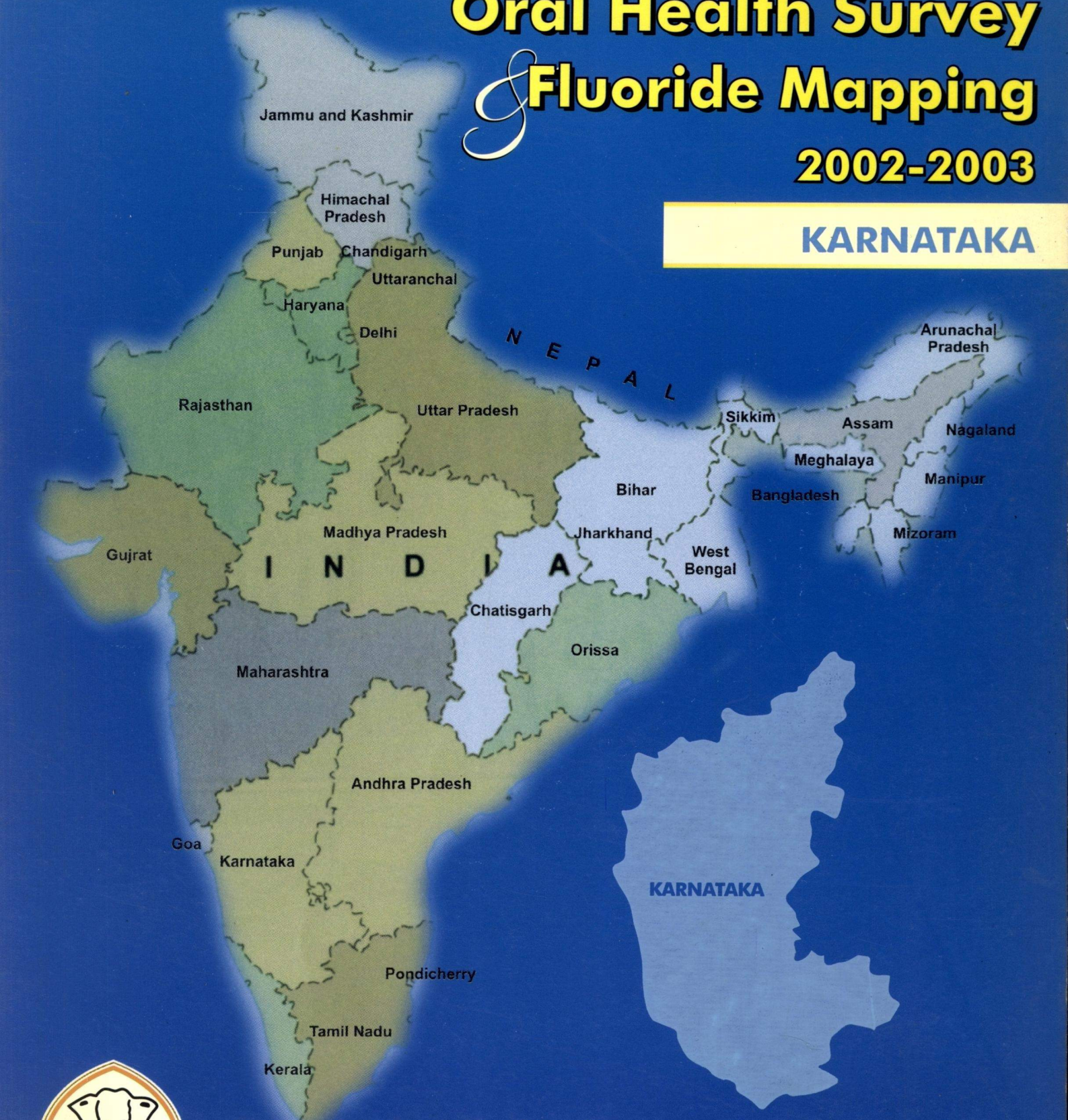
National Oral Health Survey & Fluoride Mapping 2002-2003

