostly toddlers and housewives. It also found that higher orofacial injuries on the road occurring among males, those who are single and among young adults (15-24 year old). The findings concur with WHO report (WHO 2007) that cited daily deaths on the road of some 1000 people under the age of 25 years. While the said report cited low income families as more likely to be vulnerable road users, this study conversely found such injuries prevalent among those with a good level of education and better income.

6.6 Oral Healthcare Utilisation

It is the goal of the Oral Health Division to provide access to oral healthcare to at least 25% of the nations' population (Oral Health Division 2006). In the present study, from the last dental visit reported, only 19.5% reported having made a visit within the last year, thus yielding a dental utilisation rate of 19.5%.

The utilisation rate reported in the National Oral Health Survey of Adults in 2000, NOHSA 2000 (Oral Health Division 2004) was 25.2% visiting within the last 1 year. Analysing only for respondents 15 years and above, the utilisation rate in this study is lower than that reported for NOHSA 2000. International literature shows utilisation rates from as low as 17.5% in Sri Lanka to 23% in southern China to 80% in Denmark and Sweden (Abayaratna & Krishnarasa 1997; Chen et al. 1997; Lo et al. 2001; Mumcu et al. 2004).

The utilisation of public/private sector facilities in this study for those aged 15 and above showed slightly higher use of private facilities than in the dental adult survey of 2000 (Public 41.7% compared to 50.0% in NOHSA 2000 versus Private 50.7% compared to 43.0% in NOHSA 2000) (Table 6.1).

Table 6.1: Utilisation of public /private facilities of individuals 15 years and above - comparison with NOHSA, 2000

Study	Region	Public	Private	Others	Never
NHMS III, 2006	Peninsular Malaysia	40.7	52.2	7.2	-
	Sabah	48.5	43.9	7.7	-
	Sarawak	44.3	44.8	10.8	-
	Overall	41.7	50.7	7.6	-
NOHSA, 2000	Peninsular Malaysia	48.5	45.0	0.6	5.9
	Sabah	59.1	29.7	0	11.2
	Sarawak	57.0	33.9	0.7	8.5
	Overall	50.0	43.0	0.5	6.5

Comparison of findings with that from the National Household Health Expenditure Survey (NHHS '96 Team 1999) is shown in Table 6.2.

Table 6.2: Utilisation of public/private facilities (excluding school dental programme) for all age groups - comparison with NHHS '96

Study	Region	Public	Private	Others
NHMS III, 2006	Peninsular Malaysia	36.8	54.9	8.5
	Sabah	48.9	42.6	8.3
	Sarawak	45.4	43.6	10.9
	Overall	38.8	52.7	8.5
NHHS, 1996	Peninsular Malaysia	34.7	65.3	-
	Sabah	47.9	52.1	-
	Sarawak	43.8	56.2	-
	Overall	-	-	-

Conceptually, the definition of dental episodes in reference to out-of-pocket expenditure, in the present study is the same as that defined for NHES'96, as receipt of care included the same parameters. Although dental episode was defined in 1996 as those with care, the aspect of care included self-care and traditional healing. There is good concordance of the estimated number of dental episodes per 1000 persons in both studies while the number of episodes where care is sought in NHES III is paradoxically only half that of NHES '96. It must be noted that NHES'96 was confined to episodes of care out of the school programme. Care under the school dental programme was deemed different from other episodes of care as these were at no extra cost or effort to the children or their parents. Hence, the exclusion from further analysis in NHES'96.

Hence, if school dental programme is excluded, the preference for private facilities as the preferred source is borne out, similar to NHES'96. However, the contribution of the SDP could have been moderately overcompensated for (30.6% as compared to 24.3% contribution in this study), and the propensity for private care may not be so overwhelming.

Pain does seem to figure in people's choice of place of care. Public facilities, especially the school dental programme assume a more important role for episodes where there was no pain. Since preventive rather than symptomatic care is advocated, public dental service in general, and the school dental programme in particular, remain important. Majority of the trends and characteristics of utilisation in this study with regards to socio-economic status are comparable with the findings of the NHES '96 (NHES'96 Team, 1999) and NOHSA 2000 (Oral Health Division 2004).

7. CONCLUSION

7.1 Population Practices in Oral Health

Majority of Malaysians own toothbrushes (94%). It is hoped that in spite of whatever economic conditions exist, there would be awareness of the need for owning this basic tool for oral hygiene. The affordability of such a basic oral health product should also be ensured even to those in the lowest income strata.

The proportion of population aged 18 years and above that read nutrition labels for carbohydrate content including sugar when buying or receiving food is very low at 10.8%.

7.2 Load of Illness and Impact of Oral Conditions

One in every 10 respondents reported having some form of oral and/or facial pain in the past 4 weeks. Almost half of the respondents with oral health problems in the last 4 weeks reported disruption of one type of daily activity (48.4%).

Although 10% population with orofacial pain may not be a high prevalence, the situation must be viewed from the aspect of its impact on dimensions that affect people's quality of life. The most disrupted daily activity/event was chewing (50.2%), followed by sleep (23.6%), impact on appearance (13.1%) and speech (12.3%).

The association between orofacial pain and dentition status is linked to higher proportions reporting disrupted chewing function. Findings show that while orofacial pain problems among toddlers and the elderly are low, the proportion of disrupted activities, however, are high. The high rate of chewing problems among toddlers deserves public concern. Findings of higher activity disruption among females, and the rural population are similar to that for adults from the NOHSA 2000 findings. Results for impact on appearance also concur with that of NOHSA 2000 as did the Chinese reporting lower rates of work disruption compared to other ethnic groups.

7.3 Orofacial injuries

Of the population that reported injuries, very few (1.5%) reported involvement of the orofacial structures. About 15% of injuries on the road involved orofacial structures. Regardless of place of occurrence, there seem to be a preponderance of orofacial injuries among males, and in the urban areas.

7.4 Oral Healthcare Utilisation

The rate of utilisation of dental services in this study is lower than that reported in two previous local studies on dental utilisation and that reported in the surveys of the United States of America. The rate of utilization at 19.5% seen in adults 15 years and above show a decrease in utilisation by adults compared to the adult survey of 2000.

Use of private source of oral healthcare has recorded an increase from 43.0% in 2000 to 52.7% in 2006. Despite these changes, the relationship of SES characteristics to utilisation of oral healthcare have remained fairly stable with higher rates of utilisation being seen in females, the more highly educated, the urban location and those with better socio-economic standing. The barrier to care is still the pervasive perception of there being no problem and thus no need for oral health care visits.

8. RECOMMENDATIONS

8.1 Population Practices in Oral Health

The oral health status especially among the younger generation has gradually progressed over the years. However, it is realized that the impact on oral health status must be attributed to interplay of public health initiatives as well as social and economic factors. With rising cost in healthcare, initiatives on prevention and promotion become all the more imperative. The future challenges lie in active persuasion of individuals and communities towards self-reliance and self-care.

There is a need to further strengthen the dental health education programme among schoolchildren under the school dental programme of the Ministry of Health and to continue working with the dental industry on the supply of toothbrushes to primary schoolchildren in Years 1, 2 and 3 to instil good oral hygiene habits among young children. It is also as an incentive for toothbrush drills to be conducted in schools by teachers.

While acknowledging that there are of course foods where there are no measures to their carbohydrate or sugar content, there is a need to explore whether the population is pro-active enough to seek information on foodstuffs.

8.2 Load of Illness and Impact of Oral Conditions

Though oral pain was fairly common in the population, yet the prevalence can be much reduced in order to prevent significant impact in identified affected subpopulation. Recommendation arising are as the following:

- i. Dental profession may encourage seeking care behaviour and help reduce dental injuries in the community by using their influence as professional through interactions and building up relationship with local community leader in seeking their support and greater political will.
- ii. Reinforcement on usage of seat belt to parent and children.
- iii. Organising children and home safety days, youth and road safety days.

8.3 Oral Healthcare Utilisation

Dental utilisation need to be improved to meet the National Oral Health Goal of Utilisation by 25% of the population. The public dental service should be prepared for a bigger role in preventive/ asymptomatic dental care.

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CHAPTER II

ORAL HEALTHCARE OUT-OF-POCKET EXPENDITURE

"Healthcare should meet the needs of a nation, satisfy the demands of many groups in the population, and adapt flexibly to the rapidly changing capabilities of modern medicine. It should not impose an impossible financial burden on families and the national economy. It must be sufficient for today, yet sustainable to meet the uncertainties of the future".

Peter Berman, 1995

1. INTRODUCTION

The Malaysian Healthcare System, as it is worldwide, seeks to achieve social justice through emphasising affordability and equity so that everyone can have access to attain an acceptable standard of health status (Taha et al. 2005). Hence, financing healthcare including oral healthcare (OHC) has always been a cornerstone of most healthcare systems. Choice of financing healthcare services will have to consider fairness in contribution from all possible sources as it impacts on the burden of paying for healthcare services (WHO 2000).

In Malaysia, the National Household Health Expenditure Survey in 1996 (NHHES'96) reported sources of financing oral healthcare as primarily through general taxation (in the public healthcare service) and private out-of-pocket (OOP) household expenditure (NHHES'96 Team). It was estimated then that these two main sources contribute almost equally to total oral healthcare expenditure in the country whilst private employers and health insurance made negligible contributions. Household income is ultimately the source of most healthcare finance and direct payments from individuals or households for healthcare services represent a large proportion of the total expenditure. How revenues are collected have an impact on the equity of the system and OOP payment has been described as the most regressive way to pay for health (WHO 2000). In unexpected circumstances, such as toothache, OOP expenditure can expose poor families to great financial risk.

Oral healthcare received at public sector clinics are highly subsidised. Government workers enjoy employees' benefits and pay almost nothing (NHHES'96 Team 1999). Children, the elderly and the poor also enjoy these benefits. Other patients pay higher, but still nominal, fees. Pain-relief and basic procedures such as check-ups, extractions and simple fillings are usually rendered on day of attendance. For other procedures such as extensive scaling, multiple fillings to more complex treatment, patients are given appointments. Patient queues may be long, and wait times may average more than 60 minutes, inclusive of registration time (Loke & Husniyati 2006). The thrusts of the public service are the school dental service and targeted groups (toddlers, pre-school children, ante-natal mothers, the elderly and the disadvantaged) which account for more than 80% of workload in the outpatient government clinics (Ministry of Health Malaysia 2006). Hence, available resources and options for treating adults are less than desired.

In private dental clinics, the mode of payment for dental care is generally fee-for-service paid directly to the provider. The NHHES'96 estimated that per dental episode cost about RM57.26 for those who sought care at private dental clinics or who have no access to subsidised care. In unexpected circumstances, this can expose poor families to great financial risk.

Although treatment charges, including purchasing over-the-counter (OTC) medication, can constitute a high proportion of total expenses when seeking oral healthcare services, cost of travelling and other incidentals can contribute substantially and may influence decision to seek care. Chu (1998) reported that almost 30% of total expenses incurred in seeking oral healthcare from public sector clinics in Sibul were travelling costs. Travelling expenses are affected by the mode of transport; usually the lower income group use more public transport than their own vehicles (Akin et al. 1985).

Households need to be protected from having to pay large proportions of their available income in trying to attain health. At the same time there needs to be fairness in the financial contribution to the healthcare system from all stakeholders for sustained healthcare services. Understanding factors influencing household expenditure on oral healthcare is necessary in ensuring principles of equity, social justice and fairness and need to be addressed in health sector financing and expenditure studies.

In addition, data describing household contribution to oral healthcare will complement information required in the National Health Accounts. The National Health Accounts describe expenditure flows, both public and private, within the health sector. They describe the sources, uses, and channels for all funds utilised in the health sector and are a basic requirement for optimal management of the allocation and mobilisation of health sector resources (Rannan-Eliya & Berman 1993). As in any other sector, the resources available in the health sector to meet national goals are limited. Therefore, policy makers and planners in the health sector must understand the potentials as well as the limitations of resource allocation and mobilisation if they are to be effective in achieving their objectives. Accurate information about the current availability and distribution of resources in the sector and their directions of flow, as well as previous and expected changes in that pattern are necessary to such understanding.

The NHES'96 conducted nationwide, is currently the only available data to include expenditure on oral healthcare among Malaysian households. The National Health and Morbidity Survey III (NHMS III) 2006 thus provided a good opportunity to collect comparable information a decade after the survey in 1996.

2. OBJECTIVES

2.1 General Objective

To estimate the total household out-of-pocket (OOP) expenditure for oral healthcare in the year 2006 and its distribution by demographic, socio-economic factors, source of oral healthcare and pain status

2.2 Specific Objectives

- 2.2.1 To estimate the quantum spent by households OOP for oral healthcare in the year 2006.
- 2.2.2 To estimate the proportion of household OOP expenditure for healthcare attributed to oral healthcare.
- 2.2.3 To estimate the proportion of household OOP expenditure for oral healthcare by treatment charges, purchase of medicine and other expenses (loss of wages, cost of accompanying persons).
- 2.2.4 To determine per capita OOP expenditure of households for oral healthcare by selected demographic (age, gender and ethnicity) and socio-economic factors.

- 2.2.5 To estimate the mean expenditure per person and per dental episode for all who sought care by selected demographic (age, gender and ethnicity) and socio-economic factors, at various providers of care (public/private/self-care/traditional) and by painful and non-painful episodes.
- 2.2.6 To investigate the correlation between per capita expenditure (and mean expenditure) and dentist to population ratio (secondary source of data).
- 2.2.7 To determine the proportion of adults aged 18 years and above willing to pay OOP a fixed amount of monies for dental check-ups and/or dental treatment.
- 2.2.8 To identify proportion of population with other sources of financing oral healthcare (not paid by family members) in the last 1 year.

3. METHODOLOGY

3.1 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 advise 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.

3.2 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.

3.2.1 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:

Secondary stratum	Population of gazetted areas
Metropolitan areas	75,000 and above
Urban large areas	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.

3.2.2 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.

3.2.3 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.

3.3 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.

3.4 Method of Data Collection

3.4.1 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 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.

3.4.2 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.

3.5 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.

3.5.1 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.

3.5.2 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.

3.6 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.

3.7 Data Management

3.7.1 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.

3.7.2 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.

3.7.3 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.

3.8 Definition of Terms/Variables for Oral Health

Variables used for oral healthcare expenditure include gender, location/strata (urban/rural), age groups (age by 5 years), specific age groups used for oral health data at local and international level (5, 6, 12, 16, 0-4, 5-6, 35-44, 18-64, 65-74, 60+, 65+, 75+), ethnic group (Malays, Chinese, Indian/Pakistani, Other Bumiputera and Others), citizenship status, education level attained (no formal education, primary, secondary, tertiary), and income range (variously defined for NHMS III, by the Economic Planning Unit (EPU) and by quartiles).

3.9 Household Out-of-Pocket (OOP) Expenditure for Oral Healthcare

The oral health expenditure section of the oral health module captured the population who reported having **one or more dental episodes in the past 1 year** and who had **sought care** for the episodes, regardless of whether care had incurred expenses.

In this survey, a **dental episode** is defined as '*an event when an individual sought/received care for preventive reasons or for any condition or disease occurring or manifesting in the mouth*'. The definition is conceptually equivalent to that of the NHHES '96 which defined a dental episode '*as an event (dental visit) when an individual received care for any disease or condition occurring or manifested in the mouth*' (refer to **Glossary**).

An episode was explained to the respondent as any problem in the mouth where the respondent did nothing, instituted home remedy, purchased over-the-counter (OTC)/ traditional medicine or sought care from a dental practitioner. A dental visit for a check-up associated with or without a problem was also included.

Individuals who have '**sought/received care**' are defined as those who '*have sought/received dental check-ups and/or dental treatment, and/or who have purchased medicines, and/or undertook self-care and/or sought/underwent traditional care*' for a dental episode in the past 1 year.

All members of selected households (HH) were interviewed using the same items for this section. Parents/guardians responded for children aged 12 years and below.

For each episode, respondents were asked up to a maximum of 3 dental episodes in the past 1 year, if the episode had been associated with pain, and whether the respondent had sought any care (dental check-up and/or treatment and/or had purchased medicines) for each of the dental episode. This included asking about the source of care, OOP expenses for treatment, purchase of medication and other expenses associated with the episode, such as transport. Data were collected episode by episode.

Responses on facilities where care was sought were coded with reference to a pre-set list of facilities. Following this, the respondent was asked on whether expenses had been incurred for each episode for 1) registration and treatment, and/or 2) purchase of medicines and/or 3) other expenses.

Public sector dental facilities include dental clinics of the Ministry of Health (MOH), Ministry of Defence, dental clinics in Universities under the Ministry of Higher Education, and dental clinics of the *Orang Asli* Department under the Ministry of Rural Development (JHEOA), as well as other public sector institutions. The school dental programme under the MOH was regarded as a public sector service but was coded separately so as to enable exclusion where warranted. Self-care and traditional care were coded separately.

In this survey, **private sector facilities** include dental clinics managed by Division I Dental Practitioners and dental shops/clinics managed by Division II Dental Practitioners.

Ultimately, sources of care are reported in terms of

- i. public sector facilities,
- ii. school dental service (separated or excluded where necessary),
- iii. private sector facilities,
- iv. self-care,
- v. traditional care and
- vi. others.

In this report, OOP expenditure for oral health is based on individuals who had sought/received oral healthcare in the past 1 year, regardless of whether such care had incurred expenses or not. Mean OOP expenditure for oral healthcare is reported *per individual*. Mean OOP expenditure per dental episode in the past 1 year is reported at individual level.

As defined above, OOP expenditure for each dental episode includes aggregated payments made for registration and dental check-ups/treatment, purchase of medicine, and expenses incurred for incidentals related to the dental episode. These incidentals included transport, food, lodging, childcare or other expenses that facilitated the individuals to have the necessary care for the dental episode. Such incidental expenses also included opportunity costs in terms of loss of earnings or wages for those paid on an hourly/daily basis. OOP expenditure, however, does not include payments made by a third party, or for expenses incurred that are consequently reimbursed to the individual by a third party who/which is not part of the same household.

Distribution of OOP oral healthcare consumption cost is investigated by

- i. demographic factors (gender, ethnicity, age group),
- ii. socio-economic factors [location/strata (urban/rural), education level, income level, citizenship, state], and
- iii. by sources of care (public, private, self-care, traditional and others).

One of the monthly income category utilised in this report is supplied by the Economic Planning Unit (EPU) of Malaysia. Other income levels, income quartiles and education levels utilised are those used for NHMS III in general.

In line with data for health expenditure which is limited to those aged 18 years and above, OOP expenditure for oral healthcare is also analysed for those aged 18 years and above.

Data was weighted equivalent to 21,095,384 residents in private households in Malaysia, not including institutionalised individuals. Data was analysed for the following:

- i. Total National Household OOP Oral Healthcare Expenditure: sum of expenses incurred by all persons reporting dental episodes
- ii. OOP Per Capita Oral Healthcare Expenditure: sum of OOP Oral Healthcare Expenditure for all persons divided by all respondents (21,095,810)
- iii. OOP Oral Healthcare Expenditure Per Person: sum of expenses incurred for all dental episodes in the year for a person
- iv. OOP Oral Healthcare Expenditure Per Dental Episode: sum and proportion of expenses incurred during each episode for treatment, purchase of medication and other expenses
- v. Mean OOP Oral Healthcare Expenditure: sum of OOP Oral Healthcare Expenditure for all persons divided by number of persons who reported at least a dental episode.
- vi. Willingness of adult respondents (aged 18 year and above) to pay RM 30-50 for dental treatment or RM 10-20 for a dental check-up at a private dental clinic.

4. FINDINGS

Respondents were identified according to individual identification numbers as well as by households (HH).

4.1. Responses

There were 15,571 households (HH) involved for the out-of-pocket (OOP) oral healthcare expenditure section. The sample of HH members was weighted. The weighted sample of 21,095,384 people represented residents in private households in 2006 (79.2% of the 26,640,200 population of Malaysia in 2006).

In this weighted sample, slightly less than a quarter (22.9%) reported having one or more dental episodes in the past 1 year. Of this number, 96.8% responded to the item on frequency of dental episodes. The mean number of reported dental episodes in the past 1 year was 1.4 episodes (range 1 - 24 times). There was an estimated 6.2 million dental episodes reported.

Subsequently, 68.7% of those who reported dental episode(s) cited having sought/received care for the episodes, and 64.9% had incurred expenses for them. This translates to 94.5% of those who had sought/received care had incurred OOP dental expenses. Of the 6.2 million dental episodes, care was sought/received for only 52.7% of dental episodes.

4.2 Demographic and Socio-Economic Profile of Respondents

The socio-demographic profile of the weighted sample was compared to the midyear Malaysian population projection for 2006 based on the Population Census year 2000 (Department of Statistics, Malaysia 2006).

The two profiles were very similar in almost all aspects except for gender. There were slightly more females (53.0%) than males (47.0%) in this survey compared to the Malaysian population in 2006 where males (50.9%) were more than females (49.1%) (Refer Appendix 3: Table 1).

4.3 Total Household Out-of-Pocket (OOP) Expenditure for Oral Healthcare

Based on the weighted sample (N=21.10 million), residents of all age groups in private households in Malaysia spent an estimated RM 124.3 million to seek oral healthcare in 2006. This is equivalent to RM 5.89 per capita. The population of Malaysia in 2006 being 26.6 million, the OOP expenditure for oral healthcare for all persons resident in Malaysia was estimated at **RM156, 910,778**.

About 76.2% of the expenditure was incurred by adults aged 18 years and above (Figure 4.1), the amount equivalent to RM119.57 million, calculated based on the population of Malaysia in 2006.

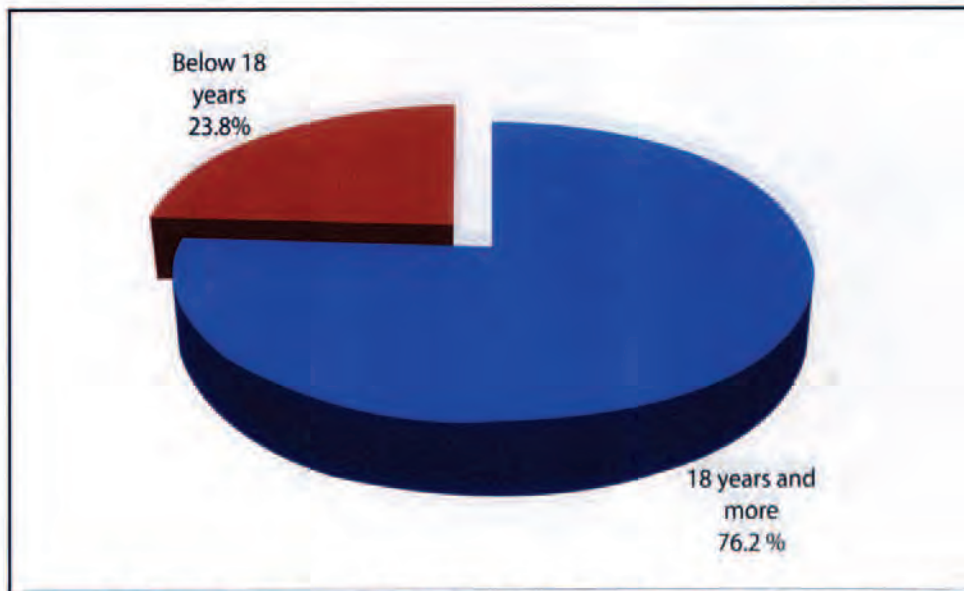


Figure 4.1: Percent contribution to household out-of-pocket oral healthcare expenditure by children and adults

Of the estimated total household OOP oral healthcare expenditure, 63% was for registration and treatment charges, 25.3% for purchase of medicines and 11.7% for 'other' costs (Figure 4.2).

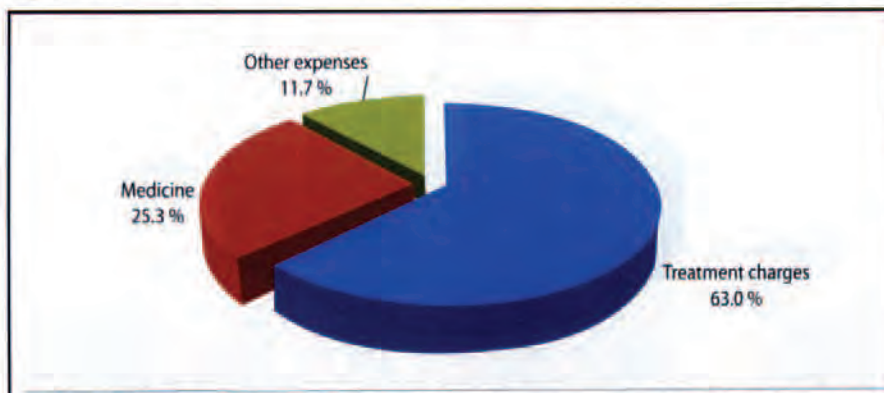


Figure 4.2: Percent contribution to household out-of-pocket oral healthcare expenditure by registration and treatment charges, purchase of medicines and 'other' expenses

For adults aged 18 years and above, OOP oral healthcare expenditures accounted for 3.1% of the total healthcare expenditure (general healthcare plus oral healthcare expenditure) estimated at RM 3.88 billion (Figure 4.3).

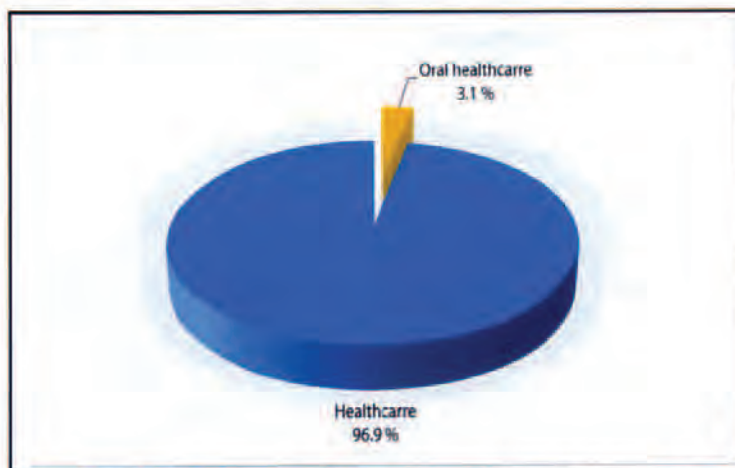


Figure 4.3: Oral healthcare expenditure as a percentage contribution to total healthcare expenditure (18 years and above)

Among the demographic and socio-economic factors studied, population groups that contributed a significantly higher proportion to the oral healthcare OOP expenditure were urban residents (75.2%), adults aged 18-64 years (73.1%), Malays (57.3%), those with at least secondary education (40.4%), residents in the states of Selangor (19.3%) and the Federal Territory of Kuala Lumpur (FTKL) (15.3%), and Malaysian citizens (97.7%) (Table 4.1).

Female OOP oral healthcare contribution (54.6%) was slightly higher than males. Besides adults aged 18-64 years, contributions made by the other age groups were less than 18%, with the elderly group accounting for only 3.1% (Table 4.1).

Table 4.1: Quantum and percentage contribution to oral healthcare out-of-pocket expenditure by population groups in Malaysia

Population Group	Quantum of OOP Expenditure (RM)	Percentage Contribution	RV**
Weighted All	124,249,067	100.00	-
Locality			
Urban	93,429,524	75.2	3.03
Rural	30,819,543	24.8	1.00
Gender			
Male	56,402,082	45.4	1.00
Female	67,846,986	54.6	1.20
Age group			
0-6	8,223,081	6.6	2.16
7-17	21,349,787	17.2	5.62
18-64	90,859,531	73.1	23.92
65+	3,799,227	3.1	1.00
Unclassified	17,441	0.01	-
Ethnic Group			
Malay	71,129,886	57.3	14.39
Chinese	33,325,209	26.8	6.74
Indian	8,325,075	6.7	1.68
Other Bumiputera	6,525,237	5.3	1.32
Others	4,943,660	4.0	1.00
Education Level			
None	20,198,827	16.3	2.75
Primary	22,091,745	17.8	3.01
Secondary	50,157,595	40.4	6.84
Tertiary	23,922,379	19.3	3.26
Not applicable	7,337,121	5.9	1.00
Unclassified	541,400	0.5	-
State			
Johor	12,437,630	10.0	43.32
Kedah	6,533,396	5.3	22.76
Kelantan	7,453,745	6.0	25.96
Melaka	2,844,652	2.3	9.91
N.Sembilan	4,716,476	3.8	16.43
Pahang	3,590,335	2.9	12.51
Pulau Pinang	5,915,271	4.8	20.60
Perak	9,670,737	7.8	33.68
Perlis	287,109	0.2	1.00
Selangor	23,950,179	19.3	83.42
Terengganu	4,996,801	4.0	17.40
Sabah	11,048,721	8.9	38.48
Sarawak	10,502,457	8.5	36.58
FTKL	19,008,075	15.3	66.21
FT Labuan	1,293,483	1.0	4.51
Citizenship			
Malaysian	120,391,793	96.9	31.25
Non-Malaysian	3,852,812	3.1	1.00
Unclassified	4,462	0.0	-
Income quartile			
1 st Quartile	7,787,440	6.3	1.00
2 nd Quartile	10,160,176	8.2	1.31
3 rd Quartile	15,166,167	12.2	1.95
4 th Quartile	28,495,053	22.9	3.66
Unclassified*	62,640,232	50.4	8.04

* Those aged below 18 years

** Relative value: Compared to the base (the lowest estimate)

Percentage contribution of those by education level was highest for those with 'secondary level' education (40.4%) compared to other education levels (range 0.4 - 19.3%). Across states, the highest percentage contribution was from Selangor (19.3%) and the lowest from Perlis (0.2%). Percentage contribution did not appear to be associated with socio-economic status of the states (Table 4.1).

Distribution of OOP expenditure by income quartile showed an increasing contribution with increasing income, meaning that richer people contributed more to household OOP expenditure (Table 4.1).

The distribution of OOP expenditure was also examined against source where care was sought and pain status (Table 4.2).

Table 4.2: Quantum and percentage contribution to oral healthcare out-of-pocket expenditure by source of care and pain status

Variable	Quantum of OOP Expenditure (RM)	Percentage Contribution	RV**
Source of Care			
Public Sector Clinics	15,631,938	12.6	1.00
Private Sector Clinics	101,056,463	81.4	6.47
Self-care	2,650,461	2.1	-
Traditional	134,689	0.1	-
Others	497,741	0.4	-
No response*	4,253,249	3.4	-
Pain status			
Pain	77,270,602	62.2	1.65
No pain	46,815,293	37.7	1.00
No response	138,644	0.1	-

* 2.6% of the weighted sample contributed 3.4% to OOP expenditure for oral healthcare but did not cite source of care

** Relative value: Compared to the base (the lowest estimate)

Private sector clinics accounted for a substantial amount of household OOP expenditure (81.4%). About two-thirds (62.2%) of the OOP expenditure were expenses spent when seeking treatment for painful conditions (Table 4.2).

4.4 Per Capita Out-of-Pocket (OOP) Expenditure for Oral Healthcare

In 2006, residents in Malaysia spent RM 5.89 per capita OOP for oral healthcare compared to RM 179 per capita for other healthcare expenditure. Per capita OOP expenditure for oral healthcare by the selected demographic and socio-economic factors was explored (Table 4.3).

Of the demographic factors investigated for per capita OOP expenditure, disparity was small by gender (males RM 5.68, females RM 6.07) but there was greater disparity for age and ethnicity. The per capita expenditure for adults aged 18-64 years (RM 7.76) was two to three times higher than that for the other age groups.

The Chinese had the highest per capita expenditure at RM 8.12 followed by Malays (RM 5.93) and Indians (RM 4.72). The per capita expenditure of the Other Bumiputera group was lowest at only RM 2.76 (Table 4.3).

Table 4.3: Per capita out-of-pocket expenditure for oral healthcare by selected demographic and socio-economic factors

Population Group	Per Capita OOP Expenditure (RV)**	RV**	95% CI of Mean	
			Lower	Upper
Whole Population	5.89		5.85	5.93
Gender				
Male	5.68	1.00	5.62	5.75
Female	6.07	1.07	6.02	6.12
Residence				
Urban	7.00	1.76	6.94	7.06
Rural	3.98	1.00	3.93	4.03
Age Group				
0-6	2.55	1.00	2.49	2.61
7-17	4.33	1.70	4.24	4.41
18-64	7.76	3.04	7.70	7.82
65+	3.14	1.23	3.01	3.27
99	1.17	-	1.04	1.30
Race				
Malays	5.93	2.15	5.87	5.99
Chinese	8.12	2.94	8.01	8.22
Indian	4.72	1.71	4.68	4.76
Other Bumiputera	2.76	1.00	2.73	2.80
Others	5.67	2.05	5.45	5.89
Citizenship				
Malaysian	5.99	1.53	5.95	6.04
Non-Malaysian	3.92	1.00	3.81	4.03
Unclassified	0.18	-	0.17	0.19
Education Level				
None	4.95	1.25	4.86	5.05
Primary	3.97	1.00	3.92	4.02
Secondary	7.30	1.84	7.22	7.37
Tertiary	17.94	4.52	17.64	18.25
Not Applicable	2.40	-	2.34	2.46
Unclassified	2.94	-	2.88	3.00
State				
Johor	5.13	3.42	5.02	5.23
Kedah	4.31	2.87	4.21	4.41
Kelantan	5.91	3.94	5.77	6.06
Melaka	4.98	3.32	4.89	5.07
N.Sembilan	6.26	4.17	6.00	6.53
Pahang	3.15	2.10	3.09	3.21
Pulau Pinang	5.43	3.62	5.38	5.49
Perak	5.45	3.63	5.32	5.58
Perlis	1.50	1.00	1.46	1.54
Selangor	6.14	4.09	6.06	6.22
Terengganu	5.79	3.86	5.61	5.98
Sabah	4.96	3.31	4.87	5.06
Sarawak	5.42	3.61	5.24	5.61
FTKL	16.30	10.87	15.92	16.69
FT Labuan	4.56	3.04	4.49	4.62
Income Bracket by Quartile				
1st quartile	3.51	1.00	3.46	3.55
2nd quartile	6.51	1.86	6.37	6.66
3rd quartile	7.03	2.00	6.92	7.13
4th quartile	15.67	4.46	15.39	15.95
Unclassified*	4.70	1.34	4.65	4.74

* Those aged below 18 years

** Relative value: Compared to the base (the lowest estimate)

Per capita expenditure was also compared across socio-economic factors such as location, citizenship, income level, education level and state (Table 4.3). The greatest differences were observed across education level, state and income quartile. Those with tertiary education had per capita expenditure 2.5 - 4.5 times greater (RM 17.94) than other education groups (range RM 3.97 - 7.30).

The OOP per capita expenditure in urban areas was 1.75 times higher (RM 7.00) than for rural areas (RM 3.98). The per capita expenditure for Malaysians (RM 5.99) was about 1.5 times more than for Non-Malaysians (RM 3.92).

Per capita OOP expenditure was highest in the Federal Territory Kuala Lumpur (FTKL) at RM 16.30 compared to other states, which ranged from RM 1.50 for Perlis to RM 6.24 for Negeri Sembilan. The findings do not suggest any association between OOP per capita expenditure with socio-economic development and percentage contributions by state. Selangor being the biggest contributor to the HH expenditure ranked third in terms of per capita expenditure.

OOP expenditure per capita increased with income with a steep increase between the 3rd and 4th income quartile. OOP per capita expenditure for the 4th income quartile at RM 15.67 was about twice that for the 2nd and 3rd quartiles and 4.5 times greater than the poorest quartile.

Per capita OOP expenditure was also explored across source of care and pain status (Table 4.4). OOP per capita expenditure in private clinics (RM 79.73) was almost 8 times more than that in public sector clinics (RM 9.11). Per capita OOP expenditures for 'self care' (RM 16.02) and 'traditional' care (RM 12.86) were higher than that for public sector clinics. The relatively high per capita OOP expenditure (RM 50.44) for those who did not state where they sought care is noteworthy.

OOP per capita expenditure for painful episodes (RM 40.54) was 1.5 times higher than that for non-painful episodes (RM 32.55).

Table 4.4: Per capita out-of-pocket expenditure for oral healthcare by source of care and pain status

Source of Care	Per Capita OOP expenditure	RV**	95% CI for Mean	
			Lower	Upper
All				
Public sector	9.11	1.00	9.01	9.20
Private sector	79.73	8.75	79.11	80.34
Self-care	16.02	1.76	15.74	16.30
Traditional care	12.86	1.41	12.56	13.16
Others	26.05	2.86	25.27	26.83
All				
No pain	32.55	1.00	25.28	39.82
With pain	40.54	1.25	34.09	46.99

** Relative value: Compared to the base (the lowest estimate)

4.5 Correlation between Per Capita Household OOP Expenditure and Dentist to Population Ratio

Per capita OOP expenditure was examined for linear relationships with dentist to population ratio. Dentist numbers were taken for total, for public sector and private sector. In all situations an inverse relationship was observed, indicating that as the number of population per dentist increases, the per capita OOP expenditure decreases. There was a moderately strong inverse linear relationship between per capita OOP expenditure and private dentist to population ratio. The correlation coefficient values (Spearman's ρ) were -0.402 (all dentists), -0.244 (public dentists) and -0.596 (private dentists). These are illustrated in Figures 4.4, 4.5 and 4.6.

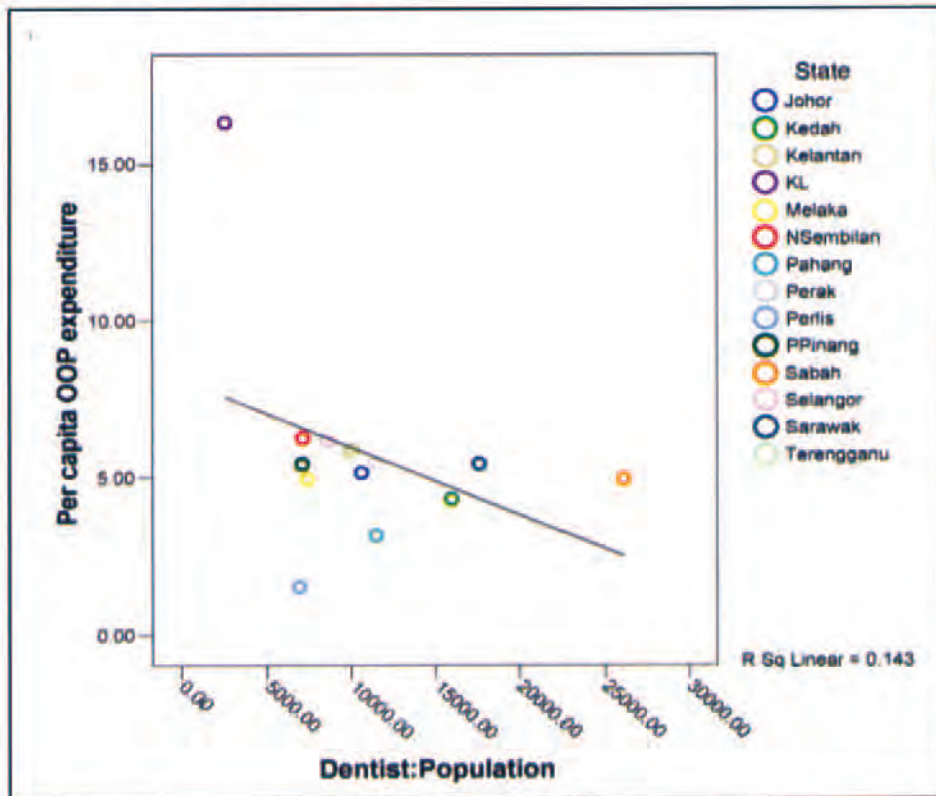


Figure 4.4: Correlation between per capita out-of-pocket expenditure and dentist to population ratio (all states)

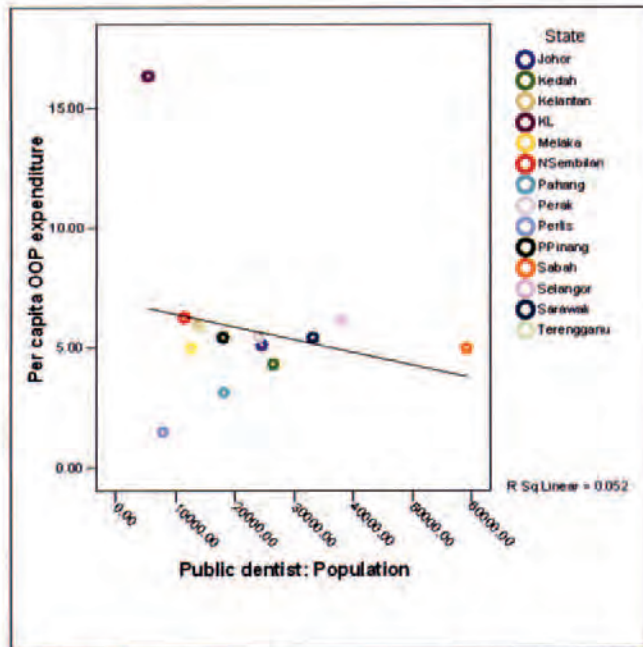


Figure 4.5: Correlation between per capita out-of-pocket expenditure and public dentist to population ratio (all states)

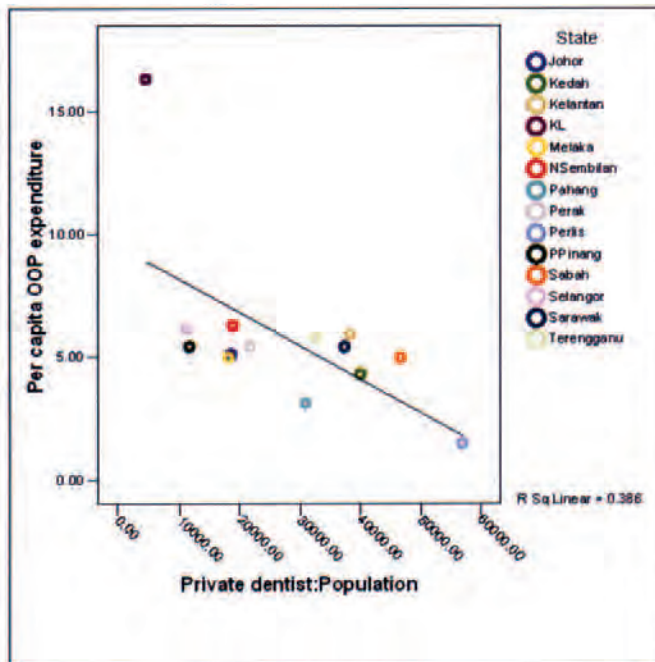


Figure 4.6: Correlation between per capita out-of-pocket expenditure and private dentist to population ratio (all states)

4.6 Mean Out-of Pocket (OOP) Oral Health Expenditure per Person

The denominator in this section is weighted sample who had sought/received care for their dental episodes.

Mean OOP oral healthcare expenditure per person was RM 38.07 (CI: 37.81 - 38.32) and ranged from RM 0 – RM 8004. A total of 5.5% had received care at no cost, with 50% having paid RM 5.00 or less. The majority (62.3%) paid nominal expenses of >RM0-20 for oral healthcare in the past 1 year, with 32.2% having paid more than RM20 (Figure 4.7).

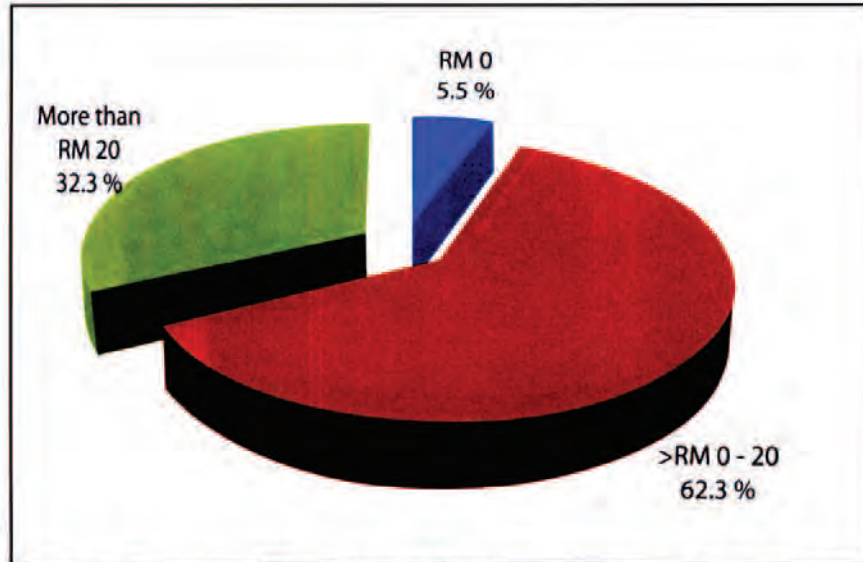


Figure 4.7: Proportion with out-of-pocket oral health expenditure by expense level

4.6.1 Demographic factors (gender, ethnicity, age group)

There was a slight but significant difference in mean OOP oral health expenditure by gender with females incurring slightly higher OOP expenditure than males (Table 4.5).

Table 4.5: Mean out-of-pocket oral healthcare expenditure per person by gender and ethnic group

Variable	Mean	RV**	95% Confidence Interval for Mean	
			Lower	Upper
All	38.07	-	37.81	38.32
Gender				
Male	36.79	1.00	36.39	37.19
Female	39.20	1.07	38.87	39.53
Ethnic Group				
Malays	34.56	1.66	34.23	34.90
Chinese	66.11	3.18	65.24	66.97
Indian	28.59	1.37	28.39	28.79
Other Bumiputera	20.79	1.00	20.56	21.03
Others	50.99	2.45	49.01	52.96

** Relative value: Compared to the base (the lowest estimate)

Of the four major ethnic groups in Malaysia, the Chinese incurred the highest mean OOP expenditure for oral healthcare (RM 66.11) followed by 'Others' (RM 50.99) and the Malays (RM34.56). Compared to the lowest mean OOP oral healthcare expenditure of the Other Bumiputera group (RM 20.79), the Chinese spent more than 3 times as much for oral healthcare than this group (Table 4.5).

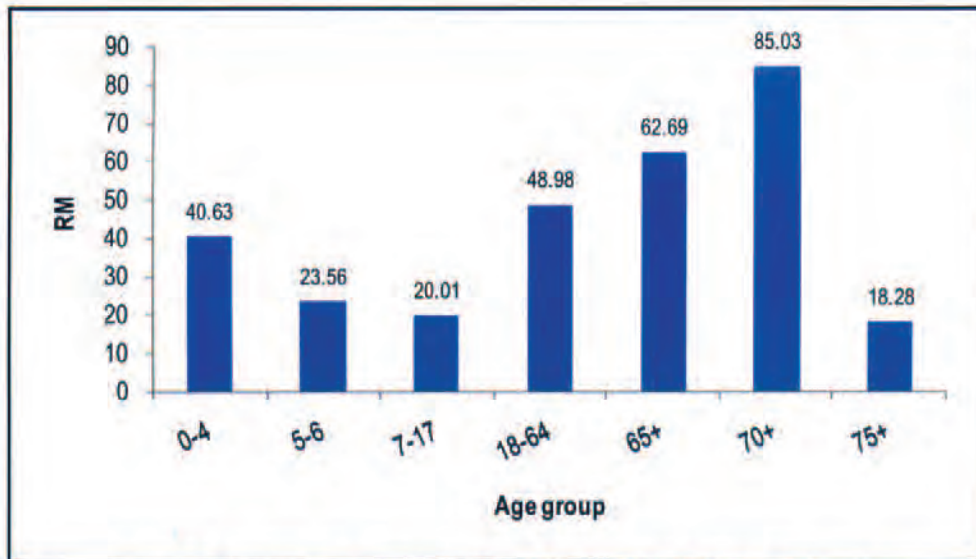


Figure 4.8: Mean out-of-pocket oral health expenditure (RM) by age group

In general, mean OOP expenditures were higher at both ends of the age spectrum up to age 70+, after which expenditure dropped in the 'old-old' group of 75+ (Figure 4.8). It is interesting to note that very young children (0 – 4 years) have a relatively higher mean OOP oral healthcare expenditure [RM 40.63 (CI: 38.93 - 42.33)] compared to other children. Preschool children of ages 5-6 years [RM 23.56 (CI: 22.95 - 24.16)] and school-going children [RM20.01 (CI: 19.64 - 20.39)] reported two of the lowest mean OOP expenditures for dental care (Figure 4.8). However, the "old-old" aged 75 years and above had the lowest mean household OOP expenditure of RM 18.28 (CI: 17.91 - 18.65). The findings show that OOP expenditure for dental care increases sharply when children leave school, with mean OOP expenditure rising from age 18 upwards.

When assessed against expense levels in the last year (categorised as RM 0, >RM 0-20, >RM 20), slightly more females incurred dental expenses of >RM 20 than males, as did a higher proportion of the Chinese (Figure 4.9).

A higher proportion of adults aged 18-64 years incurred dental expenses of >RM 20. Proportion incurring costs of >RM20 was also relatively higher among those aged 65+ than those in the younger age groups of below 18 years (Figure 4.9).

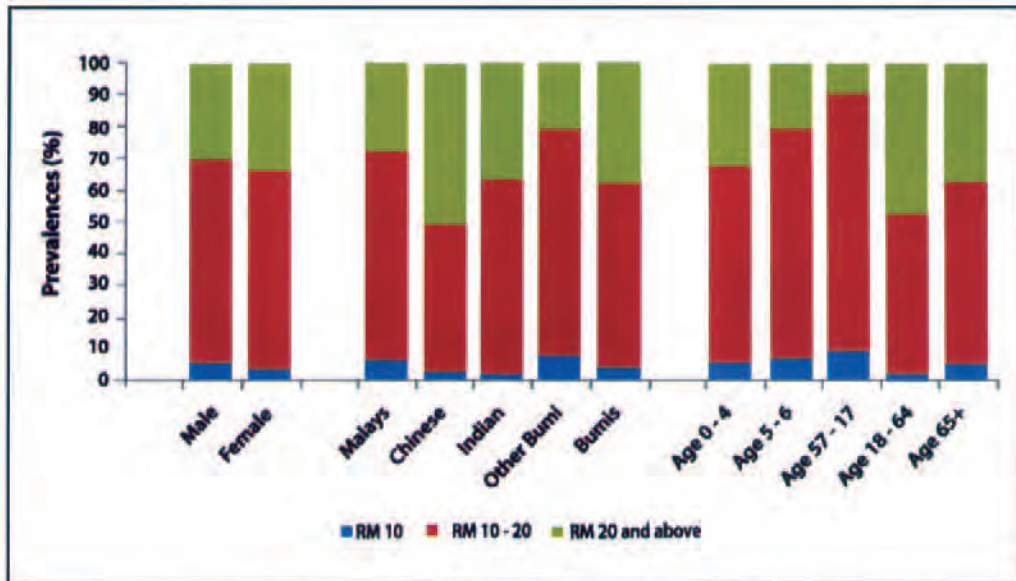


Figure 4.9: Expense level by gender, ethnic group and age group

4.6.2 Socio-economic factors (location, education level, income, citizenship, state)

Residents in urban areas spent significantly more OOP for oral healthcare than those in rural areas in 2006 (Table 4.6).

Table 4.6: Mean out-of-pocket oral health expenditure (RM) by location and education level

Variable	Mean	RV**	95% Confidence Interval for Mean	
			Lower	Upper
All	38.07	-	37.81	38.32
Location				
Urban	45.58	1.80	45.21	45.95
Rural	25.39	1.00	25.09	25.68
Education Level				
None	26.00	1.00	25.50	26.50
Primary	28.98	1.12	28.61	29.34
Secondary	42.52	1.64	42.07	42.97
Tertiary	84.12	3.24	82.72	85.51

** Relative value: Compared to the base (the lowest estimate)

Mean OOP oral healthcare expenditure increased proportionately with education level (Table 4.6). Mean OOP expenditure for tertiary-educated individuals was significantly higher than for the other education levels, being about 3.2 times more than those with no formal education.

Overall, mean oral healthcare OOP expenditure also increased proportionately with income quartiles (Figure 4.10). Mean expenses per individual were almost similar for the 2nd and 3rd income quartile but increased substantially in the 4th quartile. The richest one-quarter of the population paid 3.2 times more for dental care than the poorest one-quarter.

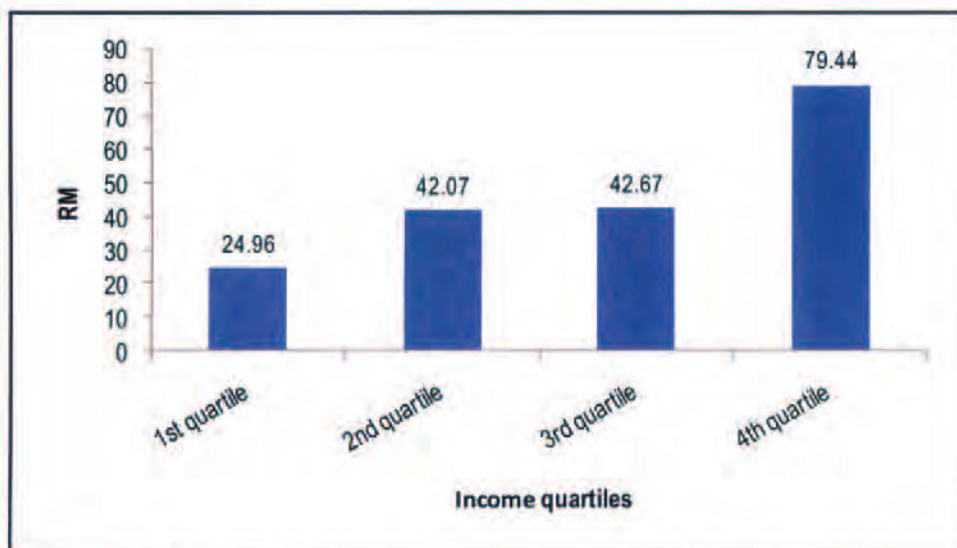


Figure 4.10: Mean OOP oral healthcare expenditure (RM) by monthly income quartile

Overall, non-Malaysians who constitute 4.7% of the weighted sample paid significantly more for oral healthcare [RM 42.59 (CI: 41.39 - 43.79)] than Malaysians [mean RM 37.95 (CI: 37.69 - 38.21)].

It is hypothesised that 'more developed' states would have higher mean OOP expenditure for oral healthcare. Ranking the mean OOP expenditure for dental care per person by state puts the FTKL above other states, followed by Sarawak, Johor and Selangor (Figure 4.11). However, mean expenses in the developed state of Penang was much lower than even that of Negeri Sembilan and Sabah.

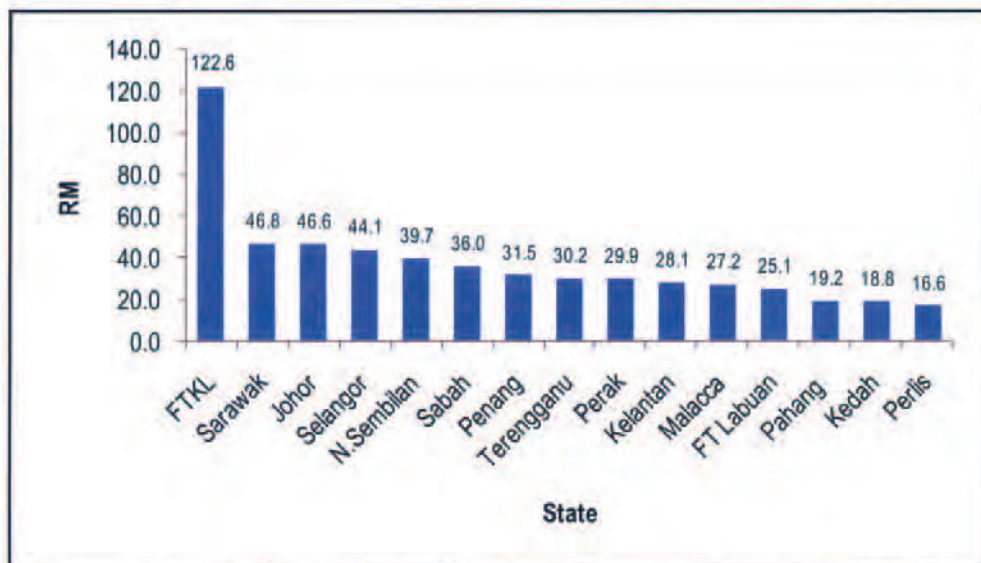


Figure 4.11: Mean out-of-pocket oral health expenditure ranked by state

When expense levels are plotted by state, the scenario seems much clearer. There were higher proportions paying expenses of >RM20 in the more developed states of FTKL, FT Labuan, Selangor, Penang and Johor compared to the other states, where higher proportions paid nominal sums of RM20 and less (Figure 4.12).

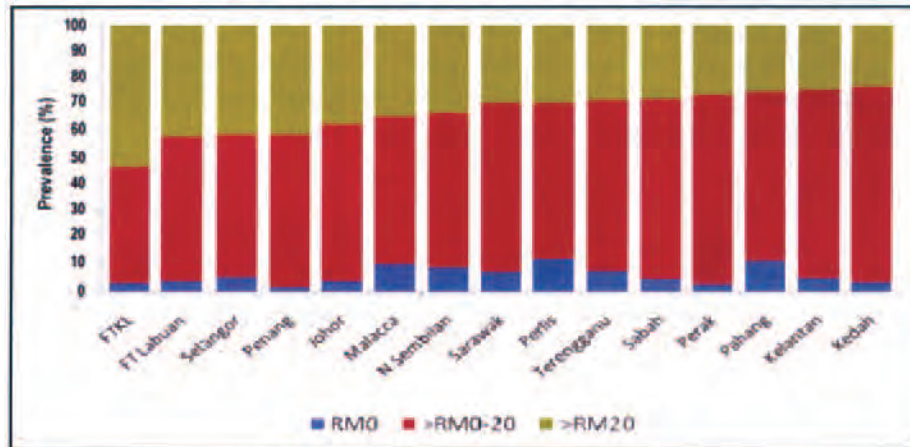


Figure 4.12: Expense level by state

4.7 Mean Out-of-Pocket Expenditure for Oral Healthcare by Source of Care

The majority (97.8%) of population with dental episodes where care was sought /received responded to the item on source of care. Majority sought care at public sector dental facilities (Table 4.7). More than 45.2% of such episodes with care were actually reported under the school dental programme.

When assessed for adults aged 18 years and more, it is found that 52.9% of adults attend private sector clinics (Table 4.7). The high use of public sector facilities on considering the total population (52.6%) was due to more than three-quarters of children with dental care in public sector facilities, most likely under the school dental programme. Very few undertook self-care and fewer sought traditional healing.

Table 4.7: Mean out-of-pocket expenditure for oral healthcare by source of care

Source of care for dental episodes	All			18+ Years		
	% Use	Mean OOP Expenditure (95% CI)	RV**	% Use	Mean OOP Expenditure (95% CI)	RV**
Public sector	52.6	9.11 (CI: 9.01 - 9.20)	1.00	37.1	14.38 (CI: 14.19 - 14.57)	1.00
Private sector	38.8	79.73 (CI: 79.11 - 80.34)	8.75	52.9	76.79 (CI: 76.13 - 77.43)	5.34
Self care	5.1	16.02 (CI: 15.74 - 16.30)	1.76	6.1	17.69 (CI: 17.30 - 18.08)	1.23
Traditional	0.3	12.86 (CI: 12.56 - 13.16)	1.41	0.3	14.48 (CI: 14.04 - 14.93)	1.01
Others	0.6	26.05 (CI: 25.27 - 26.83)	2.86	0.7	24.01 (CI: 23.09 - 24.94)	1.47
No response	2.6	-	-	2.8	-	-
Total	100			100		

**Relative value: Compared to the base (the lowest estimate)

When divided by groups into children below 18 and adults aged 18 years and more, it was found that more than 50% of adults attend private sector clinics while more than three-quarters of children had dental care in public sector facilities, most likely under the school dental programme. Very few undertook self-care and fewer sought traditional healing (Figure 4.13).

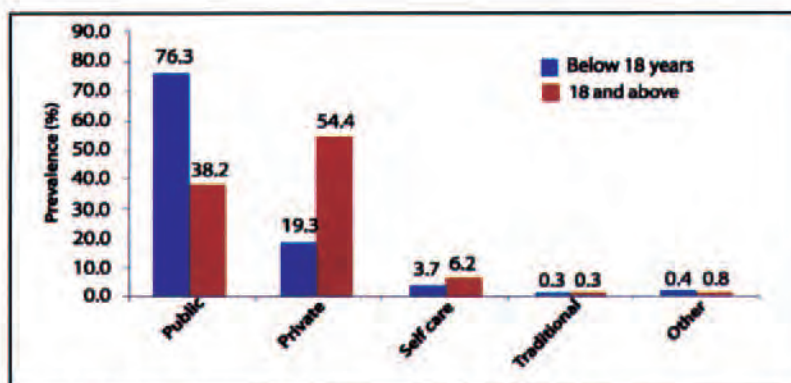


Figure 4.13: Proportions of children and adults seeking care by source of care

4.8 Correlation between Mean Out-of-Pocket Expenditure and Dentist to Population Ratio

Mean OOP expenditure was investigated for correlation with dentist to population ratio. The linear relationships between mean OOP expenditure with dentist to population ratio (correlation coefficient was -0.055) and public dentist to population ratio (correlation coefficient was -0.187) were weak. However, there was a moderate linear relationship between mean OOP expenditure with private dentist to population (correlation coefficient was -0.538) (Figures 4.14-4.16).

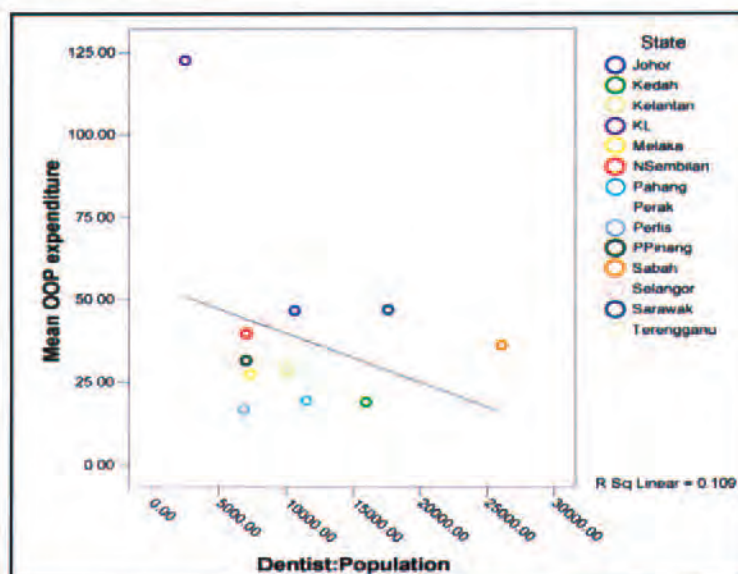


Figure 4.14: Mean out-of-pocket oral healthcare expenditure and dentist to population ratio (all states)

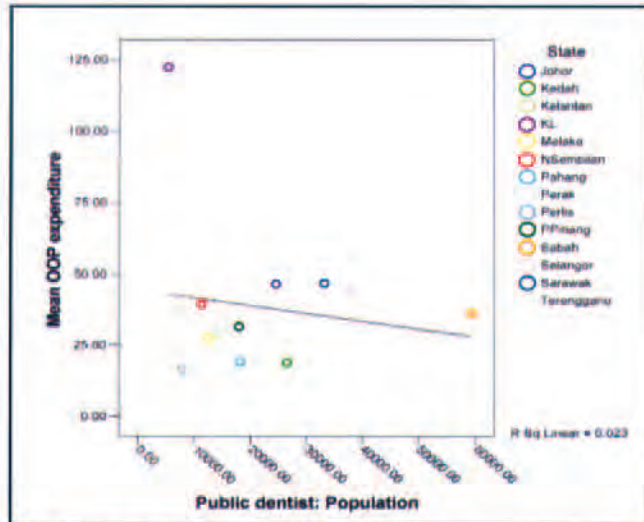


Figure 4.15: Mean out-of-pocket oral healthcare expenditure and public sector dentist to population ratio (all states)

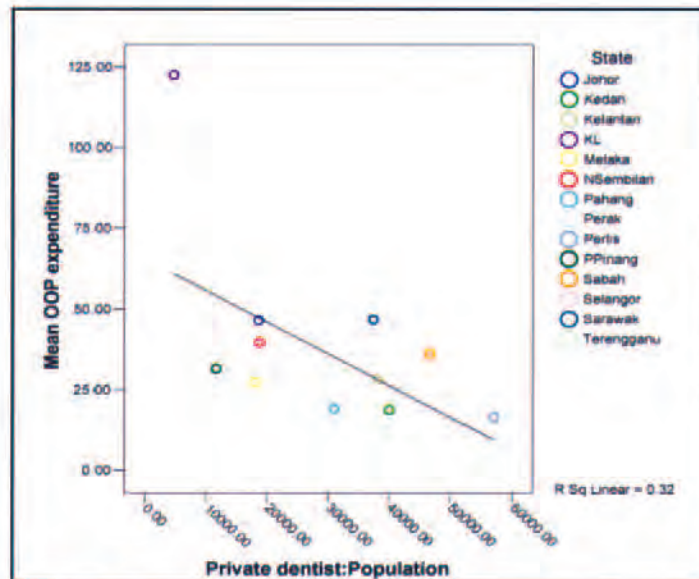


Figure 4.16: Mean out-of-pocket oral healthcare expenditure and private dentist to population ratio (all states)

4.9 Mean Out-of-Pocket Expenditure per Dental Episode

Of the weighted sample with dental episodes who had sought care, 99.9% reported only one episode with care. Almost the entire household OOP expenditure for oral healthcare (99.97%) was reported for the first, and for the large majority, the only episode.

Hence, the cost OOP per dental episode with care is almost the same as that reported per individual. Mean cost OOP per dental episode was RM 38.06 (CI: 37.80 - 38.32) compared to RM 38.07 (CI: 37.81 - 38.82) per individual (Table 4.8).

For adults aged 18+ years, 100% reported seeking care for one dental episode only. Thus the entire OOP expenditure of more than RM 94.66 Million reported for adults were spent on 1.92 million dental episodes giving a mean OOP expenditure of RM 49.41 (CI: 49.04 - 49.78), which is the same as that reported per individual in the past 1 year (Table 4.8).

Table 4.8: Comparison of mean out-of-pocket expenditure per individual and per dental episode

Variable	Mean OOP Expenditure for Oral Healthcare (RM)	
	ALL (95% CI of Mean)	18 + years (95% CI of Mean)
Per Individual	RM 38.07 (CI: 37.81- 38.32)	RM 49.41 (CI: 49.04 - 49.78)
Per dental episode	RM 38.06 (CI: 37.80 - 38.32)	RM 49.41 (CI: 49.04 - 49.78)

On the basis of the above, no further analyses based on demographic and socio-economic variables were done as these would be similar to the mean OOP oral healthcare expenditures per person reported in the sections above. Hence, OOP expenditure per individual in the year 2006 is considered equivalent to the OOP expenditure per episode.

4.10 Mean Out-of-Pocket Expenditure for Oral Healthcare per Dental Episode by Pain Experience

Calculation of cost per episode with pain compared to episodes with no pain experience was made based on those who sought care. Data from the first episode were used as these constituted 99.9% of all dental episodes and the sum OOP incurred was 99.97% of the OOP expenditure.

Dental episodes which were pain-associated constituted 56.7% of all episodes. Dental episodes with pain experience cost significantly more (RM 41.81) than those with no pain experience (RM 33.17) for the entire weighted sample (Table 4.9).

For adults aged 18+ years, however, episodes with pain constituted a higher proportion (66.9%) of all episodes (Table 4.9). Findings were opposite for adults aged 18 years with pain-related episodes costing less (RM 45.48) than those with no pain (RM 57.35).

Table 4.9: Mean out-of-pocket expenditure (RM) for oral healthcare by pain experience

Dental Episodes	Mean OOP Expenditure for Oral Healthcare (RM)			
	All (95% CI of Mean)	RV**	18+ years (95% CI of Mean)	RV**
No pain	33.17 (CI: 32.79 - 33.56)	1.00	57.35 (CI: 56.58 - 58.11)	1.26
With pain	41.80 (CI: 41.47 - 42.15)	1.26	45.48 (CI: 45.08 - 45.88)	1.00

** Relative value: Compared to the base (the lowest estimate)

The total population included children who reported dental episodes under the school dental programme. More than three-quarters of such episodes (76.7%) were pain-free, contributing to the difference in expenditures by pain experience with that for adults 18+ years.

4.11 Proportion with Other Sources of Financing for Oral Healthcare

Only 2.4 % of the respondents who sought care said they received "other sources of funding". As the number was too small, they were not analysed for specific sources. Therefore 97.6% did not receive any other sources of financing.

4.12 Adults Aged 18 Years and Above Willing to Pay for Dental Treatment and Check-Up

Two items sought information on willingness of adults aged 18 years and above to pay for dental treatment at a cost range of RM 30-50 or to pay for a dental check-up at a cost range of RM 10-20 at private sector dental clinics. A large majority of adults responded to these items – 97.6% responded to the item on dental treatment and 97.5% on that for dental check-up.

A total of 60.5% were willing to pay RM 30-50 for dental treatment at a private dental clinic if they had a problem. However, the proportion was smaller (51.8%) for willingness to pay for a dental check-up (Table 4.10). Hence, a larger number of adults 18+ years were willing to pay for treatment for dental problems but fewer were willing to pay for a 'preventive' visit in the absence of a problem. This indicates that the majority of adults would only visit a dentist when there is a problem.

Table 4.10: Willingness to pay for dental treatment or dental check-up (18 years and above)

Item for ≥18 years	Willingness to pay (%)		
	Yes	No	Refused to answer
Pay RM 30-50 for dental treatment at a private dental clinic	60.5	36.8	0.3
Pay RM 10-20 for a dental check-up at a private dental clinic	51.8	45.4	0.3

There seems to be no gender difference for willingness to pay but a higher proportion of adults in urban areas were willing to pay for dental care at private dental clinics than rural residents (Table 4.11).

The highest proportions willing to pay for dental treatment or check-ups were among the Chinese. Higher proportions of Malaysians were willing to pay such prices for dental care than non-Malaysians, and higher proportions of younger adults than older adults.

Table 4.11: Willingness to pay for dental treatment or dental check-up by several variables (18 year and more)

Variable	Proportion Willing to Pay at Private Clinic (%)	
	For dental treatment (RM 30-50)	For dental check-up (RM10-20)
Location		
Urban	67.8	59.2
Rural	51.2	42.1
Gender		
Male	64.1	55.5
Female	60.3	51.3
Ethnic Group		
Malay	62.2	51.2
Chinese	70.4	63.3
Indian	62.7	55.9
Other Bumiputera	47.0	42.4
Others	52.5	47.4
Citizenship		
Malaysian	62.7	53.7
Non-Malaysian	50.8	45.2
Age Group		
18-64	64.5	55.2
65+	37.6	33.7

Plotting willingness to pay for dental care by education level and income quartile shows clearly the impact of socio-economic status on people's willingness to pay. Proportions willing to pay for dental care at the fees quoted for dental treatment and check-up increased with higher education levels and increasing income quartile (Figure 4.17).

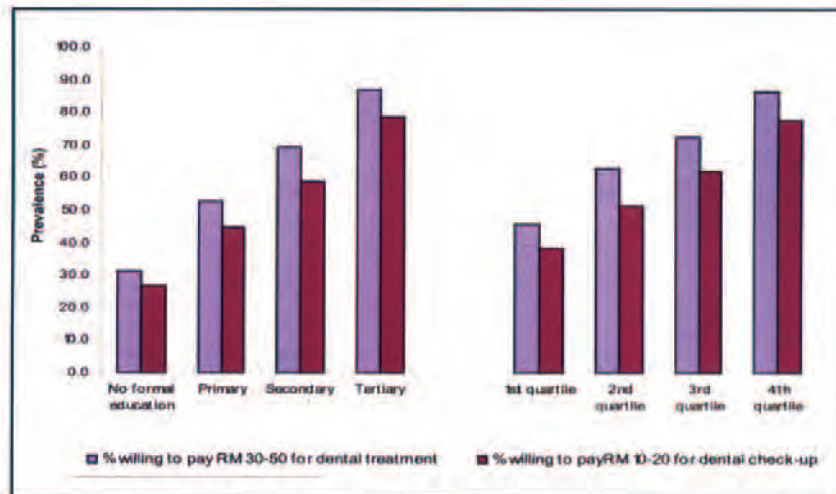


Figure 4.17: Willingness to pay for dental treatment and dental check-up by education level and income quartile

Having dental problems and/or previous dental check-ups seem to have some effect on willingness to pay for dental care. Population professing dental problems were more willing to pay the quoted prices than those with no problems in the past year (Table 4.12).

Table 4.12: Willingness to pay for dental treatment of dental check-ups by absence/presence of problems

Variable	Proportion Willing to Pay (%)	
	For dental treatment (RM 30-50)	For dental check-up (RM10-20)
With problems	70.4	59.4
No problems	59.7	51.5

4.13 Affordability of Oral Healthcare

A total of 60.2% of the population had not made a dental visit within the last 2 years – 31.9% reporting their last dental visit as 'more than 2 years ago' with a substantial proportion (28.3%) never having made a dental visit.

Of this population who have never made a dental visit or had not visited in the last 2 years, only 0.2% responded with the reason that they could not 'afford dental treatment'. Hence, affordability does not seem to be a major barrier to dental care.

5. DISCUSSION

The socio-demographic profile of the weighted sample was very similar to the estimated midyear Malaysian population in 2006. Therefore, the estimates derived from this survey can be generalised to the Malaysian population in 2006.

5.1 Limitations of Study

In this survey the expenditure per individual/per household (HH) depended on self-reporting and recall of dental episodes and the expenses incurred over one year. Reporting was made by HH members themselves. Data collection did not explore types of dental care sought and received, or the amount of subsidy they had received, if any.

In addition, in view of the myriad and diverse health information requested of each respondent, the internal validity and reliability of the data are definitely compromised. The pre-test of the questionnaire and pilot survey were conducted to minimise such errors. During data exploration, errors incurred during data entry were removed where possible.

Until this survey, the National Household Health Expenditure Survey 1996 (NHES'96) was the only source of information available on household oral healthcare expenditure in Peninsular Malaysia, Sarawak and Sabah. Expenditures in these areas were reported separately because of different sampling methods. There was no item for household expenditure for oral healthcare in NHMS II (1996). Other household expenditure studies were confined to surveys of patients' expenditure in local areas (Chu 1998; Kamarudin 2001). In view of the paucity of information, local comparison of findings from this survey is therefore limited.

5.2 Findings

A total of 15.4% of residents in Malaysia reported seeking oral healthcare in 2006, as opposed to 42.7% in the USA (Sommers 2006). The percentage of the weighted sample in this survey who incurred household OOP expenditure for oral healthcare was 14.6%. As there is almost no third party payment for oral healthcare in Malaysia, it is assumed that the OOP amount reported represent 100% of OOP dental expenditures paid by individuals.

The household OOP expenditure for oral healthcare in Peninsular Malaysia in NHES'96 was estimated at about RM 111 million with a per capita of RM 6.64. It was also reported (with reservation because of convenient sampling) that the per capita expenditure for Sarawak was RM 4.36 and Sabah RM 3.84. Based on these figures and the population size estimated in 1996, the household expenditure for oral healthcare for the whole of Malaysia in 1996 is re-calculated to be about RM 126 million (re calculated per capita household OOP expenditure for the whole of Malaysia equals to RM 6.12) (Appendix 2). Compared with the estimated RM 156.9 million spent in 2006, this means that there has been a 25% increase in expenditure over a decade. The expenditure of the Oral Health Division in the Ministry of Health in 2006 was RM 276.15 million (Oral Health Division 2007) which is 1.76 times more than household OOP expenditure.

The actual total HH OOP expenditures when adjusted for population size in 1996 and 2006 gave the per capita OOP expenditure of RM 6.12 in 1996, (estimate based on re calculation of secondary data from NHHES'96) compared to RM 5.89 in 2006. Based on per capita estimates, the amount of Ringgit Malaysia (RM) paid for oral healthcare has decreased slightly. This is explained by the population growth of about 32.3% between 1996 and 2006 (20.5 million and 26.6 million respectively) which was faster than the 25% increased in OOP expenditure.

However, calculating mean household OOP expenditures per episode for those who **sought care out of school** yielded a mean of about RM 49.00 in 2006 compared to RM 36.00 in 1996, an increase of 36%. As it has been determined that mean OOP expenditure per person and per episode is similar in 2006, this mean of RM 49.00 can be taken as mean HH expenditure OOP per person as well.

In considering the above, the purchasing power of the RM over the 10-year period should be accounted for. During the 10-year period from 1996 – 2006, the Consumer Price Index (CPI) increased by about 22%. Using 1994 as the base, the CPI was reported to be 107 in 1996 and 131 in 2006 (Department of Statistics, Malaysia 2006). When compared to the increase in CPI (where the purchasing power of the RM has been adjusted for), it is clear that the household OOP expenditure for oral healthcare in 2006 has increased much more than the increased in general living standards in the ten-year period. The rate of utilisation reported in 1996 was 269 dental episodes per 1000 people compared to 294 per 1000 in 2006. This represents an increase of about 9% in the rate of utilisation.

Hence, while there is increase in total household OOP expenditure for oral healthcare alongside increase in population and slight increase in utilisation rates over the 10-year period, per capita OOP expenditure has decreased, while mean OOP expenditure per episode/person who sought care out of school has increased. The most likely explanation could be that the higher rates of utilisation have mainly been contributed by dental care under the school dental programme that had not incurred any OOP expenses, while those who had sought care out of school had paid higher expenses.

In the public sector facilities, charges for oral healthcare have remained the same although there have been several fee reviews. Hence, the increase in mean OOP expenditure per individual for care out of school is likely due to increases in private sector charges.

A very significant difference was observed in the percentage contribution for treatment charges in 1996 and 2006. NHHES'96 reported that treatment charges accounted for more than 90% of expenditure for Peninsular Malaysia; while this present survey found it to be only 65.7%. The lower percentage contribution from treatment charges in 2006 compared to 1996 could be due to higher transport costs. A higher percentage contribution in transport cost would reduce the percentage contribution of other expenses.

NHHES '96 reported that transport cost accounted for only 1.6% of total expenditure incurred in Peninsular Malaysia while it was more than four times that in Sarawak and Sabah (6.7% and 7.0% respectively). In a survey on patients' expenditure in Sibu, Sarawak, Chu (1998) reported that travel expenses incurred in seeking oral healthcare services contributed from 8.0% (private clinics) to 29.8% (public sector clinics) of total expenditure. Travelling expenses are affected by the mode of transport and reflects accessibility and communication system (Akin et al. 1985). In Sarawak and Sabah it is common to travel relatively long distances by river from the interior regions to clinics in towns.

Additionally, the larger proportion of people in the lower socio-economic groups means that more individuals use public transport and public sector clinics, thus further increasing the percentage contribution of transport cost.

During data collection in NHHESS'96, households were probed specifically for amounts paid for treatment, transport expenses and wages lost (if incurred) for each dental episode. In this survey HH members were only asked for treatment expenses, costs for purchasing medicines and "other expenses" and it is possible that this could have resulted in under reporting.

The percentage contribution of OOP expenditure for oral healthcare to total healthcare for adults aged 18 years and above at 3.1% is slightly lower than the findings reported in NHHESS'96. In 1996, the survey for health and oral health expenditure included expenses of all age groups. In this survey expenditure for healthcare for children was not available, depriving estimation for all age groups. However, the available data indicates that total household OOP expenditure for oral healthcare has not increased in tandem with total expenditure for healthcare.

The percentage contribution of any population group to the OOP expenditure for oral healthcare is directly determined by the population size and per capita expenditure. Adult expenditure accounted for about 76.2% of total household OOP expenditure although they make up only 61.3% of the population (Department of Statistics, Malaysia 2006). Adults per capita expenditure is much higher (RM7.76) than children (RM2.55 for 0-6 years old, RM4.33 for 7-17 years old) accounting for the higher percentage contribution.

A low percentage contribution to OOP expenditure with a high population size of schoolchildren of 8.1 million aged between 5-19 years (Department of Statistics, Malaysia 2006) does not mean that they do not have dental care. The school dental service is an outreach programme providing comprehensive care at no cost to the children. A high proportion of schoolchildren are attended to by the School Dental Programme. In 2006, 95.3% of primary schoolchildren, 67.1% of secondary schoolchildren and 46.3% of preschool children aged 5-6 years were rendered dental care under the programmes of the Ministry of Health (Ministry of Health Malaysia 2006). This explains the low mean OOP expenditure incurred by children aged 5-17 years. Mean OOP expenditure for oral healthcare for preschool children (RM23.56) and schoolchildren (RM20.01) were two of the lowest by age group. However, very young children in the toddler group (0 – 4 years) are not a captive population under these programmes. This is reflected in the relatively higher mean OOP oral health expenditure for toddlers (RM 40.63) when this group is separated out.

Therefore, the 17.2% contribution to household OOP expenditure by children aged 7-17 years (RM 21.3 million) can be regarded as mainly expenditure at private clinics.

The distribution of OOP expenditure among the elderly aged 65 years is interesting as percentage contribution to oral healthcare expenditure was the lowest (3.1%) for this group. This observation can be explained by the small population size of the elderly constituting 4.3% of the population. Nevertheless, mean household OOP expenditure per person of those aged 65 years and over at RM 62.69 was the highest among all age groups. At age 70 years and above, the expenditure increased to RM 85.03 per person only to drop steeply to RM 18.28 per person for age group 75 years and above; the lowest among all age groups. Common oral health diseases and their impacts, such as

caries and periodontal disease are generally cumulative over years, requiring more complex treatment and rehabilitative procedures. After a certain age, treatment reaches an optimum level and additional treatment and rehabilitation cannot contribute additional comfort and benefits. This sudden sharp decrease of OOP expenditure at age 75+ could be due to several reasons – there may be acceptance of their oral conditions at that age, many could be house bound or the reason may be increased demise among the 'old-old'.

Besides population size and age groups influencing household OOP expenditure for oral healthcare, this study suggests that socio-economic status, the number of private clinics and painful dental episodes also influence expenditure. This is most obvious in FTKL, a highly developed and urbanised area with the highest number of private dentist to population. The percentage contribution of FTKL was high at 15.3%, second only to Selangor (19.3%); FTKL per capita OOP expenditure was highest at RM 16.30 and it also had the highest mean expenditure per person of RM 122.60. The relatively strong inverse correlations between dentist to population ratio with per capita and mean OOP expenditure support this proposal. In FTKL there were 4,696 individuals for every private dental practitioner. The higher proportions paying higher amounts OOP for dental care, especially in FTKL, is expected as about 50% of private practitioners are in the Klang Valley (Malaysian Dental Council 2006) and FTKL is totally urban. Selangor populations also have access to this high number of private sector practitioners yet do not also exhibit high dental expenditures. This is probably due to the state having different strata of urban and rural areas, with the state population having access to public sector dental facilities.

When considering the total population, we would expect OOP expenditures for oral healthcare to be confounded by the inclusion of dental care under the school programme. Hence, the mean OOP expenditure of RM 79.73 per episode for care sought at private clinics compared to a mean of RM 9.11 for public sector facilities is expected. Since 81.4% of the household OOP expenditure was from care at private sector clinics, this substantiates further that high household OOP expenditure is associated with the number of private dentists.

Naturally, the presence of an affordable and viable consumer group attracts private practice. This is shown by the increase in percentage contribution to OOP expenditure, per capita OOP expenditure and mean OOP expenditure as income quartile increases. Individuals with better education level can be assumed to generally hold better jobs with higher income, and therefore, have higher mean OOP expenditure.

Dental emergencies such as dental pain can deprive poor household of other basic necessities since it is unexpected, and pain relief is a basic urgent need. Considering the fact that many poor HHs live day-to-day on daily income, dental emergencies will without doubt further aggravate the poverty (van Doorslaer et al. 2006). It is also well established that oral health status of the socio-economically disadvantaged community is much poorer, which predisposes them to higher burden of disease (Oral Health Division 2007).

Much of dental care under the school programme comprises screening and care that are deemed as pain-free. As such episodes incur no cost to the children, this may have skewed data to project lower mean OOP expenditure for pain-free episodes (RM 33.17) compared to those with pain (RM 41.81). It is the opposite for adults with dental episodes, where pain-free episodes actually cost more than those with pain. In NHES 96, it was concluded that many adults with pain-related dental episodes opted for

dental extractions which was a cheaper treatment option than other more complex types of dental care. Non-painful episodes requiring dentures, for example, cost more and are common among older adults.

Only 2.4% of the respondents who sought care said they received "other sources of funding" that was not paid by another member of the same HH. As the number was too small, they were not analysed for more details such as specific sources. Therefore 97.6% reported they did not receive any other sources of financing. The findings of this survey found 52.6% had received care at public sector facilities. It is quite likely that people who seek care at public sector facilities, who do not pay or who pay only a nominal fee OOP, are not aware that the service received is highly subsidised. In this survey, civil servants contributed 9.9% of the total OOP oral healthcare expenditure compared to 26.7% by private sector employees. The high proportion of people who reported "no other sources of financing" could therefore also include those attending public sector facilities including schoolchildren attending school dental programme.

Hence, third party payment such as private employers and private insurance (besides benefits for government servants) for oral healthcare can be considered negligible in Malaysia, a scenario unchanged from that of NHES '96 a decade ago.

About two thirds of adults aged 18 years and above were willing to pay between RM30-50 for dental treatment in private clinics. However, they were uncertain about paying RM10-20 for a dental check-up at private clinics. It is common that adults seek dental care only when they have a problem and preventive visits have low priority as reported in NOHSA 2000 (Oral Health Division 2007). This is in spite of them having to pay less for a check-up. Since the public generally associate dental visits with problem-solving and commonly to relieve dental pain, the findings indicate that adults would rather prioritise treatment than prevention. Thus reducing charges for preventive visits may not be a sufficiently strong reason to encourage the Malaysian community to adopt an oral wellness concept when there is a need to make such a choice. As such preventive visits even if perceived as needed, might be a foregone alternative.

Socio-economic factors featured prominently in willingness to pay for dental treatment and check-ups. The elderly and the rural population may be less willing to pay for dental care due to economic factors as they generally have less disposal income for dental care. Willingness to pay increases as socio-economic level increases as can be seen among urban residents, Chinese, those aged 18-64 years, males, and those of higher education level and income quartile. Those more willing to pay is also more likely to be employed. Those of better socio-economic standing also have a choice between public and private sector facilities. Seeking care after formal working hours in private facilities may be a convenient preference, as public sector facilities are opened only during office hours. On the contrary, disadvantaged groups may only have the public sector facilities to rely on.

OOP payments for healthcare exposes people to catastrophic financial risk and is therefore considered regressive as it has an impact on the equity of the healthcare system. Collection and distribution of health revenues could be better managed to reduce inequity through a more socially responsible scheme such as social insurance. Of those with an income, who had sought care and who did not pay or paid nominal sums of RM20 or less, about one-third (30.2%) were in the highest income quartile. Hence, the 38.3% in the highest income quartile who did not pay or paid nominal sums of RM20 or less per episode when seeking care could be made to pay more. This is a potential source of revenue, especially for recovery of cost in the public facilities.

There was a wide disparity between mean household OOP expenditure (which included expenses for treatment and other costs such as transport) when care was sought at public oral healthcare facilities (RM9.11) versus mean cost of providing care at these facilities. This is in spite of an increase in mean household OOP expenditure since 1996 (between RM 3.81- 4.79 in Peninsular Malaysia) as reported in NHHES'96. A study conducted to cost dental procedures (Latifah et al. 2002) reported that the mean costs of providing basic dental procedures at a public health facility in 1998 – 1999 ranged from RM 9.00 - 20.00. This indicates that care at public facilities remains highly subsidised. The fee schedule in public sector facilities of the Ministry of Health has remained unchanged from 1996 - 2006.

The findings on household OOP expenditure for oral healthcare contribute towards better information on the financing of the health sector in the country which is an essential basis for wise policy change in the area of health sector reform. These sound estimates are part of the necessary estimates of national health expenditure - total spending and the contributions to spending from different sources. The findings also identify the demographic and socio-economic gradient which could explain variations in the level and composition of household OOP expenditure for oral healthcare.

6. CONCLUSION

These conclusions are made based on the information gathered from the household OOP expenditure for oral healthcare section of the NHMS III.

- i. Household OOP expenditure for oral healthcare in Malaysia was estimated at RM5.89 per capita with a national OOP expenditure of about RM156.91 Million.
- ii. This is equivalent to 3.1% of adult (18 years and more) OOP expenditure for healthcare estimated at RM 3.88 Billion.
- iii. Of the RM 156.91 Million, 63% was for registration and treatment, 25% for purchase of medicines and 12% for "Other" expenses.
- iv. Population groups that had higher percentage contributions were urban residents (75.2%), females (54.6%), adults aged 18-64 years (73.1%), Malays (57.3), those with at least secondary education (40.4%), residents in the states of Selangor (19.3%), FTKL (15.3%) and Johor (10.0%), Malaysian citizens (96.9%) and those in the highest household income quartile (22.9%).
- v. Percentage contribution was high for dental care at private sector facilities (81.4%) and dental care for painful episodes (62.2%).
- vi. Private employers' contribution was negligible.
- vii. Per capita OOP expenditure for oral healthcare was higher for urban residents (RM7.00), females (RM6.07), adults aged 18-64 (RM7.76), Chinese (RM8.12), those with at least tertiary education (RM11.94), residents in the state of FTKL (RM16.30), Malaysian citizens (RM5.99), those in the highest household quartile (RM15.64), at private clinics (RM79.73) and for painful dental episodes (RM31.67). Per capita differed greatly between states, sources of care, pain status.
- viii. National mean household OOP expenditure for oral healthcare was RM 38.07 with a median of RM5.00.

- ix. About two-thirds (62.3%) of those who sought care did not pay at all or paid a nominal sum of less than RM20.00.
- x. Mean household OOP expenditure for oral healthcare was higher for urban residents (RM45.58), those aged 70 years and above (RM85.03), Chinese (RM66.11), those with at least tertiary education (RM84.12), residents in FTKL (RM122.60), those in the richest income quartile (RM79.44), for care at private clinics (RM79.73) and for painful dental episodes (RM41.81).
- xi. Mean household OOP expenditure for dental care sought in public facilities in 2006 was RM 9.11.
- xii. More than one-third (38.3%) of those in the highest income quartile did not pay or paid only a nominal OOP amount of RM20 or less for oral healthcare.
- xiii. Per capita and mean household OOP expenditure for oral healthcare increased as the private dentist to population ratio decreased.
- xiv. Malaysians were more willing to pay for treatment than for check-ups at private clinics even if they have to pay more for treatment - 60.5% were willing to pay RM30-50 for treatment and 70.4% were willing when faced with a dental problem. However, only 51.8% were willing to pay RM10-20 for a check-up. Generally, urban residents, Chinese and adults aged 18-64 years were more willing to pay.
- xv. Overall, there is a difference in OOP expenditure pattern between 1996 and 2006. In spite of increased population, and slight increase in utilisation rates over the last 10 years, there is a decrease in per capita OOP expenditure, but with increase in mean OOP expenditure for dental care for adults 18+ years. It may be concluded that increased utilisation rates may have been more in the school dental programme over that time period which had not incurred OOP expenditure for dental care.
- xvi. Between 1996 and 2006 the rate of increase in mean OOP expenditure among adults is higher than the rise in the cost of general standard of living.
- xvii. Comparative to data in 1996, the very young (0-4 years) and the very old (70 years and more) are still paying a substantial amount OOP for oral healthcare.

7. RECOMMENDATIONS

Findings on household OOP expenditure for oral healthcare at out-patient facilities from this national survey can assist the Ministry of Health to improve its role in stewardship and governance specific to health financing policies. Based on the findings and conclusions the following recommendations are made.

- i. The fee schedule in public sector facilities should be reviewed for better cost recovery.
- ii. Those who can pay (the higher income quartile) should pay more when seeking care at public sector facilities.
- iii. Charges at private sector facilities should also be reviewed and regulated to better reflect the lesser increase in the cost of general standard of living.
- iv. There needs to be a regulatory system to establish reasonable and affordable charges at both public and private sector facilities that do not expose households to financial risk yet at the same time remain fair to providers.

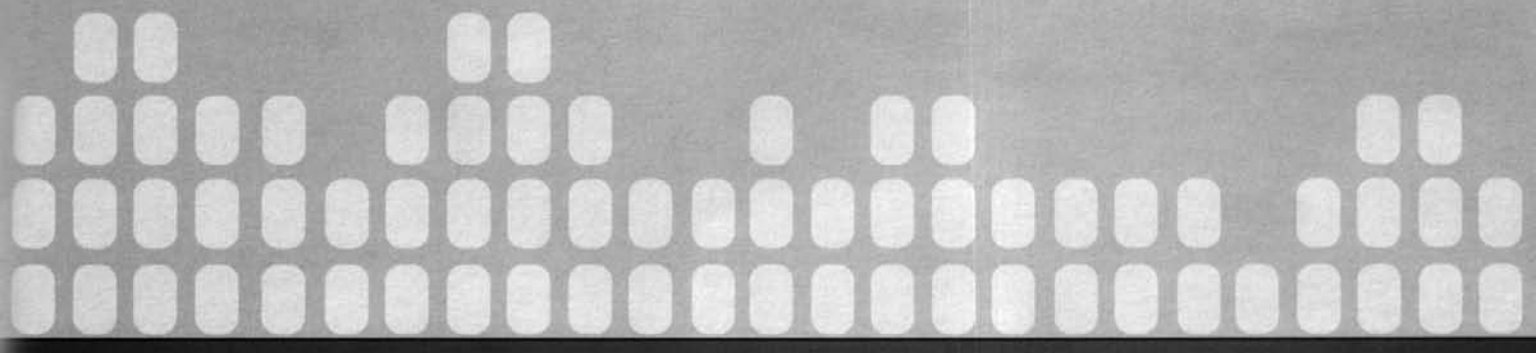
- v. A more socially responsible (oral) health financing scheme such as a social insurance should be considered to reduce the financial burden to households. In particular, financial risk to the poor, the very young and the elderly during dental emergencies and other periods of economic uncertainty must be addressed.
- vi. Private employers should be encouraged to play a bigger role in providing employees' dental benefit scheme.
- vii. Any health financing reform must ease the choice the community makes in maintaining oral well-being. This is besides encouraging a more "preventive" demand for oral healthcare services and making facilities accessible for dental care.

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APPENDIX



APPENDIX 1

Table 1: Oral health module working group

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APPENDIX 2

Household expenditure for oral healthcare in 1996 in Malaysia from the National Household Health Expenditure Survey 1996 (NHES'96). Re calculated based on NHES'96 information.