KARNATAKA



Dental Council of India
New Delhi
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NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

2002-2003

KARNATAKA

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DENTAL COUNCIL OF INDIA
NEW DELHI
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TABLE OF CONTENTS

ABBREVIATIONS & ACRONYMS

NOHS & FM	National Oral Health Survey & Fluoride Mapping
DCI	Dental Council of India
NFHS	National Family Health Survey
NDP	Net Domestic Product
WHO	World Health Organisation
CEB	Census Enumeration Block
BDS	Bachelor of Dental Surgery
MDS	Master in Dental Surgery
M.P.H.	Master in Public Health
M.Sc	Master in Science
D.P.H.	Dental Public Health
deft	Decayed, indicated for extraction and filled primary (deciduous) teeth
dmft	Decayed, missing and filled primary (deciduous) teeth
DMFT	Decayed, missing and filled permanent teeth
dt/DT	Decayed teeth (primary/ permanent)
mt/MT	Missing teeth (primary/ permanent)
ft/FT	Filled teeth (primary/ permanent)
SIC Index	Significant Caries Index
CPI	Community periodontal index
DAI	Dental Aesthetics Index
TMJ	Temporomandibular Joint
mnt/ MNT	Mean number of teeth (primary/ permanent)
ppm	Part per million (of fluoride)

FOREWORD

It gives me great pleasure to write a foreword to this report on the National Epidemiological Oral Health Survey & Fluoride Mapping of the Dental Council of India. This is a historic document as it is for the first time that a scientific survey on oral health problems at state and national levels has been undertaken in India. With this report in place, we are amongst those few countries in the world where data on oral health problems has been collected through a scientifically conducted sample survey. The report, I am sure, will prove to be an invaluable tool for effective planning and implementation of oral health programmes in the country.

This gigantic national survey, with the states as component units, would not have been possible without the commitment and the efforts of a large number of organizations and individuals. At the outset, I must acknowledge the role of the members of the Executive Committee of the Dental Council of India and its General Body, who supported me in this endeavour and gave all help as and when necessary. The survey work in the states was entrusted to Regional Coordinators who were selected from senior faculty members in Community Dentistry or allied fields from reputed dental colleges. I am pleased that a large number of dental colleges, through their managements and the Principals/ Deans responded to my request to collaborate in this national endeavour. A list of the participating dental colleges and individuals has been given elsewhere in this report.

I would particularly like to acknowledge the contribution of the members of the core technical team for all pre-survey planning and designing activities, who include Drs V.B. Mathur, P.P. Talwar, Shankar Aradhya, S.S. Hiremath, K.V.V. Prasad, M.B. Aswathnarayan, (Ms) Amrit Tiwari, and S.G. Damle.

A central team was established early in the course of the survey at the office of the Dental Council of India to help develop project protocols, coordinate and liase with regional coordinators, manage logistics, compile, computerise and analyse data and develop tabulation plans and reports. This report, for which there was no precedence or example, is evidence of the hard work and professional competence of the team. As the leader of the team, it is with a sense of pride and satisfaction that I acknowledge the painstaking and dedicated work of the members, namely Dr. V.B. Mathur, Prof. P.P. Talwar and Mr. H.B. Chanana.

I gratefully acknowledge the cooperation and support of the Municipal Corporation of Delhi, particularly its Health Officer and Director, Health Services, Dr. K N Tiwari, who spared the services of Dr. V B Mathur for this national cause.

It would be impossible to conduct a large scale national survey of the present magnitude without sufficient resources. We are indebted to our esteemed partners, Colgate-Palmolive Co., U.S.A., and Colgate-Palmolive (India) Ltd., for supporting the project.