Region	Population size in 1996 ¹	Per capita (RM) NHES'96	Household expenditure (RM) NHES'96
Peninsular Malaysia	16,481,579	6.64	109,437,685
Sarawak	1,918,852	4.36	8,366,195
Sabah	2,154,060	3.84	8,271,590
Malaysia	20,554,491	6.13	126,075,470

¹Vital Statistics Time Series, Malaysia, 1963 - 1998. Department of Statistics, Malaysia, October 2001

Household expenditure for oral healthcare in 2006 in Malaysia from the National Health and Morbidity Survey III 2006 (NHMS III)

Region	Population size in 2006 ²	Per capita (RM) NHMS III	Household expenditure (RM) NHMS III
Peninsular Malaysia	21,285,700	6.09	101,404,406.22
Sarawak	2,357,500	5.42	10,502,456.88
Sabah	2,997,000	4.92	12,342,203.90
Malaysia	26,640,200	5.89	124,249,067.00

²Midyear Population Projection, 2006. Department of Statistics Malaysia. Quoted in: the Annual Report 2006. Health Management Information System, Dental Subsystem. Information and Documentation Unit, Ministry of Health Malaysia

Mean OOP Expenditure per Episode (RM) for those who sought care (out of school)

Region	Mean NHES'96	Mean NHMS III
Peninsular Malaysia	36.08	48.81
Sarawak	-	55.98
Sabah	-	43.65
Malaysia	-	48.77

APPENDIX 3

Table 1: Demographic and socio-economic comparison between weighted sample of NHMS III and Malaysian population in 2006 (Department of Statistics Malaysia)

Variables	Percent (%) of Total NHMS III	Percent (%) of Total Population 2006
Gender		
Male	47.0	50.9
Female	53.0	49.1
Residence		
Urban	63.3	63.2
Rural	36.7	36.8
Age group (by 5)		
0-4	10.5	11.6
5-9	11.7	10.8
10-14	11.1	10.1
15-19	8.4	9.6
20-24	6.9	9.1
25-29	6.7	8.1
30-34	6.4	7.3
35-39	6.5	7.0
40-44	6.9	6.4
45-49	6.3	5.5
50-54	5.5	4.6
55-59	4.5	3.4
60-64	3.0	2.4
65-69	2.5	1.8
70-74	1.6	1.2
75-79	0.9	0.7
80+	0.7	0.6
No response	0.1	-
Race		
Malays	56.8	54.3
Chinese	19.5	25.1
Indian	8.4	7.5
Other Bumiputera	11.2	11.8
Others	4.1	1.3
Citizenship		
Malaysian	95.2	93.1
Non-Malaysian	4.7	6.9
Unclassified	0.1	-

Table 1: Demographic and socio-economic comparison between weighted sample of NHMS III and Malaysian population in 2006 (Department of Statistics Malaysia) (continue)

Variable	Percent (%) of Total NHMS III	Percent (%) of Total Population 2006
State		
Johor	11.5	11.9
Kedah	7.2	7.1
Kelantan	6.0	5.8
Melaka	2.7	2.7
N.Sembilan	3.6	3.6
Pahang	5.4	5.6
Pulau Pinang	5.2	5.6
Perak	8.4	8.6
Perlis	0.9	0.9
Selangor	18.5	18.2
Terengganu	4.1	3.9
Sabah	10.5	11.3
Sarawak	9.2	8.9
FTKL	5.5	5.9
FT Labuan	1.3	0.3
Region		
Sabah + FT Labuan	11.9	11.6
Sarawak	9.2	8.9
Peninsular Malaysia	78.9	79.6

APPENDIX 4

Table 1: Ownership of toothbrushes - individual level

Variable	Ownership of Toothbrushes			
	Yes (Non-Sharing)			95% CI
	n	%	Lower	
Overall	52,647	94.0	93.7	94.2
Gender				
Male	24,650	93.4	93.1	93.7
Female	27,997	94.5	94.2	94.8
Residence				
Urban	30,724	94.8	94.5	95.1
Rural	21,923	92.6	92.1	93.0
Specific age group				
<5 years	4,157	70.0	69.0	71.4
5 years	1,222	95.5	94.3	96.6
6 years	1,374	96.2	95.2	97.2
12 years	1,268	97.6	96.8	98.5
16 years	973	98.2	97.4	99.0
Unclassified	44,030	96.6	96.4	96.8
Age group (by 5)				
0 - 4	4,157	70.2	69.0	71.4
5 - 9	6,390	96.3	95.7	96.9
10 - 14	6,055	97.0	96.5	97.4
15 - 19	4,633	98.1	97.7	98.5
20 - 24	3,788	98.6	98.2	99.0
25 - 29	3,666	99.0	98.6	99.3
30 - 34	3,503	98.4	98.0	98.8
35 - 39	3,557	98.5	98.1	98.9
40 - 44	3,789	98.5	98.0	98.9
45 - 49	3,446	98.1	97.7	98.6
50 - 54	2,986	97.9	97.4	98.4
55 - 59	2,398	96.6	95.8	97.3
60 - 64	1,548	93.0	91.7	94.2
65 - 69	1,280	90.3	88.8	91.9
70 - 74	769	85.8	83.4	88.2
75-79	385	78.5	74.7	81.9
80+	271	68.5	63.7	73.0
Unclassified	26	65.9	47.4	80.6

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of Toothbrushes			
	Yes (Non-Sharing)			
	n	%	95% CI	
Lower			Upper	
Age group (for oral health)				
Toddler (0-4)	4,157	70.2	69.0	71.4
Preschool (5-6)	2,596	95.9	95.1	96.7
Primary (7-12)	7,659	96.9	96.4	97.4
Secondary (13-17)	5,161	97.4	96.9	97.8
Young adults (18-29)	9,116	98.7	98.5	99.0
Middle-aged (35-44)	7,346	98.5	98.2	98.8
Elderly (60+)	1,548	93.0	91.7	94.2
Elderly (65+)	1,280	90.3	88.8	91.9
Elderly group (70+)	1,425	79.9	78.0	81.9
Race				
Malays	30,218	94.1	93.8	94.4
Chinese	9,663	95.1	94.6	95.6
Indians	4,146	94.9	94.2	95.7
Other Bumiputera	6,367	91.1	90.1	92.0
Others	2,253	92.3	91.0	93.9
Marital status				
Not Married	12,154	98.0	97.8	98.3
Married	23,586	97.0	96.8	97.3
Divorcee	693	93.3	91.5	95.1
Widow/widower	1,660	89.2	87.8	90.6
Citizenship				
Malaysian	50,017	94.0	93.8	94.3
Non - Malaysian	2,599	94.2	92.8	95.5
Education level				
None	10,409	88.0	86.9	89.1
Primary	14,388	96.6	96.3	96.9
Secondary	17,813	98.7	98.5	98.9
Tertiary	3,335	99.4	99.1	99.6
Not applicable	6,333	77.4	76.4	78.3
Unclassified	369	96.8	94.5	99.0

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of Toothbrushes			
	Yes (Non-Sharing)			
	n	%	95% CI	
		Lower	Upper	
Occupation status				
Senior Official & Manager	634	98.8	97.9	99.7
Professionals	2,239	99.2	98.8	99.6
Technical & Associate	2,614	98.7	98.2	99.1
Clerical workers	1,829	99.4	99.0	99.8
Service workers & shop	5,562	98.3	97.9	98.6
Skilled Agricultural & Fishery	2,522	94.1	93.2	95.0
Craft & Related Trade Workers	1,991	98.7	98.2	99.2
Plant & Machine operator & Assembler	1,849	98.6	98.0	99.1
Elementary occupations	1,579	97.5	96.7	98.3
Housewife	7,830	97.0	96.6	97.4
Unemployed	3,534	90.3	89.3	91.3
< 13 & Not schooling	7,107	96.7	96.2	97.3
< 13 & Primary school	925	97.4	96.4	98.4
Unclassified	6,052	96.1	95.6	96.7
State				
Johor	5,877	94.3	93.6	95.0
Kedah	3,899	92.4	91.3	93.4
Kelantan	3,529	93.7	92.8	94.6
Melaka	1,310	94.2	92.6	95.9
Negeri Sembilan	1,926	94.1	93.1	95.0
Pahang	2,780	94.6	93.3	95.8
Pulau Pinang	2,867	96.0	95.1	96.8
Perak	3,900	94.9	93.9	95.8
Perlis	480	92.9	90.7	95.2
Selangor	8,868	94.3	93.6	94.9
Terengganu	2,391	94.5	93.3	95.6
Sabah	6,587	91.5	90.6	92.5
Sarawak	4,546	93.7	93.0	94.4
FT KL	2,839	96.0	95.3	96.7
FT Labuan	848	92.7	90.1	95.4
Sabah + FT Labuan	6,587	92.1	91.1	93.0

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of Toothbrushes			
	Yes (Non-Sharing)			
	n	%	95% CI	
			Lower	Upper
Individual income (NHMS III classification)				
Less than RM400	3,874	95.9	95.2	96.5
RM400 - RM699	4,015	97.6	97.2	98.1
RM700 - RM999	3,390	98.4	97.9	98.8
RM1000 - RM1999	5,814	98.8	98.5	99.1
RM2000 - RM2999	2,193	99.3	99.0	99.6
RM3000 - RM3999	784	99.0	98.3	99.7
RM4000 - RM4999	294	99.7	99.0	100.3
RM5000 & above	555	99.6	99.1	100.2
Individual Income by EPU classification				
Less than RM 500	4,442	96.5	95.9	97.0
RM 500 - RM 999	6,526	98.5	98.2	98.8
RM 1000 - RM 1499	3,405	99.0	98.5	99.3
RM 1500 - RM 1999	2,082	99.3	98.8	99.6
RM 2000 - RM 2499	1,486	99.5	99.0	99.8
RM 2500 - RM 2999	563	99.8	98.8	99.9
RM 3000 - RM 3499	588	99.2	98.0	99.7
RM 3500 - RM 3999	134	100.0	100.0	100.0
RM 4000 - RM 4499	200	99.5	96.6	99.9
RM 4500 - RM 4999	56	100.0	100.0	100.0
RM 5000 & above	513	99.6	98.5	99.9
Income based on quartiles				
1 st quartile	6,012	96.5	96.0	96.9
2 nd quartile	4,051	98.2	97.7	98.5
3 rd quartile	5,472	98.7	98.3	99.0
4 th quartile	4,503	99.2	98.9	99.4

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of toothbrushes			
	Yes, sharing			
	n	%	95% CI	
		Lower	Upper	
Overall	693	1.2	1.0	1.3
Gender				
Male	355	1.3	1.1	1.5
Female	338	1.1	0.9	1.2
Residence				
Urban	311	0.9	0.8	1.1
Rural	382	1.6	1.3	1.9
Specific age group				
<5 years	143	2.2	1.8	2.7
5 years	42	3.0	2.0	4.0
6 years	34	2.2	1.5	2.9
12 years	24	1.8	1.0	2.5
16 years	14	1.4	0.7	2.1
Unclassified	441	0.9	0.8	1.0
Age group (by 5)				
0 - 4	143	2.2	1.8	2.7
5 - 9	177	2.5	2.0	2.9
10 -14	138	2.1	1.7	2.5
15 - 19	54	1.1	0.8	1.4
20 - 24	21	0.5	0.3	0.8
25 - 29	14	0.4	0.2	0.6
30 - 34	32	0.8	0.5	1.2
35 - 39	25	0.7	0.4	1.0
40 - 44	25	0.7	0.4	0.9
45 - 49	23	0.6	0.4	0.9
50 - 54	13	0.4	0.2	0.7
55 - 59	6	0.3	0.1	0.5
60 - 64	7	0.4	0.1	0.7
65 - 69	8	0.6	0.2	0.9
70 - 74	3	0.3	0.0	0.7
75-79	3	0.4	< 0.1	0.9
80+	1	0.1	0.0	-
Unclassified	693	1.2	1.0	1.3
Age group for oral health				
Toddler (0-4)	143	2.2	1.8	2.7
Preschool (5-6)	76	2.6	2.0	3.2
Primary (7-12)	191	2.3	1.8	2.7
Secondary (13-17)	87	1.6	1.2	1.9
Young adults (18-29)	50	0.5	0.4	0.6
Middle-aged (35-44)	50	0.7	0.5	0.9
Elderly (60+)	7	0.4	0.1	0.7
Elderly (65+)	8	0.6	0.2	0.9
Elderly group (70+)	7	0.4	0.1	0.7

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of toothbrushes			
	Yes, sharing			
	n	%	95% CI	
		Lower	Upper	
Race				
Malays	376	1.1	1.0	1.3
Chinese	42	0.4	0.3	0.6
Indians	18	0.4	0.1	0.7
Other Bumiputera	186	2.5	1.9	3.2
Others	71	2.7	1.7	3.6
Marital status				
Not Married	115	0.9	0.7	1.1
Married	155	0.6	0.5	0.7
Divorcee	5	0.6	0.1	1.2
Widow/widower	7	0.4	0.1	0.7
Citizenship				
Malaysian	622	1.1	1.0	1.2
Non - Malaysian	70	2.3	1.3	3.2
Education level				
None	210	1.0	0.7	1.4
Primary	138	1.4	1.2	1.6
Secondary	132	0.7	0.6	0.8
Tertiary	8	0.2	0.1	0.4
Not applicable	205	2.3	1.9	2.7
Unclassified	0	-	-	-
Occupation status				
Senior Official & Manager	2	0.3	0.0	0.7
Professionals	7	0.3	0.1	0.5
Technical & Associate	12	0.4	0.2	0.7
Clerical workers	3	0.2	0.0	0.4
Service workers & shop	29	0.5	0.3	0.7
Skilled Agricultural & Fishery	27	1.0	0.6	1.4
Craft & Related Trade Workers	9	0.4	0.1	0.7
Plant & Machine operator & Assembler	14	0.8	0.4	1.1
Elementary occupations	11	0.7	0.3	1.1
Housewife	65	0.8	0.6	1.0
Unemployed	28	0.7	0.4	1.0
< 13 & Not schooling	185	2.4	1.9	2.8
< 13 & Primary school	20	2.0	1.1	2.9
Unclassified	76	1.1	0.9	1.4

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of toothbrushes			
	Yes, sharing			
	n	%	95% CI	
Lower			Upper	
State				
Johor	84	1.3	0.8	1.7
Kedah	60	1.4	0.9	1.9
Kelantan	20	0.5	0.2	0.9
Melaka	18	1.4	0.1	2.8
Negeri Sembilan	14	0.7	0.3	1.1
Pahang	31	1.0	0.4	1.7
Pulau Pinang	10	0.3	0.1	0.5
Perak	24	0.5	0.1	0.9
Perlis	8	1.5	0.3	2.7
Selangor	134	1.3	1.0	1.7
Terengganu	22	0.9	0.2	1.5
Sabah	200	2.8	2.1	3.5
Sarawak	33	0.7	0.4	0.9
FT KL	21	0.7	0.4	1.0
FT Labuan	14	1.6	0.3	2.8
Sabah + FT Labuan	200	2.8	2.2	3.6
Individual income (NHMS III classification)				
Less than RM400	29	0.6	0.3	0.9
RM400 - RM699	29	0.7	0.4	1.0
RM700 - RM999	12	0.3	0.1	0.5
RM1000 - RM1999	31	0.5	0.3	0.8
RM2000 - RM2999	4	0.2	0.0	0.3
RM3000 - RM3999	5	0.6	0.1	1.2
RM4000 - RM4999	1	0.3	0.0	1.0
RM5000 & above	2	0.4	0.0	0.9
Individual income by EPU classification				
Less than RM 500	33	0.7	0.5	1.0
RM 500 - RM 999	35	0.5	0.4	0.7
RM 1000 - RM 1499	18	0.5	0.3	0.9
RM 1500 - RM 1999	11	0.6	0.3	1.0
RM 2000 - RM 2499	3	0.2	0.1	0.6
RM 2500 - RM 2999	0	0.0	0.0	0.0
RM 3000 - RM 3499	5	0.9	0.4	2.1
RM 3500 - RM 3999	0	-	-	-
RM 4000 - RM 4499	1	0.5	0.1	3.4
RM 4500 - RM 4999	0	-	-	-
RM 5000 & above	2	0.4	0.1	1.6
Income based on quartiles				
1 st quartile	41	0.6	0.4	0.9
2 nd quartile	21	0.5	0.3	0.7
3 rd quartile	29	0.5	0.4	0.8
4 th quartile	17	0.2	0.2	0.6

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of toothbrushes			
	n	%	No	
			95% CI	
			Lower	Upper
Overall	2,379	4.1	4.0	4.3
Gender				
Male	1,223	4.6	4.3	4.8
Female	1,156	3.8	3.6	4.0
Residence				
Urban	1,161	3.6	3.3	3.8
Rural	1,218	5.2	4.8	5.5
Specific age group				
<5 years	1,605	27.1	25.9	28.2
5 years	18	1.3	0.7	1.9
6 years	17	1.1	0.6	1.7
12 years	4	0.3	0.0	0.6
16 years	0	-	-	-
Unclassified	814	1.7	1.6	1.8
Age group (by 5)				
0 - 4	1,605	27.1	25.9	28.2
5 - 9	57	0.8	0.6	1.0
10 - 14	15	0.2	0.1	0.3
15 - 19	4	0.1	0.0	0.2
20 - 24	2	0.1	0.0	0.1
25 - 29	2	0.1	0.0	0.1
30 - 34	4	0.1	0.0	0.2
35 - 39	5	0.1	< 0.1	0.2
40 - 44	14	0.3	0.2	0.5
45 - 49	24	0.6	0.4	0.9
50 - 54	33	1.0	0.7	1.4
55 - 59	66	2.6	1.9	3.2
60 - 64	96	5.5	4.4	6.6
65 - 69	124	8.3	6.8	9.7
70 - 74	119	12.6	10.3	14.9
75 - 79	99	21.8	19.0	24.6
80+	107	25.2	21.2	29.8
Unclassified	3	4.5	2.4	2.1
Age group for oral health				
Toddler (0-4)	1,605	27.1	25.9	28.2
Preschool (5-6)	35	1.2	0.8	1.6
Primary (7-12)	32	0.4	0.2	0.5
Secondary (13-17)	7	0.1	< 0.1	0.2
Young adults (18-29)	6	0.1	< 0.1	0.1
Middle-aged (35-44)	19	0.2	0.1	0.3
Elderly (60+)	96	5.5	4.4	6.6
Elderly (65+)	124	8.3	6.8	9.7
Elderly group (70+)	325	17.2	15.3	19.0

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of toothbrushes			
	n	%	No	
			Lower	Upper
Race				
Malays	1,360	4.1	3.9	4.4
Chinese	358	3.6	3.2	4.0
Indians	170	3.8	3.2	4.4
Other Bumiputera	400	5.7	5.1	6.3
Others	91	3.6	2.7	4.4
Marital status				
Not Married	36	0.3	0.2	0.4
Married	448	1.8	1.6	1.9
Divorcee	41	5.2	3.6	6.8
Widow/widower	176	8.9	7.6	10.2
Citizenship				
Malaysian	2,287	4.2	4.0	4.4
Non - Malaysian	90	3.0	2.2	3.8
Education level				
None	409	9.5	8.5	10.5
Primary	281	1.4	1.2	1.6
Secondary	45	0.2	0.2	0.3
Tertiary	3	0.1	0.0	0.2
Not applicable	1,634	19.9	19.0	20.8
Unclassified	7	0.7	0.0	1.7
Occupation status				
Senior Official & Manager	5	0.7	0.1	1.4
Professionals	7	0.3	0.1	0.5
Technical & Associate	8	0.3	0.1	0.5
Clerical workers	2	0.1	0.0	0.3
Service workers & shop	52	0.9	0.6	1.1
Skilled Agricultural & Fishery	121	4.5	3.7	5.3
Craft & Related Trade Workers	13	0.6	0.3	0.9
Plant & Machine operator &				
Assembler	3	0.2	0.0	0.4
Elementary occupations	26	1.6	1.0	2.3
Housewife	135	1.6	1.3	1.9
Unemployed	311	7.6	6.7	8.5
< 13 & Not schooling	34	0.4	0.2	0.6
< 13 & Primary school	3	0.3	0.0	0.6
Unclassified	24	0.4	0.2	0.5

Table 1: Ownership of toothbrushes- individual level (continue)

Variable	Ownership of toothbrushes			
	n	%	No	
			95% CI	
			Lower	Upper
State				
Johor	219	3.5	3.1	4.0
Kedah	234	5.4	4.6	6.2
Kelantan	199	5.3	4.5	6.0
Melaka	49	3.6	2.5	4.6
Negeri Sembilan	87	4.2	3.5	5.0
Pahang	113	3.8	3.0	4.6
Pulau Pinang	79	2.6	2.0	3.2
Perak	186	4.4	3.6	5.3
Perlis	26	4.9	3.2	6.6
Selangor	362	3.8	3.3	4.2
Terengganu	103	4.0	3.2	4.9
Sabah	368	5.1	4.5	5.7
Sarawak	236	4.8	4.1	5.4
FT KL	76	2.6	2.0	3.2
FT Labuan	42	4.6	3.0	6.2
Sabah + FT Labuan	368	5.1	4.5	5.8
Individual income (NHMS III classification)				
Less than RM400	128	3.2	2.6	3.8
RM400 - RM699	51	1.2	0.9	1.5
RM700 - RM999	27	0.8	0.5	1.1
RM1000 - RM1999	22	0.4	0.2	0.5
RM2000 - RM2999	6	0.3	0.1	0.5
RM3000 - RM3999	0	-	-	-
RM4000 - RM4999	0	-	-	-
RM5000 & above	0	-	-	-
Individual income by EPU classification				
Less than RM 500	135	2.9	2.4	3.4
RM 500 - RM 999	70	1.0	0.8	1.3
RM 1000 - RM 1499	18	0.5	0.3	0.8
RM 1500 - RM 1999	4	0.2	0.1	0.5
RM 2000 - RM 2499	5	0.3	0.1	0.8
RM 2500 - RM 2999	1	0.2	< 0.1	1.3
RM 3000 - RM 3499	0	-	-	-
RM 3500 - RM 3999	0	-	-	-
RM 4000 - RM 4499	0	-	-	-
RM 4500 - RM 4999	0	-	-	-
RM 5000 & above	0	-	-	-
Income based on quartiles				
1 st quartile	161	2.5	2.1	3.0
2 nd quartile	39	0.9	0.7	1.3
3 rd quartile	26	0.4	0.3	0.7
4 th quartile	8	0.2	0.1	0.3

Table 2: Reading nutrition labels (individual level 18 years and above)

Variable	Reading Nutrition Label (Carbohydrate Inc. Sugar)			
	n	%	95% CI	
			Lower	Upper
Overall	3,434	10.8	10.3	11.3
Gender				
Male	1,395	9.8	9.3	10.5
Female	2,039	11.6	11.0	12.2
Residence				
Urban	2,316	12.3	11.7	13.0
Rural	1,118	8.2	7.5	8.8
Age group (by 5)				
18-19	273	17.2	15.3	19.3
20-24	537	15.0	13.7	16.4
25-29	509	14.9	13.7	16.2
30-34	420	12.7	11.5	14.1
35-39	386	11.6	10.5	12.8
40-44	406	11.3	10.3	12.5
45-49	309	9.6	8.5	10.7
50-54	247	8.7	7.6	9.8
55-59	185	8.0	7.0	9.3
60-64	74	4.8	3.8	6.0
65-74	78	3.7	2.9	4.6
75 +	10	1.2	0.6	2.2
Age group for oral health				
Young adults (18-29)	1,319	15.4	14.5	16.3
Middle-aged (35-44)	792	11.5	10.7	12.3
Elderly (60+)	74	4.8	3.8	6.0
Elderly (65+)	52	4.0	3.0	5.3
Elderly group (70+)	1,168	9.8	9.2	10.5
Race				
Malays	2,172	12.3	11.6	12.9
Chinese	622	9.6	8.7	10.6
Indians	308	11.7	10.3	13.1
Other Bumiputera	235	6.7	5.7	7.8
Others	97	6.5	5.1	8.2
Marital status				
Not Married	1,029	15.3	14.3	16.3
Married	2,279	10.2	9.6	10.7
Divorcee	50	7.3	5.6	9.5
Widow/widower	65	3.7	2.9	4.8

Table 2: Reading nutrition labels (individual level 18 years and above) (continue)

Variable	Reading Nutrition Label (Carbohydrate Inc. Sugar)			
	n	%	95% CI	
			Lower	Upper
Citizenship				
Malaysian	3,356	11.2	10.7	11.8
Non - Malaysian	61	3.9	2.8	5.2
Education level				
None	7	0.2	1.0	0.4
Primary	340	3.7	3.3	4.2
Secondary	2,292	14.3	13.6	15.0
Tertiary	782	25.1	23.5	26.8
Unclassified	8	4.4	2.2	8.5
Occupation status				
Senior Official & Manager	111	18.6	15.5	22.2
Professionals	475	22.9	21.0	24.8
Technical & Associate	411	16.6	15.1	18.3
Clerical Workers	317	19.1	17.3	21.1
Service workers & shop	538	10.3	9.4	11.3
Skilled Agricultural & Fishery	104	4.0	3.3	4.9
Craft & Related Trade Workers	167	8.6	7.3	10.1
Plant & Machine Operator & Assembler	119	6.8	5.6	8.2
Elementary occupations	82	5.5	4.3	7.0
Housewife	618	8.2	7.5	8.9
Unemployed	209	6.3	5.5	7.2
Unclassified	283	17.8	15.8	19.9
State				
Johor	349	9.0	7.9	10.3
Kedah	370	14.7	12.6	17.0
Kelantan	185	9.3	7.8	11.1
Melaka	193	22.2	18.9	25.9
Negeri Sembilan	186	14.5	12.3	16.9
Pahang	219	12.2	10.0	14.8
Pulau Pinang	162	7.6	6.4	8.9
Perak	147	5.9	4.7	7.3
Perlis	18	5.6	3.4	9.2
Selangor	774	13.4	12.3	14.5
Terengganu	178	13.0	10.6	15.7
Sabah + FT Labuan	210	5.3	4.4	6.4
Sarawak	264	9.6	8.0	11.4
FT KL	179	16.6	14.0	19.5

Table 2: Reading nutrition labels (individual level 18 years and above) (continue)

Variable	Reading nutrition label (carbohydrate inc. sugar)			
	n	%	95% CI	
			Lower	Upper
Individual income (NHMS III classification)				
Less than RM400	211	5.7	4.9	6.5
RM400 - RM699	329	8.6	7.7	9.7
RM700 - RM999	345	10.6	9.5	11.8
RM1000 - RM1999	764	14.0	13.0	15.1
RM2000 - RM2999	381	18.5	16.9	20.3
RM3000 - RM3999	147	20.2	17.4	23.3
RM4000 - RM4999	61	23.9	18.8	29.9
RM5000 & above	117	22.9	19.1	27.1
Individual income by EPU classification				
Less than RM 500	249	5.7	5.0	6.5
RM 500 - RM 999	636	9.9	9.1	10.8
RM 1000 - RM 1499	446	13.2	12.0	14.4
RM 1500 - RM 1999	318	15.3	13.8	17.0
RM 2000 - RM 2499	268	18.0	16.2	20.1
RM 2500 - RM 2999	113	19.9	16.8	23.4
RM 3000 - RM 3499	125	20.9	17.8	24.5
RM 3500 - RM 3999	22	16.8	11.4	24.1
RM 4000 - RM 4499	47	23.5	17.8	30.3
RM 4500 - RM 4999	14	25.5	15.6	39.0
RM 5000 & above	117	22.9	19.1	27.1
Income based on quartiles				
1 st quartile	366	6.3	5.6	7.0
2 nd quartile	414	10.3	9.3	11.4
3 rd quartile	700	12.9	12.0	13.9
4 th quartile	875	19.4	18.2	20.7

Table 3: Reading nutrition labels by household characteristic

Variable	Reading nutrition label (carbohydrate inc. sugar)			
	n	%	95% CI	
			Lower	Upper
Overall	4,177	11.3	10.9	11.8
Residence				
Urban	1,709	10.2	9.7	10.8
Rural	2,468	12.3	11.7	12.9
Age group (by 5 of head of HH)				
18-19	269	12.5	11.1	14.0
20-24	747	16.6	15.3	17.9
25-29	537	15.0	13.7	16.4
30-34	509	14.9	13.7	16.2
35-39	420	12.7	11.5	14.1
40-44	386	11.6	10.5	12.8
45-49	406	11.3	10.3	12.5
50-54	309	9.6	8.5	10.7
55-59	247	8.7	7.6	9.9
60-64	185	8.0	7.0	9.3
65-69	74	4.8	3.8	6.0
70-74	78	3.7	2.9	4.6
75+	10	1.2	0.6	2.2
Race (head of household)				
Malays	2,692	12.9	12.3	13.6
Chinese	708	9.8	8.9	10.7
Indians	371	12.2	11.0	13.7
Other Bumiputera	299	7.1	6.2	8.3
Others	107	6.6	5.3	8.2
Family structure				
Nuclear	933	9.9	9.2	10.6
Extended	201	7.7	6.7	8.9
Single	122	7.6	6.2	9.3
Unrelated member	62	14.4	10.5	19.4
Size of household				
1 - 3 persons	650	9.2	8.4	10.0
4 - 6 persons	571	10.4	9.5	11.3
7 - 9 persons	91	7.0	5.7	8.5
≥ 10 persons	13	6.0	3.5	10.0
Education level (head of household)				
None	9	0.2	0.1	0.5
Primary	695	5.8	5.3	6.3
Secondary	2676	14.7	14.0	15.4
Tertiary	782	25.1	23.5	26.8
Unclassified	9	4.4	2.3	8.2

Table 3: Reading nutrition labels by household characteristic (continue)

Variable	Reading nutrition label (carbohydrate inc. sugar)			
	n	%	95% CI	
			Lower	Upper
Occupation status (head of household)				
Senior Official & Manager	71	18.2	14.6	22.4
Professionals	227	21.0	18.6	23.5
Technical & Associate	210	13.5	11.8	15.5
Clerical workers	111	17.2	14.3	20.4
Service workers & shop	248	9.6	8.5	10.9
Skilled Agricultural & Fishery	59	3.5	2.7	4.6
Craft & Related Trade Workers	51	6.4	4.9	8.3
Plant & Machine operator & Assembler	76	6.5	5.2	8.1
Elementary occupations	36	4.3	3.1	5.9
Housewife	120	6.5	5.5	7.8
Unemployed	41	3.2	2.4	4.3
Unclassified	77	15.0	11.9	18.7
Household income (NHMS III classification)				
Less than RM400	220	5.7	5.0	6.5
RM400 - RM699	337	8.7	7.7	9.8
RM700 - RM999	353	10.8	9.7	12.0
RM1000 - RM1999	764	14.0	13.0	15.0
RM2000 - RM2999	381	18.5	16.9	20.3
RM3000 - RM3999	147	20.2	17.4	23.3
RM4000 - RM4999	61	23.9	18.8	29.9
RM5000 & above	117	22.9	19.1	27.1
Household income by EPU classification				
Less than RM 500	264	5.9	5.1	6.7
RM 500 - RM 999	646	9.9	9.1	10.8
RM 1000 - RM 1499	446	13.1	12.0	14.4
RM 1500 - RM 1999	318	15.3	13.8	17.0
RM 2000 - RM 2499	268	18.0	16.1	20.1
RM 2500 - RM 2999	113	19.9	16.8	23.4
RM 3000 - RM 3499	125	20.9	17.8	24.5
RM 3500 - RM 3999	22	16.8	11.4	24.1
RM 4000 - RM 4499	47	23.5	17.8	30.3
RM 4500 - RM 4999	14	25.5	15.6	39.0
RM 5000 & above	117	22.9	19.1	27.1

Table 3: Reading nutrition labels by household characteristic (continue)

Variable	Reading nutrition label (carbohydrate inc. sugar)			
	n	%	95% CI	
			Lower	Upper
State				
Johor	434	9.7	8.5	11.0
Kedah	448	15.3	13.4	17.5
Kelantan	272	11.0	9.4	12.8
Melaka	228	23.1	20.0	26.6
Negeri Sembilan	217	14.8	12.7	17.2
Pahang	255	12.2	10.1	14.7
Pulau Pinang	185	7.9	6.8	9.1
Perak	187	6.3	5.2	7.7
Perlis	28	7.2	4.7	10.7
Selangor	901	13.8	12.7	14.8
Terengganu	230	13.9	11.2	17.1
Sabah + FT Labuan	279	6.0	5.1	7.1
Sarawak	310	9.6	8.2	11.3
FT KL	203	16.7	14.3	19.5
Income based on quartiles				
1 st quartile	385	6.4	5.7	7.1
2 nd quartile	420	10.3	9.3	11.4
3 rd quartile	703	12.9	12.0	13.9
4 th quartile	875	19.4	18.1	20.7

Table 4: Population with dental pain/problem within the last 4 weeks

Variable	N	Having orofacial pain within the last 4 weeks						
		n	Yes			No		
			%	95% CI		%	95% CI	
				Lower	Upper		Lower	Upper
Overall	56,127	5,757	10.0	9.7	10.4	89.2	88.9	89.5
Gender								
Male	26,434	2,685	9.9	9.5	10.3	89.3	88.9	89.7
Female	29,693	3,072	10.2	9.8	10.6	89.2	88.7	89.6
Residence								
Urban	32,438	2,940	9.0	8.6	9.4	90.3	89.9	90.7
Rural	23,689	2,817	11.9	11.4	12.4	87.4	86.9	87.9
Specific age group								
<5 years	5,653	295	5.1	4.5	5.7	94.1	93.4	94.7
5 years	1,238	188	14.9	13.0	16.9	84.2	82.1	86.1
6 years	1,370	234	16.8	14.9	18.9	82.5	80.4	84.5
12 years	1,259	68	5.3	4.2	6.7	94.3	92.9	95.4
16 years	959	133	13.6	11.6	16.0	86.1	83.8	88.2
Unclassified	45,648	4,839	10.4	10.1	10.7	88.9	88.6	89.2
Age group (by 5)								
0-4	5,935	309	5.0	4.5	5.7	94.1	93.4	94.7
5-9	6,654	945	14.0	13.1	14.9	85.2	84.3	86.1
10-14	6,250	543	8.5	7.7	9.3	90.8	90.0	91.5
15-19	4,726	610	12.5	11.5	13.5	86.9	85.9	87.9
20-24	3,843	518	13.3	12.2	14.5	86.1	84.9	87.2
25-29	3,706	405	10.7	9.7	11.8	88.8	87.7	89.8
30-34	3,563	437	12.0	11.0	13.1	87.5	86.4	88.6
35-39	3,611	425	11.4	10.4	12.5	88.2	87.1	89.2
40-44	3,850	416	10.6	9.6	11.6	88.8	87.8	89.8
45-49	3,516	351	9.9	8.9	11.0	89.6	88.5	90.6
50-54	3,051	309	10.0	9.0	11.2	89.5	88.3	90.6
55-59	2,485	218	8.6	7.6	9.8	90.9	89.7	92.0
60-64	1,670	115	6.7	5.6	8.0	92.3	90.9	93.5
65-69	1,425	70	4.8	3.8	6.0	94.8	93.5	95.8
70-74	903	42	4.6	3.4	6.2	93.6	91.8	95.0
75-79	497	25	5.2	3.5	7.7	92.9	90.1	94.9
80+	403	16	3.7	2.3	5.9	90.3	87.1	92.8
Unclassified	39	3	7.5	2.4	21.0	66.0	47.6	80.6
Age group for oral health								
Toddler (0-4)	5,935	309	5.0	4.5	5.7	94.1	93.4	94.7
Preschool (5-6)	2,717	435	15.7	14.4	17.1	83.5	82.0	84.9
Primary (7-12)	7,918	804	10.0	9.3	10.7	89.2	88.5	90.0
Secondary (13-17)	5,303	623	11.3	10.4	12.2	88.1	87.1	89.0
Young adults (18-29)	9,241	1,159	12.3	11.6	13.0	87.1	86.3	87.8
Middle-aged (35-44)	7,461	841	11.0	10.3	11.7	88.5	87.8	89.2
Elderly (60+)	4,898	268	5.4	4.7	6.1	93.2	92.4	93.9
Elderly (65+)	3,228	153	4.7	4.0	5.5	93.6	92.7	94.4
Elderly (70+)	1,803	83	4.6	3.7	5.7	92.7	91.3	93.8
Elderly (75+)	900	41	4.5	3.3	6.3	91.7	89.7	93.4

Table 4: Population with dental pain/problem within the last 4 weeks (continue)

Variable	N	Having orofacial pain within the last 4 weeks						
		n	Yes			No		
			%	95% CI		%	95% CI	
				Lower	Upper		Lower	Upper
Race								
Malays	32,152	3,750	11.5	11.1	11.9	87.9	87.5	88.3
Chinese	10,151	641	6.2	5.7	6.8	92.9	92.3	93.5
Indian	4,372	411	9.3	8.4	10.3	89.9	88.9	90.8
Other Bumiputera	7,006	716	10.1	9.4	11.0	89.2	88.3	90.0
Others	2,446	239	9.6	8.3	11.0	89.0	87.5	90.4
Marital status								
Not married	12,407	1,471	11.5	10.9	12.1	87.8	87.2	88.4
Married	24,344	2,539	10.2	9.8	10.7	89.3	88.8	89.7
Divorcee	745	63	8.3	6.5	10.7	91.0	88.6	92.9
Widow/Widower	1,873	120	6.3	5.3	7.5	92.3	91.0	93.4
Citizenship								
Malaysian	53,280	5,495	10.1	9.8	10.4	89.3	88.9	89.6
Non-Malaysian	2,781	261	9.2	8.0	10.6	90.0	88.6	91.2
Education level								
None	11,118	1,089	9.7	9.1	10.3	89.3	88.7	90.0
Primary	14,897	1,495	9.8	9.3	10.3	89.8	89.3	90.4
Secondary	18,058	2,153	11.7	11.2	12.2	88.1	87.6	88.6
Tertiary	3,357	338	9.9	8.9	11.0	89.9	88.7	90.9
Not Applicable	8,208	642	7.6	7.0	8.3	91.5	90.9	92.2
Unclassified	489	40	8.0	5.8	10.9	68.2	63.0	73.0
Occupation status								
Senior Official & Manager	642	51	7.9	6.0	10.3	92.0	89.5	93.9
Professionals	2,258	229	10.0	8.8	11.3	89.8	88.4	91.0
Technical & Associate	2,650	291	10.7	9.5	12.1	89.0	87.7	90.2
Clerical Workers	1,840	182	9.9	8.5	11.4	90.0	88.4	91.3
Service Workers & Shop	5,665	605	10.5	9.7	11.4	89.3	88.4	90.1
Skilled Agricultural & Fishery	2,680	323	11.9	10.7	13.2	88.0	86.7	89.2
Craft & Related Trade Workers	2,019	249	12.1	10.7	13.7	87.4	85.8	88.8
Plant & Machine Operator & Assembler	1,876	192	10.1	8.8	11.6	89.5	88.1	90.9
Elementary Occupations	1,620	191	11.4	9.9	13.0	88.4	86.7	89.9
Housewife	8,077	812	9.9	9.2	10.6	89.7	89.0	90.4
Unemployed	3,929	376	9.3	8.4	10.3	89.4	88.4	90.3
<13 & not schooling	7360	821	11.0	10.2	11.8	88.2	87.4	89.0
<13 & primary school	951	79	8.1	6.5	10.0	91.7	89.7	93.3
Unclassified	6,301	708	10.9	10.1	11.8	87.0	86.0	87.8

Table 4: Population with dental pain/problem within the last 4 weeks (continue)

Variables	N	Having orofacial pain within the last 4 weeks						
		n	Yes			No		
			%	95% CI		%	95% CI	
				Lower	Upper		Lower	Upper
State								
Johor	6,239	557	8.8	8.0	9.7	90.4	89.5	91.3
Kedah	4,230	617	14.5	13.3	15.8	84.7	83.4	86.0
Kelantan	3,767	606	16.1	14.7	17.5	83.3	81.8	84.6
Melaka	1,388	151	10.8	8.9	13.1	88.6	86.3	90.5
N.Sembilan	2,048	230	11.0	9.6	12.6	88.3	86.7	89.8
Pahang	2,944	375	12.7	11.5	14.0	86.6	85.4	87.8
Pulau Pinang	2,990	217	7.2	6.1	8.4	91.4	90.1	92.6
Perak	4,116	256	6.1	5.2	7.1	93.7	92.7	94.6
Perlis	517	46	8.7	6.2	12.0	89.9	87.3	92.0
Selangor	9,427	872	9.1	8.5	9.9	90.1	89.4	90.8
Terengganu	2,533	322	12.7	11.4	14.1	86.4	85.0	87.6
Sabah	7,200	728	10.1	9.3	11.0	89.2	88.3	90.1
Sarawak	4,857	448	9.0	8.0	10.0	90.3	89.1	91.3
FT KL	2,957	226	7.6	6.6	8.9	91.8	90.5	92.9
FT Labuan	914	106	11.6	9.0	14.9	87.5	84.1	90.3
Sabah+ FT Labuan	8114	834	10.3	9.5	11.2	89.0	88.1	90.0
Individual income (NHMS III classification)								
Less than RM 400	3,957	449	11.2	10.2	12.2	88.6	87.6	89.6
RM 400 - RM 699	4,009	472	11.5	10.6	12.6	88.2	87.2	89.2
RM 700 - RM 999	3,324	371	11.0	9.9	12.1	88.8	87.6	89.9
RM 1000 - RM 1999	5,553	555	9.8	9.1	10.7	89.9	89.0	90.7
RM 2000 - RM 2999	2,064	228	10.8	9.5	12.3	89.0	87.5	90.3
RM 3000 - RM 3999	730	76	10.4	8.3	13.1	89.3	86.7	91.5
RM 4000 - RM 4999	257	20	8.1	5.4	12.1	91.9	88.0	94.6
RM 5000 & above	515	46	8.8	6.6	11.7	90.8	87.9	93.0
Individual income by EPU classification								
Less than RM 500	4,631	526	11.2	10.3	12.1	88.6	87.7	89.5
RM 500 - RM 999	6,659	766	11.3	10.5	12.1	88.5	87.7	89.3
RM 1000 - RM 1499	3,448	363	10.4	9.4	11.5	89.3	88.2	90.3
RM 1500 - RM 1999	2,105	192	9.0	7.8	10.3	90.8	89.5	92.0
RM 2000 - RM 2499	1,497	161	10.5	9.0	12.2	89.4	87.7	90.8
RM 2500 - RM 2999	567	67	11.6	9.2	14.5	88.1	85.2	90.5
RM 3000 - RM 3499	596	55	9.3	7.1	12.1	90.4	87.6	92.6
RM 3500 - RM 3999	134	21	15.5	10.0	23.1	84.6	76.9	90.0
RM 4000 - RM 4499	201	12	6.1	3.6	10.3	93.9	89.7	96.5
RM 4500 - RM 4999	56	8	15.2	7.8	27.3	84.8	72.7	92.2
RM 5000 & above	515	46	8.8	6.6	11.7	90.8	87.9	93.0
Income based on quartile								
1 st quartile	6238	729	11.5	10.7	12.4	88.3	87.5	89.1
2 nd quartile	4130	467	11.1	10.1	12.1	88.6	87.6	89.6
3 rd quartile	5544	571	10.2	9.4	11.1	89.5	88.6	90.3
4 th quartile	4541	458	9.9	9.0	10.9	89.9	88.9	90.8

Table 5: Problems in chewing by socio-demographic and mean days affected

Variable	Chewing				
	n	%	Mean days	95% CI	
				Lower	Upper
Gender					
Male	1,337	49.8	3.4	3.1	3.6
Female	1,566	51.0	3.3	3.1	3.5
Residence					
Urban	1,433	48.7	3.5	3.2	3.7
Rural	1,470	52.2	3.2	2.9	3.4
Specific age group					
<5 years	159	53.9	2.7	2.1	3.3
5 years	87	46.3	2.1	1.7	2.5
6 years	81	34.6	2.3	1.9	2.7
12 years	27	39.7	2.9	2.2	3.6
16 years	72	54.1	2.8	2.2	3.5
Unclassified	2,477	51.2	3.5	3.3	3.7
Age group (by 5)					
0-4	166	53.7	2.7	2.2	3.2
5-9	418	44.2	2.2	2.0	2.4
10-14	241	44.4	2.9	2.5	3.2
15-19	297	48.7	3.4	2.8	3.9
20-24	268	51.7	3.8	3.2	4.4
25-29	210	51.9	3.8	3.1	4.5
30-34	225	51.5	3.3	2.8	3.8
35-39	229	53.9	3.5	2.8	4.2
40-44	215	51.7	3.5	3.0	4.1
45-49	196	55.8	3.2	2.6	3.8
50-54	170	55.0	5.3	4.1	6.4
55-59	122	56.0	3.6	2.7	4.5
60-64	59	51.3	3.0	2.2	3.7
65-69	41	58.6	3.1	2.4	3.8
70-74	23	54.8	3.7	2.0	5.3
75-79	14	56.0	5.8	-0.1	11.6
80+	9	56.3	1.3	1.0	1.7
Age group for oral health					
Toddler (0-4)	166	53.5	2.7	2.2	3.2
Preschool (5-6)	172	38.8	2.3	2.0	2.6
Primary (7-12)	372	45.8	2.3	2.1	2.6
Secondary (13-17)	294	46.8	3.1	2.7	3.5
Young adults (18-29)	596	51.6	3.8	3.4	4.2
Middle-aged (35-44)	444	52.8	3.5	3.1	4.0
Elderly (60+)	146	53.8	3.3	2.6	3.9
Elderly(65+)	87	56.1	3.5	2.4	4.5
Elderly (70+)	46	54.7	3.8	2.0	5.6
Elderly (75+)	23	55.7	3.9	0.4	7.4

Table 5: Problems in chewing by socio-demographic and mean days affected (continue)

Variable	Chewing				
	n	%	Mean days	95% CI	
				Lower	Upper
Race					
Malays	1,912	51.0	3.3	3.1	3.5
Chinese	255	39.8	2.9	2.4	3.3
Indian	198	48.2	3.4	2.8	4.0
Other Bumiputera	400	55.9	3.4	2.9	3.9
Others	138	57.7	3.1	2.5	3.8
Marital status					
Not married	720	49.0	3.6	3.3	4.0
Married	1,369	53.9	3.6	3.3	3.8
Divorcee	29	46.0	4.9	2.2	7.6
Widow/Widower	68	56.7	3.4	2.6	4.2
Citizenship					
Malaysian	2,752	50.1	3.4	3.2	3.6
Non-Malaysian	150	57.5	3.1	2.5	3.8
Education level					
None	528	48.5	2.8	2.5	3.1
Primary	776	51.9	3.5	3.1	3.8
Secondary	1,097	51.0	3.7	3.4	4.0
Tertiary	176	52.1	3.3	2.7	3.9
Not Applicable	306	47.7	-	-	-
Unclassified	20	50.0	3.0	0.9	5.1
Occupation status					
Senior Official & Manager	22	43.1	3.7	2.2	5.3
Professionals	118	51.5	3.7	3.0	4.3
Technical & Associate	163	56.0	3.2	2.6	3.9
Clerical Workers	86	47.3	3.7	2.9	4.5
Service Workers & Shop	315	52.1	3.5	3.0	3.9
Skilled Agricultural & Fishery	173	53.6	4.2	3.2	5.1
Craft & Related Trade Workers	133	53.4	3.4	2.8	4.0
Plant & Machine Operator & Assembler	101	52.6	4.0	2.5	5.5
Elementary Occupations	103	53.9	3.2	2.1	4.3
Housewife	448	55.2	3.6	3.2	4.0
Unemployed	195	51.9	3.4	2.7	4.2
< 13 & Not schooling	373	45.4	2.3	2.1	2.6
< 13 & Primary school	29	36.7	2.2	1.4	3.0
Unclassified	336	47.5	3.6	3.0	4.1

Table 5: Problems in chewing by socio-demographic and mean days affected (continue)

Variable	Chewing				
	n	%	Mean days	95% CI	
				Lower	Upper
State					
Johor	297	53.3	3.7	3.0	4.3
Kedah	312	50.6	3.6	3.2	4.1
Kelantan	265	43.7	2.9	2.4	3.4
Melaka	76	50.3	4.5	3.1	5.9
N.Sembilan	132	57.4	3.3	2.7	3.8
Pahang	173	46.1	3.2	2.4	4.1
Pulau Pinang	91	41.9	3.9	2.3	5.5
Perak	128	50.0	3.9	2.7	5.0
Perlis	20	43.5	3.2	0.4	6.0
Selangor	430	49.3	3.4	3.1	3.8
Terengganu	157	48.8	2.7	2.0	3.4
Sabah	408	56.0	3.3	2.9	3.7
Sarawak	239	53.4	3.6	2.8	4.4
FT KL	120	53.1	2.6	2.1	3.1
FT Labuan	55	51.9	3.5	1.9	5.1
Sabah + FT Labuan	463	55.3	3.2	2.8	3.6
Individual income (NHMS III classification)					
Less than RM 400	238	53.0	3.3	2.7	3.9
RM 400 - RM 699	250	53.0	3.7	3.1	4.3
RM 700 - RM 999	198	53.4	4.1	3.3	4.9
RM 1000 - RM 1999	294	53.0	3.6	3.0	4.2
RM 2000 - RM 2999	116	50.9	3.4	2.9	4.0
RM 3000 - RM 3999	43	56.6	2.2	1.6	2.8
RM 4000 - RM 4999	7	35.0	5.3	0.0	12.5
RM 5000 & above	22	47.8	3.3	1.6	5.0
Individual income by EPU classification					
Less than RM 500	280	53.2	3.3	2.8	3.8
RM 500 - RM 999	406	53.0	4.0	3.4	4.5
RM 1000 - RM 1499	196	54.0	3.7	3.0	4.4
RM 1500 - RM 1999	98	51.0	3.4	2.2	4.5
RM 2000 - RM 2499	83	51.6	3.3	2.7	3.9
RM 2500 - RM 2999	33	49.3	3.8	2.7	4.8
RM 3000 - RM 3499	30	54.6	2.3	1.5	3.2
RM 3500 - RM 3999	13	61.9	1.9	1.2	2.5
RM 4000 - RM 4499	4	33.3	NA	NA	NA
RM 4500 - RM 4999	3	37.5	5.3	-1.8	12.5
RM 5000 & above	22	47.8	3.3	1.6	5.0
Income based on quartiles					
1 st quartile	391	54.0	3.5	2.9	4.0
2 nd quartile	234	50.0	3.9	3.2	4.5
3 rd quartile	315	54.9	4.0	3.3	4.6
4 th quartile	230	50.1	3.1	2.7	3.5

Table 6: Sleeping problems, socio-demographics and mean days affected

Variable	Sleep				
	n	%	Mean days	95% CI	
				Lower	Upper
Gender					
Male	639	23.1	2.9	2.6	3.3
Female	749	24.1	2.9	2.6	3.1
Residence					
Urban	660	22.2	3.0	2.7	3.3
Rural	728	25.5	2.8	2.6	3.1
Specific age group					
<5 years	81	27.5	2.3	1.8	2.7
5 years	44	22.1	2.2	1.6	2.7
6 years	45	19.0	2.3	1.7	2.9
12 years	8	11.5	1.9	1.2	2.5
16 years	33	23.3	2.5	1.2	3.8
Age group (by 5)					
0-4	86	27.7	2.3	1.8	2.7
5-9	187	19.1	2.2	2.0	2.5
10-14	99	17.9	2.3	1.8	2.8
15-19	165	25.7	2.9	2.3	3.5
20-24	143	27.3	2.9	2.2	3.5
25-29	108	26.5	3.6	2.7	4.5
30-34	120	27.1	3.0	2.5	3.5
35-39	118	27.1	2.7	1.9	3.5
40-44	110	26.2	3.1	2.5	3.8
45-49	77	22.3	2.6	1.9	3.3
50-54	67	21.3	3.5	2.7	4.3
55-59	49	22.3	4.1	2.3	5.9
60-64	29	24.0	2.8	1.4	4.2
65-69	12	16.2	5.3	-0.8	11.4
70-74	9	21.5	5.0	-0.1	10.1
75-79	5	19.2	10.3	-27.7	48.4
80+	3	18.3	1.5	-4.9	7.9
Age group for oral health					
Toddler (0-4)	86	27.7	2.3	1.8	2.7
Preschool (5-6)	91	20.2	2.3	1.9	2.7
Primary (7-12)	145	17.5	2.2	1.9	2.5
Secondary (13-17)	154	23.5	2.6	2.0	3.2
Young adults (18-29)	312	26.5	3.2	2.8	3.7
Middle-aged (35-44)	228	26.7	2.9	2.4	3.4
Elderly (60+)	58	20.8	4.1	2.3	6.0
Elderly(65+)	29	18.4	5.7	2.3	9.1
Elderly (70+)	17	20.2	5.6	1.3	9.9
Elderly (75+)	8	18.8	2.9	2.7	3.1

Table 6: Sleeping problems, socio-demographics and mean days affected (continue)

Variable	Sleep				
	n	%	Mean days	95% CI	
				Lower	Upper
Race					
Malays	859	22.7	2.8	2.6	3.1
Chinese	99	15.5	3.1	2.0	4.1
Indian	95	23.0	3.2	2.6	3.8
Other Bumiputera	257	35.0	3.0	2.5	3.5
Others	78	32.0	2.7	2.2	3.3
Marital status					
Not married	370	24.4	3.1	2.6	3.6
Married	651	25.3	3.0	2.8	3.3
Divorcee	20	29.6	1.0	3.7	7.2
Widow/Widower	22	18.9	3.5	2.1	5.0
Citizenship					
Malaysian	1291	23.1	2.9	2.7	3.1
Non-Malaysian	97	36.1	3.0	2.4	3.6
Education level					
None	228	20.3	2.9	2.3	3.5
Primary	381	25.0	3.0	2.7	3.3
Secondary	549	25.0	3.1	2.8	3.5
Tertiary	67	19.9	2.5	1.9	3.1
Not Applicable	159	24.4	2.3	1.9	2.6
Unclassified	4	9.3	1.3	0.8	1.8
Occupation status					
Senior Official & Manager	9	15.9	3.2	0.4	6.0
Professionals	37	16.3	3.1	1.7	4.5
Technical & Associate	59	20.6	2.9	2.3	3.5
Clerical Workers	34	18.3	3.6	2.3	5.0
Service Workers & Shop	155	25.1	3.2	2.5	3.9
Skilled Agricultural & Fishery	96	29.5	3.2	2.5	3.9
Craft & Related Trade Workers	58	23.1	2.7	2.0	3.5
Plant & Machine Operator & Assembler	50	25.0	3.3	1.9	4.7
Elementary Occupations	59	30.9	4.0	2.0	5.9
Housewife	238	29.4	3.1	2.5	3.6
Unemployed	107	27.8	3.0	2.3	3.8
< 13 & Not schooling	153	18.0	2.2	1.9	2.6
< 13 & Primary school	9	11.0	2.6	0.7	4.5
Unclassified	164	22.3	2.8	2.2	3.3

Table 6: Sleeping problems, socio-demographics and mean days affected (continue)

Variable	Sleep				
	n	%	Mean days	95% CI	
				Lower	Upper
State					
Johor	133	24.2	3.6	2.6	4.5
Kedah	120	19.2	2.9	2.4	3.4
Kelantan	124	20.5	2.3	2.0	2.7
Melaka	42	26.8	3.5	2.4	4.7
N.Sembilan	64	27.6	2.4	1.9	2.9
Pahang	78	20.7	2.6	1.6	3.5
Pulau Pinang	32	14.6	3.7	1.6	5.8
Perak	44	17.3	4.1	1.9	6.4
Perlis	7	15.4	12.3	-9.1	33.8
Selangor	182	20.8	3.1	2.6	3.5
Terengganu	79	24.2	2.3	1.4	3.2
Sabah	281	38.2	2.7	2.4	3.0
Sarawak	120	26.6	3.2	2.1	4.3
FT KL	45	19.9	2.4	1.6	3.1
FT Labuan	37	35.2	2.1	1.8	2.5
Sabah + FT Labuan	318	37.8	2.6	2.3	3.0
Individual income (NHMS III classification)					
Less than RM 400	134	29.2	3.0	2.3	3.8
RM 400 - RM 699	129	26.5	3.1	2.4	3.7
RM 700 - RM 999	94	25.9	3.4	2.6	4.3
RM 1000 - RM 1999	113	20.0	3.9	2.7	5.0
RM 2000 - RM 2999	38	16.5	3.1	2.2	4.0
RM 3000 - RM 3999	14	18.7	2.4	1.8	3.0
RM 4000 - RM 4999	3	13.7	NA	NA	NA
RM 5000 & above	4	9.3	3.3	-4.7	11.3
Individual income by EPU classification					
Less than RM 500	156	29.0	1.7	1.7	1.7
RM 500 - RM 999	201	26.1	1.7	1.7	1.8
RM 1000 - RM 1499	75	20.3	1.8	1.8	1.8
RM 1500 - RM 1999	38	19.5	1.8	1.8	1.9
RM 2000 - RM 2499	25	15.5	1.8	1.8	1.9
RM 2500 - RM 2999	13	18.9	1.8	1.7	1.9
RM 3000 - RM 3499	10	18.6	1.8	1.7	1.9
RM 3500 - RM 3999	4	19.0	1.8	1.6	2.0
RM 4000 - RM 4499	3	23.4	1.8	1.5	2.0
RM 4500 - RM 4999	NA	NA	NA	NA	NA
RM 5000 & above	4	9.3	1.9	1.8	2.0
Income based on quartiles					
1 st quartile	206	27.5	3.2	2.6	3.9
2 nd quartile	120	25.3	3.1	2.3	3.9
3 rd quartile	130	22.8	3.9	2.9	4.9
4 th quartile	73	15.8	2.8	2.3	3.3

Table 7: Appearance by socio-demographics and mean days affected

Variable	Appearance				
	n	%	Mean days	95% CI	
				Lower	Upper
Gender					
Male	342	12.5	3.0	2.7	3.4
Female	422	13.6	3.3	3.0	3.6
Residence					
Urban	359	12.2	3.4	3.0	3.9
Rural	405	14.3	3.0	2.7	3.3
Specific age group					
<5 years	43	14.5	3.5	2.2	4.8
5 years	28	14.3	2.6	1.8	3.3
6 years	29	11.9	2.5	1.7	3.3
12 years	9	12.1	2.8	0.5	5.2
16 years	14	10.1	2.8	1.3	4.4
Age group (by 5)					
0-4	43	13.8	3.5	2.2	4.8
5-9	123	12.7	2.7	2.3	3.1
10-14	68	12.0	3.2	2.6	3.9
15-19	79	12.8	3.3	2.2	4.4
20-24	69	13.1	2.9	2.3	3.4
25-29	52	13.2	3.7	2.9	4.6
30-34	57	12.5	3.1	2.2	4.1
35-39	56	12.8	2.6	1.8	3.5
40-44	65	15.4	2.7	2.2	3.2
45-49	43	12.6	2.8	2.0	3.6
50-54	48	15.4	4.0	2.4	5.5
55-59	33	15.7	4.6	2.6	6.6
60-64	11	9.3	2.6	1.4	3.8
65-69	9	14.0	4.0	-8.9	16.9
70-74	2	5.6	NA	NA	NA
75-79	4	16.0	2.5	-16.6	21.6
80+	2	12.4	NA	NA	NA
Age group for oral health					
Toddler (0-4)	266	13.8	3.5	2.2	4.8
Preschool (5-6)	375	13.3	2.6	2.1	3.0
Primary (7-12)	705	11.9	2.8	2.3	3.3
Secondary (13-17)	545	12.0	3.5	2.5	4.5
Young adults (18-29)	1005	13.4	3.3	2.8	3.8
Middle-aged (35-44)	720	14.1	2.7	2.2	3.1
Elderly (60+)	240	10.8	3.6	1.4	5.9
Elderly (65+)	17	11.8	4.9	1.1	8.7
Elderly (70+)	8	10.1	5.8	0.3	11.2
Elderly (75+)	6	14.7	2.4	1.0	3.9
Race					
Malays	503	13.4	3.2	2.9	3.5
Chinese	39	6.1	2.4	1.6	3.2
Indian	64	15.7	3.1	2.4	3.8
Other Bumiputera	120	16.4	3.3	2.6	4.0
Others	38	15.5	3.3	2.3	4.2

Table 7: Appearance by socio-demographics and mean days affected (continue)

Variable	Appearance				
	n	%	Mean days	95% CI	
				Lower	Upper
Marital status					
Not married	189	12.8	3.3	2.8	3.9
Married	343	13.4	3.2	2.8	3.6
Divorcee	14	22.3	3.8	1.1	6.5
Widow/Widower	13	11.5	4.7	1.6	7.8
Citizenship					
Malaysian	715	12.9	3.2	2.9	3.4
Non-Malaysian	49	18.1	3.2	2.5	4.0
Education level					
None	141	12.7	3.0	2.5	3.5
Primary	212	14.0	3.6	3.0	4.2
Secondary	270	12.4	3.1	2.7	3.5
Tertiary	45	14.0	2.8	2.1	3.5
Not Applicable	93	14.2	3.0	2.3	3.7
Unclassified	3	7.5	2.0	2.0	2.0
Occupation status					
Senior Official & Manager	5	10.0	3.0	-22.4	28.4
Professionals	30	13.4	3.5	2.1	4.9
Technical & Associate	30	10.7	2.6	1.9	3.3
Clerical Workers	21	11.5	3.2	1.7	4.7
Service Workers & Shop	86	13.9	3.0	2.4	3.7
Skilled Agricultural & Fishery	50	15.5	3.2	2.5	4.0
Craft & Related Trade Workers	37	14.8	2.7	1.7	3.7
Plant & Machine Operator & Assembler	31	16.1	3.5	0.6	6.5
Elementary Occupations	24	12.7	2.3	1.3	3.3
Housewife	107	13.1	3.5	2.8	4.2
Unemployed	49	13.5	4.1	2.7	5.5
< 13 & Not schooling	103	12.2	2.8	2.3	3.3
< 13 & Primary school	6	7.1	3.3	1.1	5.5
Unclassified	92	12.5	3.7	2.8	4.6
State					
Johor	64	11.4	3.4	2.6	4.2
Kedah	89	14.3	3.1	2.5	3.8
Kelantan	91	15.0	2.7	2.2	3.2
Melaka	22	16.8	4.1	1.5	6.7
N.Sembilan	33	14.0	2.0	1.5	2.5
Pahang	42	11.2	3.6	2.0	5.2
Pulau Pinang	18	8.3	4.7	1.5	7.8
Perak	26	10.2	3.7	1.5	5.9
Perlis	13	28.2	4.2	-0.9	9.2
Selangor	129	14.8	3.4	2.6	4.2
Terengganu	34	10.4	5.0	1.1	8.9
Sabah	124	16.9	3.1	2.5	3.6
Sarawak	42	8.9	2.6	1.4	3.7
FT KL	20	8.9	2.0	0.9	3.1
FT Labuan	17	16.2	5.7	-0.8	12.1
Sabah + FT Labuan	141	16.8	3.3	2.6	3.9

Table 7: Appearance by socio-demographics and mean days affected (continue)

Variable	Appearance				
	n	%	Mean days	95% CI Lower	95% CI Upper
Individual income (NHMS III classification)					
Less than RM 400	70	15.5	2.6	2.1	3.0
RM 400 - RM 699	72	15.1	3.4	2.4	4.3
RM 700 - RM 999	49	13.2	2.8	1.7	3.9
RM 1000 - RM 1999	76	13.7	2.9	2.3	3.5
RM 2000 - RM 2999	18	8.2	3.6	2.4	4.8
RM 3000 - RM 3999	10	13.8	2.1	1.3	3.0
RM 4000 - RM 4999	1	5.2	NA	NA	NA
RM 5000 & above	5	11.1	2.8	-1.8	7.3
Individual income by EPU classification					
Less than RM 500	79	14.8	2.6	2.2	3.0
RM 500 - RM 999	112	14.5	3.2	2.4	4.0
RM 1000 - RM 1499	47	12.9	3.3	2.5	4.2
RM 1500 - RM 1999	29	15.2	2.1	1.4	2.8
RM 2000 - RM 2499	13	8.3	3.6	2.1	5.2
RM 2500 - RM 2999	5	7.9	3.5	-0.3	7.3
RM 3000 - RM 3499	7	13.1	2.3	1.5	3.2
RM 3500 - RM 3999	3	15.6	NA	NA	NA
RM 4000 - RM 4499	0	0.0	NA	NA	NA
RM 4500 - RM 4999	1	12.5	NA	NA	NA
RM 5000 & above	5	11.1	2.8	-1.8	7.3
Income based on quartiles					
1 st quartile	113	15.3	2.8	2.4	3.2
2 nd quartile	59	12.6	3.3	2.1	4.5
3 rd quartile	85	14.8	2.9	2.3	3.5
4 th quartile	44	10.0	2.6	2.0	3.2

Table 8: Speech problem by socio-demographics and mean days affected

Variable	Speech				
	n	%	Mean days	95% CI	
				Lower	Upper
Gender					
Male	263	9.8	3.1	2.5	3.8
Female	452	14.7	3.2	2.9	3.5
Residence					
Urban	337	11.5	3.3	2.8	3.9
Rural	378	13.4	3.1	2.7	3.4
Specific age group					
<5 years	32	10.9	3.6	1.8	5.3
5 years	17	9.0	1.7	1.0	2.3
6 years	21	9.0	2.2	1.4	3.1
12 years	5	7.4	3.5	1.5	5.6
16 years	18	13.5	2.5	1.4	3.6
Unclassified	622	12.9	3.2	2.9	3.5
Age group (by 5)					
0-4	34	11.0	3.5	1.9	5.0
5-9	95	10.1	2.3	1.9	2.8
10-14	50	9.2	2.7	2.0	3.4
15-19	84	13.8	3.3	2.3	4.2
20-24	68	13.1	2.8	2.2	3.3
25-29	53	13.1	3.7	2.8	4.7
30-34	60	13.7	3.1	2.4	3.8
35-39	57	13.4	2.6	1.9	3.4
40-44	50	12.0	3.0	2.3	3.8
45-49	47	13.4	4.1	1.6	6.7
50-54	45	14.6	4.7	2.6	6.8
55-59	35	16.1	3.2	1.7	4.6
60-64	16	13.9	2.3	1.0	3.6
65-69	12	17.1	2.0	0.8	3.2
70-74	6	14.3	6.3	-10.6	23.2
75-79	1	4.0	NA	NA	NA
80+	2	12.5	NA	NA	NA
Age group for oral health					
Toddler (0-4)	34	11.0	3.5	1.9	5.0
Preschool (5-6)	39	9.0	2.1	1.5	2.7
Primary (7-12)	75	9.3	2.6	2.1	3.2
Secondary (13-17)	76	12.2	2.7	1.8	3.5
Young adults (18-29)	160	13.8	3.4	2.9	4.0
Middle-aged (35-44)	107	12.7	2.8	2.3	3.4
Elderly (60+)	37	13.8	2.8	1.4	4.3
Elderly (65+)	21	13.9	3.6	0.7	6.5
Elderly(70+)	9	11.2	5.5	< 0.0	11.1
Elderly (75+)	3	7.0	2.0	2.0	2.0
Race					
Malays	474	12.6	3.5	3.0	4.0
Chinese	44	6.9	2.0	1.5	2.6
Indian	54	13.1	3.2	2.5	3.9
Other Bumiputera	107	14.9	2.4	2.0	2.7
Others	36	15.1	3.0	2.1	4.0

Table 8: Speech problem by socio-demographics and mean days affected (continue)

Variable	Speech				
	n	%	Mean days	95% CI	
				Lower	Upper
Marital status					
Not married	197	13.4	3.2	2.6	3.7
Married	345	13.6	3.4	2.9	3.8
Divorcee	8	12.7	2.8	0.6	5.1
Widow/Widower	15	12.5	2.9	1.4	4.4
Citizenship					
Malaysian	679	12.4	3.2	2.9	3.5
Non-Malaysian	35	13.4	2.9	2.1	3.8
Education level					
None	123	11.3	2.7	2.3	3.1
Primary	205	13.7	3.3	2.7	3.8
Secondary	275	12.8	3.3	2.8	3.7
Tertiary	43	12.7	3.5	1.5	5.5
Not Applicable	65	10.1	2.8	2.0	3.7
Occupation status					
Senior Official & Manager	8	15.7	3.0	-2.0	8.0
Professionals	25	10.9	3.7	2.0	5.3
Technical & Associate	40	13.8	2.4	1.6	3.1
Clerical Workers	20	11.0	3.2	1.9	4.5
Service Workers & Shop	75	12.4	3.4	2.7	4.1
Skilled Agricultural & Fishery	41	12.7	3.0	2.0	4.0
Craft & Related Trade Workers	40	16.1	2.7	1.9	3.5
Plant & Machine Operator & Assembler	21	10.9	3.3	1.7	4.9
Elementary Occupations	21	11.0	1.8	1.3	2.4
Housewife	123	15.2	3.3	2.7	3.9
Unemployed	53	14.1	4.2	2.4	6.1
< 13 & Not schooling	78	9.5	2.4	1.9	3.0
< 13 & Primary school	5	6.3	4.0	-2.6	10.6
Unclassified	100	14.0	3.5	2.4	4.6
State					
Johor	88	15.8	3.4	2.3	4.5
Kedah	77	12.5	3.3	2.6	4.0
Kelantan	69	11.4	2.7	2.1	3.3
Melaka	15	9.9	2.6	1.0	4.2
N.Sembilan	24	10.4	2.7	1.8	3.6
Pahang	50	13.3	4.1	2.7	5.6
Pulau Pinang	21	9.7	3.6	1.2	5.9
Perak	21	8.2	3.3	1.1	5.5
Perlis	3	6.5	NA	NA	NA
Selangor	109	12.5	4.0	2.8	5.1
Terengganu	38	11.8	4.2	0.5	7.8
Sabah	115	15.8	2.4	2.1	2.8
Sarawak	49	10.9	2.6	1.8	3.5
FT KL	23	10.2	2.1	1.0	3.2
FT Labuan	13	12.3	2.1	1.5	2.7
Sabah + FT Labuan	128	15.2	2.3	2.0	2.7

Table 8: Speech problem by socio-demographics and mean days affected (continue)

Variables	Speech				
	n	%	Mean days	95% CI	
				Lower	Upper
Individual income (NHMS III classification)					
Less than RM 400	66	14.7	2.9	2.2	3.6
RM 400 - RM 699	77	16.3	3.3	2.5	4.0
RM 700 - RM 999	44	11.9	4.6	2.3	6.9
RM 1000 - RM 1999	58	10.5	3.0	2.3	3.8
RM 2000 - RM 2999	31	13.6	2.3	1.8	2.8
RM 3000 - RM 3999	7	9.2	2.8	2.0	3.6
RM 4000 - RM 4999	3	15.0	NA	NA	NA
RM 5000 & above	1	2.2	NA	NA	NA
Individual income by EPU classification					
Less than RM 500	77	14.6	2.9	2.2	3.5
RM 500 - RM 999	110	14.4	3.8	2.8	4.8
RM 1000 - RM 1499	39	10.7	3.3	2.4	4.1
RM 1500 - RM 1999	19	9.9	2.3	0.3	4.3
RM 2000 - RM 2499	18	11.2	2.0	1.4	2.6
RM 2500 - RM 2999	13	19.4	2.7	1.7	3.6
RM 3000 - RM 3499	7	12.7	2.8	2.0	3.6
RM 3500 - RM 3999	0	0.0	NA	NA	NA
RM 4000 - RM 4499	2	16.7	NA	NA	NA
RM 4500 - RM 4999	1	12.5	NA	NA	NA
RM 5000 & above	1	2.2	NA	NA	NA
Income based on quartiles					
1 st quartile	109	14.9	2.9	2.4	3.4
2 nd quartile	66	14.1	3.7	2.6	4.8
3 rd quartile	63	10.9	4.1	2.4	5.8
4 th quartile	49	10.5	2.2	1.9	2.6

Table 9: Socialising problems by socio-demographics and mean days affected

Variable	Socialising				
	n	%	Mean	95% CI	
				Lower	Upper
Gender					
Male	204	7.4	3.4	2.6	4.3
Female	279	9.0	2.9	2.5	3.4
Residence					
Urban	219	7.4	3.3	2.5	4.0
Rural	264	9.4	3.0	2.5	3.5
Specific age group					
<5 years	26	9.0	NA	NA	NA
5 years	14	7.2	NA	NA	NA
6 years	24	9.9	2.4	-0.8	5.6
12 years	3	4.0	3.7	0.8	6.5
16 years	11	7.8	1.6	0.9	2.3
Unclassified	405	8.2	3.2	2.7	3.6
Age group (by 5)					
0-4	26	8.6	NA	NA	NA
5-9	85	8.7	2.5	1.7	3.3
10-14	34	6.0	2.5	1.9	3.1
15-19	57	9.1	3.1	1.6	4.5
20-24	49	9.4	2.6	1.9	3.4
25-29	38	9.3	3.5	2.3	4.8
30-34	31	6.7	3.0	1.9	4.1
35-39	36	8.3	2.7	1.6	3.7
40-44	37	8.8	3.1	2.1	4.1
45-49	33	9.5	2.9	1.5	4.2
50-54	22	7.0	5.3	1.6	8.9
55-59	23	10.6	4.3	-0.4	9.0
60-64	4	3.0	2.0	-0.5	4.5
65-69	4	5.8	NA	NA	NA
70-74	3	8.1	NA	NA	NA
80+	1	6.1	NA	NA	NA
Age group for oral health					
Toddler (0-4)	26	8.6	-	-	-
Preschool (5-6)	39	8.7	3.2	< 0.1	6.3
Primary (7-12)	65	7.8	2.3	1.8	2.9
Secondary (13-17)	45	6.9	3.0	1.3	4.8
Young adults (18-29)	114	9.8	3.0	2.4	3.7
Middle-aged (35-44)	73	8.5	2.9	2.2	3.6
Elderly (60+)	12	4.4	4.5	-0.6	9.6
Elderly (65+)	8	5.5	7.6	1.4	13.8
Elderly (70+)	4	5.2	8.7	0.5	17.0
Elderly (75+)	1	2.2	2.0	2.0	2.0
Race					
Malays	313	8.3	3.2	2.7	3.8
Chinese	23	3.7	4.3	-1.7	10.3
Indian	34	8.3	3.2	2.0	4.3
Other Bumiputera	88	12.1	2.4	2.0	2.7
Others	25	10.6	3.9	2.5	5.4

Table 9: Socialising problems by socio-demographics and mean days affected (continue)

Variables	Socialising				
	n	%	Mean	95% CI	
				Lower	Upper
Marital status					
Not married	128	8.6	3.2	2.4	4.0
Married	210	8.2	3.3	2.6	4.0
Divorcee	8	11.5	2.9	0.9	4.8
Widow/Widower	3	2.5	4.5	-27.3	36.3
Citizenship					
Malaysian	459	8.2	3.1	2.7	3.6
Non-Malaysian	24	9.2	3.1	1.9	4.4
Education level					
None	89	7.9	3.0	1.8	4.2
Primary	123	8.1	3.0	2.4	3.7
Secondary	186	8.4	3.2	2.6	3.8
Tertiary	29	9.0	3.7	0.6	6.8
Not Applicable	55	8.6	NA	NA	NA
Unclassified	1	2.9	NA	NA	NA
Occupation status					
Senior Official & Manager	3	5.1	5.0	5.0	5.0
Professionals	15	6.8	3.0	-0.7	6.7
Technical & Associate	21	7.2	2.8	1.7	3.9
Clerical Workers	10	5.5	3.2	0.7	5.6
Service Workers & Shop	54	8.6	3.5	2.3	4.6
Skilled Agricultural & Fishery	26	7.9	2.7	1.9	3.5
Craft & Related Trade Workers	22	8.5	3.5	2.0	5.0
Plant & Machine Operator & Assembler	18	9.2	2.5	1.2	3.8
Elementary Occupations	15	8.1	4.0	-2.1	10.1
Housewife	75	9.2	2.9	2.2	3.5
Unemployed	33	8.9	4.7	1.8	7.6
< 13 & Not schooling	72	8.4	2.4	1.8	3.1
< 13 & Primary school	3	3.7	3.0	3.0	3.0
Unclassified	61	8.5	2.9	1.9	3.8
State					
Johor	57	10.1	3.5	2.3	4.6
Kedah	66	10.4	2.8	2.2	3.4
Kelantan	41	6.8	2.3	1.6	3.1
Melaka	15	10.5	2.2	0.9	3.5
N.Sembilan	16	6.8	2.7	1.9	3.4
Pahang	30	8.0	1.8	2.3	7.1
Pulau Pinang	12	5.5	4.6	-2.1	11.3
Perak	13	5.1	7.1	-1.2	15.5
Perlis	4	8.7	0.0	0.0	0.0
Selangor	58	6.9	4.0	2.0	6.0
Terengganu	25	7.5	4.5	-1.3	10.3
Sabah	78	10.7	2.3	1.8	2.7
Sarawak	40	8.6	2.4	1.5	3.3
FT KL	12	5.3	2.0	-0.6	4.6
FT Labuan	16	15.1	2.5	1.2	3.8
Sabah + FT Labuan	94	11.3	2.3	1.9	2.7

Table 9: Socialising problems by socio-demographics and mean days affected (continue)

Variable	Socialising				
	n	%	Mean	95% CI	
				Lower	Upper
Individual income (NHMS III classification)					
Less than RM 400	45	9.9	2.7	1.7	3.8
RM 400 - RM 699	46	9.6	3.2	2.2	4.3
RM 700 - RM 999	28	7.5	3.3	1.4	5.1
RM 1000 - RM 1999	37	6.8	4.1	1.7	6.5
RM 2000 - RM 2999	14	6.0	2.9	1.6	4.2
RM 3000 - RM 3999	5	6.7	2.5	-3.9	8.9
RM 4000 - RM 4999	1	3.8	NA	NA	NA
RM 5000 & above	NA	NA	NA	NA	NA
Individual income by EPU classification					
Less than RM 500	49	9.1	2.8	1.8	3.8
RM 500 - RM 999	70	9.0	3.3	2.3	4.2
RM 1000 - RM 1499	28	7.8	4.6	1.6	7.7
RM 1500 - RM 1999	9	5.1	2.4	-0.8	5.6
RM 2000 - RM 2499	10	6.2	3.4	1.3	5.5
RM 2500 - RM 2999	4	5.4	2.0	-0.5	4.5
RM 3000 - RM 3499	4	7.3	2.5	-3.9	8.9
RM 3500 - RM 3999	1	5.1	NA	NA	NA
RM 4000 - RM 4499	1	6.5	NA	NA	NA
RM 5000 & above	NA	NA	NA	NA	NA
Income based on quartiles					
1 st quartile	70	9.4	2.8	2.1	3.5
2 nd quartile	45	9.6	3.6	2.2	5.0
3 rd quartile	37	6.6	4.7	1.9	7.4
4 th quartile	24	5.2	2.4	1.6	3.2

Table 10: Household chores by socio-demographics and mean days affected

Variable	Household chores				
	n	%	Mean days	95% CI	
				Lower	Upper
Gender					
Male	119	4.4	3.4	2.3	4.4
Female	278	8.9	3.3	2.8	3.8
Residence					
Urban	191	6.4	3.6	2.8	4.3
Rural	206	7.3	3.1	2.6	3.6
Specific age group					
<5 years	NA	NA	NA	NA	NA
5 years	NA	NA	NA	NA	NA
6 years	NA	NA	NA	NA	NA
12 years	NA	NA	NA	NA	NA
16 years	14	10.2	3.3	0.1	6.6
Unclassified	383	7.8	3.3	2.8	3.8
Age group (by 5)					
0-4	NA	NA	NA	NA	NA
5-9	NA	NA	NA	NA	NA
10-14	15	2.7	2.1	1.0	3.3
15-19	61	9.6	3.4	2.0	4.7
20-24	42	8.0	3.3	2.3	4.2
25-29	39	9.6	3.6	2.5	4.6
30-34	49	10.6	3.4	2.4	4.4
35-39	39	9.0	2.2	1.6	2.8
40-44	37	8.9	3.7	2.0	5.4
45-49	41	12.0	2.6	1.6	3.6
50-54	32	10.2	3.4	2.0	4.8
55-59	22	10.3	3.1	0.3	5.9
60-64	9	7.1	3.0	0.9	5.1
65-69	4	6.0	11.7	-23.5	46.8
70-74	4	9.4	8.0	-68.2	84.2
75-79	NA	NA	NA	NA	NA
80+	2	12.1	1.5	-4.9	7.9
Age group for oral health					
Toddler (0-4)	NA	NA	NA	NA	NA
Preschool (5-6)	NA	NA	NA	NA	NA
Primary (7-12)	NA	NA	NA	NA	NA
Secondary (13-17)	56	8.6	3.2	1.8	4.6
Young adults (18-29)	101	8.6	3.4	2.7	4.0
Middle-aged (35-44)	76	9.0	3.0	2.1	3.9
Elderly(60+)	19	6.8	5.5	1.0	10.1
Elderly (65+)	10	6.5	8.8	0.9	16.8
Elderly(70+)	6	7.0	5.4	-0.5	11.3
Elderly(75+)	2	4.4	1.5	0.8	2.2
Race					
Malays	242	6.5	3.1	2.5	3.6
Chinese	28	4.4	4.5	1.0	8.0
Indian	26	6.4	3.3	2.2	4.3
Other Bumiputera	77	10.7	3.4	2.4	4.4
Others	24	9.7	3.8	2.6	4.9

Table 10: Household chores by socio-demographics and mean days affected (continue)

Household chores					
Variable	n	%	Mean days	95% CI	
				Lower	Upper
Marital status					
Not married	122	8.1	3.3	2.4	4.1
Married	262	10.2	3.3	2.8	3.9
Divorcee	8	11.7	3.4	1.8	5.0
Widow/Widower	4	3.5	2.0	-0.5	4.5
Citizenship					
Malaysian	366	6.6	3.3	2.8	3.8
Non-Malaysian	31	11.8	3.3	2.4	4.1
Education level					
None	29	2.6	2.8	1.7	3.9
Primary	148	9.8	3.5	2.7	4.3
Secondary	193	8.8	3.3	2.6	3.9
Tertiary	25	7.7	3.1	1.8	4.3
Not Applicable	NA	NA	NA	NA	NA
Unclassified	2	5.1	NA	NA	NA
Occupation status					
Senior Official & Manager	7	12.7	2.5	-0.6	5.6
Professionals	8	3.6	4.0	-3.0	11.0
Technical & Associate	17	6.0	3.0	1.7	4.3
Clerical Workers	11	6.1	3.0	0.1	5.9
Service Workers & Shop	59	9.5	3.5	2.6	4.5
Skilled Agricultural & Fishery	27	8.4	2.9	2.0	3.8
Craft & Related Trade Workers	20	8.1	2.3	1.1	3.4
Plant & Machine Operator & Assembler	16	8.6	7.4	-7.0	21.8
Elementary Occupations	15	7.8	2.3	0.8	3.8
Housewife	121	14.7	3.5	2.7	4.3
Unemployed	38	9.4	3.1	1.4	4.7
< 13 & Not schooling	NA	NA	NA	NA	NA
< 13 & Primary school	NA	NA	NA	NA	NA
Unclassified	58	8.1	3.2	2.0	4.5
State					
Johor	34	6.1	3.6	2.2	4.9
Kedah	49	7.8	2.5	1.9	3.1
Kelantan	28	4.7	2.6	1.6	3.6
Melaka	9	6.1	2.4	1.7	3.1
N.Sembilan	16	7.1	1.9	1.2	2.5
Pahang	21	5.6	4.1	1.2	7.1
Pulau Pinang	12	5.5	5.7	0.6	10.7
Perak	14	5.5	2.3	1.9	2.6
Perlis	5	11.3	15.0	-150.2	180.2
Selangor	60	7.0	3.7	2.6	4.8
Terengganu	13	3.8	4.3	-2.6	11.1
Sabah	73	10.0	3.0	2.3	3.6
Sarawak	40	8.7	4.8	1.4	8.3
FT KL	10	4.4	1.3	0.5	2.1
FT Labuan	13	12.3	2.7	1.8	3.5
Sabah + FT Labuan	86	10.3	2.9	2.4	3.5

Table 10: Household chores by socio-demographics and mean days affected (continue)

Household chores					
Variable	n	%	Mean n days	95% CI	
				Lower	Upper
Individual income (NHMS III classification)					
Less than RM 400	52	11.6	2.9	2.0	3.9
RM 400 - RM 699	42	8.9	3.6	2.4	4.8
RM 700 - RM 999	25	7.0	5.1	1.1	9.1
RM 1000 - RM 1999	33	6.2	3.0	2.1	3.9
RM 2000 - RM 2999	10	4.1	2.2	0.8	3.6
RM 3000 - RM 3999	5	6.7	2.8	2.0	3.6
RM 4000 - RM 4999	1	3.8	NA	NA	NA
RM 5000 & above	2	4.7	4.0	-34.1	42.1
Individual income by EPU classification					
Less than RM 500	60	11.5	2.9	2.1	3.7
RM 500 - RM 999	59	7.8	4.4	2.6	6.2
RM 1000 - RM 1499	23	6.4	3.5	2.3	4.6
RM 1500 - RM 1999	10	5.8	1.8	1.0	2.6
RM 2000 - RM 2499	7	4.1	2.3	-0.1	4.6
RM 2500 - RM 2999	3	4.2	2.0	-10.7	14.7
RM 3000 - RM 3499	4	7.7	2.7	1.2	4.1
RM 3500 - RM 3999	1	3.9	NA	NA	NA
RM 4000 - RM 4499	1	6.5	NA	NA	NA
RM 4500 - RM 4999	NA	NA	NA	NA	NA
RM 5000 & above	2	4.7	4.0	-34.1	42.1
Income based on quartiles					
1 st quartile	75	10.4	2.9	2.3	3.6
2 nd quartile	38	8.1	5.3	2.5	8.2
3 rd quartile	37	6.6	2.9	2.1	3.6
4 th quartile	21	4.6	2.7	1.7	3.7

Table 11: Working problems by socio-demographics and mean days affected

Variable	Working				
	n	%	Mean days	95% CI	
				Lower	Upper
Gender					
Male	185	6.8	2.8	2.4	3.2
Female	154	5.0	2.9	2.4	3.5
Specific age group					
<5 years	NA	NA	NA	NA	NA
5 years	NA	NA	NA	NA	NA
6 years	NA	NA	NA	NA	NA
12 years	NA	NA	NA	NA	NA
16 years	2	1.8	NA	NA	NA
Unclassified	337	6.9	NA	NA	NA
Age group (by 5)					
0-4	NA	NA	NA	NA	NA
5-9	NA	NA	NA	NA	NA
10-14	2	0.3	NA	NA	NA
15-19	25	4.1	2.3	1.3	3.3
20-24	54	10.1	2.4	1.7	3.0
25-29	48	12.0	3.1	2.4	3.8
30-34	37	8.2	2.5	1.4	3.5
35-39	38	8.7	2.5	1.9	3.2
40-44	38	8.8	3.4	2.3	4.4
45-49	45	13.3	3.0	1.7	4.2
50-54	23	7.3	4.2	2.1	6.4
55-59	17	7.4	2.8	1.0	4.5
60-64	5	4.0	2.0	0.7	3.3
65-69	3	4.4	NA	NA	NA
70-74	2	5.4	NA	NA	NA
75-79	1	3.1	NA	NA	NA
80+	1	6.1	NA	NA	NA
Age group for oral health					
Toddler (0-4)	NA	NA	NA	NA	NA
Preschool (5-6)	NA	NA	NA	NA	NA
Primary (7-12)	NA	NA	NA	NA	NA
Secondary (13-17)	8	1.3	2.7	-0.2	5.5
Young adults (18-29)	121	10.3	2.6	2.2	3.1
Middle-aged (35-44)	76	8.8	2.9	2.3	3.5
Elderly (60+)	12	4.4	2.0	1.2	2.8
Elderly (65+)	7	4.6	2.0	1.1	2.9
Elderly (70+)	4	4.8	1.5	0.8	2.2
Elderly (75+)	2	4.2	1.5	0.8	2.2
Race					
Malays	208	5.6	2.7	2.3	3.1
Chinese	25	3.9	3.5	1.2	5.8
Indian	24	5.7	2.6	1.4	3.8
Other Bumiputera	55	7.8	2.9	2.2	3.5
Others	27	11.4	3.2	2.1	4.3

Table 11: Working problems by socio-demographics and mean days affected (continue)

Variable	Working				
	n	%	Mean days	95% CI	
				Lower	Upper
Marital status					
Not married	99	6.6	2.8	2.3	3.3
Married	226	8.9	2.8	2.4	3.3
Divorcee	8	12.1	3.6	1.3	5.9
Widow/Widower	3	2.1	1.5	-4.9	7.9
Citizenship					
Malaysian	309	5.6	2.7	2.4	3.0
Non-Malaysian	30	11.3	4.1	2.6	5.6
Education level					
None	14	1.3	3.2	0.7	5.7
Primary	117	7.5	3.0	2.5	3.5
Secondary	175	8.1	2.8	2.3	3.2
Tertiary	30	9.2	2.4	1.4	3.3
Not Applicable	0	0.0	0.0	0.0	0.0
Unclassified	3	7.9	NA	NA	NA
Occupation status					
Senior Official & Manager	5	9.5	3.0	-22.4	28.4
Professionals	15	6.7	3.9	0.4	7.4
Technical & Associate	33	11.7	2.3	1.4	3.2
Clerical Workers	16	8.6	2.6	0.9	4.2
Service Workers & Shop	80	12.8	3.0	2.3	3.6
Skilled Agricultural & Fishery	47	14.7	3.2	2.4	4.0
Craft & Related Trade Workers	41	16.1	2.6	1.8	3.4
Plant & Machine Operator & Assembler	35	18.2	3.3	2.1	4.5
Elementary Occupations	26	13.1	1.7	1.3	2.1
Housewife	22	2.7	3.3	-0.9	7.4
Unemployed	4	1.1	NA	NA	NA
< 13 & Not schooling	0	0.0	0.0	0.0	0.0
< 13 & Primary school	0	0.0	0.0	0.0	0.0
Unclassified	15	2.1	2.0	-0.5	4.5
State					
Johor	35	6.2	3.5	2.5	4.5
Kedah	47	7.5	3.2	2.3	4.0
Kelantan	24	4.0	2.7	1.5	3.8
Melaka	10	8.0	1.3	-0.1	2.8
N.Sembilan	6	2.6	2.0	-0.5	4.5
Pahang	15	4.0	2.7	0.3	5.0
Pulau Pinang	12	5.6	5.0	-0.2	10.2
Perak	18	6.7	2.5	1.3	3.6
Perlis	5	10.8	2.5	-3.9	8.9
Selangor	51	5.8	1.0	NA	NA
Terengganu	11	3.3	NA	NA	NA
Sabah	51	7.1	3.1	2.2	3.9
Sarawak	28	6.1	2.6	0.9	4.4
FT KL	11	4.9	1.8	1.0	2.6
FT Labuan	15	14.2	2.3	1.0	3.6
Sabah + FT Labuan	66	8.0	2.9	2.2	3.6

Table 11: Working problems by socio-demographics and mean days affected (continue)

Variable	Working				
	n	%	Mean days	95% CI	
				Lower	Upper
Individual income (NHMS III classification)					
Less than RM 400	70	15.3	2.9	2.3	3.5
RM 400 - RM 699	69	14.3	3.0	2.2	3.7
RM 700 - RM 999	53	14.5	2.6	1.5	3.8
RM 1000 - RM 1999	56	10.2	3.3	2.5	4.2
RM 2000 - RM 2999	23	10.1	2.5	1.7	3.3
RM 3000 - RM 3999	8	10.9	2.7	1.2	4.1
RM 4000 - RM 4999	1	3.8	NA	NA	NA
RM 5000 & above	2	4.7	NA	NA	NA
Individual income by EPU classification					
Less than RM 500	77	14.4	2.9	2.3	3.4
RM 500 - RM 999	115	14.9	2.9	2.2	3.5
RM 1000 - RM 1499	42	11.4	3.7	2.7	4.7
RM 1500 - RM 1999	14	8.0	2.3	0.2	4.3
RM 2000 - RM 2499	13	8.2	3.0	1.5	4.5
RM 2500 - RM 2999	10	14.6	2.0	0.9	3.1
RM 3000 - RM 3499	6	11.1	2.7	1.2	4.1
RM 3500 - RM 3999	2	10.3	NA	NA	NA
RM 4000 - RM 4499	1	6.5	NA	NA	NA
RM 4500 - RM 4999	NA	NA	NA	NA	NA
RM 5000 & above	2	4.7	NA	NA	NA
Income based on quartiles					
1 st quartile	107	14.4	3.0	2.4	3.5
2 nd quartile	73	15.5	2.7	1.9	3.5
3 rd quartile	63	10.9	3.4	2.7	4.2
4 th quartile	39	8.7	2.1	1.6	2.7

Table 12: Problems (study/school) by socio-demographics and mean days affected

Variable	Studies/Schooling				
	n	%	Mean Days	95% CI	
				Lower	Upper
Gender					
Male	113	4.1	2.8	2.0	3.5
Female	109	3.5	2.9	2.2	3.6
Residence					
Urban	109	3.6	2.9	2.1	3.6
Rural	113	4.0	2.8	2.2	3.5
Specific age group					
<5 years	3	1.1	NA	NA	NA
5 years	16	8.0	NA	NA	NA
6 years	13	5.3	1.4	0.7	2.1
12 years	7	9.3	1.8	0.8	2.9
16 years	18	13.0	2.8	0.3	5.4
Unclassified	165	3.4	NA	NA	NA
Age group (by 5)					
0-4	3	1.0	NA	NA	NA
5-9	87	9.0	2.4	1.8	2.9
10-14	63	11.5	2.6	1.9	3.2
15-19	44	7.0	3.5	2.0	5.1
20-24	10	2.0	3.8	-0.2	7.7
25-29	2	0.5	NA	NA	NA
30-34	3	0.6	NA	NA	NA
35-39	3	0.8	NA	NA	NA
40-44	3	0.7	NA	NA	NA
45-49	2	0.6	NA	NA	NA
50-54	1	0.3	NA	NA	NA
55-59	1	0.5	NA	NA	NA
60-64	NA	NA	NA	NA	NA
65-69	NA	NA	NA	NA	NA
70-74	NA	NA	NA	NA	NA
75-79	NA	NA	NA	NA	NA
80+	NA	NA	NA	NA	NA
Age group for oral health					
Toddler (0-4)	3	1.0	NA	NA	NA
Preschool (5-6)	30	6.6	2.0	0.4	3.6
Primary (7-12)	85	10.5	2.3	1.8	2.7
Secondary (13-17)	72	11.1	2.8	2.0	3.6
Young adults (18-29)	19	1.8	6.6	2.5	10.8
Middle-aged (35-44)	6	0.8	NA	NA	NA
Elderly (60+)	NA	NA	NA	NA	NA
Elderly (65+)	NA	NA	NA	NA	NA
Elderly (70+)	NA	NA	NA	NA	NA
Elderly (75+)	NA	NA	NA	NA	NA
Race					
Malays	131	3.5	2.5	1.8	3.3
Chinese	18	2.9	2.0	1.1	2.9
Indian	13	3.2	3.9	1.8	5.9
Other Bumiputera	51	6.9	3.3	2.3	4.4
Others	9	3.5	2.8	-0.2	5.8

Table 12: Problems (study/school) by socio-demographics and mean days affected (continue)

Variable	Studies/Schooling				
	n	%	Mean Days	95% CI	
				Lower	Upper
Marital status					
Not married	87	5.7	3.4	2.4	4.4
Married	16	0.7	4.7	-0.5	9.8
Divorcee	NA	NA	NA	NA	NA
Widow/Widower	NA	NA	NA	NA	NA
Citizenship					
Malaysian	219	3.9	2.9	2.3	3.4
Non-Malaysian	3	1.0	NA	NA	NA
Education level					
None	81	7.5	2.2	1.7	2.7
Primary	61	4.0	2.9	2.2	3.7
Secondary	44	2.0	4.0	2.0	5.9
Tertiary	9	2.5	3.7	-3.9	11.3
Not Applicable	26	3.9	NA	NA	NA
Unclassified	1	2.9	NA	NA	NA
Occupation status					
Senior Official & Manager	NA	NA	NA	NA	NA
Professionals	1	0.5	7.0	7.0	7.0
Technical & Associate	3	1.1	NA	NA	NA
Clerical Workers	2	1.2	4.0	4.0	4.0
Service Workers & Shop	3	0.5	NA	NA	NA
Skilled Agricultural & Fishery	NA	NA	NA	NA	NA
Craft & Related Trade Workers	NA	NA	NA	NA	NA
Plant & Machine Operator & Assembler	4	2.1	NA	NA	NA
Elementary Occupations	3	1.4	7.0	7.0	7.0
Housewife	1	0.2	NA	NA	NA
Unemployed	NA	NA	NA	NA	NA
< 13 & Not schooling	81	9.8	2.2	1.7	2.7
< 13 & Primary school	11	13.3	2.4	1.1	3.8
Unclassified	87	11.8	3.3	2.3	4.3

Table 12: Problems (study/school) by socio-demographics and mean days affected (continue)

Variable	Studies/Schooling				
	n	%	Mean Days	95% CI	
				Lower	Upper
State					
Johor	22	3.9	2.7	1.7	3.7
Kedah	14	2.3	1.7	1.0	2.4
Kelantan	24	3.9	1.5	1.0	2.0
Melaka	1	0.8	NA	NA	NA
N.Sembilan	5	2.2	NA	NA	NA
Pahang	17	4.5	4.4	0.1	8.7
Pulau Pinang	2	0.9	4.0	-34.1	42.1
Perak	3	1.1	2.5	-3.9	8.9
Perlis	4	8.7	NA	NA	NA
Selangor	29	3.4	3.8	1.8	5.8
Terengganu	17	5.4	2.1	0.1	4.2
Sabah	53	7.3	2.8	1.9	3.7
Sarawak	14	3.1	4.3	-0.8	9.3
FT KL	13	5.8	3.2	-0.1	6.5
FT Labuan	4	3.9	NA	NA	NA
Sabah + FT Labuan	57	6.8	2.7	1.9	3.4
Individual income (NHMS III classification)					
Less than RM 400	3	0.7	NA	NA	NA
RM 400 - RM 699	4	0.9	5.5	-13.6	24.6
RM 700 - RM 999	3	0.8	NA	NA	NA
RM 1000 - RM 1999	4	0.7	NA	NA	NA
RM 2000 - RM 2999	NA	NA	NA	NA	NA
RM 3000 - RM 3999	NA	NA	NA	NA	NA
RM 4000 - RM 4999	NA	NA	NA	NA	NA
RM 5000 & above	NA	NA	NA	NA	NA
Individual income by EPU classification					
Less than RM 500	3	0.6	NA	NA	NA
RM 500 - RM 999	7	0.9	5.5	-13.6	24.6
RM 1000 - RM 1499	2	0.6	NA	NA	NA
RM 1500 - RM 1999	2	1.1	NA	NA	NA
RM 2000 - RM 2499	NA	NA	NA	NA	NA
RM 2500 - RM 2999	NA	NA	NA	NA	NA
RM 3000 - RM 3499	NA	NA	NA	NA	NA
RM 3500 - RM 3999	NA	NA	NA	NA	NA
RM 4000 - RM 4499	NA	NA	NA	NA	NA
RM 4500 - RM 4999	NA	NA	NA	NA	NA
RM 5000 & above	NA	NA	NA	NA	NA
Income based on quartiles					
1 st quartile	5	0.7	NA	NA	NA
2 nd quartile	3	0.6	5.2	3.2	7.3
3 rd quartile	5	0.9	7.0	7.0	7.0
4 th quartile	1	0.2	NA	NA	NA