I am sure that results of this survey will pave the way for improving the oral health of the people of India. We recognise that this is only the first step in this direction, where oral health problems and related practices have been identified. The next crucial step will be to use the findings of this survey to plan and implement an appropriate and need-based oral health programme. Here, I hope the national and state governments will use the findings of the survey for planning and implementation of oral health programmes.

As President of the Dental Council of India, I would emphasise and recommend to all those concerned with dental education in the country to review the oral health needs of the people in the context of dental education and use the results of the survey to help strengthen the teaching/ training curriculum of the dental colleges. The students should be taught to look at survey results critically and make decisions about dental care strategies based on age, geographical areas and disease levels in the communities they serve. The dental colleges should use its findings and lay the correct emphasis so that the oral health needs of the people are met with quality services.

This survey must not remain a solitary event. We must ensure that a MIS (Management Information System) is established so that future trends of oral disease and action taken to combat it are monitored regularly through continuing periodic surveys.

The challenge for all of us lies in ensuring a more equitable and need based distribution of resources for oral health, making sure that the benefits of the survey reach the communities in improving their oral health.

Dr R. K. Bali

President, Dental Council of India.

July 2004.

PREFACE

The National Oral Health Survey & Fluoride Mapping of the Dental Council of India is the first-ever national-level epidemiological survey in the country, the need for which was felt for a long time. This massive initiative could not have been carried out without the partnership, participation, cooperation, support and help from a number of institutions, organizations and individuals, all of whom have directly and indirectly assisted the Dental Council of India in this magnanimous task.

We are indebted to the Ministry of Health & Family Welfare for providing the necessary permissions and management support since inception. We gratefully acknowledge the valuable contribution made by the Chief Director, Dr. K.V.Rao, National Family Health Survey, at the stage of sampling design, sample selection and training. We also gratefully acknowledge the contribution of Professor Fauj Ram, of the International Institute for Population Sciences, Mumbai, who was instrumental in setting the sampling frame for the selection of rural and urban primary units from where households were selected for data collection.

In the planning phase, the proposed survey was discussed with international experts in the field of oral epidemiology, health promotion and community dentistry. Prominent among these were Professor Aubrey Sheiham, Head, Department of Community Dentistry, University College, London; Professor Robert Bagramian, Chairman, Department of Community Dentistry, University of Michigan, Ann Arbor, USA; Professor Martin Hobdell, Ireland; and Dr Michael Craft, UK. We remain most indebted for their valued inputs and time.

Dr. P E Petersen, Responsible Officer, Oral Health Program, World Health Organization (WHO), Geneva, found time and visited us at the Dental Council of India, New Delhi, in November 2002. He volunteered the full cooperation and support of the WHO for the project, including assistance in data analysis and reports. We gratefully acknowledge his valuable inputs and feel sure that the information collected will find its appropriate place in the oral global databank maintained by the WHO and in their other publications.

The active participation of dental colleges, their managements, Principals Deans and faculty was envisioned since the inception of the project planning. It was, however, most gratifying to note the extent of enthusiasm and support that was received from the managements and faculty members of some of the colleges. They took upon themselves to meet Herculean challenges that were in front of them in the face of limited resources. The role of some of the colleges strengthens our belief that our colleagues are alive to their professional responsibilities and are dedicated to selfless service in the interest of research and community benefits.

The chairperson, Dr. Ram Das Pai, and the management, faculty and staff of the Manipal Academy of Higher Education (MAHE), Manipal (Karnataka), deserve a special thanks for co-hosting the large-scale training and calibration meeting for all Regional Coordinators and Supervisors at the Manipal Dental College in March 2002. We would specially like to record our sincere appreciation of the Dean, Dr. Shobha Tandon, and her able team, including Dr. V Surendra Shetty, Dr. Soben Peter and others for the professional management of this meeting and the excellent hospitality extended by them.