Table 13: Orofacial injuries by socio-demographics

Variable	Having orofacial injuries within the last one year				
	N	n	%	Yes	
				95% CI	
				Lower	Upper
All	55,139	808	1.5	1.3	1.6
Gender					
Male	25,883	561	2.2	2.0	2.3
Female	29,256	247	0.8	0.7	1.0
Residence					
Urban	31,853	443	1.4	1.3	1.5
Rural	23,286	365	1.6	1.4	1.8
Age group (by 5)					
0-4	5,851	184	3.1	2.7	3.6
5-9	6,570	156	2.4	2.0	2.8
10-14	6,117	97	1.6	1.3	1.9
15-19	4,591	95	2.1	1.7	2.6
20-24	3,761	74	2.0	1.6	2.5
25-29	3,641	48	1.3	1.0	1.8
30-34	3,502	22	0.6	0.4	1.0
35-39	3,572	34	0.9	0.7	1.3
40-44	3,799	24	0.7	0.4	1.0
45-49	3,468	18	0.5	0.3	0.9
50-54	3,017	12	0.4	0.2	0.7
55-59	2,451	12	0.5	0.3	0.9
60-64	1,631	11	0.6	0.3	1.1
65-69	1,406	7	0.5	0.2	1.0
70-74	878	6	0.7	0.3	1.4
75-79	480	6	1.3	0.6	2.9
80+	375	2	0.4	0.1	1.7
Race					
Malays	31,597	488	1.5	1.4	1.7
Chinese	9,981	92	0.9	0.8	1.2
Indian	4,296	93	2.1	1.7	2.6
Other Bumiputera	6,885	110	1.5	1.3	1.9
Others	2,380	25	1.1	0.7	1.5
Marital status					
Not married	12,084	239	2.0	1.7	2.2
Married	24,001	161	0.7	0.6	0.8
Divorcee	731	4	0.5	0.2	1.5
Widow/Widower	1,828	9	0.5	0.2	0.9
Citizenship					
Malaysian	52,376	787	1.5	1.4	1.6
Non-Malaysian	2,729	21	0.8	0.5	1.2
Education level					
None	10,937	166	1.5	1.3	1.8
Primary	14,632	160	1.1	0.9	1.3
Secondary	17,786	215	1.2	1.0	1.4
Tertiary	3,321	25	0.8	0.5	1.2
Unclassified	369	2	0.5	0.1	1.8

Table 13: Orofacial injuries by socio-demographics (continue)

Variable	Having orofacial injuries within the last one year				
	N	n	%	Yes	
				Lower	Upper
Occupation status					
Senior Official & Manager	639	5	0.8	0.3	1.9
Professionals	2,238	8	0.3	0.2	0.7
Technical & Associate	2,601	28	1.1	0.8	1.6
Clerical Workers	1,817	14	0.8	0.5	1.3
Service Workers & Shop	5,591	54	1.0	0.7	1.3
Skilled Agricultural & Fishery	2,648	31	1.2	0.8	1.6
Craft & Related Trade Workers	1,982	38	1.9	1.4	2.6
Plant & Machine Operator & Assembler	1,845	29	1.5	1.1	2.2
Elementary Occupations	1,597	16	1.1	0.6	1.8
Housewife	7,982	36	0.5	0.3	0.6
Unemployed	3,838	44	1.1	0.8	1.5
State					
Johor	6,122	77	1.2	1.0	1.6
Kedah	4,159	92	2.2	1.8	2.7
Kelantan	3,705	46	1.3	0.9	1.8
Melaka	1,363	28	2.1	1.2	3.5
N.Sembilan	1,996	24	1.2	0.8	1.7
Pahang	2,886	63	2.2	1.7	2.9
Pulau Pinang	2,920	30	1.0	0.7	1.5
Perak	4,071	35	0.8	0.6	1.2
Perlis	510	9	1.7	0.9	3.4
Selangor	9,270	136	1.5	1.2	1.7
Terengganu	2,484	52	2.1	1.5	3.0
Sabah	7,077	98	1.4	1.1	1.7
Sarawak	4,769	57	1.2	0.9	1.7
FT KL	2,915	32	1.1	0.8	1.6
FT Labuan	892	29	3.2	2.2	4.6
Individual income (NHMS III classification)					
Less than RM 400	4,575	58	1.3	1.0	1.6
RM 400 - RM 699	8,343	118	1.4	1.2	1.7
RM 700 - RM 999	6,380	88	1.4	1.1	1.7
RM 1000 - RM 1999	14,813	234	1.6	1.4	1.8
RM 2000 - RM 2999	8,315	135	1.6	1.4	1.9
RM 3000 - RM 3999	4,178	57	1.3	1.0	1.8
RM 4000 - RM 4999	2,004	26	1.3	0.9	1.9
RM 5000 & above	4,475	66	1.5	1.2	1.9
Individual income by EPU classification					
Less than RM 500	7,301	99	1.4	1.1	1.7
RM 500 - RM 999	11,997	165	1.4	1.2	1.6
RM 1000 - RM 1499	8,358	135	1.6	1.3	1.9
RM 1500 - RM 1999	6,455	99	1.5	1.2	1.8
RM 2000 - RM 2499	5,505	89	1.6	1.3	2.0
RM 2500 - RM 2999	2,810	46	1.7	1.2	2.2
RM 3000 - RM 3499	2,979	42	1.4	0.9	1.9
RM 3500 - RM 3999	1,199	15	1.2	0.7	2.1
RM 4000 - RM 4499	1,498	21	1.4	0.9	2.1
RM 4500 - RM 4999	506	5	1.0	0.3	2.7
RM 5000 & above	4,475	66	1.5	1.2	1.9

Table 14: Orofacial injuries at home and on the road by socio-demographics

Variable	Home				Road			
	n	%	95% CI		n	%	95% CI	
			Lower	Upper			Lower	Upper
All	386	11.0	9.9	12.1	330	14.9	13.4	16.5
Gender								
Male	232	60.4	55.3	65.2	255	77.0	71.9	81.4
Female	154	39.7	34.8	44.7	75	23.0	18.7	28.1
Residence								
Urban	207	59.0	56.7	61.2	177	59.6	57.3	61.8
Rural	179	41.0	38.8	43.3	153	40.4	38.2	42.7
Age group (by 5)								
0-4	167	43.3	38.3	48.5	20	5.8	3.7	9.0
5-9	88	22.9	18.9	27.4	37	10.8	7.9	14.7
10-14	37	9.4	6.8	12.8	42	12.7	9.5	16.7
15-19	18	4.7	3.0	7.4	71	21.2	17.0	26.2
20-24	12	3.2	1.8	5.6	57	17.2	13.4	21.8
25-29	11	2.8	1.5	4.9	24	7.4	4.9	10.8
30-34	5	1.2	0.5	3.0	10	3.5	1.9	6.4
35-39	10	2.5	1.3	4.6	16	5.0	3.1	8.0
40-44	4	1.2	0.4	3.1	16	4.9	3.1	7.9
45-49	8	2.2	1.1	4.4	9	3.0	1.5	5.6
50-54	5	1.4	0.6	3.3	6	2.0	0.9	4.5
55-59	5	1.3	0.5	3.1	6	1.9	0.8	4.2
60-64	5	1.2	0.5	2.8	6	1.7	0.7	3.6
65-69	3	0.8	0.3	2.5	4	1.1	0.4	3.0
70-74	3	0.7	0.2	2.2	3	0.9	0.3	2.8
75-79	3	0.8	0.3	2.6	3	1.0	0.3	3.0
80+	2	0.4	0.1	1.7	0	0.0	0.0	0.0
Race								
Malays	220	57.6	52.0	63.1	224	67.0	61.2	72.3
Chinese	44	12.7	9.5	16.9	34	11.4	8.1	15.9
Indian	40	11.2	8.3	14.9	38	12.3	8.9	16.8
Other Bumiputera	72	16.1	12.3	20.9	28	7.6	5.1	11.2
Others	10	2.3	1.2	4.3	6	1.7	0.8	3.8
Marital status								
Not married	52	13.2	10.2	17.0	162	48.8	43.3	54.3
Married	51	13.5	10.4	17.4	88	27.7	23.0	32.9
Divorcee	2	0.5	0.1	1.8	1	0.4	0.1	2.5
Widow/Widower	7	1.7	0.8	3.5	2	0.6	0.2	2.4
Not applicable	274	71.1	66.5	75.3	75	22.0	17.7	26.9
Unclassified	0	0.0	0.0	0.0	2	0.6	0.2	2.5
Citizenship								
Malaysian	379	98.3	96.5	99.2	325	98.7	96.7	99.5
Non-Malaysian	7	1.7	0.8	3.5	5	1.4	0.6	3.3
Education level								
None	77	42.1	35.4	49.1	48	15.5	11.8	20.1
Primary	46	25.8	19.9	32.7	92	31.0	25.8	36.7
Secondary	51	28.3	22.2	35.3	139	47.0	41.2	52.8
Tertiary	6	3.8	1.7	8.2	17	6.3	4.0	10.0
Unclassified	0	0.0	0.0	0.0	1	0.3	< 0.1	2.0

Table 14: Orofacial injuries at home and on the road by socio-demographics (continue)

Variable	Home				Road			
	n	%	95% CI		n	%	95% CI	
			Lower	Upper			Lower	Upper
All	386	11.0	9.9	12.1	330	14.9	13.4	16.5
Occupation status								
Senior Official & Manager	0	0.0	0.0	0.0	5	2.1	0.8	5.0
Professionals	1	0.9	0.1	6.0	6	2.4	1.1	5.3
Technical & Associate	7	6.9	3.3	13.9	19	8.0	5.1	12.1
Clerical Workers	3	2.6	0.8	8.0	11	4.5	2.5	7.9
Service Workers & Shop	9	8.2	4.3	15.2	36	14.1	10.3	19.1
Skilled Agricultural & Fishery	6	4.8	2.2	10.3	22	7.8	5.2	11.5
Craft & Related Trade Workers	4	3.6	1.3	9.2	24	9.5	6.4	13.8
Plant & Machine Operator & Assembler	3	2.4	0.8	7.2	15	5.6	3.4	9.2
Elementary Occupations	1	0.9	0.1	6.3	11	4.5	2.3	8.3
Housewife	26	23.2	16.2	32.0	10	4.1	2.2	7.5
Unemployed	14	12.3	7.4	19.9	28	10.4	7.2	14.8
Unclassified	38	34.1	25.9	43.5	68	27.2	21.8	33.3
State								
Johor	31	8.3	5.5	12.3	39	11.8	8.3	16.4
Kedah	50	12.8	9.5	17.0	37	11.0	7.7	15.4
Kelantan	20	4.8	2.8	8.3	24	6.5	4.1	10.1
Melaka	6	2.0	0.6	6.2	17	5.9	3.5	9.7
N.Sembilan	13	3.2	1.8	5.7	8	2.3	1.2	4.6
Pahang	34	9.7	6.5	14.2	26	8.1	4.9	13.0
Pulau Pinang	12	3.1	1.6	5.9	12	3.3	1.8	6.1
Perak	8	2.4	1.1	5.0	20	6.5	4.1	10.3
Perlis	3	0.9	0.2	3.9	5	1.5	0.5	4.0
Selangor	58	16.9	13.0	21.6	55	17.9	13.6	23.1
Terengganu	23	5.5	3.5	8.7	23	6.7	3.9	11.2
Sabah	68	15.0	11.2	19.8	20	5.0	3.1	7.8
Sarawak	22	6.2	3.9	9.8	28	8.9	5.9	13.2
FT KL	15	4.2	2.4	7.5	12	3.8	2.0	7.2
FT Labuan	23	5.1	2.9	8.8	4	1.0	0.4	2.6
Individual income (NHMS III classification)								
Less than RM 400	23	5.8	3.8	8.9	25	7.3	4.9	10.8
RM 400 - RM 699	57	14.6	11.3	18.7	49	14.7	11.1	19.2
RM 700 - RM 999	40	10.4	7.6	14.1	34	10.2	7.2	14.3
RM 1000 - RM 1999	103	27.8	23.3	32.7	104	31.4	26.2	37.2
RM 2000 - RM 2999	63	17.4	13.4	22.2	62	20.2	16.0	25.3
RM 3000 - RM 3999	31	8.8	6.0	12.6	21	6.5	4.0	10.5
RM 4000 - RM 4999	15	4.2	2.5	7.1	7	2.4	1.0	5.6
RM 5000 & above	38	11.1	8.1	15.1	21	7.2	4.5	11.2
Individual income by EPU classification								
Less than RM 500	41	10.4	7.6	14.1	47	13.5	10.2	17.8
RM 500 - RM 999	79	20.4	16.3	25.3	61	18.7	14.6	23.6
RM 1000 - RM 1499	60	16.2	12.7	20.6	59	17.8	13.8	22.7
RM 1500 - RM 1999	43	11.5	8.6	15.2	45	13.6	10.2	18.0
RM 2000 - RM 2499	44	11.9	8.7	15.9	38	12.4	9.0	16.8
RM 2500 - RM 2999	19	5.5	3.4	8.9	24	7.9	5.3	11.5
RM 3000 - RM 3499	23	6.5	4.1	10.2	15	4.6	2.5	8.3
RM 3500 - RM 3999	8	2.3	1.1	4.5	6	1.9	0.8	4.8
RM 4000 - RM 4499	11	3.1	1.7	5.5	5	1.7	0.7	4.1
RM 4500 - RM 4999	4	1.1	0.4	3.0	2	0.7	0.1	4.9
RM 5000 & above	38	11.1	8.1	15.1	21	7.2	4.5	11.2

Table 15: Orofacial injuries at school by socio-demographics

Variable	School			
	n	%	95% CI	
			Lower	Upper
All	86	10.3	8.4	12.7
Gender				
Male	59	68.1	57.1	77.4
Female	27	31.9	22.6	42.9
Residence				
Urban	53	67.0	64.5	69.4
Rural	33	33.0	30.6	35.5
Age group (by 5)				
0-4	0	0.0	0.0	0.0
5-9	38	44.1	33.7	55.2
10-14	34	39.5	29.7	50.2
15-19	14	16.4	9.8	26.1
20-24	0	0.0	0.0	0.0
25-29	0	0.0	0.0	0.0
30-34	0	0.0	0.0	0.0
35-39	0	0.0	0.0	0.0
40-44	0	0.0	0.0	0.0
45-49	0	0.0	0.0	0.0
50-54	0	0.0	0.0	0.0
55-59	0	0.0	0.0	0.0
60-64	0	0.0	0.0	0.0
65-69	0	0.0	0.0	0.0
70-74	0	0.0	0.0	0.0
75-79	0	0.0	0.0	0.0
80+	0	0.0	0.0	0.0
Race				
Malays	54	62.8	51.6	72.9
Chinese	12	15.3	8.9	25.1
Indian	7	8.9	3.9	19.2
Other Bumiputera	12	12.0	6.9	20.3
Others	1	0.9	0.1	6.4
Marital status				
Not married	28	32.3	23.0	43.2
Married	57	66.3	55.3	75.8
Divorcee	0	0.0	0.0	0.0
Widow/Widower	0	0.0	0.0	0.0
Not applicable	0	0.0	0.0	0.0
Unclassified	1	1.4	0.2	9.6
Citizenship				
Malaysian	86	100.0	0.0	100.0
Non-Malaysian	0	0.0	0.0	0.0
Education level				
None	46	54.4	43.4	64.9
Primary	27	32.9	23.5	43.9
Secondary	10	12.7	6.9	22.4
Tertiary	0	0.0	0.0	0.0
Unclassified	0	0.0	0.0	0.0

Table 15: Orofacial injuries at school by socio-demographics (continue)

Variable	School			
	n	%	95% CI	
			Lower	Upper
All	86	10.3	8.4	12.7
Occupation				
Senior Official & Manager	0	0.0	0.0	0.0
Professionals	0	0.0	0.0	0.0
Technical & Associate	0	0.0	0.0	0.0
Clerical Workers	0	0.0	0.0	0.0
Service Workers & Shop	0	0.0	0.0	0.0
Skilled Agricultural & Fishery	0	0.0	0.0	0.0
Craft & Related Trade Workers	0	0.0	0.0	0.0
Plant & Machine Operator & Assembler	0	0.0	0.0	0.0
Elementary Occupations	0	0.0	0.0	0.0
Housewife	0	0.0	0.0	0.0
Unemployed	0	0.0	0.0	0.0
Unclassified	29	100.0	0.0	100.0
State				
Johor	12	15.0	8.2	25.8
Kedah	5	5.4	2.3	12.5
Kelantan	0	0.0	0.0	0.0
Melaka	2	2.4	0.5	9.8
N.Sembilan	3	3.1	1.0	9.2
Pahang	4	5.1	1.9	13.1
Pulau Pinang	7	7.7	3.6	15.6
Perak	3	3.4	0.8	13.4
Perlis	1	1.1	0.1	7.4
Selangor	18	23.0	15.0	33.7
Terengganu	6	6.9	3.1	14.7
Sabah	9	8.8	4.5	16.4
Sarawak	8	9.9	4.9	19.0
FT KL	3	3.7	0.8	14.7
FT Labuan	5	4.7	1.7	12.4
Individual income (NHMS III classification)				
Less than RM 400	8	8.8	4.0	18.5
RM 400 - RM 699	10	11.7	6.3	20.8
RM 700 - RM 999	6	6.5	2.9	13.7
RM 1000 - RM 1999	27	31.9	22.3	43.4
RM 2000 - RM 2999	15	19.2	11.9	29.5
RM 3000 - RM 3999	5	6.9	2.9	15.6
RM 4000 - RM 4999	5	5.7	2.3	13.4
RM 5000 & above	7	9.3	4.5	18.4
Individual income by EPU classification				
Less than RM 500	10	10.9	5.4	20.6
RM 500 - RM 999	14	16.1	9.8	25.3
RM 1000 - RM 1499	0	0.0	0.0	0.0
RM 1500 - RM 1999	12	13.9	7.9	23.3
RM 2000 - RM 2499	15	18.0	10.5	29.0
RM 2500 - RM 2999	10	12.6	6.9	22.1
RM 3000 - RM 3499	5	6.6	2.7	15.0
RM 3500 - RM 3999	4	5.6	2.1	14.1
RM 4000 - RM 4499	1	1.3	0.2	8.8
RM 4500 - RM 4999	5	5.7	2.3	13.4
RM 5000 & above	7	9.3	4.5	18.4

Table 16: Orofacial injuries at workplace by socio-demographics

Variable	Workplace			
	n	%	95% CI	
			Lower	Upper
All	64	7.0	5.5	8.9
Gender				
Male	56	86.4	74.8	93.2
Female	8	13.6	6.8	25.2
Residence				
Urban	30	53.3	51.2	55.4
Rural	34	46.7	44.6	48.8
Age group (by 5)				
0-4	0	0.0	0.0	0.0
5-9	0	0.0	0.0	0.0
10-14	0	0.0	0.0	0.0
15-19	4	6.1	2.2	15.6
20-24	13	20.5	12.0	32.9
25-29	14	22.8	13.3	36.4
30-34	10	14.6	7.8	25.7
35-39	10	15.3	8.2	26.7
40-44	5	8.2	3.3	19.0
45-49	3	4.7	1.5	13.8
50-54	1	1.5	0.2	10.3
55-59	2	3.4	0.8	13.1
60-64	2	3.0	0.7	11.5
65-69	0	0.0	0.0	0.0
70-74	0	0.0	0.0	0.0
75-79	0	0.0	0.0	0.0
80+	0	0.0	0.0	0.0
Race				
Malays	28	42.3	30.9	54.6
Chinese	7	11.8	5.7	22.9
Indian	9	15.1	8.0	26.7
Other Bumiputera	13	19.1	11.3	30.5
Others	7	11.7	5.5	23.0
Marital status				
Not married	28	44.4	32.1	57.4
Married	34	52.2	39.4	64.7
Divorcee	1	1.9	0.3	12.7
Widow/Widower	1	1.5	0.2	10.5
Not applicable	0	0.0	0.0	0.0
Unclassified	0	0.0	0.0	0.0
Citizenship				
Malaysian	55	85.2	73.4	92.3
Non-Malaysian	9	14.8	7.7	26.6
Education level				
None	4	6.0	2.2	15.6
Primary	18	29.2	18.9	42.1
Secondary	40	61.5	48.5	73.1
Tertiary	1	1.9	0.3	13.0
Unclassified	1	1.4	0.2	9.7

Table 16: Orofacial injuries at workplace by socio-demographics (continue)

Variable	Workplace			
	n	%	95% CI	
			Lower	Upper
All	64	7.0	5.5	8.9
Occupation status				
Senior Official & Manager	0	0.0	0.0	0.0
Professionals	1	1.4	0.2	9.6
Technical & Associate	6	9.3	4.1	19.7
Clerical Workers	2	2.7	0.7	10.4
Service Workers & Shop	13	21.3	12.6	33.6
Skilled Agricultural & Fishery	5	6.9	2.9	15.4
Craft & Related Trade Workers	15	24.3	15.1	36.7
Plant & Machine Operator & Assembler	15	22.9	14.1	35.0
Elementary Occupations	4	6.5	2.3	16.7
Housewife	0	0.0	0.0	0.0
Unemployed	2	3.4	0.8	13.2
Unclassified	1	1.5	0.2	10.5
State				
Johor	5	7.8	3.2	18.1
Kedah	6	9.2	4.1	19.5
Kelantan	4	5.7	2.1	14.5
Melaka	1	1.1	0.2	8.1
N.Sembilan	2	2.9	0.7	10.9
Pahang	8	13.4	6.1	26.9
Pulau Pinang	1	1.6	0.2	11.0
Perak	3	5.5	1.7	16.4
Perlis	0	0.0	0.0	0.0
Selangor	15	24.8	15.4	37.5
Terengganu	1	1.3	0.2	9.2
Sabah	10	13.1	6.9	23.3
Sarawak	8	13.6	6.8	25.6
FT KL	0	0.0	0.0	0.0
FT Labuan	0	0.0	0.0	0.0
Individual income (NHMS III classification)				
Less than RM 400	4	6.2	2.3	16.1
RM 400 - RM 699	10	15.0	8.0	26.3
RM 700 - RM 999	10	16.3	8.8	28.2
RM 1000 - RM 1999	25	38.6	27.0	51.7
RM 2000 - RM 2999	4	7.1	2.7	17.5
RM 3000 - RM 3999	3	5.2	1.6	15.6
RM 4000 - RM 4999	2	3.4	0.8	13.2
RM 5000 & above	5	8.2	3.4	18.6
Individual Income by EPU classification				
Less than RM 500	6	9.3	4.1	19.8
RM 500 - RM 999	18	28.3	18.1	41.3
RM 1000 - RM 1499	14	22.4	13.3	35.0
RM 1500 - RM 1999	11	16.3	9.1	27.4
RM 2000 - RM 2499	3	5.7	1.9	16.0
RM 2500 - RM 2999	1	1.4	0.2	9.9
RM 3000 - RM 3499	2	3.2	0.7	12.4
RM 3500 - RM 3999	1	2.0	0.3	13.7
RM 4000 - RM 4499	2	3.4	0.8	13.2
RM 4500 - RM 4999	0	0.0	0.0	0.0
RM 5000 & above	5	8.2	3.4	18.6

Table 17: Orofacial injuries at recreational place by socio-demographics

Variable	Recreational place			
	n	%	95% CI	
			Lower	Upper
All	60	6.7	5.2	8.7
Gender				
Male	48	81.1	69.1	89.1
Female	12	19.0	10.9	30.9
Residence				
Urban	37	67.8	63.7	71.7
Rural	23	32.2	28.3	36.4
Age group (by 5)				
0-4	10	17.4	9.5	29.8
5-9	13	22.2	13.2	35.0
10-14	16	26.5	16.5	39.8
15-19	7	10.8	5.1	21.4
20-24	6	9.1	4.0	19.4
25-29	3	5.7	1.8	16.7
30-34	2	3.3	0.8	13.2
35-39	2	2.8	0.7	11.1
40-44	1	2.1	0.3	14.2
45-49	0	0.0	0.0	0.0
50-54	0	0.0	0.0	0.0
55-59	0	0.0	0.0	0.0
60-64	0	0.0	0.0	0.0
65-69	0	0.0	0.0	0.0
70-74	0	0.0	0.0	0.0
75-79	0	0.0	0.0	0.0
80+	0	0.0	0.0	0.0
Race				
Malays	33	56.2	42.5	68.9
Chinese	6	11.3	5.1	23.2
Indian	6	10.3	4.5	21.9
Other Bumiputera	13	18.4	10.6	30.1
Others	2	3.8	0.9	14.3
Marital status				
Not married	24	37.7	26.2	50.9
Married	5	8.8	3.6	20.2
Divorcee	0	0.0	0.0	0.0
Widow/Widower	0	0.0	0.0	0.0
Not applicable	30	51.4	38.3	64.3
Unclassified	1	2.0	0.3	13.7
Citizenship				
Malaysian	60	100.0	0.0	100.0
Non-Malaysian	0	0.0	0.0	0.0
Education level				
None	14	32.7	20.1	48.4
Primary	13	26.4	16.1	40.2
Secondary	14	31.4	19.0	47.1
Tertiary	4	9.6	3.5	23.3
Unclassified	0	0.0	0.0	0.0

Table 17: Orofacial injuries at recreational place by socio-demographics (continue)

Variable	Recreational place			
	n	%	95% CI	
			Lower	Upper
All	60	6.7	5.2	8.7
Occupation status				
Senior Official & Manager	1	4.1	0.5	24.8
Professionals	0	0.0	0.0	0.0
Technical & Associate	4	15.4	5.9	35.0
Clerical Workers	2	7.7	1.9	26.8
Service Workers & Shop	2	5.9	1.4	21.2
Skilled Agricultural & Fishery	1	2.7	0.4	18.0
Craft & Related Trade Workers	0	0.0	0.0	0.0
Plant & Machine Operator & Assembler	0	0.0	0.0	0.0
Elementary Occupations	1	2.7	0.4	18.0
Housewife	0	0.0	0.0	0.0
Unemployed	2	6.9	1.7	24.5
Unclassified	17	54.6	36.4	71.6
State				
Johor	4	7.3	2.6	18.5
Kedah	5	8.2	3.3	18.7
Kelantan	0	0.0	0.0	0.0
Melaka	3	4.6	1.4	14.7
N.Sembilan	2	3.3	0.8	12.9
Pahang	2	3.5	0.8	13.8
Pulau Pinang	0	0.0	0.0	0.0
Perak	1	2.1	0.3	14.2
Perlis	1	1.5	0.2	10.7
Selangor	16	30.1	19.5	43.5
Terengganu	3	4.5	1.0	17.5
Sabah	11	15.5	8.5	26.8
Sarawak	4	7.2	2.6	18.4
FT KL	3	5.4	1.7	15.7
FT Labuan	5	6.8	1.9	21.8
Individual income (NHMS III classification)				
Less than RM 400	5	8.2	3.3	18.9
RM 400 - RM 699	9	14.4	7.7	25.3
RM 700 - RM 999	5	9.3	3.8	21.2
RM 1000 - RM 1999	20	37.8	25.9	51.3
RM 2000 - RM 2999	8	13.8	6.8	26.1
RM 3000 - RM 3999	3	5.2	1.6	15.7
RM 4000 - RM 4999	1	1.4	0.2	10.0
RM 5000 & above	5	9.9	4.1	22.0
Individual income by EPU classification				
Less than RM 500	8	12.8	6.4	23.8
RM 500 - RM 999	11	19.2	10.6	32.3
RM 1000 - RM 1499	15	27.8	17.2	41.8
RM 1500 - RM 1999	5	9.9	4.1	22.1
RM 2000 - RM 2499	8	13.8	6.8	26.1
RM 2500 - RM 2999	0	0.0	0.0	0.0
RM 3000 - RM 3499	1	1.4	0.2	10.0
RM 3500 - RM 3999	2	3.7	0.9	14.5
RM 4000 - RM 4499	1	1.4	0.2	10.0
RM 4500 - RM 4999	0	0.0	0.0	0.0
RM 5000 & above	5	9.9	4.1	22.0

Table 18: Dental episodes in last 1 year

Variable	Yes				No			
	n	%	95% CI		n	%	95% CI	
			Lower	Upper			Lower	Upper
All	4,748,950	22.9			15,970,452	77.1		
Gender								
Male	2,237,701	23.0	22.3	23.7	7,506,104	77.0	76.3	77.7
Female	2,511,249	22.9	22.2	23.7	8,464,348	77.1	76.3	77.7
Residence								
Urban	2,891,300	22.0	21.3	22.7	10,230,122	78.0	77.3	78.7
Rural	1,857,651	24.5	23.5	25.4	5,740,330	75.6	74.6	76.5
Specific age group								
<5 years	151,963	7.3	6.6	8.1	1,927,662	92.7	91.9	93.4
5 years	111,599	24.5	22.0	27.0	344,911	75.6	73.0	78.0
6 years	157,508	31.5	29.0	34.1	342,687	68.5	65.9	71.0
12 years	127,691	27.4	24.8	30.2	337,910	72.6	69.8	75.2
16 years	116,368	33.5	30.5	36.7	230,970	66.5	63.3	69.5
Age group (by 5)								
0 - 4	158,785	7.3	32.0	35.0	2,020,948	92.7	65.0	68.0
5 - 9	816,028	33.5	32.0	35.0	1,620,514	66.5	65.0	68.0
10 - 14	687,581	30.1	28.6	31.7	1,597,960	69.9	68.3	71.5
15 - 19	506,530	29.4	27.9	30.9	1,216,122	70.6	69.1	72.1
20 - 24	361,611	25.4	23.9	26.9	1,064,696	74.7	73.1	76.1
25 - 29	364,378	26.2	24.8	27.8	1,024,628	73.8	72.2	75.2
30 - 34	339,251	25.7	24.2	27.2	983,019	74.3	72.8	75.8
35 - 39	333,355	24.8	23.3	26.4	1,010,700	75.2	73.6	76.7
40 - 44	341,924	23.9	22.5	23.3	1,090,103	76.1	74.7	77.5
45 - 49	284,290	21.7	22.3	23.3	1,025,721	78.3	74.7	77.5
50 - 54	225,320	19.7	18.3	21.2	919,404	80.3	78.3	81.7
55 - 59	155,904	16.7	15.2	18.4	776,302	83.3	81.6	84.8
60 - 64	79,407	13.0	11.3	14.8	532,104	87.0	85.2	88.7
65 - 69	48,835	9.3	7.6	10.0	475,173	90.7	90.0	92.4
70 - 74	25,609	7.8	6.1	9.9	302,488	92.2	90.1	93.9
75+	18,850	6.4	4.8	8.4	-	93.9	90.8	96.0
Age group for oral health								
Toddler (0-4)	158,785	7.3	6.6	8.1	2,020,948	92.7	91.9	93.4
Preschool (5-6)	278,017	27.9	26.3	30.1	717,013	72.1	69.9	73.7
Primary (7-12)	975,158	33.6	32.3	35.5	1,926,199	66.4	64.5	67.7
Secondary (13-17)	599,660	31.1	29.8	33.0	1,328,388	68.9	67.0	70.2
Young adults (18-29)	883,293	25.7	24.7	26.8	2,552,321	74.3	73.2	75.3
Middle-aged (35-44)	675,279	24.3	23.3	25.5	2,100,803	75.7	74.5	76.7
Elderly (60+)	172,701	9.7	11.0	14.5	1,611,006	90.3	85.5	89.0
Race								
Malay	3,000,064	25.5	24.7	26.2	8,789,502	74.6	73.8	75.3
Chinese	716,387	17.8	16.7	18.9	3,315,946	82.2	81.1	83.3
Indians	372,727	21.5	20.0	23.1	1,358,015	78.5	76.9	80.0
Other Bumiputera	508,921	22.0	20.7	23.4	1,803,616	78.0	76.6	79.3
Others	150,852	17.7	15.9	19.5	703,373	82.3	80.5	84.1

Table 18: Dental episodes in last 1 year (continue)

Variable	Yes				No			
	n	%	95% CI		n	%	95% CI	
			Lower	Upper			Lower	Upper
Marital Status								
Not married	1,254,797	27.4	26.4	28.4	3,325,586	72.6	71.6	73.6
Married	1,948,336	21.5	20.9	22.2	7,098,582	78.5	77.8	79.1
Divorcee	48,397	17.5	14.8	20.5	228,840	82.5	79.5	85.2
Widow/Widower	71,832	10.5	9.1	12.1	610,669	89.5	87.9	90.9
Not Applicable	1,411,469	23.2	22.3	24.2	4,662,375	76.8	75.8	77.7
Unclassified	14,119	24.1	17.7	32.0	44,400	75.9	68.0	82.3
Citizenship								
Malaysian	4,593,142	23.3	22.7	23.9	15,145,496	76.7	76.1	77.3
Non-Malaysian	154,315	15.9	14.4	17.7	813,531	84.1	82.3	85.6
Unclassified	1,493	11.6	4.3	27.3	11,425	88.4	72.7	95.7
Education level								
None	1,073,290	26.8	25.6	28.0	2,930,292	73.2	72.0	74.4
Primary	1,164,009	21.3	20.5	22.1	4,300,358	78.7	77.9	79.5
Secondary	1,724,336	25.4	24.7	26.2	5,054,374	74.6	73.8	75.3
Tertiary	376,676	28.5	26.9	30.2	943,486	71.5	69.8	73.1
Not Applicable	378,662	12.6	11.8	13.4	2,634,288	87.4	86.6	88.2
Unclassified	31,977	22.9	18.6	27.8	107,654	77.1	72.2	81.4
Occupation status								
Senior Official & Manager	56,836	22.4	19.2	25.9	197,488	77.7	74.1	80.8
Professionals	233,751	26.6	24.6	28.6	645,950	73.4	71.4	75.4
Technical & Associate	279,179	27.6	25.8	29.4	733,398	72.4	70.6	74.2
Clerical Workers	185,558	26.3	24.3	28.4	520,157	73.7	71.6	75.7
Service Workers & Shop	459,274	21.4	20.3	22.5	1,686,112	78.6	77.5	79.7
Skilled Agricultural & Fishery	183,210	20.2	18.6	21.9	722,940	79.8	78.1	81.4
Craft and related Trade Workers	177,629	23.1	21.2	25.2	589,889	76.9	74.8	78.8
Plant and Machine Operators	155,761	22.2	20.3	24.2	546,081	77.8	75.8	79.7
Elementary Occupations	123,278	21.6	19.7	23.7	447,805	78.4	76.3	80.3
Housewife	567,837	19.0	18.9	19.9	2,421,030	81.0	80.1	81.9
Unemployed	226,729	16.1	14.9	17.3	1,183,545	83.9	82.7	85.1
Unclassified	687,946	29.9	28.5	31.3	1,611,897	70.1	68.7	71.5
State								
Johor	416,882	17.5	16.1	18.9	1,970,182	82.5	81.1	83.9
Kedah	479,757	31.9	29.5	34.3	1,024,796	68.1	65.7	70.5
Kelantan	396,249	31.9	29.4	34.4	847,511	68.1	65.6	70.6
Melaka	140,515	24.9	21.8	28.2	424,530	75.1	71.8	78.2
Negeri Sembilan	191,366	25.8	23.3	28.5	549,161	74.2	71.5	76.7
Pahang	267,160	23.9	21.5	26.4	852,903	76.2	73.6	78.5
Pulau Pinang	232,903	22.1	20.2	24.2	820,594	77.9	75.8	79.8
Perak	457,921	26.7	24.6	29.0	1,256,795	73.3	71.0	75.4
Perlis	29,844	15.7	12.0	20.3	159,884	84.3	79.7	88.0
Selangor	748,478	19.5	18.3	20.6	3,098,070	80.5	79.4	81.7
Terengganu	246,013	28.8	25.8	32.0	608,950	71.2	68.0	74.2
Sabah + FT Labuan	489,435	22.3	20.7	24.0	1,701,802	77.7	76.0	79.3
Sarawak	363,949	19.5	17.8	21.2	1,505,521	80.5	78.8	82.2
FTKL	215,687	18.7	16.9	20.5	941,074	81.4	79.5	83.1

Table 18: Dental episodes in last 1 year (continue)

Variable	Yes				No			
	n	%	95% CI		n	%	95% CI	
			Lower	Upper			Lower	Upper
Individual income (NHMS III classification)								
<RM400	308,413	22.4	21.1	23.8	1,066,656	77.6	76.2	78.9
RM400-RM699	331,074	22.8	21.4	24.2	1,124,512	77.3	75.8	78.6
RM700-RM999	287,072	22.9	21.4	24.5	966,939	77.1	75.5	78.6
RM1000-RM1999	492,570	23.0	21.8	24.2	1,652,376	77.0	75.8	78.2
RM2000-RM2999	208,579	25.7	23.8	27.8	601,719	74.3	72.2	76.2
RM3000-RM3999	77,801	26.7	23.4	30.2	214,018	73.3	69.8	76.6
RM4000-RM4999	27,687	26.7	21.8	32.3	75,929	73.3	67.7	78.2
RM5000 and above	50,543	24.0	20.2	28.3	160,289	76.0	71.7	79.8
Individual income by EPU classification								
Less than RM500	363,902	22.5	21.2	23.8	1,255,624	77.5	76.2	78.8
RM500-RM999	562,656	22.8	21.8	23.9	1,902,483	77.2	76.1	78.2
RM100-RM1499	304,851	23.0	21.5	24.5	1,022,093	77.0	75.5	78.5
RM1500-RM1999	187,719	23.0	21.1	24.9	630,283	77.1	75.1	78.9
RM2000-RM2499	146,782	25.0	22.7	27.3	441,221	75.0	72.7	77.3
RM2500-RM2999	61,797	27.8	24.1	31.8	160,498	72.2	68.2	75.9
RM3000-RM3499	61,066	25.7	22.1	29.6	176,883	74.3	70.4	77.9
RM3500-RM3999	16,735	31.1	24.0	39.2	37,135	68.9	60.8	76.0
RM4000-RM4499	19,911	24.7	19.4	30.8	60,862	75.4	69.2	80.6
RM4500-RM4999	7,776	34.0	22.8	47.4	15,067	66.0	52.6	77.2
RM5000 and above	50,543	24.0	20.2	28.3	160,289	76.0	71.7	79.8
Income based on quartiles								
1 st quartile	495,755	22.6	21.5	23.8	1,697,321	77.4	76.2	78.5
2 nd quartile	350,510	22.8	21.5	24.2	1,188,232	77.2	75.8	78.5
3 rd quartile	482,267	22.6	21.4	23.8	1,652,443	77.4	76.2	78.6
4 th quartile	459,581	25.6	24.2	27.0	1,337,525	74.4	73.0	75.8

Table 19: Frequency of dental episodes in last 1 year

Variable	n	Mean	Median	Minimum	Maximum
All	21,095,810	1.4	1.0	1	24
Gender					
Male	9,922,116	1.3	1.0	1	24
Female	11,173,693	1.4	1.0	1	24
Residence					
Urban	13,350,036	1.3	1.0	1	20
Rural	7,745,774	1.4	1.0	1	24
Specific age group					
<5 years	2,113,813	1.3	1.0	1	8
5 years	462,659	1.5	1.0	1	12
6 years	506,046	1.3	1.0	1	12
12 years	473,905	1.2	1.0	1	11
16 years	356,811	1.3	1.0	1	10
Age group (by 5)					
0 – 4	2,214,314	1.3	1.0	1	8
5 – 9	2,469,836	1.3	1.0	1	12
10 – 14	2,340,092	1.2	1.0	1	11
15 – 19	1,765,846	1.4	1.0	1	24
20 – 24	1,449,624	1.5	1.0	1	24
25 – 29	1,413,764	1.4	1.0	1	12
30 – 34	1,339,680	1.4	1.0	1	12
35 – 39	1,361,873	1.5	1.0	1	24
40 – 44	1,456,347	1.4	1.0	1	12
45 – 49	1,327,764	1.4	1.0	1	24
50 – 54	1,160,791	1.4	1.0	1	14
55 – 59	949,161	1.4	1.0	1	7
60 – 64	622,442	1.3	1.0	1	7
65 – 74	872,726	1.3	1.0	1	6
75 – 79	184,840	1.2	1.0	1	4
80+	151,821	1.1	1.0	1	2
Unclassified	14,890	1.3	1.0	1	2
Age group for oral health					
Toddler (0-4)	2,113,813	1.3	1.0	1	8
Preschool (5-6)	968,705	1.3	1.0	1	12
Primary (7-12)	2,837,496	1.3	1.0	1	12
Secondary (13-17)	1,929,108	1.3	1.0	1	10
Young Adults (18-29)	3,338,358	1.4	1.0	1	24
Middle-aged (35-44)	2,691,351	1.4	1.0	1	24
Elderly (60+)	605,813	1.2	1.0	1	7
Elderly (65+)	522,981	1.3	1.0	1	6
Elderly (70+)	4,676,813	1.4	1.0	1	24
Race					
Malays	11,992,620	1.4	1.0	1	24
Chinese	4,106,023	1.3	1.0	1	24
Indian	1,763,617	1.3	1.0	1	12
Other Bumiputera	2,361,346	1.4	1.0	1	24
Others	872,204	1.4	1.0	1	12

Table 19: Frequency of dental episodes in last 1 year (continue)

Variable	n	Mean	Median	Minimum	Maximum
Marital status					
Not married	4,685,300	1.4	1.0	1	24
Married	9,186,855	1.4	1.0	1	24
Divorcee	283,780	1.6	1.0	1	12
Widow/Widower	700,285	1.4	1.0	1	7
Not applicable	6,166,836	1.3	1.0	1	12
Unclassified	72,753	1.4	1.0	1	3
Citizenship					
Malaysian	20,087,783	1.4	1.0	1	24
Non-Malaysian	983,136	1.4	1.0	1	12
Unclassified	24,891	1.7	2.0	1	3
Education level					
None	4,078,807	1.3	1.0	1	12
Primary	5,565,330	1.4	1.0	1	24
Secondary	6,875,110	1.4	1.0	1	24
Tertiary	1,333,308	1.4	1.0	1	12
Not Applicable	3,059,167	1.3	1.0	1	12
Unclassified	184,088	1.5	1.0	1	12
Occupation status					
Senior Official & Manager	256,648	1.3	1.0	1	3
Professionals	891,983	1.4	1.0	1	12
Technical & Associate	1,023,352	1.4	1.0	1	12
Clerical Workers	711,684	1.4	1.0	1	12
Service Workers & Shop	2,172,525	1.4	1.0	1	20
Skilled Agricultural & Fishery	916,270	1.5	1.0	1	24
Craft & Related Trade Workers	779,775	1.4	1.0	1	12
Plant & Machine Operator & Assembler	713,321	1.4	1.0	1	14
Elementary Occupations	577,553	1.5	1.0	1	24
Housewife	3,034,317	1.4	1.0	1	24
Unemployed	1,453,303	1.4	1.0	1	24
< 13 & Not schooling	2,732,656	1.3	1.0	1	12
< 13 & Primary school	357,556	1.3	1.0	1	12
Unclassified	2,395,964	1.3	1.0	1	10
Individual income (NHMS III classification)					
Less than RM 400	1,388,908	1.5	1.0	1	12
RM 400 - RM 699	1,482,229	1.5	1.0	1	24
RM 700 - RM 999	1,267,588	1.4	1.0	1	12
RM 1000 - RM 1999	2,172,592	1.4	1.0	1	14
RM 2000 - RM 2999	817,822	1.4	1.0	1	12
RM 3000 - RM 3999	293,346	1.4	1.0	1	12
RM 4000 - RM 4999	105,183	1.3	1.0	1	4
RM 5000 & above	213,039	1.3	1.0	1	4

Table 19: Frequency of dental episodes in last 1 year (continue)

Variable	n	Mean	Median	Minimum	Maximum
Individual income by EPU classification					
Less than RM 500	1,638,980	1.5	1.0	1	12
RM 500 - RM 999	2,499,745	1.4	1.0	1	24
RM 1000 - RM 1499	1,340,743	1.4	1.0	1	14
RM 1500 - RM 1999	831,849	1.4	1.0	1	12
RM 2000 - RM 2499	594,078	1.5	1.0	1	12
RM 2500 - RM 2999	223,744	1.3	1.0	1	5
RM 3000 - RM 3499	239,476	1.4	1.0	1	12
RM 3500 - RM 3999	53,870	1.2	1.0	1	3
RM 4000 - RM 4499	82,340	1.2	1.0	1	3
RM 4500 - RM 4999	22,843	1.6	1.0	1	4
RM 5000 & above	213,039	1.3	1.0	1	4
Income based on quartiles					
1 st quartile	2,221,203	1.5	1.0	1	24
2 nd quartile	1,559,713	1.4	1.0	1	12
3 rd quartile	2,158,867	1.4	1.0	1	14
4 th quartile	1,818,381	1.4	1.0	1	12

Table 20: Experience of pain in 1st episodes

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
All	2,439,787	53.2	2,142,791	46.8
Gender				
Male	1,165,038	53.9	995,660	46.1
Female	1,274,750	52.6	1,147,131	47.4
Residence				
Urban	1,497,102	53.6	1,294,215	46.4
Rural	942,685	52.6	848,576	47.4
Specific age group				
<5 years	88,959	63.1	51,977	36.9
5 years	57,870	54.6	48,040	45.4
6 years	74,675	49.7	75,708	50.3
12 years	40,604	33.1	82,209	66.9
16 years	44,019	38.8	69,541	61.2
Age group (by 5)				
0 – 4	92,946	63.2	54,126	36.8
5 – 9	328,673	41.9	456,722	58.2
10 – 14	250,546	37.5	417,209	62.5
15 – 19	224,200	45.9	264,165	54.1
20 – 24	209,018	60.4	137,023	39.6
25 – 29	218,632	61.6	136,179	38.4
30 – 34	200,658	61.0	128,313	39.0
35 – 39	211,052	65.5	111,023	34.5
40 – 44	203,900	61.3	128,589	38.7
45 – 49	172,059	63.0	101,247	37.1
50 – 54	138,259	63.6	79,071	36.4
55 – 59	90,249	59.5	61,504	40.5
60 – 64	44,328	57.7	32,554	42.3
65 – 74	43,422	60.5	28,300	39.5
75 – 79	5,670	57.0	4,277	43.0
80+	5,531	75.0	1,841	25.0
Unclassified	646	50.0	646	50.0
Age group for oral health				
Toddler (0-4)	88,959	63.1	51,977	36.9
Preschool (5-6)	132,544	51.7	123,747	48.3
Primary (7-12)	325,979	35.5	591,498	64.5
Secondary (13-17)	236,351	41.6	331,967	58.4
Young Adults (18-29)	486,074	59.9	325,571	40.1
Middle-Aged (35-44)	395,113	63.1	230,804	36.9
Elderly (60+)	42,017	57.4	31,253	42.7
Elderly (65+)	25,969	57.3	19,377	42.7
Elderly Group (70+)	583,915	61.9	358,982	38.1

Table 20: Experience of pain in 1st episodes (continue)

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
Race				
Malays	1,548,657	53.6	1,340,193	46.4
Chinese	342,494	49.4	351,403	50.6
Indian	196,718	54.4	164,638	45.6
Other Bumiputera	257,347	52.3	234,593	47.7
Others	94,570	64.5	51,964	35.5
Marital status				
Not married	618,921	51.2	590,903	48.8
Married	1,171,381	62.1	714,120	37.9
Divorcee	27,512	59.1	19,059	40.9
Widow/Widower	44,880	63.8	25,492	36.2
Not applicable	570,947	42.1	785,962	57.9
Unclassified	6,146	45.9	7,255	54.1
Citizenship				
Malaysian	2,343,679	52.9	2,090,346	47.1
Non-Malaysian	95,451	64.9	51,610	35.1
Unclassified	658	44.1	835	55.9
Education level				
None	407,934	39.3	630,361	60.7
Primary	615,098	54.9	506,069	45.1
Secondary	983,355	58.9	687,386	41.1
Tertiary	208,271	57.2	155,640	42.8
Not Applicable	204,875	57.3	152,417	42.7
Unclassified	20,254	65.0	10,918	35.0
Occupation status				
Senior Official & Manager	34,595	64.8	18,827	35.2
Professionals	127,849	56.5	98,515	43.5
Technical & Associate	165,493	60.8	106,592	39.2
Clerical Workers	106,063	59.3	72,722	40.7
Service Workers & Shop	284,910	64.0	160,373	36.0
Skilled Agricultural & Fishery	109,639	61.1	69,867	38.9
Craft & Related Trade Workers	109,409	64.0	61,675	36.1
Plant & Machine Operator & Assembler	96,557	65.6	50,665	34.4
Elementary Occupations	71,120	61.4	44,657	38.6
Housewife	340,228	61.8	210,326	38.2
Unemployed	129,706	59.9	86,927	40.1
< 13 & Not schooling	325,981	36.3	572,000	63.7
< 13 & Primary school	37,761	38.8	59,636	61.2
Unclassified	292,781	43.8	375,684	56.2

Table 20: Experience of pain in 1st episodes (continue)

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
State				
Johor	234,992	59.0	163,028	41.0
Kedah	228,095	48.3	244,314	51.7
Kelantan	201,321	52.9	179,561	47.1
Melaka	86,880	66.4	44,032	33.6
N.Sembilan	92,779	49.5	94,755	50.5
Pahang	145,443	56.8	110,523	43.2
Pulau Pinang	114,070	49.7	115,462	50.3
Perak	175,619	39.1	273,578	60.9
Perlis	11,022	42.8	14,709	57.2
Selangor	415,167	58.1	298,879	41.9
Terengganu	126,759	54.9	104,247	45.1
Sabah	294,144	61.3	185,367	38.7
Sarawak	146,605	41.8	204,282	58.2
FT Kuala Lumpur	126,342	61.6	78,718	38.4
Individual income (NHMS III classification)				
Less than RM 400	175,433	59.7	118,563	40.3
RM 400 - RM 699	196,447	61.8	121,655	38.2
RM 700 - RM 999	177,201	63.9	99,980	36.1
RM 1000 - RM 1999	296,633	61.9	182,247	38.1
RM 2000 - RM 2999	126,866	62.3	76,662	37.7
RM 3000 - RM 3999	45,991	61.0	29,399	39.0
RM 4000 - RM 4999	16,646	61.1	10,616	38.9
RM 5000 & above	27,264	56.8	20,709	43.2
Individual income by EPU classification				
Less than RM 500	206,157	59.5	140,286	40.5
RM 500 - RM 999	342,924	63.2	199,913	36.8
RM 1000 - RM 1499	184,047	61.9	113,124	38.1
RM 1500 - RM 1999	112,586	62.0	69,123	38.0
RM 2000 - RM 2499	88,133	61.4	55,393	38.6
RM 2500 - RM 2999	38,732	64.6	21,269	35.5
RM 3000 - RM 3499	36,111	60.4	23,662	39.6
RM 3500 - RM 3999	9,880	63.3	5,738	36.7
RM 4000 - RM 4499	11,282	57.9	8,204	42.1
RM 4500 - RM 4999	5,363	69.0	2,412	31.0
RM 5000 & above	27,264	56.8	20,709	43.2
Income based on quartiles				
1 st quartile	283,927	59.8	190,842	40.2
2 nd quartile	214,922	63.6	122,857	36.4
3 rd quartile	293,345	62.8	174,145	37.3
4 th quartile	273,424	61.2	173,226	38.8