We also extend a very special thanks to Dr. S.G. Damle, Dean, Nair Dental College & Hospital, Mumbai, who co-hosted the report-writing workshop in January 2004 in Mumbai, where issues relating to state reports were discussed.

The central survey team, from time to time, has received valuable suggestions and active feedback from some senior members of the profession, including Drs. Ganesh Shenoy, Shankar Aradhya, A Jaykumar, S S Hiremath, S G Damle, N C Rao, and Mahesh Verma, and we wish to place on record our appreciation and grateful thanks for their inputs. Drs Arundeep Kaur, Pankaj Goel and C L Dileep assisted the central team in Delhi from time to time and deserve our sincere thanks for their inputs.

We are indebted to the members of the Executive Committee and the General Body of the Dental Council of India, New Delhi for their wholehearted support to this initiative of the Council President. We gratefully acknowledge the able leadership of Mr A L Miglani, Secretary (Retd.), the Secretary Incharge of the Dental Council of India, Mr S S Arora, and Mr C L Bhatia, Coordinator, who though working in the background put in every effort for the success of the survey. While every member of staff has made a valuable and selfless contribution to the survey, we wish to place on record the special contribution of Mr K V Abraham, Mr P K De, Mr. Shiv Kumar, Mr. Praveen Dewan, Mr. Puneet Bansal, and Mr. Anil Verma.

We acknowledge the valuable support, both technical and financial, provided by Colgate-Palmolive. While technical support was provided by Dr. Tony Volpe, Dr. Kedar Rustogi, Dr. Raj Kohli and Dr. Surendra Manek, valuable project management input was given by Mr. Mahendra Jauhari and Mr. Mahender Ashtekar.

Fluoride mapping of drinking water sources in the country to determine areas with optimal or high levels of fluoride was an integral part of the project. Dr. P M Dixit, his team and the management of M/s Medlar Labs, Mumbai, deserve our special thanks, as they were instrumental in completing the task of analysing more than 4,000 water samples that they received directly from the Regional Coordinators as per schedule despite various constraints.

We acknowledge the support of TNS MODE, New Delhi, a prominent marketing, advertising and research organization, who took responsibility of computerization and tabulation of the massive data sets and provided tables according to our tabulation plan. Later on, they also helped in the collection of water samples from the states which could not be covered so far under the survey.

We appreciate the efforts and patience of Mr Rajiv Mathur, an independent Consultant in Information Technology and data management, who has painstakingly worked in programming and reprogramming till we were satisfied with the final set of tables.

We wish to record our gratitude and thanks to all other organisations and individuals, whose names do not appear here but who have supported our work and contributed towards its success in one way or the other.

Dr. R. K. Bali

Dr. V. B. Mathur

Prof. P. P. Talwar

H.B. Chanana

July 2004.

ACKNOWLEDGEMENTS

At the outset, I would like to thank Dr. R.K. Bali, President, Dental Council of India, for initiating the historical National Oral Health Survey and Fluoride Mapping 2002 (NOHS and FM2002) for the first time in India since Independence. He has been a guiding force throughout this endeavour.

At the same time, I would like to thank Dr. V.B. Mathur, Project Officer, NOHS, Dr. P.P Talwar, Demographer, and other DCI office staff for having assisted, coordinated and helping us conduct the NOHS and also in the writing of this report.

This herculean task of carrying out of NOHS in my State would not have been possible but for the support, understanding and help/assistance in all respects extended by the Managements and Principals of four Dental Colleges — the Government Dental College, Bangalore; Coorg Institute of Dental Sciences, Virajpet; JSS Dental college, Mysore; and SDM Dental College, Dharwad.

To start with, the training/calibration workshop was conducted at Government Dental College, Bangalore. In this connection, I would like to thank its Principal Dr. S. Ramananda Shetty, the Director of Medical Education, Karnataka, and the Government of Karnataka for having permitted and assisted in conducting the workshop successfully.