Table 21: Experience of pain in "2nd" episodes

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
Overall	2,396	29.2	5,801	70.8
Gender				
Male	995	23.4	3,262	76.6
Female	1,401	35.6	2,539	64.5
Residence				
Urban	814	27.4	2,155	72.6
Rural	1,581	30.3	3,647	69.8
Specific age group				
<5years	-	-	-	-
5 years	324	100.0	-	-
6years	-	-	-	-
12years	-	-	-	-
16 years	-	-	324	100.0
Age group (by 5)				
0-4	-	-	-	-
5-9	1,433	68.9	646	31.1
10-14	292	21.4	1,075	78.6
15-19	-	-	672	100.0
20-24	348	32.0	739	68.0
25-29	-	-	838	100.0
35-39	-	-	348	100.0
45-49	-	-	781	100.0
50-54	-	-	354	100.0
55-59	-	-	348	100.0
60-64	323	100.0	-	-
65-74	-	-	-	-
75-79	-	-	-	-
80+	-	-	-	-
Age group for oral health				
Toddler (0-4)	-	-	-	-
Preschool (5-6)	324	100.0	-	-
Primary (7-12)	1,108	43.7	1,429	56.3
Secondary (13-17)	292	30.3	672	69.7
Young Adults (18-29)	348	18.1	1,577	81.9
Middle-Aged (35-44)	-	-	348	100.0
Elderly (60+)	-	-	-	-
Elderly (65+)	-	-	-	-
Elderly Group (70+)	-	-	1,483	100.0
Race				
Malays	1,140	31.0	2,541	69.0
Chinese	-	-	392	100.0
Other Bumiputera	640	18.3	2,869	81.8
Others	615	100.0	-	-

Table 21: Experience of pain in "2nd" episodes (continue)

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
Marital Status				
Not Married	640	31.2	1411	68.8
Married	323	12.0	2,380	88.1
Divorcee	-	-	-	-
Widow/Widower	-	-	290	100.0
Not applicable	1,433	45.4	1,721	54.6
Citizenship				
Malaysian	2,073	26.3	5,801	73.7
Non-Malaysian	323	100.0	-	-
Education level				
None	1,431	43.3	1,875	56.7
Primary	640	64.8	348	35.2
Secondary	-	-	3,286	100.0
Tertiary	-	-	-	-
Not Applicable	324	52.6	292	47.4
Unclassified				
Occupation status				
Senior Officials & Manager	-	-	-	-
Professionals	-	-	-	-
Technical & Associates	-	-	-	-
Clerical Workers	-	-	292	100.0
Service Workers & Shop	-	-	800	100.0
Skilled Agricultural & Fishery	348	50.0	348	50.0
Craft & Related Trade Workers	-	-	491	100.0
Service Workers & Shop	-	-	-	-
Skilled Agricultural & Fishery	-	-	-	-
Housewife	-	-	1,476	100.0
Unemployed	323	48.1	348	51.9
< 13 & Not schooling	1,108	43.7	1,429	56.3
Unclassified	292	47.4	324	52.6

Table 21: Experience of pain in "2nd" episodes (continue)

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
State				
Johor	649	66.7	324	33.3
Kedah	-	-	-	-
Kelantan	-	-	-	-
Melaka	491	50.0	491	50.0
N. Sembilan	-	-	392	100.0
Pahang	-	-	708	100.0
Pulau Pinang	-	-	-	-
Perak	-	-	-	-
Perlis	-	-	290	100.0
Selangor	-	-	379	100.0
Terengganu	908	60.8	585	39.2
Sabah	348	11.7	2632	88.3
Sarawak	-	-	-	-
FT Kuala Lumpur	348	30.5	794	69.5
Individual income (NHMS III classification)				
Less than RM 400	348	30.5	794	69.5
RM 400 - RM 699	-	-	784	100.0
RM700-RM999	-	-	-	-
RM 1000 - RM 1999	-	-	354	100.0
RM2000-RM2999	-	-	-	-
RM3000-RM3999	-	-	-	-
RM4000-RM4999	-	-	-	-
RM5000& above	-	-	-	-
Individual income by EPU classification				
Less than RM 500	348	30.5	794	69.5
RM 500 - RM 999	-	-	784	100.0
RM 1000 - RM 1499	-	-	354	100.0
RM1500-RM1999	-	-	-	-
RM2000-RM2499	-	-	-	-
RM2500-RM2999	-	-	-	-
RM3000-RM3499	-	-	-	-
RM3500-RM3999	-	-	-	-
RM4000-RM4499	-	-	-	-
RM4500-RM4999	-	-	-	-
RM5000 & above	-	-	-	-
Income based on quartiles				
1 st quartile	348	21.3	1,286	78.7
2 nd quartile	-	-	292	100.0
3 rd quartile	-	-	354	100.0
4 th quartile	-	-	-	-

Table 22: Experience of pain in "3rd" episodes

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
Overall	2,598	47.8	2,840	52.2
Gender				
Male	1,691	54.2	1,429	45.8
Female	907	39.1	1,411	60.9
Residence				
Urban	323	28.1	825	71.9
Rural	2,275	53.0	2,015	47.0
Specific age group				
<5years	-	-	-	-
5 years	324	100.0	-	-
6 years	-	-	-	-
12 years	-	-	-	-
16 years	-	-	324	100.0
Age group (by 5)				
5-9	649	64.7	354	35.3
10-14	640	46.8	727	53.2
15-19	-	-	672	100.0
20-24	348	32.0	739	68.0
35-39	-	-	348	100.0
45-49	290	100.0	-	-
55-59	348	100.0	-	-
60-64	323	100.0	-	-
65-74	-	-	-	-
75-79	-	-	-	-
80+	-	-	-	-
Age group for oral health				
Toddler (0-4)	-	-	-	-
Preschool (5-6)	324	100.0	-	-
Primary (7-12)	672	38.4	1,081	61.7
Secondary (13-17)	292	30.3	672	69.7
Young Adults (18-29)	348	32.0	739	68.0
Middle-Aged (35-44)	-	-	348	100.0
Elderly (60+)	-	-	-	-
Elderly (65+)	-	-	-	-
Elderly Group (70+)	638	100.0	-	-
Race				
Malays	939	40.1	1,405	60.0
Chinese	-	-	-	-
Indian	-	-	-	-
Other Bumiputera	1,336	48.2	1,434	51.8
Others	323	100.0	-	-

Table 22: Experience of pain in "3rd" episodes (continue)

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
Marital status				
Not married	640	31.2	1,411	68.8
Married	671	65.9	348	34.2
Divorcee				
Widow/Widower	290	100.0	-	-
Not applicable	997	48.0	1,081	52.0
Unclassified				
Citizenship				
Malaysian	2,275	44.5	2,840	55.5
Non-Malaysian	323	100.0		
Education level				
None	995	39.5	1,527	60.5
Primary	988	100.0	-	-
Secondary	290	18.1	1,313	81.9
Not Applicable	324	100.0	-	-
Occupation status				
Senior Official & Manager	-	-	-	-
Professionals	-	-	-	-
Technical & Associate	-	-	-	-
Clerical Workers	-	-	292	100.0
Service Workers & Shop	-	-	446	100.0
Skilled Agricultural & Fishery	696	100.0	-	-
Craft & Related Trade Workers	-	-	-	-
Plant & Machine Operator & Assembler	-	-	-	-
Elementary Occupations	-	-	-	-
Housewife	290	45.5	348	54.6
Unemployed	323	48.1	348	51.9
< 13 & Not schooling	672	38.4	1,081	61.7
<13 & Primary School	-	-	-	-
Unclassified	292	47.4	324	52.6

Table 22: Experience of pain in "3rd" episodes (continue)

Variable	Painful Episode?			
	Yes		No	
	n	%	n	%
State				
Johor	649	66.7	324	33.3
Kedah	-	-	-	-
Kelantan	-	-	-	-
Melaka	-	-	-	-
N. Sembilan	-	-	-	-
Pahang	-	-	354	100.0
Pulau Pinang	-	-	-	-
Perak	-	-	-	-
Perlis	-	-	-	-
Selangor	290	100.0	-	-
Terengganu	-	-	379	100.0
Sabah	615	67.8	292	32.2
Sarawak	1044	41.2	1490	58.8
FT Kuala Lumpur	-	-	-	-
Individual income (NHMS III classification)				
Less than RM 400	696	60.9	446	39.1
RM 400 - RM 699	-	-	292	100.0
RM700-RM999	-	-	-	-
RM1000-RM1999	-	-	-	-
RM2000-RM2999	-	-	-	-
RM3000-RM3999	-	-	-	-
RM4000-RM4999	-	-	-	-
RM5000 and above	-	-	-	-
Individual income by EPU classification				
Less than RM 500	696	60.9	446	39.1
RM 500 - RM 999	-	-	292	100.0
RM1000-RM1499	-	-	-	-
RM1500-RM1999	-	-	-	-
RM2000-RM2499	-	-	-	-
RM2500-RM2999	-	-	-	-
RM3000-RM3499	-	-	-	-
RM3500-RM3999	-	-	-	-
RM4000-RM4499	-	-	-	-
RM4500-RM4999	-	-	-	-
RM5000 and above	-	-	-	-
Income based on quartiles				
1 st quartile	696	60.9	446	39.1
2 nd quartile	-	-	292	100.0
3 rd quartile	-	-	-	-
4 th quartile	-	-	-	-

Table 23: 1st Episodes where care was sought

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
Overall	3,263,241	71.3	1,311,494	28.7
Gender				
Male	1,532,414	71.0	626,803	29.0
Female	1,730,827	71.7	684,690	28.4
Residence				
Urban	2,049,384	73.5	738,807	26.5
Rural	1,213,857	67.9	572,686	32.1
Specific age group				
<5 years	89,721	63.3	52,112	36.7
5 years	71,787	67.8	34,093	32.2
6 years	108,347	72.2	41,704	27.8
12 years	90,279	74.0	31,743	26.0
16 years	65,311	57.4	48,558	42.6
Age group (by 5)				
0 - 4	94,031	63.4	54,332	36.6
5 - 9	577,864	73.8	205,208	26.2
10 - 14	472,072	70.8	194,434	29.2
15 - 19	289,279	59.4	197,797	40.6
20 - 24	227,954	65.9	117,785	34.1
25 - 29	249,002	70.2	105,683	29.8
30 - 34	245,866	75.2	80,960	24.8
35 - 39	244,239	76.0	77,189	24.0
40 - 44	254,627	76.7	77,190	23.3
45 - 49	211,079	77.1	62,606	22.9
50 - 54	164,247	75.5	53,380	24.5
55 - 59	115,537	76.3	35,855	23.7
60 - 64	56,520	73.5	20,362	26.5
65 - 74	50,123	70.6	20,900	29.4
75 - 79	5,995	60.3	3,951	39.7
80+	4,481	60.8	2,890	39.2
Unclassified	323	25.0	968	75.0
Age group for oral health				
Toddler(0-4)	89,721	63.3	52,112	36.7
Preschool (5-6)	180,134	70.4	75,797	29.6
Primary (7-12)	697,572	76.3	216,373	23.7
Secondary (13-17)	343,605	60.6	223,699	39.4
Young Adults (18-29)	535,547	66.0	275,718	34.0
Middle-Aged (35-44)	474,779	76.0	149,818	24.0
Elderly (60+)	53,785	73.4	19,485	26.6
Elderly (65+)	33,698	74.3	11,672	25.7
Elderly Group (70+)	714,481	75.9	226,910	24.1

Table 23: 1st Episodes where care was sought (continue)

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
Race				
Malays	2,057,354	71.3	829,128	28.7
Chinese	504,109	72.8	187,974	27.2
Indian	291,216	80.7	69,771	19.3
Other Bumiputera	313,603	64.0	176,266	36.0
Others	96,958	66.7	48,354	33.3
Marital status				
Not married	772,628	64.0	435,173	36.0
Married	1,405,512	74.7	477,235	25.4
Divorcee	30,573	65.7	15,998	34.4
Widow/Widower	47,985	68.2	22,387	31.8
Not applicable	996,350	73.6	357,957	26.4
Unclassified	10,193	78.8	2,743	21.2
Citizenship				
Malaysian	3,171,756	71.7	1,255,214	28.4
Non-Malaysian	90,457	61.7	56,280	38.4
Unclassified	1,027	100.0	-	-
Education level				
None	776,935	75.0	258,573	25.0
Primary	762,197	68.2	355,913	31.8
Secondary	1,179,146	70.6	490,355	29.4
Tertiary	284,391	78.4	78,317	21.6
Not Applicable	241,976	67.5	116,578	32.5
Unclassified	18,596	61.3	11,757	38.7
Occupation status				
Senior Official & Manager	42,596	79.1	11,259	20.9
Professionals	172,907	77.1	51,308	22.9
Technical & Associate	215,127	79.5	55,561	20.5
Clerical Workers	138,089	76.9	41,509	23.1
Service Workers & Shop	322,466	72.4	123,073	27.6
Skilled Agricultural & Fishery	120,032	67.1	58,797	32.9
Craft & Related Trade Workers	123,891	72.4	47,193	27.6
Plant & Machine Operator & Assembler	105,798	71.6	41,920	28.4
Elementary Occupations	75,314	64.9	40,804	35.1
Housewife	390,657	71.3	157,519	28.7
Unemployed	127,648	58.9	89,011	41.1
< 13 & Not schooling	687,524	76.8	207,725	23.2
< 13 & Primary school	63,215	65.7	33,052	34.3
Unclassified	432,364	64.8	235,093	35.2

Table 23: 1st Episodes where care was sought (continue)

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
States				
Johor	266,820	67.5	128,605	32.5
Kedah	346,955	73.5	125,388	26.5
Kelantan	264,929	69.2	117,919	30.8
Melaka	103,671	79.2	27,241	20.8
N. Sembilan	118,744	63.9	67,010	36.1
Pahang	186,537	73.0	69,075	27.0
Pulau Pinang	187,654	81.9	41,509	18.1
Perak	323,000	72.0	125,372	28.0
Perlis	17,317	69.1	7,737	30.9
Selangor	543,630	76.2	169,548	23.8
Terengganu	165,616	71.6	65,768	28.4
Sabah	358,793	65.2	191,340	34.8
Sarawak	224,499	64.2	124,997	35.8
FT Kuala Lumpur	155,074	75.6	49,986	24.4
Individual income (NHMS III classification)				
Less than RM 400	194,112	65.7	101,479	34.3
RM 400 - RM 699	213,800	67.6	102,651	32.4
RM 700 - RM 999	199,393	72.0	77,739	28.1
RM 1000 - RM 1999	372,886	78.0	105,218	22.0
RM 2000 - RM 2999	164,054	80.7	39,149	19.3
RM 3000 - RM 3999	59,352	78.7	16,038	21.3
RM 4000 - RM 4999	19,250	72.7	7,224	27.3
RM 5000 & above	40,324	83.3	8,082	16.7
Individual income by EPU classification				
Less than RM 500	227,990	65.7	119,074	34.3
RM 500 - RM 999	379,314	70.0	162,794	30.0
RM 1000 - RM 1499	225,946	76.3	70,275	23.7
RM 1500 - RM 1999	146,940	80.8	34,942	19.2
RM 2000 - RM 2499	115,003	80.3	28,199	19.7
RM 2500 - RM 2999	49,051	81.8	10,950	18.3
RM 3000 - RM 3499	47,492	79.5	12,281	20.6
RM 3500 - RM 3999	11,860	75.9	3,757	24.1
RM 4000 - RM 4499	12,696	67.9	6,002	32.1
RM 4500 - RM 4999	6,554	84.3	1,222	15.7
RM 5000 & above	40,324	83.3	8,082	16.7
Income quartiles				
1 st quartile	311,067	65.5	163,999	34.5
2 nd quartile	241,526	71.7	95,559	28.4
3 rd quartile	355,454	76.0	112,111	24.0
4 th quartile	358,695	80.5	86,714	19.5

Table 24: 2nd Episodes where care was sought

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
Overall	1,612	27.4	4,278	72.6
Gender				
Male	995	31.8	2,131	68.2
Female	617	22.3	2,147	77.7
Residence				
Urban	323	20.3	1,271	79.7
Rural	1,289	30.0	3,006	70.0
Specific age group				
<5 years	-	-	-	-
5 years	324	100.0	-	-
12 years	-	-	-	-
16 years	-	-	-	-
16 years	-	-	324	100.0
Age group (by 5)				
0 – 4	-	-	-	-
5 – 9	941	72.7	354	27.3
10 – 14	348	25.5	1,019	74.6
15 – 19	-	-	672	100.0
20 – 24	-	-	446	100.0
25 – 29	-	-	446	100.0
30 – 34	-	-	-	-
35 – 39	-	-	348	100.0
40 – 44	-	-	-	-
45 – 49	-	-	290	100.0
50 – 54	-	-	354	100.0
55 – 59	-	-	348	100.0
60 – 64	323	100.0	-	-
65 – 74	-	-	-	-
75 – 79	-	-	-	-
80+	-	-	-	-
Unclassified	-	-	-	-
Age group for oral health				
Toddler (0-4)	-	-	-	-
Preschool (5-6)	324	100.0	-	-
Primary (7-12)	965	47.2	1,081	52.8
Secondary (13-17)	-	-	965	100.0
Young Adults (18-29)	-	-	892	100.0
Middle-Aged (35-44)	-	-	348	100.0
Elderly (60+)	-	-	-	-
Elderly (65+)	-	-	-	-
Elderly group (70+)	-	-	992	100.0

Table 24: 2nd Episodes where care was sought (continue)

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
Race				
Malays	649	24.1	2,049	76.0
Chinese	-	-	-	-
Indians	-	-	-	-
Other Bumiputera	348	13.5	2,229	86.5
Others	615	100.0	-	-
Marital status				
Not married	-	-	1,411	100.0
Married	323	17.8	1,496	82.2
Divorcee	-	-	-	-
Widow/Widower	-	-	290	100.0
Not applicable	1,289	54.4	1,081	45.6
Citizenship				
Malaysian	1,289	23.2	4,278	76.8
Non-Malaysian	323	100.0	-	-
Education level				
None	1,288	45.8	1,527	54.3
Primary	-	-	640	100.0
Secondary	-	-	2,110	100.0
Tertiary	-	-	-	-
Not Applicable	324	100.0	-	-
Unclassified	-	-	-	-
Occupation status				
Senior Official & Manager	-	-	-	-
Professionals	-	-	-	-
Technical & Associate	-	-	-	-
Clerical Workers	-	-	-	-
Service Workers & Shop	-	-	800	100.0
Skilled Agricultural & Fishery	-	-	348	100.0
Craft & Related Trade Workers	-	-	-	-
Plant & Machine Operator & Assembler	-	-	-	-
Elementary Occupations	-	-	-	-
Housewife	-	-	1,084	100.0
Unemployed	323	48.1	348	51.9
< 13 & Not schooling	965	47.2	1,081	52.8
< 13 & Primary school	-	-	-	-
Unclassified	-	-	617	100.0

Table 24: 2nd Episodes where care was sought (continue)

Variable	Sought treatment?			
	Yes		No	
	n	%	n	%
State				
Johor	649	66.7	324	33.3
Kedah	-	-	-	-
Kelantan	-	-	-	-
Melaka	-	-	-	-
N. Sembilan	-	-	-	-
Pahang	-	-	-	-
Pulau Pinang	-	-	708	100.0
Perak	-	-	-	-
Perlis	-	-	-	-
Selangor	-	-	290	100.0
Terengganu	-	-	379	100.0
Sabah	615	67.8	292	32.2
Sarawak	348	13.2	2284	86.8
FT Kuala Lumpur	-	-	-	-
Individual income (NHMS III classification)				
Less than RM 400	-	-	794	100.0
RM400-RM699	-	-	-	-
RM700-RM999	-	-	-	-
RM 1000 - RM 1999	-	-	354	100.0
RM2000-RM2999	-	-	-	-
RM3000-RM3999	-	-	-	-
RM4000-RM4999	-	-	-	-
RM5000 & above	-	-	-	-
Individual income by EPU classification				
Less than RM 500	-	-	794	100.0
RM500-RM999	-	-	-	-
RM 1000 - RM 1499	-	-	354	100.0
RM1500-RM1999	-	-	-	-
RM2000-RM2499	-	-	-	-
RM2500-RM2999	-	-	-	-
RM3000-RM3499	-	-	-	-
RM3500-RM3999	-	-	-	-
RM4000-RM4499	-	-	-	-
RM5000 & above	-	-	-	-
Income based on quartiles				
1 st quartile	-	-	794	100.0
2 nd quartile	-	-	-	-
3 rd quartile	-	-	354	100.0
4 th quartile	-	-	-	-

Table 25: 3rd Episodes where care was sought

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
All	672	14.0	4,125	86.0
Gender				
Male	348	12.6	2,424	87.5
Female	324	16.0	1,701	84.0
Residence				
Urban	-	-	1,148	100.0
Rural	672	18.4	2,977	81.6
Specific age group				
5 years	324	100.0	-	-
16 years	-	-	324	100.0
Age group (by 5)				
5-9	324	32.4	678	67.7
10-14	348	25.5	1,019	74.6
15-19	-	-	672	100.0
20-24	-	-	446	100.0
35-39	-	-	348	100.0
45-49	-	-	290	100.0
55-59	-	-	348	100.0
60-64	-	-	323	100.0
65-74	-	-	-	-
75-79	-	-	-	-
80+	-	-	-	-
Age group for oral health				
Toddler (0-4)	-	-	-	-
Preschool (5-6)	324	100.0	-	-
Primary (7-12)	348	19.9	1,405	80.2
Secondary (13-17)	-	-	965	100.0
Young Adults (18-29)	-	-	446	100.0
Middle-Aged (35-44)	-	-	348	100.0
Elderly (60+)	-	-	-	-
Elderly (65+)	-	-	-	-
Elderly (70+)	-	-	638	100.0
Race				
Malays	324	13.8	2,020	86.2
Chinese	-	-	-	-
Indian	-	-	-	-
Other Bumiputera	348	16.3	1,782	83.7
Others	-	-	323	100.0
Marital status				
Not married	-	-	1,411	100.0
Married	-	-	1,019	100.0
Divorcee	-	-	-	-
Widow/Widower	-	-	290	100.0
Not applicable	672	32.4	1,405	67.6
Unclassified	-	-	-	-

Table 25: 3rd Episodes where care was sought (continue)

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
Citizenship				
Malaysian	672	15.0	3,802	85.0
Non-Malaysian	-	-	323	100.0
Unclassified	-	-	-	-
Education level				
None	348	13.8	2,174	86.2
Primary	-	-	640	100.0
Secondary	-	-	1,310	100.0
Tertiary	-	-	-	-
Not Applicable	324	100.0	-	-
Occupation status				
Senior Official & Manager	-	-	-	-
Professionals	-	-	-	-
Technical & Associate	-	-	-	-
Clerical Workers	-	-	-	-
Service Workers & Shop	-	-	446	100.0
Skilled Agricultural & Fishery	-	-	348	100.0
Craft & Related Trade Workers	-	-	-	-
Plant and Machine Operator & Assembler	-	-	-	-
Elementary Occupations	-	-	-	-
Housewife	-	-	638	100.0
Unemployed	-	-	671	100.0
< 13 & Not schooling	348	19.9	1,405	80.2
<13 & schooling	-	-	-	-
Unclassified	-	-	617	100.0
State				
Johor	324	33.3	649	66.7
Kedah	-	-	-	-
Kelantan	-	-	-	-
Melaka	-	-	-	-
N. Sembilan	-	-	-	-
Pahang	-	-	354	100.0
Pulau Pinang	-	-	-	-
Perak	-	-	-	-
Perlis	-	-	-	-
Selangor	-	-	290	100.0
Terengganu	-	-	379	100.0
Sabah	-	-	615	100.0
Sarawak	348	15.9	1838	84.1
FT Kuala Lumpur	-	-	-	-

Table 25: 3rd Episodes where care was sought (continue)

Variable	Sought Treatment?			
	Yes		No	
	n	%	n	%
Individual income (NHMS III classification)				
Less than RM 400	-	-	794	100.0
RM 400 - RM 699	-	-	-	-
RM 700 - RM 999	-	-	-	-
RM 1000 - RM 1999	-	-	-	-
RM 2000 - RM 2999	-	-	-	-
RM 3000 - RM 3999	-	-	-	-
RM 4000 - RM 4999	-	-	-	-
RM 5000 & above	-	-	-	-
Individual income by EPU classification				
Less than RM 500	-	-	794	100.0
RM 500 - RM 999	-	-	-	-
RM 1000 - RM 1499	-	-	-	-
RM 1500 - RM 1999	-	-	-	-
RM 2000 - RM 2499	-	-	-	-
RM 2500 - RM 2999	-	-	-	-
RM 3000 - RM 3499	-	-	-	-
RM 3500 - RM 3999	-	-	-	-
RM 4000 - RM 4499	-	-	-	-
RM 4500 - RM 4999	-	-	-	-
RM 5000 & above	-	-	-	-
Income based on quartiles				
1 st quartile	-	-	794	100.0
2 nd quartile	-	-	-	-
3 rd quartile	-	-	-	-
4 th quartile	-	-	-	-

Table 26: Seeking of care over 3 episodes

Variable	Yes		No	
	n	%	n	%
All	3,261,768	71.3	1,313,637	28.7
Gender				
Male	1,531,735	70.9	628,152	29.1
Female	1,730,033	71.6	685,485	28.4
Residence				
Urban	2,048,938	73.5	739,577	26.5
Rural	1,212,830	67.9	574,060	32.1
Specific age group				
<5 years	89,721	63.3	52,112	36.7
5 years	71,787	67.8	34,093	32.2
6 years	108,347	72.2	41,704	27.8
12 years	90,279	74.0	31,743	26.0
16 years	65,311	57.4	48,558	42.6
Age group (by 5)				
0 – 4	94,031	63.4	54,332	36.6
5 – 9	577,540	73.8	205,533	26.3
10 – 14	472,072	70.8	194,434	29.2
15 – 19	289,279	59.4	197,797	40.6
20 – 24	227,954	65.9	117,785	34.1
25 – 29	248,556	70.1	106,129	29.9
30 – 34	245,866	75.2	80,960	24.8
35 – 39	243,891	75.9	77,537	24.1
40 – 44	254,627	76.7	77,190	23.3
45 – 49	211,079	77.1	62,606	22.9
50 – 54	163,893	75.3	53,734	24.7
55 – 59	115,537	76.1	36,203	23.9
60 – 64	56,520	73.2	20,685	26.8
65 – 74	50,123	70.6	20,900	29.4
75 – 79	5,995	60.3	3,951	39.7
80+	4,481	60.8	2,890	39.2
Unclassified	323	25.0	968	75.0
Age group for oral health				
Toddler (0-4)	89,721	63.3	52,112	36.7
Preschool (5-6)	180,134	70.4	75,797	29.6
Primary (7-12)	697,248	76.3	216,698	23.7
Secondary (13-17)	343,605	60.6	223,699	39.4
Young Adults (18-29)	535,100	66.0	276,165	34.0
Middle-aged (35-44)	474,431	76.0	150,166	24.0
Elderly (60+)	53,785	73.4	19,485	26.6
Elderly (65+)	33,698	74.3	11,672	25.7
Elderly (70+)	714,127	75.8	227,612	24.2
Race				
Malays	2,056,675	71.3	829,806	28.8
Chinese	504,109	72.8	187,974	27.2
Indian	291,216	80.7	69,771	19.3
Other Bumiputera	312,809	63.8	177,408	36.2
Others	96,958	66.6	48,677	33.4

Table 26: Seeking of care over 3 episodes (continue)

Variable	Yes		No	
	n	%	n	%
Marital Status				
Not married	772,628	64.0	435,173	36.0
Married	1,404,363	74.6	479,054	25.4
Divorcee	30,573	65.7	15,998	34.4
Widow/Widower	47,985	68.2	22,387	31.8
Not applicable	996,026	73.6	358,281	26.5
Unclassified	10,193	78.8	2,743	21.2
Citizenship				
Malaysian	3,170,283	71.6	1,257,034	28.4
Non-Malaysian	90,457	61.5	56,603	38.5
Unclassified	1,027	100.0	-	-
Education level				
None	776,610	75.0	259,221	25.0
Primary	762,197	68.2	356,261	31.9
Secondary	1,177,998	70.6	491,503	29.4
Tertiary	284,391	78.4	78,317	21.6
Not Applicable	241,976	67.5	116,578	32.5
Unclassified	18,596	61.3	11,757	38.7
Occupation status				
Senior Official & Manager	42,596	79.1	11,259	20.9
Professionals	172,907	77.1	51,308	22.9
Technical & Associate	215,127	79.5	55,561	20.5
Clerical Workers	138,089	76.9	41,509	23.1
Service Workers & Shop	322,112	72.3	123,427	27.7
Skilled Agricultural & Fishery	120,032	67.0	59,144	33.0
Craft & Related Trade Workers	123,891	72.4	47,193	27.6
Plant & Machine Operator & Assembler	105,798	71.6	41,920	28.4
Elementary Occupations	75,314	64.9	40,804	35.1
Housewife	389,863	71.1	158,313	28.9
Unemployed	127,648	58.8	89,334	41.2
< 13 & Not schooling	687,199	76.8	208,050	23.2
< 13 & Primary school	63,215	65.7	33,052	34.3
Unclassified	432,364	64.8	235,093	35.2

Table 26: Seeking of care over 3 episodes (continue)

Variable	Yes		No	
	n	%	n	%
State				
Johor	266,496	67.4	128,930	32.6
Kedah	346,955	73.5	125,388	26.6
Kelantan	264,929	69.2	117,919	30.8
Melaka	103,671	79.2	27,241	20.8
N.Sembilan	118,744	63.9	67,010	36.1
Pahang	186,183	72.8	69,429	27.2
Pulau Pinang	187,654	81.9	41,509	18.1
Perak	323,000	72.0	125,372	28.0
Perlis	17,317	69.1	7,737	30.9
Selangor	543,630	76.2	169,548	23.8
Terengganu	165,616	71.6	65,768	28.4
Sabah	358,793	65.2	191,663	34.8
Sarawak	223,704	63.9	126,139	36.1
FT Kuala Lumpur	155,074	75.6	49,986	24.4
Individual income (NHMS III classification)				
Less than RM 400	194,112	65.6	101,827	34.4
RM 400 - RM 699	213,800	67.6	102,651	32.4
RM 700 - RM 999	199,393	72.0	77,739	28.1
RM 1000 - RM 1999	372,532	77.9	105,572	22.1
RM 2000 - RM 2999	164,054	80.7	39,149	19.3
RM 3000 - RM 3999	59,352	78.7	16,038	21.3
RM 4000 - RM 4999	19,250	72.7	7,224	27.3
RM 5000 & above	40,324	83.3	8,082	16.7
Individual income by EPU classification				
Less than RM 500	227,990	65.6	119,422	34.4
RM 500 - RM 999	379,314	70.0	162,794	30.0
RM 1000 - RM 1499	225,592	76.2	70,629	23.8
RM 1500 - RM 1999	146,940	80.8	34,942	19.2
RM 2000 - RM 2499	115,003	80.3	28,199	19.7
RM 2500 - RM 2999	49,051	81.8	10,950	18.3
RM 3000 - RM 3499	47,492	79.5	12,281	20.6
RM 3500 - RM 3999	11,860	75.9	3,757	24.1
RM 4000 - RM 4499	12,696	67.9	6,002	32.1
RM 4500 - RM 4999	6,554	84.3	1,222	15.7
RM 5000 & above	40,324	83.3	8,082	16.7
Income based on quartiles				
1 st quartile	311,067	65.4	164,347	34.6
2 nd quartile	241,526	71.7	95,559	28.4
3 rd quartile	355,100	76.0	112,465	24.1
4 th quartile	358,695	80.5	86,714	19.5

Table 27: Seeking of dental care in painful and non-painful episodes

Variable	Pain				No pain			
	Sought care?							
	No		Yes		No		Yes	
	n	%	n	%	n	%	n	%
All	586,862	24.1	1,847,350	75.9	725,835	33.9	1,413,801	66.1
Gender								
Male	278,314	23.9	884,186	76.1	349,191	35.0	647,549	65.0
Female	308,549	24.3	963,164	75.7	376,644	33.0	766,252	67.0
Residence								
Urban	313,521	21.0	1,180,627	79.0	425,732	32.9	868,311	67.1
Rural	273,341	29.1	666,724	70.9	300,103	35.5	545,490	64.5
Specific age group								
<5 years	28,665	32.2	60,294	67.8	23,447	44.3	29,427	55.7
5 years	17,031	29.6	40,514	70.4	17,061	35.5	30,949	64.5
6 years	19,099	25.6	55,576	74.4	22,605	30.0	52,771	70.0
12 years	12,054	30.0	28,150	70.0	19,689	24.1	62,129	75.9
16 years	16,271	37.0	27,748	63.0	32,286	46.2	37,563	53.8
Age group (by 5)								
0-4	29,381	31.6	63,564	68.4	24,951	45.0	30,467	55.0
5-9	82,794	25.2	245,754	74.8	122,415	27.0	331,170	73.0
10-14	80,530	32.2	169,671	67.8	113,612	27.3	302,401	72.7
15-19	83,635	37.4	140,211	62.6	114,162	43.4	149,068	56.6
20-24	55,544	26.7	152,326	73.3	62,241	45.1	75,628	54.9
25-29	45,766	21.0	171,865	79.0	60,363	44.0	76,691	56.0
30-34	39,454	19.8	160,142	80.2	41,506	32.6	85,724	67.4
35-39	40,274	19.1	170,778	80.9	37,263	33.8	73,112	66.2
40-44	34,191	16.8	169,037	83.2	42,999	33.4	85,591	66.6
45-49	31,160	18.2	140,432	81.8	31,446	30.8	70,648	69.2
50-54	26,264	19.1	111,569	80.9	27,470	34.4	52,324	65.6
55-59	15,184	16.8	75,413	83.2	21,019	34.4	40,124	65.6
60-64	8,315	18.8	36,013	81.2	12,048	37.0	20,507	63.0
65-74	10,624	24.6	32,476	75.4	10,277	36.8	17,647	63.2
75-79	2,015	35.5	3,655	64.5	1,937	45.3	2,340	54.7
80+	1,410	25.5	4,121	74.5	1,481	80.4	361	19.6
Unclassified	323	50.0	323	50.0	646	100.0	-	-
Age group for oral health								
Toddler (0-4)	28,665	32.2	60,294	67.8	23,447	44.3	29,427	55.7
Preschool (5-6)	36,130	27.3	96,090	72.7	39,667	32.1	83,720	67.9
Primary (7-12)	81,117	24.9	245,009	75.1	135,256	23.0	451,947	77.0
Secondary (13-17)	92,243	39.1	143,462	60.9	131,163	39.6	200,144	60.4
Young Adults (18-29)	128,305	26.5	355,619	73.5	147,860	45.2	179,481	54.8
Middle-aged (35-44)	72,416	18.4	322,024	81.6	77,749	33.8	152,407	66.2
Elderly (60+)	7,730	18.4	34,287	81.6	11,755	37.6	19,498	62.4
Elderly (65+)	5,444	21.0	20,525	79.0	6,228	32.1	13,173	67.9
Elderly (70+)	111,258	19.1	471,374	80.9	116,354	32.4	242,752	67.6
Race								
Malays	378,108	24.5	1,166,776	75.5	451,374	33.7	889,575	66.3
Chinese	65,979	19.3	275,376	80.7	121,995	34.8	228,733	65.2
Indian	27,366	13.9	169,352	86.1	42,405	25.8	121,864	74.2
Other Bumiputera	86,125	33.5	170,852	66.5	90,991	39.1	141,957	60.9
Others	29,284	31.1	64,994	68.9	19,071	37.6	31,671	62.4

Table 27: Seeking of dental care in painful and non-painful episodes (continue)

Variables	Pain				No pain			
	Sought care?							
	No		Yes		No		Yes	
	n	%	n	%	n	%	n	%
Marital status								
Not married	192,607	31.3	423,512	68.7	242,274	41.0	349,116	59.0
Married	223,738	19.1	944,758	80.9	254,993	35.7	459,605	64.3
Divorcee	5,860	21.3	21,653	78.7	10,139	53.2	8,920	46.8
Widow/Widower	12,597	27.9	32,573	72.1	9,790	38.8	15,412	61.2
Not applicable	150,677	26.4	420,092	73.6	207,280	26.5	575,317	73.5
Unclassified	1,384	22.5	4,762	77.5	1,359	20.0	5,431	80.0
Citizenship								
Malaysian	556,039	23.8	1,782,064	76.2	700,378	33.5	1,387,602	66.5
Non-Malaysian	30,823	32.3	64,628	67.7	25,457	49.6	25,829	50.4
Unclassified	-	-	658	100.0	-	-	370	100.0
Education level								
None	107,109	26.2	300,946	73.8	151,464	24.2	475,372	75.8
Primary	163,553	26.7	449,884	73.3	192,416	38.1	312,313	61.9
Secondary	224,270	22.8	757,666	77.2	267,233	38.9	420,333	61.1
Tertiary	25,999	12.6	180,335	87.4	52,318	33.5	104,056	66.5
Not Applicable	59,339	29.0	145,212	71.0	57,239	37.2	96,440	62.8
Unclassified	6,593	33.1	13,308	66.9	5,164	49.4	5,288	50.6
Occupation status								
Senior Official & Manager	6,378	18.4	28,217	81.6	4,881	25.3	14,380	74.7
Professionals	22,030	17.4	104,284	82.6	29,277	29.9	68,623	70.1
Technical & Associate	23,221	14.1	141,547	85.9	32,340	30.5	73,580	69.5
Clerical Workers	15,065	14.2	90,675	85.8	26,444	35.8	47,414	64.2
Service Workers & Shop	61,140	21.5	222,724	78.5	62,287	38.5	99,389	61.5
Skilled Agricultural & Fishery	30,086	27.4	79,547	72.6	29,058	41.8	40,485	58.2
Craft & Related Trade Workers	22,676	20.7	86,733	79.3	24,517	39.8	37,158	60.2
Plant & Machine Operator & Assembler	19,859	20.7	76,037	79.3	22,061	42.6	29,762	57.4
Elementary Occupations	21,655	30.4	49,465	69.6	19,149	42.6	25,850	57.4
Housewife	76,284	22.5	263,135	77.5	82,029	39.3	126,727	60.7
Unemployed	45,196	34.8	84,510	65.2	43,815	50.4	43,139	49.6
< 13 & Not schooling	78,781	24.1	247,747	75.9	128,944	22.7	439,160	77.3
< 13 & Primary school	12,695	34.0	24,666	66.0	20,357	34.6	38,549	65.4
Unclassified	92,103	31.5	200,386	68.5	142,697	38.1	231,978	61.9

Table 27: Seeking of dental care in painful and non-painful episodes (continue)

Variable	Pain				No pain			
	Sought care?							
	No		Yes		No		Yes	
	n	%	n	%	n	%	n	%
States								
Johor	62,589	26.8	171,004	73.2	66,016	41.0	95,167	59.0
Kedah	60,755	26.7	166,539	73.3	64,633	26.4	180,416	73.6
Kelantan	66,042	32.9	134,957	67.1	51,877	28.5	129,972	71.5
Melaka	13,683	15.7	73,689	84.3	13,558	31.1	29,982	68.9
N. Sembilan	24,078	26.0	68,369	74.0	42,932	46.0	50,375	54.0
Pahang	34,641	23.9	110,094	76.1	34,787	31.4	76,089	68.6
Pulau Pinang	18,874	16.6	94,827	83.4	22,635	19.6	92,827	80.4
Perak	39,907	22.7	135,713	77.3	85,465	31.3	187,287	68.7
Perlis	2,030	19.0	8,654	81.0	5,707	39.7	8,663	60.3
Selangor	69,295	16.7	345,727	83.3	100,252	33.6	197,903	66.4
Terengganu	29,999	23.7	96,760	76.3	35,769	34.2	68,856	65.8
Sabah	119,329	35.8	213,809	64.2	71,718	33.1	144,692	66.9
Sarawak	30,684	20.9	115,823	79.1	95,455	46.9	107,882	53.1
FT Kuala Lumpur	14,956	11.8	111,386	88.2	35,030	44.5	43,688	55.5
Individual income (NHMS III classification)								
Less than RM 400	48,898	27.9	126,560	72.1	52,929	43.9	67,552	56.1
RM 400 - RM 699	52,747	26.9	143,024	73.1	49,904	41.4	70,776	58.6
RM 700 - RM 999	41,877	23.7	134,508	76.3	35,861	35.6	64,885	64.4
RM 1000 - RM 1999	40,406	13.7	254,509	86.3	65,166	35.6	118,024	64.4
RM 2000 - RM 2999	18,604	14.7	108,262	85.3	20,546	26.9	55,792	73.1
RM 3000 - RM 3999	8,226	17.9	37,764	82.1	7,812	26.6	21,587	73.4
RM 4000 - RM 4999	2,309	14.6	13,548	85.4	4,915	46.3	5,702	53.7
RM 5000 & above	3,475	12.7	23,789	87.3	4,607	21.8	16,536	78.2
Income group by EPU classification								
Less than RM 500	59,486	28.9	146,373	71.1	59,936	42.3	81,617	57.7
RM 500 - RM 999	84,036	24.6	257,719	75.4	78,758	39.3	121,596	60.7
RM 1000 - RM 1499	28,684	15.7	154,292	84.3	41,945	37.0	71,300	63.0
RM 1500 - RM 1999	11,722	10.5	100,217	89.5	23,221	33.2	46,724	66.8
RM 2000 - RM 2499	12,271	13.9	75,862	86.1	15,928	28.9	39,141	71.1
RM 2500 - RM 2999	6,333	16.3	32,400	83.7	4,618	21.7	16,651	78.3
RM 3000 - RM 3499	6,278	17.4	29,833	82.6	6,003	25.4	17,659	74.6
RM 3500 - RM 3999	1,948	19.7	7,931	80.3	1,809	31.5	3,929	68.5
RM 4000 - RM 4499	1,552	14.8	8,942	85.2	4,449	54.2	3,755	45.8
RM 4500 - RM 4999	757	14.1	4,607	85.9	465	19.3	1,947	80.7
RM 5000 & above	3,475	12.7	23,789	87.3	4,607	21.8	16,536	78.2
Income based on quartiles								
1 st quartile	82,374	29.0	201,255	71.0	81,973	42.7	109,812	57.3
2 nd quartile	47,622	22.3	166,130	77.7	47,936	38.9	75,397	61.1
3 rd quartile	50,143	17.2	242,131	82.8	62,322	35.6	112,969	64.4
4 th quartile	37,206	13.7	234,782	86.3	49,508	28.5	123,913	71.5

Table 28: Seeking of dental care in private and public facilities in painful and non-painful

Variable	Pain				No Pain				Overall			
	Public and Private Facilities											
	Public		Private		Public		Private		Public		Private	
	n	%	n	%	n	%	n	%	n	%	n	%
Overall	814,407	45.2	988,547	54.8	893,627	65.0	482,287	35.1	1,711,634	53.7	1,475,950	46.3
Gender												
Male	386,394	44.7	478,436	55.3	415,826	66.4	210,465	33.6	804,460	53.7	692,483	46.3
Female	428,013	45.6	510,111	54.4	477,801	63.7	271,822	36.3	907,173	53.7	783,467	46.3
Residence												
Urban	462,415	40.1	690,045	59.9	510,831	60.5	333,377	39.5	974,527	48.7	1,025,838	51.3
Rural	351,991	54.1	298,502	45.9	382,796	72.0	148,910	28.0	737,107	62.1	450,112	37.9
Specific age group												
<5 years	19,782	33.7	38,972	66.4	17,287	63.1	10,098	36.9	37,483	42.9	49,865	57.1
5 years	22,096	54.1	18,742	45.9	22,127	71.4	8,852	28.6	44,546	61.8	27,593	38.3
6 years	27,378	50.7	26,589	49.3	39,598	75.7	12,739	24.3	66,976	63.0	39,328	37.0
12 years	17,410	62.3	10,528	37.7	57,793	94.1	3,630	5.9	75,203	84.2	14,158	15.8
16 years	18,766	67.6	8,983	32.4	32,438	87.1	4,817	12.9	51,203	77.9	14,501	22.1
Age group (by 5)												
0 - 4	21,740	35.1	40,264	64.9	17,610	62.8	10,421	37.2	39,784	43.6	51,480	56.4
5 - 9	139,176	57.9	101,311	42.1	276,965	84.8	49,785	15.2	416,464	73.3	151,419	26.7
10 - 14	119,879	72.7	45,019	27.3	272,370	91.9	24,056	8.1	392,926	85.0	69,429	15.0
15 - 19	81,128	59.7	54,793	40.3	115,712	79.2	30,453	20.8	196,840	69.4	86,623	30.6
20 - 24	62,486	42.0	86,186	58.0	30,413	41.0	43,720	59.0	92,899	41.7	129,906	58.3
25 - 29	60,634	36.3	106,308	63.7	24,780	34.5	47,066	65.5	86,150	35.9	154,131	64.2
30 - 34	54,961	35.1	101,850	65.0	33,530	41.1	48,035	58.9	88,491	37.1	149,884	62.9
35 - 39	57,909	34.3	110,724	65.7	20,861	29.7	49,368	70.3	78,770	32.9	160,492	67.1
40 - 44	58,077	34.8	109,005	65.2	32,042	38.1	52,031	61.9	90,119	35.9	161,035	64.1
45 - 49	50,275	37.0	85,793	63.1	24,357	36.0	43,218	64.0	74,980	36.6	129,799	63.4
50 - 54	40,558	37.7	67,015	62.3	15,474	30.2	35,700	69.8	56,430	35.4	103,037	64.6
55 - 59	30,779	41.5	43,333	58.5	11,650	30.6	26,444	69.4	42,764	38.0	69,777	62.0
60 - 64	16,467	47.4	18,290	52.6	9,473	47.7	10,380	52.3	25,941	47.5	28,670	52.5
65 - 74	17,864	55.8	14,177	44.3	6,568	38.0	10,731	62.0	24,781	49.9	24,908	50.1
75 - 79	1,027	35.0	1,910	65.0	1,460	62.4	880	37.6	2,487	47.1	2,790	52.9
80+	1,449	39.2	2,246	60.8	361	100.0	-	-	1,809	44.6	2,246	55.4
Unclassified	-	-	323	100.0	-	-	-	-	-	-	323	100.0
Age group for oral health												
Toddler (0-4)	19,782	33.7	38,972	66.4	17,287	63.1	10,098	36.9	37,483	42.9	49,865	57.1
Preschool (5-6)	49,475	52.2	45,331	47.8	61,724	74.1	21,591	25.9	111,522	62.5	66,922	37.5
Primary (7-12)	157,692	66.1	80,863	33.9	402,508	90.6	41,612	9.4	560,654	82.0	123,151	18.0
Secondary (13-17)	97,999	70.8	40,330	29.2	172,015	87.4	24,764	12.6	270,337	80.4	65,796	19.6
Young Adults (18-29)	138,196	40.0	207,709	60.1	70,916	41.2	101,403	58.8	209,848	40.3	310,543	59.7
Middle-aged (35-44)	109,648	34.5	208,275	65.5	50,422	34.1	97,585	65.9	160,070	34.3	306,260	65.7
Elderly (60+)	16,144	48.9	16,888	51.1	9,150	48.6	9,694	51.4	25,295	48.8	26,581	51.2
Elderly (65+)	10,309	51.3	9,782	48.7	5,652	44.1	7,173	55.9	16,308	49.0	16,955	51.0
Elderly (70+)	171,787	37.4	287,057	62.6	83,227	35.8	149,437	64.2	256,096	36.9	437,604	63.1

Table 28: Seeking of dental care in private and public facilities in painful and non-painful episodes (continue)