I would also like to express my deep sense of gratitude and sincere appreciation to Dr. Sunil Muddaiah, Managing Trustee, the Principal and Staff Members of the Coorg Institute of Dental Sciences, Virajpet. They provided support, helped in identifying the villages included in the survey and extended a very warm hospitality during our stay in Kodagu district.

I would like to thank Dr. Nandalal, Principal, JSS Dental College, Mysore, its Management, and the Staff Members of the Department of Preventive and Community Dentistry for providing all necessary assistance, aiding the identification of the villages and conducting the survey without any difficulties.

I would like to thank Dr. C. Bhaskar Rao, Principal, SDM Dental College, Dharwad, its Management and Staff Members of the Department of Preventive and Community Dentistry for providing all support and cooperation for undertaking the survey.

I would also like to thank the Principals of the V.S. Dental College, Bangalore, M.R. Ambedkar Dental College, Bangalore, and Farooqia Dental College, Mysore, for providing transport facilities for the survey.

I would like to convey my deep sense of appreciation to the Principals of the following colleges who have permitted and spared the services of Supervisors and Team members:

1. College of Dental Surgery, Mangalore
2. SDM Dental College, Dharwad
3. Yenopoya Dental College, Mangalore
4. M R Ambedkar Dental College, Bangalore.
5. Dayananda Sagar College of Dental Sciences, Bangalore.

6. Sri Ramakrishna Dental College and Hospital, Coimbatore.
7. Bangalore Institute of Dental Sciences and Hospital, Bangalore.
8. V.S.Dental College, Bangalore.
9. KLE Society's Institute of Dental Sciences, Belgaum.
10. PMNM Dental College, Bagalkot.
11. JSS Dental College, Mysore.
12. Coorg Institute of Dental Sciences, Virajpet.
13. MS Ramaiah Dental College, Bangalore.

I would like to thank the Director, Census Operations, Karnataka, for providing all necessary information about the population.

I would like to thank the Media for providing adequate support and coverage.

When I took over as a State Coordinator for Karnataka, I had my own apprehensions and uncertainties about conducting NOHS & FM2002 in Karnataka. In fact, it has for long been my ambition and dream to take up similar projects at the National level because of the specialty to which I belong. This dream and ambition finally bore fruit because of the extraordinary and unconditional support and understanding and commitment of my supervisors and team members. I must admit honestly that I was very fortunate to have such team members. In this connection, I would like to thank the supervisors, Dr. Sober Peter and Dr. K.V.V Prasad, and all the team members and interns who worked very hard with great commitment with keen interest and enthusiasm. I remain highly indebted to all of them.

Lastly, I would like to thank all the people who took part in the survey in each district.

I would also like to thank Dr. S.G. Damle, Dean, Nair Dental College, Mumbai, for hosting a highly informative and education workshop on report writing in Mumbai in January 2004.

I would like to place on record my sincere appreciation and thanks to Dr. Manjunath P. Puranik who assisted in the preparation of the State report and during the entire period of the survey.

Once again, I would like to thank Dr. R. K. Bali, Dr. V. B. Mathur, Dr. P. P. Talwar and other staff of Dental Council of India for extending all possible help, guidance and assistance not only during the Survey but also in the writing of this report.

February 2004

Dr. S. S. Hiremath
State Coordinator

LIST OF TABLES

LIST OF FIGURES

CHAPTER 0
EXECUTIVE SUMMARY

1. GENESIS

Oral health is a very important component of the general health of the people. However, it is one segment about which very little is known and the implications of which are not so clearly understood. The high prevalence of dental diseases, like dental caries, periodontal diseases, various stages of malocclusion, and lack of access to needed services, leads to significant absenteeism and economic loss, apart from ill-affects on the health of the person afflicted. The adverse effects of poor oral health make it important to take preventive measures and create the needed services. For this purpose, it is necessary to know the prevalence of oral health problems and understand the dental health practices that people follow. Such information is basic for the formulation of oral health policies and implementation of appropriate programmes to improve the awareness and knowledge of people on the preventive aspects of oral health, create needed services and train necessary dental manpower to meet those needs.