Variable	Pain				No Pain				Overall			
	Public and Private Facilities											
	Public		Private		Public		Private		Public		Private	
	n	%	n	%	n	%	n	%	n	%	n	%
Race												
Malays	533,783	47.0	603,193	53.1	586,131	68.0	276,259	32.0	1,122,365	55.9	884,219	44.1
Chinese	74,041	27.3	196,766	72.7	114,023	50.7	110,783	49.3	188,511	38.0	307,549	62.0
Indian	78,718	48.0	85,254	52.0	76,808	64.1	42,935	35.9	155,526	54.8	128,189	45.2
Other Bumiputera	104,824	62.6	62,604	37.4	99,602	71.9	38,924	28.1	205,127	66.8	101,876	33.2
Others	23,041	36.1	40,731	63.9	17,063	56.0	13,386	44.0	40,105	42.6	54,117	57.4
Marital status												
Not married	201,918	49.4	207,254	50.7	225,476	66.3	114,863	33.8	428,006	56.9	323,815	43.1
Married	352,061	38.0	573,489	62.0	163,295	37.0	278,595	63.1	517,234	37.7	854,029	62.3
Divorcee	8,160	37.7	13,493	62.3	4,256	50.1	4,238	49.9	12,416	41.2	17,731	58.8
Widow/Widower	12,883	41.5	18,140	58.5	7,998	51.9	7,415	48.1	20,880	45.0	25,554	55.0
Not applicable	237,777	57.9	173,017	42.1	489,158	86.6	75,591	13.4	728,045	74.4	250,081	25.6
Unclassified	1,608	33.8	3,154	66.2	3,445	68.5	1,586	31.5	5,052	51.6	4,740	48.4
Citizenship												
Malaysian	798,864	45.9	940,141	54.1	886,674	65.6	464,264	34.4	1,689,138	54.5	1,409,521	45.5
Non-Malaysian	15,237	24.1	48,054	75.9	6,583	26.8	18,024	73.3	21,820	24.8	66,078	75.2
Unclassified	306	46.5	352	53.5	370	100.0	-	-	676	65.8	352	34.3
Education level												
None	187,969	64.2	105,056	35.9	404,592	86.8	61,610	13.2	593,263	78.0	167,691	22.0
Primary	209,356	47.8	228,733	52.2	200,742	65.8	104,289	34.2	411,615	55.2	334,022	44.8
Secondary	306,424	41.5	431,686	58.5	196,574	48.3	210,234	51.7	502,998	43.9	643,782	56.1
Tertiary	43,521	24.4	134,599	75.6	23,447	23.8	75,105	76.2	67,593	24.3	210,138	75.7
Not Applicable	62,916	44.1	79,813	55.9	65,637	69.8	28,396	30.2	129,309	54.3	109,005	45.7
Unclassified	4,221	32.8	8,660	67.2	2,635	49.8	2,653	50.2	6,857	37.7	11,313	62.3
Occupation status												
Senior Official & Manager	4,812	17.6	22,536	82.4	803	5.8	13,142	94.2	5,616	13.5	36,113	86.5
Professionals	30,117	29.3	72,659	70.7	16,908	25.6	49,135	74.4	47,026	27.9	121,794	72.1
Technical & Associate	45,175	32.7	93,013	67.3	24,866	34.7	46,794	65.3	70,041	33.4	139,808	66.6
Clerical Workers	27,765	31.7	59,817	68.3	19,512	42.6	26,319	57.4	47,567	35.6	86,136	64.4
Service Workers & Shop Skilled	73,040	33.3	146,497	66.7	34,656	37.0	59,028	63.0	108,477	34.5	205,926	65.5
Agricultural & Fishery	39,144	50.6	38,229	49.4	20,443	52.2	18,716	47.8	59,586	51.0	57,292	49.0
Craft & Related Trade Workers	32,066	37.8	52,686	62.2	10,484	28.6	26,209	71.4	42,550	35.0	78,894	65.0
Plant & Machine Operator	27,732	36.7	47,810	63.3	8,752	31.4	19,089	68.6	36,884	35.3	67,655	64.7
Elementary Occupations	16,831	34.9	31,343	65.1	9,365	38.8	14,767	61.2	26,544	36.4	46,464	63.6
Housewife	116,898	45.6	139,513	54.4	54,510	44.1	69,111	55.9	171,755	45.1	208,946	54.9
Unemployed < 13 & Not schooling	39,287	48.2	42,166	51.8	20,650	49.5	21,096	50.5	59,937	48.4	63,937	51.6
< 13 & Primary school	156,537	65.0	84,285	35.0	387,429	89.7	44,276	10.3	544,320	80.8	129,238	19.2
Unclassified	17,071	68.9	7,705	31.1	35,324	93.3	2,519	6.7	52,395	83.7	10,224	16.3
	123,764	64.1	69,260	35.9	183,519	80.9	43,290	19.1	307,606	73.2	112,904	26.9

Table 28: Seeking of dental care in private and public facilities in painful and non-painful episodes (continue)

Variable	Pain				No Pain				Overall			
	Public and Private Facilities											
	Public		Private		Public		Private		Public		Private	
	n	%	n	%	n	%	n	%	n	%	n	%
State												
Johor	73,382	44.2	92,591	55.8	54,114	58.6	38,172	41.4	128,998	49.9	118,331	45.7
Kedah	68,123	41.4	96,612	58.7	115,074	64.7	62,671	35.3	185,940	54.1	107,759	31.4
Kelantan	61,555	46.7	70,147	53.3	90,793	72.2	34,897	27.8	152,289	58.7	86,422	33.3
Melaka	39,118	55.0	32,072	45.1	17,798	60.4	11,693	39.7	56,424	56.0	40,776	40.5
N.Sembilan	35,543	54.0	30,322	46.0	30,104	60.2	19,939	39.8	65,979	56.9	45,825	39.5
Pahang	53,769	49.6	54,555	50.4	46,115	63.1	27,000	36.9	100,592	55.0	65,116	35.6
Pulau Pinang	28,247	30.1	65,471	69.9	59,776	65.1	32,008	34.9	88,022	47.4	91,956	49.5
Perak	64,878	49.0	67,426	51.0	146,635	79.3	38,326	20.7	211,514	66.7	97,389	30.7
Perlis	5,511	66.3	2,804	33.7	4,212	70.2	1,790	29.8	9,722	67.9	4,256	29.7
Selangor	124,699	37.4	208,876	62.6	105,757	56.2	82,455	43.8	231,179	44.2	292,199	55.8
Terengganu	41,422	43.8	53,138	56.2	48,779	73.0	18,023	27.0	90,201	55.9	71,161	44.1
Sabah	117,038	55.3	94,633	44.7	98,606	69.3	43,624	30.7	215,644	60.9	138,257	39.1
Sarawak	60,582	54.3	51,021	45.7	58,940	56.3	45,712	43.7	120,664	55.4	97,080	44.6
FT Kuala Lumpur	40,540	37.1	68,878	63.0	16,924	39.5	25,977	60.6	57,464	37.7	94,855	62.3
Individual income (NHMS III classification)												
Less than RM 400	56,320	45.9	66,482	54.1	34,173	51.7	31,935	48.3	91,241	48.0	98,765	52.0
RM 400 – RM 699	59,682	42.4	80,938	57.6	30,586	44.9	37,567	55.1	90,269	43.2	118,828	56.8
RM 700 – RM 999	51,213	38.7	81,201	61.3	25,151	40.1	37,554	59.9	77,100	39.3	119,109	60.7
RM 1000 – RM 1999	83,568	33.8	164,052	66.3	35,724	31.8	76,741	68.2	119,627	33.1	241,627	66.9
RM 2000 – RM 2999	21,236	20.3	83,502	79.7	9,140	17.1	44,440	82.9	30,376	19.2	127,942	80.8
RM 3000 – RM 3999	5,834	15.8	31,103	84.2	3,760	19.2	15,872	80.9	9,594	17.0	46,974	83.0
RM 4000 – RM 4999	1,498	10.7	12,484	89.3	769	13.5	4,933	86.5	2,267	11.5	17,417	88.5
RM 5000 & above	3,276	14.0	20,078	86.0	868	5.5	14,800	94.5	4,144	10.5	35,312	89.5
Individual income by EPU classification												
Less than RM 500	66,255	46.4	76,683	53.7	42,356	53.9	36,247	46.1	109,358	49.1	113,278	50.9
RM 500 – RM 999	100,960	39.9	151,938	60.1	47,555	40.2	70,808	59.8	149,251	40.1	223,423	60.0
RM 1000 – RM 1499	54,069	36.1	95,710	63.9	21,309	31.2	47,080	68.8	75,378	34.6	142,790	65.5
RM 1500 – RM 1999	29,498	30.2	68,341	69.9	14,415	32.7	29,661	67.3	44,248	30.9	98,837	69.1
RM 2000 – RM 2499	15,210	20.8	57,854	79.2	5,633	15.1	31,722	84.9	20,843	18.9	89,576	81.1
RM 2500 – RM 2999	6,026	19.0	25,648	81.0	3,507	21.6	12,718	78.4	9,533	19.9	38,366	80.1
RM 3000 – RM 3499	4,651	15.8	24,788	84.2	3,760	23.0	12,614	77.0	8,411	18.4	37,402	81.6
RM 3500 – RM 3999	1,183	15.8	6,315	84.2	-	-	3,258	100.0	1,183	11.0	9,573	89.0
RM 4000 – RM 4499	1,007	10.7	8,369	89.3	446	11.9	3,308	88.1	1,453	11.1	11,677	88.9
RM 4500 - RM 4999	491	10.7	4,115	89.3	323	16.6	1,625	83.4	814	12.4	5,740	87.6
RM 5000 & above	3,276	14.0	20,078	86.0	868	5.5	14,800	94.5	4,144	10.5	35,312	89.5
Income based on quartiles												
1 st quartile	86,718	44.0	110,503	56.0	54,582	51.3	51,893	48.7	142,048	46.6	163,066	53.4
2 nd quartile	67,337	41.4	95,288	58.6	26,371	36.1	46,737	63.9	94,154	39.8	142,379	60.2
3 rd quartile	80,018	34.1	154,936	65.9	37,892	35.2	69,765	64.8	118,535	34.5	225,101	65.5
4 th quartile	49,715	21.6	180,286	78.4	21,695	18.4	96,315	81.6	71,410	20.5	277,469	79.5

Table 29: Sources of dental care (5 main categories)

Variable	Sources of care									
	Public		Private		Traditional care		Self Care		Others	
	n	%	n	%	n	%	n	%	n	%
Overall	1,712,852	53.7	1,269,923	39.8	9,254	0.3	165,448	5.2	30,107	0.9
Gender										
Male	806,367	53.9	576,004	38.5	4,106	0.3	96,074	6.4	14,392	1.0
Female	906,485	53.6	693,919	41.0	5,148	0.3	69,374	4.1	15,715	0.9
Residence										
Urban	972,113	48.6	915,638	45.8	6,972	0.4	88,240	4.4	17,402	0.9
Rural	740,740	62.4	354,285	29.8	2,282	0.2	77,208	6.5	12,705	1.1
Specific age group										
<5 years	38,645	44.2	38,262	43.8	-	-	8,235	9.4	2,206	2.5
5 years	44,546	61.8	22,516	31.2	-	-	5,077	7.0	-	-
6 years	67,643	63.6	31,750	29.9	-	-	5,869	5.5	1,042	1.0
12 years	75,203	84.2	12,222	13.7	-	-	1,501	1.7	434	0.5
16 years	51,203	77.9	9,724	14.8	-	-	4,777	7.3	-	-
Age group (by 5)										
0 - 4	40,946	44.9	39,554	43.3	-	-	8,235	9.0	2,529	2.8
5 - 9	416,319	73.3	126,497	22.3	1,134	0.2	21,017	3.7	2,916	0.5
10 - 14	393,661	85.1	55,647	12.0	-	-	10,744	2.3	2,304	0.5
15 - 19	197,113	69.5	65,800	23.2	1,073	0.4	15,714	5.5	3,762	1.3
20 - 24	88,929	39.9	110,291	49.5	4,349	2.0	16,458	7.4	2,778	1.3
25 - 29	86,098	35.8	133,546	55.6	1,046	0.4	18,125	7.5	1,467	0.6
30 - 34	88,688	37.2	132,918	55.8	786	0.3	14,119	5.9	1,864	0.8
35 - 39	78,763	32.9	140,262	58.6	434	0.2	16,960	7.1	2,844	1.2
40 - 44	90,566	36.1	146,434	58.3	-	-	11,466	4.6	2,690	1.1
45 - 49	74,881	36.6	116,613	57.0	434	0.2	10,803	5.3	2,048	1.0
50 - 54	57,880	36.3	90,856	57.0	-	-	8,652	5.4	2,080	1.3
55 - 59	43,991	39.1	62,866	55.9	-	-	3,957	3.5	1,727	1.5
60 - 64	25,941	47.5	22,158	40.6	-	-	6,086	11.1	426	0.8
65 - 74	24,781	49.9	21,828	43.9	-	-	2,407	4.8	672	1.4
75 - 79	2,487	47.1	2,390	45.3	-	-	400	7.6	-	-
80+	1,809	44.6	1,942	47.9	-	-	305	7.5	-	-
Unclassified	-	-	323	100.0	-	-	-	-	-	-
Age group for oral health										
Toddler (0-4)	38,645	44.2	38,262	43.8	-	-	10,947	6.1	1,042	0.6
Preschool (5-6)	112,188	62.9	54,266	30.4	-	-	15,122	2.2	3,843	0.6
Primary (7-12)	560,578	82.0	103,129	15.1	1,134	0.2	14,224	4.2	2,027	0.6
Secondary (13-17)	271,683	80.8	48,199	14.3	-	-	40,757	7.8	6,314	1.2
Young Adults (18-29)	204,754	39.4	262,099	50.4	6,467	1.2	27,811	6.0	5,534	1.2
Middle-aged (35-44)	160,508	34.4	272,044	58.3	434	0.1	5,794	11.2	426	0.8
Elderly (60+)	25,295	48.8	20,362	39.3	-	-	2,073	6.2	-	-
Elderly (65+)	16,308	49.0	14,882	44.7	-	-	37,208	5.4	7,326	1.1
Elderly (70+)	258,872	37.3	389,075	56.1	1,220	0.2	165,448	5.2	30,107	0.9
Race										
Malays	1,121,631	55.9	743,712	37.1	7,305	0.4	112,586	5.6	21,349	1.1
Chinese	189,298	38.2	287,463	58.0	1,191	0.2	15,756	3.2	2,351	0.5
Indian	155,596	54.8	119,418	42.1	324	0.1	7,510	2.7	868	0.3
Other Bumiputera	205,788	67.0	75,268	24.5	434	0.1	21,416	7.0	4,097	1.3
Others	40,538	43.0	44,062	46.8	-	-	8,180	8.7	1,441	1.5

Table 29: Sources of dental care (5 main categories) (continue)

Variable	Sources of care									
	Public		Private		Traditional care		Self Care		Others	
	n	%	n	%	n	%	n	%	n	%
Marital status										
Not married	425,204	56.6	266,856	35.5	5,633	0.8	46,860	6.2	7,269	1.0
Married	519,936	37.9	755,074	55.1	2,054	0.2	79,201	5.8	14,998	1.1
Divorcee	12,416	41.2	15,969	53.0	-	-	1,762	5.9	-	-
Widow/Widower	20,446	44.0	22,953	49.4	434	0.9	2,176	4.7	426	0.9
Not applicable	729,798	74.6	205,083	21.0	1,134	0.1	34,697	3.6	7,414	0.8
Unclassified	5,052	51.6	3,988	40.7	-	-	752	7.7	-	-
Citizenship										
Malaysian	1,689,923	54.5	1,214,150	39.2	9,254	0.3	157,208	5.1	28,123	0.9
Non-Malaysian	22,254	25.3	55,772	63.5	-	-	7,888	9.0	1,984	2.3
Unclassified	676	65.8	-	-	-	-	352	34.3	-	-
Education level										
None	594,624	78.1	136,583	18.0	1,134	0.2	23,148	3.0	5,465	0.7
Primary	414,107	55.5	279,507	37.5	757	0.1	43,269	5.8	7,996	1.1
Secondary	503,365	43.9	561,443	49.0	3,200	0.3	68,156	5.9	10,616	0.9
Tertiary	63,429	22.8	196,093	70.6	4,164	1.5	11,587	4.2	2,459	0.9
Not Applicable	130,471	54.8	86,510	36.3	-	-	17,761	7.5	3,571	1.5
Unclassified	6,857	37.7	9,786	53.9	-	-	1,527	8.4	-	-
Occupation status										
Senior Official & Manager	5,616	13.5	33,345	79.9	-	-	2,767	6.6	-	-
Professionals	45,435	26.9	115,265	68.3	1,591	0.9	4,468	2.7	2,062	1.2
Technical & Associate	69,649	33.2	126,002	60.0	1,110	0.5	10,247	4.9	2,841	1.4
Clerical Workers	47,901	35.8	78,525	58.7	-	-	6,528	4.9	749	0.6
Service Workers & Shop	109,103	34.7	177,516	56.5	868	0.3	24,392	7.8	2,524	0.8
Skilled Agricultural & Fishery	60,245	51.6	44,392	38.0	-	-	10,554	9.0	1,688	1.4
Craft & Related Trade										
Workers	43,746	36.0	67,650	55.7	-	-	6,833	5.6	3,215	2.7
Plant & Machine Operator										
&Assembler	36,884	35.3	53,954	51.6	-	-	13,055	12.5	646	0.6
Elementary Occupations	27,215	37.3	33,762	46.2	335	0.5	10,655	14.6	1,041	1.4
Housewife	172,589	45.3	189,223	49.7	-	-	15,360	4.0	3,529	0.9
Unemployed	59,827	48.3	49,960	40.3	400	0.3	11,445	9.2	2,242	1.8
< 13 & Not schooling	544,910	80.9	108,142	16.1	1,134	0.2	15,530	2.3	3,843	0.6
< 13 & Primary school	52,395	83.7	9,541	15.2	-	-	683	1.1	-	-
Unclassified	304,845	72.5	95,246	22.7	3,817	0.9	14,446	3.4	2,156	0.5

Table 29: Sources of dental care (5 main categories) (continue)

Variable	Sources of care									
	Public		Private		Traditional care		Self Care		Others	
	n	%	n	%	n	%	n	%	n	%
State										
Johor	128,998	49.9	118,331	45.7	649	0.3	8,782	3.4	1,927	0.7
Kedah	185,940	54.1	107,759	31.4	1,135	0.3	37,824	11.0	10,957	3.2
Kelantan	152,289	58.7	86,422	33.3	1,349	0.5	17,977	6.9	1,642	0.6
Melaka	56,424	56.0	40,776	40.5	491	0.5	2,232	2.2	758	0.8
N.Sembilan	65,979	56.9	45,825	39.5	-	-	4,104	3.5	-	-
Pahang	100,592	55.0	65,116	35.6	425	0.2	14,312	7.8	2,410	1.3
Pulau Pinang	88,022	47.4	91,956	49.5	-	-	5,523	3.0	370	0.2
Perak	211,514	66.7	97,389	30.7	-	-	8,363	2.6	-	-
Perlis	9,722	67.9	4,256	29.7	-	-	338	2.4	-	-
Selangor	228,432	43.7	262,246	50.1	3,905	0.8	23,733	4.5	5,062	1.0
Terengganu	90,580	56.1	64,240	39.8	306	0.2	5,551	3.4	685	0.4
Sabah	214,998	60.8	115,198	32.6	646	0.2	19,691	5.6	3,369	1.0
Sarawak	121,110	55.6	77,522	35.6	348	0.2	16,231	7.5	2,534	1.2
FT Kuala Lumpur	58,251	38.2	92,887	61.0	-	-	787	0.5	394	0.3
Individual income (NHMS III classification)										
Less than RM 400	93,352	49.1	75,746	39.9	-	-	17,487	9.2	3,421	1.8
RM 400 - RM 699	90,595	43.3	95,943	45.9	434	0.2	19,042	9.1	3,082	1.5
RM 700 - RM 999	78,083	39.8	104,950	53.5	-	-	10,690	5.5	2,486	1.3
RM 1000 - RM 1999	118,506	32.8	210,248	58.2	2,279	0.6	27,299	7.6	2,922	0.8
RM 2000 - RM 2999	30,013	19.0	114,950	72.6	757	0.5	10,968	6.9	1,630	1.0
RM 3000 - RM 3999	9,160	16.2	44,076	77.9	434	0.8	1,597	2.8	1,302	2.3
RM 4000 - RM 4999	2,267	11.5	17,017	86.5	-	-	400	2.0	-	-
RM 5000 & above	4,144	10.5	34,912	88.5	-	-	400	1.0	-	-
Individual income by EPU classification										
Less than RM 500	111,895	50.3	88,506	39.8	-	-	18,815	8.5	3,421	1.5
RM 500 - RM 999	150,135	40.3	188,133	50.5	434	0.1	28,404	7.6	5,568	1.5
RM 1000 - RM 1499	75,014	34.4	122,438	56.1	1,169	0.5	17,920	8.2	1,628	0.8
RM 1500 - RM 1999	43,492	30.4	87,810	61.4	1,110	0.8	9,379	6.6	1,294	0.9
RM 2000 - RM 2499	20,803	18.8	79,061	71.6	434	0.4	8,870	8.0	1,252	1.1
RM 2500 - RM 2999	9,210	19.2	35,889	74.9	323	0.7	2,098	4.4	379	0.8
RM 3000 - RM 3499	7,977	17.4	35,371	77.2	434	1.0	1,163	2.5	868	1.9
RM 3500 - RM 3999	1,183	11.0	8,705	80.9	-	-	434	4.0	434	4.0
RM 4000 - RM 4499	1,453	11.1	11,277	85.9	-	-	400	3.1	-	-
RM 4500 - RM 4999	814	12.4	5,740	87.6	-	-	-	-	-	-
RM 5000 & above	4,144	10.5	34,912	88.5	-	-	400	1.0	-	-
Income based on quartiles										
1 st quartile	144,585	47.4	129,145	42.3	-	-	27,181	8.9	4,205	1.4
2 nd quartile	95,038	40.2	119,673	50.6	434	0.2	16,604	7.0	4,784	2.0
3 rd quartile	118,172	34.4	196,408	57.2	1,521	0.4	25,906	7.5	1,628	0.5
4 th quartile	69,855	20.0	254,656	73.0	1,949	0.6	18,194	5.2	4,226	1.2

Table 30: Sources of dental care (5 main categories) excluding school dental programme

Variable	Sources of care									
	Public		Private		Traditional care		Self Care		Others	
	n	%	n	%	n	%	n	%	n	%
All	935,335	38.8	1,269,923	52.7	165,448	6.9	10,473	0.4	30,107	1.2
Gender										
Male	402,823	36.8	576,004	52.6	96,074	8.8	6,013	0.5	14,392	1.3
Female	532,512	40.5	693,919	52.7	69,374	5.3	4,460	0.3	15,715	1.2
Residence										
Urban	542,681	34.6	915,638	58.4	88,240	5.6	4,558	0.3	17,402	1.1
Rural	392,653	46.6	354,285	42.0	77,208	9.2	5,915	0.7	12,705	1.5
Specific age group										
<5 years	31,518	38.7	38,262	47.0	8,235	10.1	1,162	1.4	2,206	2.7
5 years	23,440	45.9	22,516	44.1	5,077	10.0	-	-	-	-
6 years	24,483	38.4	31,750	49.8	5,869	9.2	667	1.0	1,042	1.6
12 years	8,465	37.4	12,222	54.0	1,501	6.6	-	-	434	1.9
16 years	10,937	43.0	9,724	38.2	4,777	18.8	-	-	-	-
Age group (by 5)										
0 - 4	33,496	39.4	39,554	46.6	8,235	9.7	1,162	1.4	2,529	3.0
5 - 9	110,889	42.3	126,497	48.2	21,017	8.0	989	0.4	2,916	1.1
10 - 14	61,039	46.8	55,647	42.7	10,744	8.2	735	0.6	2,304	1.8
15 - 19	67,940	44.0	65,800	42.6	15,714	10.2	1,346	0.9	3,762	2.4
20 - 24	91,626	41.4	110,291	49.8	16,458	7.4	379	0.2	2,778	1.3
25 - 29	84,939	35.5	133,546	55.9	18,125	7.6	994	0.4	1,467	0.6
30 - 34	87,749	36.9	132,918	55.9	14,119	5.9	983	0.4	1,864	0.8
35 - 39	78,770	32.9	140,262	58.6	16,960	7.1	426	0.2	2,844	1.2
40 - 44	90,119	35.9	146,434	58.3	11,466	4.6	446	0.2	2,690	1.1
45 - 49	74,980	36.6	116,613	57.0	10,803	5.3	335	0.2	2,048	1.0
50 - 54	56,004	35.2	90,856	57.1	8,652	5.4	1,450	0.9	2,080	1.3
55 - 59	42,764	38.0	62,866	55.9	3,957	3.5	1,228	1.1	1,727	1.5
60 - 64	25,941	47.5	22,158	40.6	6,086	11.1	-	-	426	0.8
65 - 74	24,781	49.9	21,828	43.9	2,407	4.8	-	-	672	1.4
75 - 79	2,487	47.1	2,390	45.3	400	7.6	-	-	-	-
80+	1,809	44.6	1,942	47.9	305	7.5	-	-	-	-
Unclassified	-	-	323	100.0	-	-	-	-	-	-
Age group for oral health										
Toddler (0-4)	31,518	38.7	38,262	47.0	8,235	10.1	1,162	1.4	2,206	2.7
Preschool (5-6)	47,923	41.7	54,266	47.3	10,947	9.5	667	0.6	1,042	0.9
Primary (7-12)	92,190	42.8	103,129	47.9	15,122	7.0	1,057	0.5	3,843	1.8
Secondary (13-17)	62,144	48.6	48,199	37.7	14,224	11.1	1,346	1.1	2,027	1.6
Young Adults (18-29)	194,621	38.5	262,099	51.9	40,757	8.1	1,372	0.3	6,314	1.2
Middle-aged (35-44)	160,070	34.3	272,044	58.3	27,811	6.0	872	0.2	5,534	1.2
Elderly (60+)	25,295	48.8	20,362	39.3	5,794	11.2	-	-	426	0.8
Elderly (65+)	16,308	49.0	14,882	44.7	2,073	6.2	-	-	-	-
Elderly (70+)	255,322	36.9	389,075	56.2	37,208	5.4	3,996	0.6	7,326	1.1
Race										
Malays	609,080	40.8	743,712	49.8	112,586	7.5	6,572	0.4	21,349	1.4
Chinese	78,485	20.3	287,463	74.5	15,756	4.1	1,978	0.5	2,351	0.6
Indian	93,585	42.2	119,418	53.9	7,510	3.4	394	0.2	868	0.4
Other Bumiputera	127,418	55.6	75,268	32.8	21,416	9.3	1,095	0.5	4,097	1.8
Others	26,768	33.1	44,062	54.5	8,180	10.1	434	0.5	1,441	1.8

Table 30: Sources of dental care (5 main categories) excluding school dental programme

Variable	Sources of care									
	Public		Private		Traditional care		Self Care		Others	
	n	%	n	%	n	%	n	%	n	%
Marital status										
Not married	203,588	38.6	266,856	50.6	46,860	8.9	2,830	0.5	7,269	1.4
Married	514,546	37.6	755,074	55.2	79,201	5.8	4,756	0.3	14,998	1.1
Divorcee	12,416	41.2	15,969	53.0	1,762	5.9	-	-	-	-
Widow/Widower	20,880	45.0	22,953	49.4	2,176	4.7	-	-	426	0.9
Not applicable	181,803	42.1	205,083	47.5	34,697	8.0	2,886	0.7	7,414	1.7
Unclassified	2,102	30.7	3,988	58.3	752	11.0	-	-	-	-
Citizenship										
Malaysian	916,750	39.4	1,214,150	52.2	157,208	6.8	10,039	0.4	28,123	1.2
Non-Malaysian	18,279	21.7	55,772	66.1	7,888	9.4	434	0.5	1,984	2.4
Unclassified	306	46.5	-	-	352	53.5	-	-	-	-
Education level										
None	146,032	46.6	136,583	43.5	23,148	7.4	2,495	0.8	5,465	1.7
Primary	239,352	41.7	279,507	48.8	43,269	7.6	3,249	0.6	7,996	1.4
Secondary	402,960	38.5	561,443	53.6	68,156	6.5	3,567	0.3	10,616	1.0
Tertiary	65,992	23.9	196,093	71.0	11,587	4.2	-	-	2,459	0.9
Not Applicable	76,053	41.1	86,510	46.8	17,761	9.6	1,162	0.6	3,571	1.9
Unclassified	4,946	30.4	9,786	60.2	1,527	9.4	-	-	-	-
Occupation status										
Senior Official & Manager	5,616	13.5	33,345	79.9	2,767	6.6	-	-	-	-
Professionals	46,632	27.7	115,265	68.4	4,468	2.7	-	-	2,062	1.2
Technical & Associate	68,905	33.0	126,002	60.4	10,247	4.9	718	0.3	2,841	1.4
Clerical Workers	46,514	35.1	78,525	59.2	6,528	4.9	335	0.3	749	0.6
Service Workers & Shop	105,884	34.0	177,516	56.9	24,392	7.8	1,493	0.5	2,524	0.8
Skilled Agricultural & Fishery	59,586	51.0	44,392	38.0	10,554	9.0	659	0.6	1,688	1.4
Craft & Related Trade Workers	41,392	34.4	67,650	56.2	6,833	5.7	1,196	1.0	3,215	2.7
Plant & Machine Operator & Assembler	36,532	35.1	53,954	51.8	13,055	12.5	-	-	646	0.6
Elementary Occupations	25,817	35.7	33,762	46.7	10,655	14.7	1,005	1.4	1,041	1.4
Housewife	171,463	45.1	189,223	49.7	15,360	4.0	834	0.2	3,529	0.9
Unemployed	53,774	45.7	49,960	42.4	11,445	9.7	290	0.2	2,242	1.9
< 13 & Not schooling	97,381	43.0	108,142	47.7	15,530	6.9	1,724	0.8	3,843	1.7
< 13 & Primary school	7,936	43.7	9,541	52.5	683	3.8	-	-	-	-
Unclassified	91,416	44.7	95,246	46.6	14,446	7.1	1,056	0.5	2,156	1.1

Table 30: Sources of Dental care (5 Main Categories) excluding school dental programme

Variable	Sources of care									
	Public		Private		Traditional care		Self Care		Others	
	n	%	n	%	n	%	n	%	n	%
State										
Johor	87,519	40.0	118,331	54.1	8,782	4.0	2,150	1.0	1,927	0.9
Kedah	86,219	35.1	107,759	43.8	37,824	15.4	3,143	1.3	10,957	4.5
Kelantan	68,974	39.3	86,422	49.2	17,977	10.2	645	0.4	1,642	0.9
Melaka	41,267	48.5	40,776	48.0	2,232	2.6	-	-	758	0.9
N.Sembilan	38,588	43.4	45,825	51.6	4,104	4.6	332	0.4	-	-
Pahang	58,160	41.3	65,116	46.3	14,312	10.2	779	0.6	2,410	1.7
Pulau Pinang	26,638	21.4	91,956	73.9	5,523	4.4	-	-	370	0.3
Perak	63,704	37.6	97,389	57.5	8,363	4.9	-	-	-	-
Pertis	8,511	65.0	4,256	32.5	338	2.6	-	-	-	-
Selangor	152,623	34.3	262,246	59.0	23,733	5.3	1,158	0.3	5,062	1.1
Terengganu	48,649	40.6	64,240	53.6	5,551	4.6	685	0.6	685	0.6
Sabah	132,313	48.9	115,198	42.6	19,691	7.3	-	-	3,369	1.2
Sarawak	80,844	45.4	77,522	43.6	16,231	9.1	794	0.4	2,534	1.4
FT Kuala Lumpur	41,327	30.4	92,887	68.2	787	0.6	787	0.6	394	0.3
Individual income (NHMS III classification)										
Less than RM 400	89,487	47.5	75,746	40.2	17,487	9.3	2,110	1.1	3,421	1.8
RM 400 - RM 699	87,944	42.5	95,943	46.4	19,042	9.2	761	0.4	3,082	1.5
RM 700 - RM 999	76,322	39.1	104,950	53.7	10,690	5.5	983	0.5	2,486	1.3
RM 1000 - RM 1999	118,033	32.8	210,248	58.5	27,299	7.6	1,158	0.3	2,922	0.8
RM 2000 - RM 2999	29,911	19.0	114,950	72.8	10,968	7.0	394	0.2	1,630	1.0
RM 3000 - RM 3999	9,594	17.0	44,076	77.9	1,597	2.8	-	-	1,302	2.3
RM 4000 - RM 4999	2,267	11.5	17,017	86.5	400	2.0	-	-	-	-
RM 5000 & above	4,144	10.5	34,912	88.5	400	1.0	-	-	-	-
Individual income by EPU classification										
Less than RM 500	106,935	48.6	88,506	40.2	18,815	8.5	2,536	1.2	3,421	1.6
RM 500 - RM 999	146,817	39.7	188,133	50.8	28,404	7.7	1,318	0.4	5,568	1.5
RM 1000 - RM 1499	73,785	34.1	122,438	56.5	17,920	8.3	804	0.4	1,628	0.8
RM 1500 - RM 1999	44,248	30.9	87,810	61.4	9,379	6.6	354	0.2	1,294	0.9
RM 2000 - RM 2499	20,378	18.5	79,061	71.9	8,870	8.1	394	0.4	1,252	1.1
RM 2500 - RM 2999	9,533	19.9	35,889	74.9	2,098	4.4	-	-	379	0.8
RM 3000 - RM 3499	8,411	18.4	35,371	77.2	1,163	2.5	-	-	868	1.9
RM 3500 - RM 3999	1,183	11.0	8,705	80.9	434	4.0	-	-	434	4.0
RM 4000 - RM 4499	1,453	11.1	11,277	85.9	400	3.1	-	-	-	-
RM 4500 - RM 4999	814	12.4	5,740	87.6	-	-	-	-	-	-
RM 5000 & above	4,144	10.5	34,912	88.5	400	1.0	-	-	-	-
Income based on quartiles										
1 st quartile	138,598	45.9	129,145	42.8	27,181	9.0	2,536	0.8	4,205	1.4
2 nd quartile	92,747	39.5	119,673	50.9	16,604	7.1	1,318	0.6	4,784	2.0
3 rd quartile	116,941	34.2	196,408	57.4	25,906	7.6	1,158	0.3	1,628	0.5
4 th quartile	70,945	20.4	254,656	73.1	18,194	5.2	394	0.1	4,226	1.2

Table 31: Last dental visit and socio-demographic profile

Variable	Last dental visit									
	Within 1 year		Between 1 to 2 years		In the last 2 years under school dental program		More than 2 years ago		Never had dental check	
	n	%	n	%	n	%	n	%	n	%
All	4,003,486	19.5	2,628,359	12.8	1,538,635	7.5	6,558,660	31.9	5,806,572	28.3
Gender										
Male	1,840,978	19.1	1,169,072	12.1	743,416	7.7	3,067,277	31.8	2,825,979	29.3
Female	2,162,508	19.9	1,459,288	13.4	795,219	7.3	3,491,383	32.1	2,980,594	27.4
Residence										
Urban	2,539,144	19.5	1,807,667	13.9	954,319	7.3	4,251,649	32.7	3,459,277	26.6
Rural	1,464,342	19.5	820,692	10.9	584,316	7.8	2,307,010	30.7	2,347,296	31.2
Specific age group										
<5 years	102,235	5.0	69,409	3.4	11,036	0.5	25,224	1.2	1,851,226	89.9
5 years	89,307	19.8	49,000	10.9	16,092	3.6	10,401	2.3	285,860	63.4
6 years	140,630	28.7	79,183	16.2	42,426	8.7	13,642	2.8	213,610	43.6
12 years	121,461	26.6	93,283	20.4	157,576	34.5	31,478	6.9	53,267	11.7
16 years	96,393	28.1	56,921	16.6	67,952	19.8	76,469	22.3	45,471	13.3
Age group (by 5)										
0 - 4	107,725	5.0	73,638	3.4	11,328	0.5	26,405	1.2	1,938,809	89.9
5 - 9	741,394	31.0	412,360	17.2	392,981	16.4	68,367	2.9	777,466	32.5
10 - 14	652,930	28.9	442,972	19.6	701,313	31.1	185,046	8.2	275,639	12.2
15 - 19	387,048	22.7	270,327	15.9	311,737	18.3	483,692	28.4	253,207	14.8
20 - 24	283,001	20.0	169,027	11.9	40,668	2.9	626,018	44.2	297,615	21.0
25 - 29	294,254	21.4	212,940	15.5	15,160	1.1	576,323	41.9	276,216	20.1
30 - 34	280,533	21.4	188,349	14.3	10,773	0.8	555,803	42.3	278,369	21.2
35 - 39	271,049	20.3	180,594	13.5	10,582	0.8	610,382	45.7	261,967	19.6
40 - 44	286,318	20.1	197,874	13.9	8,984	0.6	682,704	48.0	247,284	17.4
45 - 49	245,729	18.9	158,304	12.1	8,930	0.7	639,391	49.0	251,383	19.3
50 - 54	181,832	16.0	117,757	10.4	7,680	0.7	589,544	51.9	239,792	21.1
55 - 59	136,079	14.7	88,407	9.5	7,217	0.8	483,751	52.1	213,348	23.0
60 - 64	61,184	10.0	53,339	8.8	4,034	0.7	351,128	57.6	140,020	23.0
65 - 74	60,755	7.2	55,493	6.5	4,635	0.6	494,665	58.2	234,101	27.6
75 - 79	6,201	3.5	3,109	1.7	1,158	0.6	106,735	59.3	62,694	34.9
80+	4,910	3.5	3,094	2.2	1,121	0.8	76,109	54.6	54,292	38.9
Unclassified	2,543	23.9	774	7.3	335	3.2	2,598	24.5	4,371	41.2
Age group for oral health										
Toddler (0-4)	102,235	5.0	69,409	3.4	11,036	0.5	25,224	1.2	1,851,226	89.9
Preschool (5-6)	229,937	24.5	128,183	13.6	58,518	6.2	24,042	2.6	499,470	53.1
Primary (7-12)	911,448	33.2	542,554	19.8	771,692	28.1	110,217	4.0	408,231	14.9
Secondary (13-17)	486,129	26.2	328,490	17.7	454,148	24.5	350,136	18.9	236,276	12.7
Young Adults (18-29)	649,722	20.0	436,023	13.4	122,951	3.8	1,375,180	42.3	666,519	20.5
Middle-aged (35-44)	528,578	20.1	354,664	13.5	18,849	0.7	1,236,437	47.0	493,027	18.7
Elderly (60+)	58,056	9.8	51,371	8.7	3,640	0.6	342,268	57.7	137,741	23.2
Elderly (65+)	40,357	7.9	35,095	6.9	3,033	0.6	295,639	57.9	136,512	26.7
Elderly (70+)	817,433	17.8	527,832	11.5	31,835	0.7	2,222,445	48.5	982,064	21.4
Race										
Malays	2,524,311	21.6	1,500,765	12.9	964,531	8.3	3,585,728	30.7	3,095,324	26.5
Chinese	660,750	16.5	570,085	14.2	259,548	6.5	1,489,889	37.2	1,021,775	25.5
Indian	349,692	20.4	258,792	15.1	126,462	7.4	549,850	32.0	431,819	25.2
Other Bumiputera	361,629	15.8	218,963	9.5	157,130	6.8	712,551	31.0	846,417	36.9
Others	107,104	12.6	79,754	9.4	30,963	3.6	220,641	26.0	411,237	48.4

Table 31: Last dental visit and socio-demographic profile (continue)

Variable	Last dental visit									
	Within 1 year		Between 1 to 2 years		In the last 2 years under school dental program		More than 2 years ago		Never had dental check	
	n	%	n	%	n	%	n	%	n	%
Marital status										
Not married	990,825	21.8	680,612	15.0	575,960	12.7	1,527,314	33.7	763,513	16.8
Married	1,626,926	18.1	1,097,739	12.2	76,916	0.9	4,342,171	48.3	1,854,271	20.6
Divorcee	35,435	12.8	25,909	9.4	1,022	0.4	125,205	45.4	88,477	32.1
Widow/Widower	54,507	8.0	46,935	6.9	6,937	1.0	375,990	55.2	196,711	28.9
Not applicable	1,283,824	21.5	771,377	12.9	875,984	14.6	165,564	2.8	2,888,277	48.3
Unclassified	11,970	20.9	5,788	10.1	1,816	3.2	22,416	39.1	15,323	26.7
Citizenship										
Malaysian	3,904,269	20.0	2,552,985	13.1	1,525,028	7.8	6,303,013	32.2	5,277,643	27.0
Non-Malaysian	98,911	10.3	73,780	7.7	13,607	1.4	250,847	26.1	523,514	54.5
Unclassified	306	2.5	1,594	13.2	-	-	4,799	39.6	5,415	44.7
Education level										
None	980,111	24.8	576,429	14.6	724,436	18.3	725,075	18.4	946,357	23.9
Primary	938,415	17.3	642,275	11.8	406,528	7.5	2,205,789	40.6	1,236,727	22.8
Secondary	1,408,699	20.9	929,584	13.8	325,995	4.8	2,995,332	44.5	1,069,609	15.9
Tertiary	359,920	27.5	283,122	21.6	18,944	1.5	538,479	41.2	107,599	8.2
Not Applicable	292,533	9.8	177,815	6.0	55,372	1.9	47,358	1.6	2,405,137	80.8
Unclassified	23,807	17.2	19,134	13.9	7,361	5.3	46,628	33.8	41,143	29.8
Occupation status										
Senior Official & Manager	55,138	21.8	48,294	19.1	2,211	0.9	121,087	47.8	26,739	10.6
Professionals	216,434	24.8	181,923	20.9	11,143	1.3	382,272	43.8	80,681	9.3
Technical & Associate	240,362	23.9	162,467	16.2	13,148	1.3	474,169	47.2	115,228	11.5
Clerical Workers	172,077	24.6	111,672	16.0	14,659	2.1	308,281	44.1	93,186	13.3
Service Workers & Shop	366,702	17.2	233,751	11.0	27,446	1.3	1,036,519	48.5	471,139	22.1
Skilled Agricultural & Fishery	121,713	13.6	64,181	7.1	8,017	0.9	432,120	48.1	272,288	30.3
Craft & Related Trade Workers	138,645	18.2	83,797	11.0	15,421	2.0	350,431	46.0	173,348	22.8
Plant & Machine Operator & Assembler	114,805	16.5	67,225	9.7	9,534	1.4	361,534	52.0	141,872	20.4
Elementary Occupations	78,501	13.8	46,357	8.1	8,137	1.4	250,512	44.0	185,750	32.6
Housewife	460,342	15.5	321,394	10.8	31,199	1.1	1,465,881	49.2	698,452	23.5
Unemployed	152,953	10.9	128,008	9.1	52,909	3.8	669,890	47.8	397,290	28.4
< 13 & Not schooling	887,373	33.5	519,124	19.6	716,515	27.1	91,761	3.5	432,269	16.3
< 13 & Primary school	99,567	29.0	71,638	20.9	99,876	29.1	25,628	7.5	46,413	13.5
Unclassified	601,992	26.4	407,467	17.9	468,379	20.6	539,508	23.7	262,323	11.5

Table 31: Last dental visit and socio-demographic profile (continue)

Variable	Last dental visit									
	Within 1 year		Between 1 to 2 years		In the last 2 years under school dental program		More than 2 years ago		Never had dental check	
	n	%	n	%	n	%	n	%	n	%
State										
Johor	347,015	14.7	261,510	11.1	221,544	9.4	779,721	33.1	749,165	31.8
Kedah	370,490	24.7	162,196	10.8	81,738	5.5	493,279	32.9	391,504	26.1
Kelantan	313,023	25.3	91,936	7.4	149,707	12.1	368,506	29.8	313,169	25.3
Melaka	121,918	21.8	43,866	7.8	76,696	13.7	193,393	34.6	123,434	22.1
N. Sembilan	152,987	20.9	79,341	10.8	50,751	6.9	269,645	36.8	179,746	24.5
Pahang	241,024	22.0	119,112	10.9	88,687	8.1	360,120	32.9	284,978	26.1
Pulau Pinang	222,205	21.2	162,665	15.5	60,317	5.8	422,397	40.3	181,673	17.3
Perak	391,298	22.9	191,366	11.2	95,969	5.6	534,885	31.3	496,092	29.0
Perlis	40,611	21.9	54,810	29.5	6,045	3.3	43,111	23.2	41,189	22.2
Selangor	692,478	18.2	685,946	18.0	247,948	6.5	1,140,211	30.0	1,038,446	27.3
Terengganu	200,496	23.6	115,015	13.5	113,166	13.3	256,226	30.2	164,800	19.4
Sabah	334,692	15.4	173,306	8.0	139,145	6.4	656,679	30.1	875,169	40.2
Sarawak	294,889	15.9	246,687	13.3	106,482	5.7	555,924	30.0	649,854	35.1
FT Kuala Lumpur	221,198	19.3	206,241	18.0	78,718	6.9	405,004	35.4	233,792	20.4
Individual income (NHMS III classification)										
Less than RM 400	59,161	21.3	34,364	12.3	21,720	7.8	79,559	28.6	83,560	30.0
RM 400 - RM 699	208,051	15.2	92,132	6.8	20,677	1.5	614,900	45.0	429,812	31.5
RM 700 - RM 999	243,718	16.8	144,888	10.0	31,426	2.2	686,192	47.3	343,593	23.7
RM 1000 - RM 1999	221,193	17.8	136,508	11.0	20,358	1.6	603,872	48.6	259,936	20.9
RM 2000 - RM 2999	428,617	20.1	297,676	14.0	22,669	1.1	1,039,207	48.7	344,836	16.2
RM 3000 - RM 3999	185,356	23.1	134,996	16.8	7,914	1.0	380,501	47.5	93,000	11.6
RM 4000 - RM 4999	73,751	25.6	52,741	18.3	2,121	0.7	133,255	46.3	25,766	9.0
RM 5000 & above	24,766	24.2	25,136	24.6	827	0.8	42,980	42.0	8,546	8.4
Individual income by EPU classification										
Less than RM 500	54,425	26.0	58,570	27.9	1,306	0.6	-	-	-	-
RM 500 - RM 999	247,394	15.4	113,567	7.1	28,229	1.8	77,059	36.7	18,390	8.8
RM 1000 - RM 1499	425,568	17.4	259,960	10.6	44,232	1.8	721,932	44.9	497,248	30.9
RM 1500 - RM 1999	261,522	19.8	167,795	12.7	14,504	1.1	1,183,031	48.3	536,093	21.9
RM 2000 - RM 2499	167,094	20.5	129,880	16.0	8,165	1.0	639,868	48.5	234,969	17.8
RM 2500 - RM 2999	128,699	22.1	102,722	17.7	6,033	1.0	399,338	49.0	109,867	13.5
RM 3000 - RM 3499	56,657	25.7	32,274	14.7	1,881	0.9	274,318	47.2	69,661	12.0
RM 3500 - RM 3999	57,616	24.5	42,830	18.2	1,687	0.7	106,183	48.2	23,339	10.6
RM 4000 - RM 4499	16,134	30.6	9,912	18.8	434	0.8	109,922	46.8	22,866	9.7
RM 4500 - RM 4999	18,139	22.8	19,442	24.5	394	0.5	23,333	44.3	2,900	5.5
RM 5000 & above	6,627	29.0	5,694	24.9	434	1.9	34,319	43.2	7,119	9.0
Income based on quartiles										
1 st quartile	338,034	15.5	172,260	7.9	38,880	1.8	-	-	-	-
2 nd quartile	269,319	17.6	160,505	10.5	25,304	1.7	994,127	45.6	636,383	29.2
3 rd quartile	413,020	19.5	274,541	12.9	26,496	1.3	746,337	48.9	326,300	21.4
4 th quartile	422,639	23.7	337,454	19.0	16,617	0.9	1,029,099	48.5	378,247	17.8

APPENDIX 5

Table 1: Sum and per capita household out-of-pocket oral healthcare expenditure

Variable	Weighted N	RM					
		Min	Max	Sum	Mean (per capita)	95% CI for Mean	
						Lower	Upper
Overall	21,095,384	0	8,004	124,249,067.00	5.89	5.85	5.93
Gender							
Male	9,921,690	0	8,004	56,402,081.53	5.68	5.62	5.75
Female	11,173,693	0	5,014	67,846,985.48	6.07	6.02	6.12
Residence							
Urban	13,349,610	0	8,004	93,429,523.62	7.00	6.94	7.06
Rural	7,745,774	0	4,004	30,819,543.38	3.98	3.93	4.03
Specific age group							
<5 years	2,214,314	0	4,004	3,820,852.55	1.73	1.65	1.80
5 years	479,329	0	1,154	1,491,717.88	3.11	3.01	3.22
6 years	528,386	0	2,004	2,910,510.54	5.51	5.31	5.70
12 years	488,851	0	354	974,042.18	1.99	1.95	2.04
16 years	368,325	0	4,511	3,021,798.28	8.20	7.69	8.72
Unclassified	17,016,179	0	8,004	112,030,145.57	6.58	6.54	6.63
Age group (by 5)							
0-4	2,214,314	0	4,004	3,820,852.55	1.73	1.65	1.80
5-9	2,469,836	0	4,500	17,708,910.22	7.17	7.02	7.32
10-14	2,339,666	0	354	3,970,267.78	1.70	1.68	1.71
15-19	1,765,846	0	4,511	7,716,620.30	4.37	4.23	4.51
20-24	1,449,624	0	3,004	9,665,712.77	6.67	6.55	6.79
25-29	1,413,764	0	7,004	15,623,080.29	11.05	10.78	11.32
30-34	1,339,680	0	3,004	10,997,050.34	8.21	8.08	8.34
35-39	1,361,873	0	8,004	16,781,301.14	12.32	12.02	12.62
40-44	1,456,347	0	3,004	10,408,912.17	7.15	7.08	7.24
45-49	1,327,764	0	2,004	7,238,940.18	5.45	5.39	5.52
50-54	1,160,791	0	5,004	8,946,711.37	7.71	7.50	7.92
55-59	949,161	0	804	4,212,329.51	4.44	4.38	4.50
60-64	622,442	0	2,504	3,341,710.62	5.37	5.19	5.55
65-69	534,331	0	1,004	1,613,917.86	3.02	2.93	3.11
70-74	338,395	0	4,004	1,993,820.80	5.89	5.45	6.34
75-79	184,840	0	64	93,260.56	0.50	0.49	0.52
80+	151,821	0	68	98,227.61	0.65	0.62	0.67
999	14,890	0	54	17,440.92	1.17	1.04	1.30
Additional age group for oral health							
0-6	3,222,029	0	4,004	8,223,080.97	2.55	2.49	2.61
7-17	4,934,961	0	4,511	21,349,786.99	4.33	4.24	4.41
18-64	11,714,117	0	8,004	90,859,531.30	7.76	7.70	7.82
65+	1,209,387	0	4,004	3,799,226.83	3.14	3.01	3.27
Not Applicable	14,890	0	54	17,440.92	1.17	1.04	1.30

Table 1: Sum and per capita household out-of-pocket oral healthcare expenditure (continue)

Variables	Weighted N	RM					
		Min	Max	Sum	Mean (per capita)	95% CI for Mean	
						Lower	Upper
Age group for oral health							
Toddler (0-4)	2,214,314	0	4,004	3,820,852.55	1.73	1.65	1.80
Preschool (5-6)	1,007,715	0	2,004	4,402,228.42	4.37	4.26	4.48
Primary (7-12)	2,946,658	0	4,500	16,112,132.30	5.47	5.35	5.59
Secondary (13-17)	1,988,303	0	4,511	5,237,654.69	2.63	2.54	2.73
Young adults (18-29)	3,496,060	0	7,004	28,932,575.95	8.28	8.15	8.40
Middle-aged (35-44)	2,818,220	0	8,004	27,190,213.31	9.65	9.50	9.80
Elderly (60+)	1,831,829	0	4,004	7,140,937.45	3.90	3.79	4.00
Elderly (70+)	675,056	0	4,004	2,185,308.97	3.24	3.01	3.46
Elderly (75+)	336,661	0	68	191,488.17	0.57	0.55	0.58
Race							
Malays	11,991,846	0	8,004	71,129,886.27	5.93	5.87	5.99
Chinese	4,106,023	0	5,014	33,325,209.39	8.12	8.01	8.22
Indian	1,763,617	0	904	8,325,074.66	4.72	4.68	4.76
Other Bumiputera	2,361,694	0	1,154	6,525,237.15	2.76	2.73	2.80
Others	872,204	0	4,511	4,943,659.54	5.67	5.45	5.89
Marital status							
Not married	4,685,300	0	4,511	23,311,948.24	4.98	4.91	5.04
Married	9,186,855	0	8,004	73,463,374.21	8.00	7.92	8.07
Divorcee	283,780	0	204	962,628.57	3.39	3.33	3.45
Widow/Widower	700,285	0	604	1,963,477.48	2.80	2.74	2.86
Not applicable	6,166,410	0	4,500	24,335,213.27	3.95	3.88	4.01
Unclassified	72,753	0	84	212,425.23	2.92	2.84	3.00
Citizenship							
Malaysian	20,087,357	0	8,004	120,391,792.92	5.99	5.95	6.04
Non-Malaysian	983,136	0	3,204	3,852,812.39	3.92	3.81	4.03
Unclassified	24,891	0	5	4,461.69	0.18	0.17	0.19
Education level							
None	4,078,381	0	4,500	20,198,826.98	4.95	4.86	5.05
Primary	5,565,330	0	5,004	22,091,745.03	3.97	3.92	4.02
Secondary	6,875,110	0	8,004	50,157,594.67	7.30	7.22	7.37
Tertiary	1,333,308	0	7,004	23,922,378.93	17.94	17.64	18.25
Not Applicable	3,059,167	0	4,004	7,337,121.21	2.40	2.34	2.46
Unclassified	184,088	0	124	541,400.19	2.94	2.88	3.00
Occupation status							
Senior Official & Manager	256,648	0	304	2,298,034.62	8.95	8.84	9.07
Professionals	891,983	0	7,004	17,756,024.80	19.91	19.46	20.35
Technical & Associate	1,023,352	0	2,504	9,153,238.65	8.94	8.82	9.06
Clerical Workers	711,684	0	5,014	9,380,830.60	13.18	12.81	13.55
Service Workers & Shop	2,172,525	0	8,004	14,778,690.33	6.80	6.64	6.96
Skilled Agricultural & Fishery	916,270	0	404	2,827,976.10	3.09	3.05	3.12
Craft & Related Trade Workers	779,775	0	3,004	4,996,164.62	6.41	6.23	6.59
Plant & Machine Operator &							
Assembler	713,321	0	300	2,956,481.37	4.14	4.11	4.18
Elementary Occupations	577,553	0	3,815	4,472,697.47	7.74	7.40	8.09
Housewife	3,034,317	0	4,004	17,319,923.47	5.71	5.63	5.79
Unemployed	1,453,303	0	2,504	4,690,209.09	3.23	3.13	3.32
< 13 & Not schooling	2,732,230	0	4,500	16,213,038.31	5.93	5.80	6.06
< 13 & Primary School	357,556	0	354	728,112.10	2.04	1.98	2.09
Unclassified	2,395,964	0	4,511	9,283,582.61	3.87	3.78	3.97
No response	3,078,900	0	4,004	7,394,062.86	2.40	-	-

Table 1: Sum and per capita household out-of-pocket oral healthcare expenditure (continue)

Variable	Weighted N	RM					
		Min	Max	Sum	Mean (per capita)	95% CI for Mean	
						Lower	Upper
State							
Johor	2,425,905	0	4,004	12,437,630.30	5.13	5.02	5.23
Kedah	1,517,387	0	3,815	6,533,395.51	4.31	4.21	4.41
Kelantan	1,260,388	0	2,504	7,453,745.33	5.91	5.77	6.06
Melaka	570,983	0	1,022	2,844,652.05	4.98	4.89	5.07
N.Sembilan	752,900	0	5,014	4,716,476.13	6.26	6.00	6.53
Pahang	1,139,057	0	1,604	3,590,334.93	3.15	3.09	3.21
Pulau Pinang	1,088,575	0	703	5,915,270.80	5.43	5.38	5.49
Perak	1,775,698	0	4,004	9,670,736.95	5.45	5.32	5.58
Perlis	191,277	0	98	287,109.24	1.50	1.46	1.54
Selangor	3,898,616	0	4,500	23,950,179.14	6.14	6.06	6.22
Terengganu	862,276	0	4,004	4,996,801.03	5.79	5.61	5.98
Sabah	2,225,514	0	4,511	11,048,720.81	4.96	4.87	5.06
Sarawak	1,937,030	0	8,004	10,502,456.88	5.42	5.24	5.61
FTKL	1,165,814	0	7,004	19,008,074.82	16.30	15.92	16.69
FT Labuan	283,963	0	154	1,293,483.08	4.56	4.49	4.62
Region							
Sabah+Labuan	2,509,477	0	4,511	12,342,203.90	4.92	4.83	5.01
Sarawak	1,937,030	0	8,004	10,502,456.88	5.42	5.24	5.61
Pen. Msia	16,648,877	0	7,004	101,404,406.22	6.09	6.05	6.14
Individual income (NHMS III classification)							
Less than RM 400	1,388,908	0	2,004	5,422,601.43	3.90	3.83	3.98
RM 400 - RM 699	1,482,229	0	1,004	4,903,088.61	3.31	3.27	3.34
RM 700 - RM 999	1,267,588	0	5,014	10,072,938.62	7.95	7.75	8.14
RM 1000 - RM 1999	2,172,592	0	3,514	15,391,160.49	7.08	6.99	7.17
RM 2000 - RM 2999	817,822	0	8,004	17,014,758.26	20.80	20.22	21.39
RM 3000 - RM 3999	293,346	0	454	3,317,851.31	11.31	11.16	11.46
RM 4000 - RM 4999	105,183	0	308	907,676.70	8.63	8.46	8.80
RM 5000 & above	213,039	0	3,815	4,467,066.64	20.97	20.25	21.69
Not Applicable	13,354,677	0	5,004	62,751,924.94	4.70	4.65	4.74
Income group by EPU classification							
Less than RM 500	1,638,980	0	2,004	6,053,713.02	3.69	3.63	3.75
RM 500 - RM 999	2,499,745	0	5,014	14,344,915.64	5.74	5.64	5.84
RM 1000 - RM 1499	1,340,743	0	3,514	10,006,420.57	7.46	7.32	7.60
RM 1500 - RM 1999	831,849	0	703	5,384,739.91	6.47	6.41	6.53
RM 2000 - RM 2499	594,078	0	3,004	6,823,546.88	11.49	11.27	11.70
RM 2500 - RM 2999	223,744	0	8,004	10,191,211.38	45.55	43.51	47.59
RM 3000 - RM 3499	239,476	0	404	2,510,752.42	10.48	10.33	10.64
RM 3500 - RM 3999	53,870	0	454	807,098.89	14.98	14.55	15.41
RM 4000 - RM 4499	82,340	0	308	720,257.17	8.75	8.54	8.95
RM 4500 - RM 4999	22,843	0	104	187,419.53	8.20	7.91	8.50
RM 5000 & above	213,039	0	3,815	4,467,066.64	20.97	20.25	21.69
Not Applicable	13,354,677	0	5,004	62,751,924.94	4.70	4.65	4.74
Income based on quartiles							
1 st quartile	2,221,203	0	2,004	7,787,439.74	3.51	3.46	3.55
2 nd quartile	1,559,713	0	5,014	10,160,175.72	6.51	6.37	6.66
3 rd quartile	2,158,867	0	3,514	15,166,166.74	7.03	6.92	7.13
4 th quartile	1,818,381	0	8,004	28,495,052.53	15.67	15.39	15.95
Not Applicable	13,337,220	0	5,004	62,640,232.26	4.70	4.65	4.74

Table 2: Mean out-of-pocket oral healthcare expenditure per individual who sought care (all)

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
All	21,095,810	3,263,241	38.07	37.81	38.32
Gender					
Male	9,922,116	1,532,414	36.79	36.39	37.19
Female	11,173,693	1,730,827	39.20	38.87	39.53
Residence					
Urban	13,350,036	2,049,384	45.58	45.21	45.95
Rural	7,745,774	1,213,857	25.39	25.09	25.68
Specific age group					
<5 years	2,214,314	94,031	40.63	38.93	42.33
5 years	479,329	73,482	20.30	19.63	20.97
6 years	528,386	113,403	25.67	24.77	26.56
12 years	488,851	92,176	10.57	10.35	10.79
16 years	368,325	67,359	44.86	42.08	47.64
Age group (by 5)					
5-9	2,469,836	577,864	30.65	30.01	31.28
10-14	2,340,092	472,072	8.41	8.34	8.48
15-19	1,785,846	289,279	26.68	25.85	27.50
20-24	1,449,624	227,954	42.38	41.65	43.12
25-29	1,413,764	249,002	62.74	61.21	64.27
30-34	1,339,680	245,866	44.73	44.06	45.40
35-39	1,361,873	244,239	68.71	67.06	70.35
40-44	1,456,347	254,627	40.88	40.39	41.37
45-49	1,327,764	211,079	34.20	33.83	34.58
50-54	1,160,791	164,247	54.47	53.01	55.93
55-59	949,161	115,537	36.46	36.03	36.89
60-64	622,442	56,520	59.12	57.18	61.07
65-69	534,331	34,898	46.25	44.95	47.55
70-74	338,395	15,225	130.96	121.30	140.62
75-79	184,840	5,995	15.56	15.12	15.99
80+	151,821	4,481	21.92	21.29	22.55
Age group for oral health					
Toddler (0-4)	2,214,314	94,031	40.63	38.93	42.33
Preschool (5-6)	1,007,715	186,885	23.56	22.95	24.16
Primary (7-12)	2,947,084	715,435	22.52	22.03	23.02
Secondary (13-17)	1,988,303	351,415	14.90	14.37	15.44
Young adults (18-29)	3,496,060	562,437	51.43	50.65	52.22
Middle-aged (35-44)	2,818,220	498,866	54.50	53.66	55.35
Elderly (60+)	1,831,829	117,119	60.97	59.35	62.59
Elderly (65+)	1,209,387	60,599	62.69	60.13	65.26
Elderly group (70+)	675,056	25,702	85.03	79.26	90.79
Elderly (75+)	336,661	10,477	18.28	17.91	18.65
Additional age group for oral health					
0-6	3,222,029	280,915	29.27	28.58	29.97
7-17	4,935,387	1,066,850	20.01	19.64	20.39
18-64	11,714,117	1,854,553	48.98	48.61	49.35

Table 2: Mean out-of-pocket oral healthcare expenditure per individual who sought care (all) (continue)

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
Race					
Malays	11,992,272	2,057,354	34.56	34.23	34.90
Chinese	4,106,023	504,109	66.11	65.24	66.97
Indian	1,763,617	291,216	28.59	28.39	28.79
Other Bumiputera	2,361,694	313,603	20.79	20.56	21.03
Others	872,204	96,958	50.99	49.01	52.96
Marital status					
Not married	4,685,300	772,628	30.17	29.80	30.53
Married	9,186,855	1,405,512	52.25	51.77	52.73
Divorcee	283,780	30,573	31.49	31.05	31.92
Widow/Widower	700,285	47,985	40.92	40.12	41.72
Not applicable	6,166,836	996,350	24.42	24.02	24.83
Unclassified	72,753	10,193	20.84	20.41	21.27
Citizenship					
Malaysian	20,087,783	3,171,756	37.95	37.69	38.21
Non-Malaysian	983,136	90,457	42.59	41.39	43.79
Unclassified	24,891	1,027	4.34	4.31	4.37
Education level					
None	4,078,807	776,935	26.00	25.50	26.50
Primary	5,565,330	762,197	28.98	28.61	29.34
Secondary	6,875,110	1,179,146	42.52	42.07	42.97
Tertiary	1,333,308	284,391	84.12	82.72	85.51
Not Applicable	3,059,167	241,976	30.32	29.53	31.11
Unclassified	184,088	18,596	29.11	28.67	29.56
Occupation status					
Senior Official & Manager	256,648	42,596	53.95	53.42	54.48
Professionals	891,983	172,907	102.69	100.44	104.94
Technical & Associate	1,023,352	215,127	42.55	42.00	43.09
Clerical Workers	711,684	138,089	67.93	66.05	69.81
Service Workers & Shop	2,172,525	322,466	45.83	44.77	46.89
Skilled Agricultural & Fishery	916,270	120,032	23.52	23.26	23.78
Craft & Related Trade Workers	779,775	123,891	40.17	39.06	41.28
Plant & Machine Operator & Assembler	713,321	105,798	27.94	27.74	28.15
Elementary Occupations	577,553	75,314	59.39	56.77	62.00
Housewife	3,034,317	390,657	44.34	43.72	44.95
Unemployed	1,453,303	127,648	36.74	35.70	37.78
< 13 & Not schooling	2,732,656	687,524	23.58	23.06	24.10
< 13 & Primary school	357,556	63,215	11.52	11.21	11.82
Unclassified	2,395,964	432,364	21.47	20.95	21.99
Missing	3,078,900	0	0.00	0.00	0.00

Table 2: Mean out-of-pocket oral healthcare expenditure per individual who sought care (all) (continue)

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
State					
Johor	2,426,331	266,820	46.61	45.66	47.57
Kedah	1,517,387	346,955	18.83	18.40	19.26
Kelantan	1,260,388	264,929	28.13	27.47	28.80
Melaka	570,983	103,671	27.25	26.77	27.73
N. Sembilan	752,900	118,744	39.72	38.07	41.37
Pahang	1,139,057	186,537	19.25	18.91	19.59
Pulau Pinang	1,088,575	187,654	31.52	31.25	31.79
Perak	1,775,698	323,000	29.94	29.23	30.65
Perlis	191,277	17,317	16.58	16.25	16.91
Selangor	3,898,616	543,630	44.06	43.50	44.61
Terengganu	862,276	165,616	30.17	29.21	31.13
Sabah	2,225,514	307,247	35.96	35.25	36.67
Sarawak	1,937,030	224,499	46.76	45.19	48.33
FTKL	1,165,814	155,074	122.57	119.76	125.39
FT Labuan	283,963	51,546	25.09	24.82	25.37
Region					
Sabah+Labuan	2,509,477	358,793	34.40	33.79	35.01
Sarawak	1,937,030	224,499	46.76	45.19	48.33
Pen. Msia	16,648,877	2,679,949	37.83	37.56	38.10
Individual income (NHMS III classification)					
Less than RM 400	1,388,908	194,112	27.91	27.41	28.41
RM 400 - RM 699	1,482,229	213,800	22.84	22.61	23.07
RM 700 - RM 999	1,267,588	199,393	50.52	49.31	51.72
RM 1000 - RM 1999	2,172,592	372,886	41.28	40.77	41.78
RM 2000 - RM 2999	817,822	164,054	103.71	100.85	106.57
RM 3000 - RM 3999	293,346	59,352	55.90	55.29	56.51
RM 4000 - RM 4999	105,183	19,250	47.15	46.42	47.89
RM 5000 & above	213,039	40,324	110.78	107.09	114.46
Not Applicable	13,355,103	2,000,069	31.37	31.08	31.67
Income group EPU classification					
Less than RM 500	1,638,980	227,990	26.53	26.10	26.96
RM 500 - RM 999	2,499,745	379,314	37.77	37.12	38.41
RM 1000 - RM 1499	1,340,743	225,946	44.29	43.47	45.10
RM 1500 - RM 1999	831,849	146,940	36.65	36.36	36.93
RM 2000 - RM 2499	594,078	115,003	59.33	58.25	60.42
RM 2500 - RM 2999	223,744	49,051	207.77	198.61	216.92
RM 3000 - RM 3499	239,476	47,492	52.87	52.23	53.50
RM 3500 - RM 3999	53,870	11,860	68.05	66.41	69.69
RM 4000 - RM 4499	82,340	12,696	56.73	55.74	57.71
RM 4500 - RM 4999	22,843	6,554	28.60	27.76	29.44
RM 5000 & above	213,039	40,324	110.78	107.09	114.46
Not Applicable	13,355,103	2,000,069	31.37	31.08	31.67
Income based on quartile					
1 st quartile	2,221,203	311,067	24.96	24.64	25.27
2 nd quartile	1,559,713	241,526	42.07	41.15	42.99
3 rd quartile	2,158,867	355,454	42.67	42.07	43.27
4 th quartile	1,818,381	358,695	79.44	78.06	80.82
Not Applicable	13,337,646	1,996,498	31.38	31.08	31.67

Table 3: Mean out-of-pocket oral healthcare expenditure per individual who sought care (18+ Years)

Variable	Weighted N	Weighted N who sought care	Mean	95% Confidence Interval for Mean	
				Lower	Upper
Overall	12,923,504	1,915,153	49.41	49.04	49.78
Gender					
Male	5,762,406	831,350	50.12	49.47	50.78
Female	7,161,097	1,083,803	48.87	48.45	49.29
Residence					
Urban	8,377,442	1,263,683	57.04	56.53	57.55
Rural	4,546,062	651,469	34.61	34.16	35.06
Age group (by 5)					
18-19	632,671	85,481	42.63	40.92	44.33
20-24	1,449,624	227,954	42.38	41.65	43.12
25-29	1,413,764	249,002	62.74	61.21	64.27
30-34	1,339,680	245,866	44.73	44.06	45.40
35-39	1,361,873	244,239	68.71	67.06	70.35
40-44	1,456,347	254,627	40.88	40.39	41.37
45-49	1,327,764	211,079	34.20	33.83	34.58
50-54	1,160,791	164,247	54.47	53.01	55.93
55-59	949,161	115,537	36.46	36.03	36.89
60-64	622,442	56,520	59.12	57.18	61.07
65-69	534,331	34,898	46.25	44.95	47.55
70-74	338,395	15,225	130.96	121.30	140.62
75-79	184,840	5,995	15.56	15.12	15.99
80+	151,821	4,481	21.92	21.29	22.55
New defined age group					
18-64	11,714,117	1,854,553	48.98	48.61	49.35
65+	1,209,387	60,599	62.69	60.13	65.26
70+	675,056	25,702	85.03	79.26	90.79
75+	336,661	10,477	18.28	17.91	18.65
New age groups for oral health					
18-29	3,496,060	562,437	51.43	50.65	52.22
35-44	2,818,220	498,866	54.50	53.66	55.35
60+	1,831,829	117,119	60.97	59.35	62.59
Unclassified	4,777,395	736,730	42.59	42.17	43.00
Race					
Malays	7,022,407	1,152,862	42.17	41.69	42.64
Chinese	2,814,264	321,158	93.40	92.06	94.74
Indian	1,135,617	196,529	38.76	38.48	39.04
Other Bumiputera	1,323,332	173,038	29.67	29.31	30.02
Others	627,884	71,565	45.76	44.24	47.27
Citizenship					
Malaysian	12,116,457	1,835,185	49.55	49.17	49.94
Non-Malaysian	789,384	79,661	46.33	44.97	47.70
Unclassified	17,663	306	-	-	-

**Table 3: Mean out-of-pocket oral healthcare expenditure per individual who sought care (18+ Years)
(continue)**

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
Marital status					
Not married	2,730,169	428,537	42.36	41.88	42.85
Married	9,150,622	1,400,583	52.37	51.89	52.85
Divorcee	282,749	30,573	31.49	31.05	31.92
Widow/Widower	699,892	47,985	40.92	40.12	41.72
Unclassified	60,072	7,475	27.15	26.63	27.67
Citizenship					
Malaysian	12,116,457	1,835,185	49.55	49.17	49.94
Non-Malaysian	789,384	79,661	46.33	44.97	47.70
Unclassified	17,663	306	0.00	0.00	0.00
Education level					
None	1,317,281	88,478	45.01	43.24	46.77
Primary	4,123,934	503,994	39.42	38.87	39.97
Secondary	6,015,327	1,025,827	45.24	44.77	45.72
Tertiary	1,333,308	284,391	84.12	82.72	85.51
Unclassified	133,654	12,463	35.93	35.35	36.52
Occupation status					
Senior Official & Manager	256,325	42,596	53.95	53.42	54.48
Professionals	891,116	172,907	102.69	100.44	104.94
Technical & Associate	1,020,929	214,693	42.62	42.07	43.16
Clerical Workers	706,300	137,331	68.20	66.32	70.09
Service Workers & Shop	2,131,052	317,080	46.39	45.31	47.47
Skilled Agricultural & Fishery	906,963	119,038	23.59	23.33	23.85
Craft & Related Trade Workers	764,889	122,438	40.59	39.47	41.71
Plant & Machine Operator &Assembler	703,923	104,176	27.74	27.54	27.94
Elementary Occupations	561,457	74,320	60.07	57.42	62.72
Housewife	3,024,553	390,364	44.35	43.74	44.97
Unemployed	1,294,220	112,121	40.47	39.29	41.65
Unclassified	661,777	108,088	40.46	39.34	41.58
State					
Johor	1,507,164	171,512	35.93	35.26	36.59
Kedah	928,303	195,454	27.57	26.80	28.34
Kelantan	667,275	118,652	42.03	40.90	43.16
Melaka	368,479	72,132	26.34	26.06	26.62
N.Sembilan	472,419	74,127	56.10	53.48	58.72
Pahang	711,229	109,815	21.72	21.52	21.93
Pulau Pinang	777,716	109,635	47.86	47.43	48.29
Perak	1,105,801	148,287	52.68	51.25	54.11
Perlis	115,434	12,963	20.47	20.06	20.87
Selangor	2,455,864	358,315	47.89	47.48	48.30
Terengganu	476,378	84,419	29.17	28.53	29.81
Sabah	1,226,447	162,720	47.00	46.13	47.87
Sarawak	1,170,244	148,881	65.54	63.18	67.90
FTKL	768,681	115,322	158.04	154.28	161.80
FT Labuan	172,070	32,919	32.70	32.33	33.06

Table 3: Mean out-of-pocket oral healthcare expenditure per individual who sought care (18+ Years) (continue)

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
Region					
Sabah+Labuan	2,509,477	195,639	44.59	43.87	45.32
Sarawak	1,937,030	148,881	65.54	63.18	67.90
Pen. Msia	16,648,877	1,570,632	48.49	48.10	48.87
Individual income (NHMS III classification)					
Less than RM 400	1,345,603	188,870	28.36	27.85	28.87
RM 400 - RM 699	1,448,902	209,522	22.96	22.73	23.19
RM 700 - RM 999	1,253,427	198,389	50.63	49.42	51.85
RM 1000 - RM 1999	2,168,033	372,517	41.29	40.78	41.80
RM 2000 - RM 2999	817,038	164,054	103.71	100.85	106.57
RM 3000 - RM 3999	293,346	59,352	55.90	55.29	56.51
RM 4000 - RM 4999	105,183	19,250	47.15	46.42	47.89
RM 5000 & above	213,039	40,324	110.78	107.09	114.46
Not Applicable	5,278,932	662,874	50.29	49.70	50.87
Income group by EPU classification					
Less than RM 500	1,587,163	221,622	26.85	26.41	27.29
RM 500 - RM 999	2,460,770	375,160	38.02	37.36	38.67
RM 1000 - RM 1499	1,336,877	225,946	44.29	43.47	45.10
RM 1500 - RM 1999	831,156	146,571	36.67	36.38	36.95
RM 2000 - RM 2499	593,294	115,003	59.33	58.25	60.42
RM 2500 - RM 2999	223,744	49,051	207.77	198.61	216.92
RM 3000 - RM 3499	239,476	47,492	52.87	52.23	53.50
RM 3500 - RM 3999	53,870	11,860	68.05	66.41	69.69
RM 4000 - RM 4499	82,340	12,696	56.73	55.74	57.71
RM 4500 - RM 4999	22,843	6,554	28.60	27.76	29.44
RM 5000 & above	213,039	40,324	110.78	107.09	114.46
Not Applicable	5,278,932	662,874	50.29	49.70	50.87
Income based on quartiles					
1 st quartile	2,157,570	303,188	25.26	24.93	25.58
2 nd quartile	1,536,635	238,881	42.29	41.37	43.22
3 rd quartile	2,150,549	355,084	42.68	42.08	43.28
4 th quartile	1,817,274	358,695	79.44	78.06	80.82
Not Applicable	5,261,476	659,303	50.39	49.80	50.98

**Table 4: Mean out-of-pocket oral healthcare expenditure per individual who sought care
(Those with care out of school dental programme)**

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
Population	20,319,511	2,487,689	48.77	48.44	49.11
Gender					
Male	9,520,479	1,131,170	48.49	47.95	49.04
Female	10,799,032	1,356,519	49.01	48.59	49.42
Residence					
Urban	12,918,191	1,617,932	56.70	56.23	57.17
Rural	7,401,320	869,757	34.03	33.62	34.43
Specific age group					
<5 years	2,208,026	87,743	43.34	41.52	45.16
5 years	458,224	52,377	27.09	26.16	28.03
6 years	484,460	69,477	39.67	38.22	41.12
12 years	421,790	25,115	29.50	28.75	30.25
16 years	326,727	26,155	110.03	102.93	117.13
Unclassified	16,419,858	2,226,823	49.28	48.92	49.63
Age Group (by 5)					
0-4	2,208,026	87,743	43.34	41.52	45.16
5-9	2,164,262	272,290	60.97	59.63	62.32
10-14	2,007,779	140,540	19.66	19.43	19.89
15-19	1,636,946	160,772	44.99	43.51	46.46
20-24	1,448,352	226,682	42.60	41.86	43.34
25-29	1,412,553	247,791	62.91	61.37	64.44
30-34	1,338,938	245,124	44.72	44.05	45.40
35-39	1,361,873	244,239	68.71	67.06	70.35
40-44	1,456,347	254,627	40.88	40.39	41.37
45-49	1,327,764	211,079	54.60	53.13	56.06
50-54	1,160,365	163,821	34.20	33.83	34.58
55-59	949,161	115,537	36.46	36.03	36.89
60-64	622,442	56,520	59.12	57.18	61.07
65-69	534,331	34,898	46.25	44.95	47.55
70-74	338,395	15,225	130.96	121.30	140.62
75-79	184,840	5,995	15.56	15.12	15.99
80+	151,821	4,481	21.92	21.29	22.55
Missing	14,890	323	-	-	-
Age group for oral health					
Toddler (0-4)	2,208,026	87,743	43.34	41.52	45.16
Preschool (5-6)	942,684	121,853	34.26	33.34	35.18
Primary (7-12)	2,472,160	240,865	59.84	58.39	61.30
Secondary (13-17)	1,774,641	138,146	31.96	30.60	33.33
Young adults (18-29)	3,480,833	547,210	52.70	51.90	53.51
Middle-aged (35-44)	2,818,220	498,866	54.50	53.66	55.35
Elderly (60+)	1,831,829	117,119	60.97	59.35	62.59
Elderly (65+)	1,209,387	60,599	62.69	60.13	65.26
Elderly group (70+)	675,056	25,702	85.03	79.26	90.79
Elderly (75+)	336,661	10,477	18.28	17.91	18.65
Additional age group for oral health					
0-6	3,150,710	209,596	38.06	37.13	38.99
7-17	4,246,802	379,012	49.68	48.63	50.73
18-64	11,697,722	1,838,158	49.35	48.97	49.72
Unclassified	4,791,118	735,885	42.61	42.19	43.03

**Table 4: Mean out-of-pocket oral healthcare expenditure per individual who sought care
(Those with care out of school dental programme) (continue)**

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
Race					
Malays	11,478,987	1,544,068	44.87	44.43	45.31
Chinese	3,995,997	394,477	83.37	82.27	84.46
Indian	1,701,675	229,274	35.14	34.90	35.39
Other Bumiputera	2,283,984	236,248	26.29	25.98	26.60
Others	858,867	83,621	58.54	56.25	60.82
Marital status					
Not married	4,460,882	548,604	40.85	40.34	41.37
Married	9,184,167	1,402,824	52.32	51.84	52.80
Divorcee	283,780	30,573	31.49	31.05	31.92
Widow/Widower	700,285	47,985	40.92	40.12	41.72
Not applicable	5,620,168	450,462	49.71	48.82	50.60
Unclassified	69,802	7,242	27.90	27.37	28.42
Citizenship					
Malaysian	19,315,395	2,400,115	48.95	48.61	49.30
Non-Malaysian	979,594	86,916	44.17	42.92	45.41
Unclassified	24,522	658	4.53	4.50	4.57
Education level					
None	3,631,576	330,057	56.37	55.20	57.54
Primary	5,393,067	589,934	36.29	35.82	36.76
Secondary	6,775,072	1,079,502	46.09	45.60	46.57
Tertiary	1,331,708	282,791	84.45	83.05	85.86
Not Applicable	3,005,911	188,720	37.90	36.90	38.91
Unclassified	182,178	16,685	32.05	31.57	32.52
Occupation status					
Senior Official & Manager	256,648	42,596	53.95	53.42	54.48
Professionals	891,590	172,513	102.73	100.48	104.99
Technical & Associate	1,022,216	213,991	42.76	42.21	43.30
Clerical Workers	710,632	137,037	68.41	66.52	70.30
Service Workers & Shop	2,169,932	319,874	46.18	45.11	47.25
Skilled Agricultural & Fishery	916,270	120,032	23.52	23.26	23.78
Craft & Related Trade Workers	778,617	122,733	40.51	39.39	41.63
Plant & Machine Operator & Assembler	712,969	105,447	27.76	27.56	27.96
Elementary Occupations	576,826	74,587	59.94	57.30	62.58
Housewife	3,034,025	390,364	44.36	43.75	44.98
Unemployed	1,447,140	121,485	38.42	37.32	39.51
< 13 & Not schooling	2,285,291	240,939	60.68	59.22	62.15
< 13 & Primary school	313,096	18,755	30.24	29.27	31.22
Unclassified	2,179,774	216,568	39.00	37.97	40.03
Missing	3,024,057	190,768	-	-	-

Table 4: Mean out-of-pocket oral healthcare expenditure per individual who sought care (Those with care out of school dental programme) (continue)

Variable	Weighted N	Weighted N who sought care	Mean	95% CI for Mean	
				Lower	Upper
State					
Johor	2,386,353	226,842	53.92	52.81	55.04
Kedah	1,419,673	249,241	24.75	24.15	25.35
Kelantan	1,176,369	180,910	39.54	38.57	40.51
Melaka	555,335	88,023	31.41	30.84	31.97
N.Sembilan	725,840	91,685	50.64	48.50	52.77
Pahang	1,096,979	144,813	23.97	23.54	24.41
Pulau Pinang	1,027,191	126,270	44.75	44.37	45.13
Perak	1,627,888	175,190	52.12	50.82	53.42
Perlis	190,066	16,106	17.53	17.18	17.87
Selangor	3,820,060	465,074	50.92	50.27	51.57
Terengganu	820,724	124,064	39.26	37.98	40.55
Sabah	2,150,750	232,483	46.32	45.39	47.25
Sarawak	1,897,210	184,678	55.98	54.08	57.89
FTKL	1,149,676	139,331	135.75	132.63	138.88
FT Labuan	275,395	42,978	29.33	29.02	29.65
Region					
Sabah+ FT Labuan	2,509,477	275,462	43.67	42.88	44.45
Sarawak	1,937,030	184,678	55.98	54.08	57.89
Pen. Msia	16,648,877	2,027,549	48.81	48.45	49.17
Individual income (NHMS III classification)					
Less than RM 400	1,387,154	192,358	28.14	27.64	28.64
RM 400 - RM 699	1,479,904	211,475	23.07	22.84	23.30
RM 700 - RM 999	1,266,810	198,615	50.56	49.35	51.77
RM 1000 - RM 1999	2,170,998	371,293	41.43	40.92	41.94
RM 2000 - RM 2999	817,357	163,588	104.00	101.13	106.87
RM 3000 - RM 3999	293,346	59,352	55.90	55.29	56.51
RM 4000 - RM 4999	105,183	19,250	47.15	46.42	47.89
RM 5000 & above	213,039	40,324	110.78	107.09	114.46
Not Applicable	12,585,294	1,231,434	48.65	48.18	49.13
Individual Income by EPU classification					
Less than RM 500	1,636,556	225,567	26.78	26.35	27.21
RM 500 - RM 999	2,497,312	376,881	37.92	37.27	38.57
RM 1000 - RM 1499	1,339,150	224,353	44.56	43.74	45.38
RM 1500 - RM 1999	831,849	146,940	36.65	36.36	36.93
RM 2000 - RM 2499	593,613	114,537	59.56	58.47	60.65
RM 2500 - RM 2999	223,744	49,051	207.77	198.61	216.92
RM 3000 - RM 3499	239,476	47,492	52.87	52.23	53.50
RM 3500 - RM 3999	53,870	11,860	68.05	66.41	69.69
RM 4000 - RM 4499	82,340	12,696	56.73	55.74	57.71
RM 4500 - RM 4999	22,843	6,554	28.60	27.76	29.44
RM 5000 & above	213,039	40,324	110.78	107.09	114.46
Not Applicable	12,585,720	1,231,434	48.65	48.18	49.13
Income based on quartiles					
1 st quartile	2,217,753	307,616	25.21	24.89	25.53
2 nd quartile	1,558,306	240,120	42.18	41.25	43.10
3 rd quartile	2,157,274	353,861	42.83	42.23	43.43
4 th quartile	1,817,915	358,230	79.54	78.15	80.92
Not Applicable	12,568,263	1,227,863	48.70	48.22	49.18

Table 5: Mean out-of-pocket oral healthcare expenditure by source of care

Source of Care	Weighted N who sought care	Mean per episode (RM)	95% CI for Mean	
			Lower	Upper
All				
Public sector	1,716,324	9.11	9.01	9.20
Private sector	1,267,562	79.73	79.11	80.34
Self-care	165,448	16.02	15.74	16.30
Traditional care	10,473	12.86	12.56	13.16
Others	19,108	26.05	25.27	26.83
18 and above				
Public sector	711,020	14.38	14.19	14.57
Private sector	1,012,955	76.78	76.13	77.43
Self-care	116,527	17.69	17.30	18.08
Traditional care	6,240	14.48	14.04	14.93
Others	14,012	24.01	23.09	24.94
Care out of school				
Public sector	940,772	13.54	13.37	13.71
Private sector	1,267,562	79.73	79.11	80.34
Self-care	165,448	16.02	15.74	16.30
Traditional care	10,473	12.86	12.56	13.16
Others	19,108	26.05	25.27	26.83

Table 6: Out-of-pocket oral healthcare expenditure per episode by pain experience

Source of Care	Weighted N who sought care	Mean per episode (RM)	95% CI for Mean	
			Lower	Upper
All				
No pain	1,380,039	32.55	25.28	39.82
With pain	1,798,876	40.54	34.09	46.99
18 and above				
No pain	613,985	57.35	56.58	58.11
With pain	1,246,769	45.48	45.08	45.88
Care out of school				
No pain	819,604	54.60	53.93	55.26
With pain	1,668,085	45.91	45.53	46.29

Table 7: Mean OOP expenditure per dental episode

Variable	ALL			18 years and more			Care out of school programme		
	Mean	95% CI for Mean		Mean	95% CI for Mean		Mean	95% CI for Mean	
		Lower	Upper		Lower	Upper		Lower	Upper
All	38.06	37.81	38.32	49.41	49.04	49.78	48.77	48.43	49.11
Gender									
Male	36.79	36.39	37.19	50.12	49.47	50.78	48.49	47.95	49.04
Female	39.19	38.87	39.52	48.87	48.45	49.29	49.00	48.58	49.42
Residence									
Urban	45.58	45.21	45.95	57.04	56.53	57.55	56.70	56.23	57.17
Rural	25.38	25.08	25.67	34.61	34.16	35.06	34.01	33.61	34.42
Specific age group									
5 years	20.24	19.57	20.91	NA	NA	NA	27.01	26.07	27.94
6 years	25.67	24.77	26.56	NA	NA	NA	39.67	38.22	41.12
12 years	10.57	10.35	10.79	NA	NA	NA	29.50	28.75	30.25
16 years	44.86	42.08	47.64	NA	NA	NA	110.03	102.93	117.13
Age Group (by 5)									
0-4	40.63	38.93	42.33	NA	NA	NA	43.34	41.52	45.16
5-9	30.63	29.99	31.27	NA	NA	NA	60.94	59.59	62.29
10-14	8.41	8.34	8.48	NA	NA	NA	19.66	19.43	19.89
15-19	26.68	25.85	27.50	42.63	40.92	44.33	44.99	43.51	46.46
20-24	42.38	41.65	43.12	42.38	41.65	43.12	42.60	41.86	43.34
25-29	62.74	61.21	64.27	62.74	61.21	64.27	62.91	61.37	64.44
30-34	44.73	44.06	45.40	44.73	44.06	45.40	44.72	44.05	45.40
35-39	68.71	67.06	70.35	68.71	67.06	70.35	68.71	67.06	70.35
40-44	40.88	40.39	41.37	40.88	40.39	41.37	40.88	40.39	41.37
45-49	34.20	33.83	34.58	34.20	33.83	34.58	34.20	33.83	34.58
50-54	54.47	53.01	55.93	54.47	53.01	55.93	54.60	53.13	56.06
55-59	36.46	36.03	36.89	36.46	36.03	36.89	36.46	36.03	36.89
60-64	59.12	57.18	61.07	59.12	57.18	61.07	59.12	57.18	61.07
65-69	46.25	44.95	47.55	46.25	44.95	47.55	46.25	44.95	47.55
70-74	130.96	121.30	140.62	130.96	121.30	140.62	130.96	121.30	140.62
75-79	15.56	15.12	15.99	15.56	15.12	15.99	15.56	15.12	15.99
80+	21.92	21.29	22.55	21.92	21.29	22.55	21.92	21.29	22.55
Additional age group for oral health									
0-6	29.26	28.56	29.95	NA	NA	NA	38.04	37.11	38.97
5-6	23.53	22.93	24.13	NA	NA	NA	34.23	33.31	35.14
7-12	22.51	22.02	23.01	NA	NA	NA	59.83	58.37	61.28
7-17	20.01	19.63	20.38	NA	NA	NA	49.67	48.62	50.72
13-17	14.90	14.37	15.44	NA	NA	NA	31.96	30.60	33.33
18-29	51.43	50.65	52.22	51.43	50.65	52.22	52.70	51.90	53.51
18-64	48.98	48.61	49.35	48.98	48.61	49.35	49.35	48.97	49.72
35-44	54.50	53.66	55.35	54.50	53.66	55.35	54.50	53.66	55.35
60+	60.97	59.35	62.59	60.97	59.35	62.59	60.97	59.35	62.59
65+	62.69	60.13	65.26	62.69	60.13	65.26	62.69	60.13	65.26
Age 70+	85.03	79.26	90.79	85.03	79.26	90.79	85.03	79.26	90.79
Age 75+	18.28	17.91	18.65	18.28	17.91	18.65	18.28	17.91	18.65

Table 7: Mean OOP expenditure per dental episode (continue)

Variables	ALL		18 years and more			Care out of school programme			
	Mean	95% CI for Mean		Mean	95% CI for Mean		Mean	95% CI for Mean	
		Lower	Upper		Lower	Upper		Lower	Upper
Race									
Malays	34.56	34.23	34.89	42.17	41.69	42.64	44.87	44.43	45.31
Chinese	66.11	65.24	66.97	93.40	92.06	94.74	83.37	82.27	84.46
Indian	28.59	28.39	28.79	38.76	38.48	39.04	35.14	34.90	35.39
Other Bumiputera	20.79	20.55	21.02	29.67	29.31	30.02	26.29	25.98	26.60
Others	50.95	48.98	52.93	45.76	44.24	47.27	58.50	56.21	60.78
Marital status									
Not married	30.17	29.80	30.53	42.36	41.88	42.85	40.85	40.34	41.37
Married	52.25	51.77	52.73	52.37	51.89	52.85	52.32	51.84	52.80
Divorcee	31.49	31.05	31.92	31.49	31.05	31.92	31.49	31.05	31.92
Widow/Widower	40.92	40.12	41.72	40.92	40.12	41.72	40.92	40.12	41.72
Not applicable	24.41	24.01	24.82	-	-	-	49.69	48.80	50.58
Unclassified	20.84	20.41	21.27	27.15	26.63	27.67	27.90	27.37	28.42
Citizenship									
Malaysian	37.95	37.68	38.21	49.55	49.17	49.94	48.95	48.60	49.29
Non-Malaysian	42.59	41.39	43.79	46.33	44.97	47.70	44.17	42.92	45.41
Unclassified	4.34	4.31	4.37	-	-	-	4.53	4.50	4.57
Education level									
None	25.99	25.49	26.49	45.01	43.24	46.77	56.36	55.19	57.53
Primary	28.98	28.61	29.34	39.42	38.87	39.97	36.29	35.82	36.76
Secondary	42.52	42.07	42.97	45.24	44.77	45.72	46.09	45.60	46.57
Tertiary	84.12	82.72	85.51	84.12	82.72	85.51	84.45	83.05	85.86
Not Applicable	30.30	29.51	31.09	-	-	-	37.88	36.87	38.89
Unclassified	29.11	28.67	29.56	35.93	35.35	36.52	32.05	31.57	32.52
State									
Johor	46.59	45.64	47.55	35.93	35.26	36.59	53.90	52.78	55.02
Kedah	18.83	18.40	19.26	27.57	26.80	28.34	24.75	24.15	25.35
Kelantan	28.13	27.47	28.80	42.03	40.90	43.16	39.54	38.57	40.51
Melaka	27.25	26.77	27.73	26.34	26.06	26.62	31.41	30.84	31.97
N.Sembilan	39.72	38.07	41.37	56.10	53.48	58.72	50.64	48.50	52.77
Pahang	19.25	18.91	19.59	21.72	21.52	21.93	23.97	23.54	24.41
Pulau Pinang	31.52	31.25	31.79	47.86	47.43	48.29	44.75	44.37	45.13
Perak	29.94	29.23	30.65	52.68	51.25	54.11	52.12	50.82	53.42
Perlis	16.58	16.25	16.91	20.47	20.06	20.87	17.53	17.18	17.87
Selangor	44.06	43.50	44.61	47.89	47.48	48.30	50.92	50.27	51.57
Terengganu	30.17	29.21	31.13	29.17	28.53	29.81	39.26	37.98	40.55
Sabah	35.95	35.24	36.65	47.00	46.13	47.87	46.30	45.37	47.23
Sarawak	46.76	45.18	48.33	65.54	63.18	67.90	55.98	54.08	57.89
FTKL	122.57	119.76	125.39	158.04	154.28	161.80	135.75	132.63	138.88
FT Labuan	25.09	24.82	25.37	32.70	32.33	33.06	29.33	29.02	29.65
Region									
Sabah+ Labuan	34.39	33.78	35.00	44.59	43.87	45.32	43.65	42.87	44.44
Sarawak	46.76	45.18	48.33	65.54	63.18	67.90	55.98	54.08	57.89
Pen Msia	37.83	37.56	38.10	48.49	48.10	48.87	48.81	48.45	49.17

Table 7: Mean OOP expenditure per dental episode (continue)

Variables	ALL			18 years and more			Care out of school programme		
	Mean	95% CI for Mean		Mean	95% CI for Mean		Mean	95% CI for Mean	
		Lower	Upper		Lower	Upper		Lower	Upper
Individual income (NHMS III classification)									
< RM 400	27.91	27.41	28.41	28.36	27.85	28.87	28.14	27.64	28.64
RM 400 - 699	22.84	22.61	23.07	22.96	22.73	23.19	23.07	22.84	23.30
RM 700 - 999	50.52	49.31	51.72	50.63	49.42	51.85	50.56	49.35	51.77
RM 1000 - 1999	41.28	40.77	41.78	41.29	40.78	41.80	41.43	40.92	41.94
RM 2000 - 2999	103.71	100.85	106.57	103.71	100.85	106.57	104.00	101.13	106.87
RM 3000 - 3999	55.90	55.29	56.51	55.90	55.29	56.51	55.90	55.29	56.51
RM 4000 - 4999	47.15	46.42	47.89	47.15	46.42	47.89	47.15	46.42	47.89
RM 5000 & above	110.78	107.09	114.46	110.78	107.09	114.46	110.78	107.09	114.46
Not Applicable	31.37	31.07	31.67	50.29	49.70	50.87	48.65	48.17	49.12
Individual income by EPU classification									
< RM 500	26.53	26.10	26.96	26.85	26.41	27.29	26.78	26.35	27.21
RM 500 - 999	37.77	37.12	38.41	38.02	37.36	38.67	37.92	37.27	38.57
RM 1000 - 1499	44.29	43.47	45.10	44.29	43.47	45.10	44.56	43.74	45.38
RM 1500 - 1999	36.65	36.36	36.93	36.67	36.38	36.95	36.65	36.36	36.93
RM 2000 - 2499	59.33	58.25	60.42	59.33	58.25	60.42	59.56	58.47	60.65
RM 2500 - 2999	207.77	198.61	216.92	207.77	198.61	216.92	207.77	198.61	216.92
RM 3000 - 3499	52.87	52.23	53.50	52.87	52.23	53.50	52.87	52.23	53.50
RM 3500 - 3999	68.05	66.41	69.69	68.05	66.41	69.69	68.05	66.41	69.69
RM 4000 - 4499	56.73	55.74	57.71	56.73	55.74	57.71	56.73	55.74	57.71
RM 4500 - 4999	28.60	27.76	29.44	28.60	27.76	29.44	28.60	27.76	29.44
RM 5000 & above	110.78	107.09	114.46	110.78	107.09	114.46	110.78	107.09	114.46
Not Applicable	31.37	31.07	31.67	50.29	49.70	50.87	48.65	48.17	49.12
Income based on quartiles									
1 st quartile	24.96	24.64	25.27	25.26	24.93	25.58	25.21	24.89	25.53
2 nd quartile	42.07	41.15	42.99	42.29	41.37	43.22	42.18	41.25	43.10
3 rd quartile	42.67	42.07	43.27	42.68	42.08	43.28	42.83	42.23	43.43
4 th quartile	79.44	78.06	80.82	79.44	78.06	80.82	79.54	78.15	80.92
Not Applicable	31.37	31.07	31.67	50.39	49.80	50.98	48.70	48.22	49.18