The Dental Council of India has been greatly concerned about this gap in knowledge and the resultant lack of appropriate policies and programmes. A need has long been felt to conduct an epidemiological study on oral health problems, which will also include a study of the related oral health practices and a mapping of fluoride levels in drinking water from various sources in the country, to help such concerns and issues. Such a study may help bring about a balance between the oral health needs of the people and the services provided. It could help plan and organise need-based services so that the level of oral health of the people could improve. The present study is a community-based survey with the objectives of assessment of (1) awareness and knowledge of people on oral health problems; (2) current status of oral health problems in the community; (3) practices people adopt for both prevention and treatment of their oral and dental problems; and (4) levels of fluoride in the drinking water of the people across the country.

Keeping this in view, the Dental Council of India undertook a national-level epidemiological study, "National Oral Health Survey and Fluoride Mapping," to assess oral health problems of the people and practices they adopt in this regard. The survey was initiated in 2002; the aim was to know the ground situation and help decision-makers formulate policies and programmes to improve the oral health of the people. Mapping of fluoride levels in drinking water was made a part of the survey since the fluoride level is directly associated with oral health problems, such as dental and skeletal fluorosis.

2. SCOPE OF THE SURVEY

The scope of the survey was to collect information covering the following dimensions of oral health:

- Prevalence of oral health problems,
- Fluoride levels in drinking water,
- Eating habits affecting oral health,

- Dental cleaning practices,
- Awareness and knowledge of people on factors affecting oral health, and
- Treatment-seeking behaviour of people for their oral health problems.

It must be noted that this survey delved into areas much beyond the usual oral health surveys that generally focused on levels and problems of oral health in the community. This survey collected data on many dimensions so as to enable an understanding of the practices people adopt that cause oral health problems and the steps they take to seek treatment.

3. DESIGN OF THE SURVEY

Recognising the fact that India is a vast country with great diversity in eating habits and behavioural practices, the survey was so designed and conducted that state-wise oral health problems and related practices could be determined. This was expected to help the formulation and implementation of state-wise policies and programmes.

3.1 Sample size

Three considerations were made in deciding the sample size: (1) The estimates should be valid at the state level; (2) Intra-state regional variations may be captured in oral health problems and practices; and (3) it should be completed within the limited budget available. With this in view, the WHO recommendation that the sample comprise 300-600 dental examinations of people aged 5, 12, 15, 35-44 and 65-74 years from a homogeneous region was adopted. Accordingly, it was decided that 315 households, both in rural and urban areas, would be taken from each homogeneous region in a state and oral examinations done on 315 subjects in each identified age group. Also, the sample size would increase in case all the 315 subjects in each of the five identified age groups (5, 12, 15, 35-44 and 65-74 years) were not available in the selected 315 households. Besides, it was also decided that the examinations in each age group would be equally distributed between males and females. Further, of the selected sample size of 315 households, 210 households were to be from the rural areas and 105 from the urban areas. Thus, 105 males and 105 females were examined in each of the five age groups in rural areas, and 53 males and 53 females in each age group in the urban areas.

3.2 Sample selection

Each state was divided into a few homogeneous regions, comprising of a number of districts, on the basis of agro-climatic factors used by the Planning Commission, and the physio-geographic factors used by the Office of Census Commissioner and Registrar General of India. The total sample of households from a state thus depended upon the number of such homogeneous regions.

A three-stage sampling design was adopted to select 210 rural households from each homogeneous region. The first stage was the random selection of a district from a region. The second was selection of 15 villages with probability proportional to size (pps) of the village and finally, selection of 14 households randomly from each selected village.

In the case of the urban sample of 105 households from a homogeneous region, eight blocks/wards were randomly selected from the selected district. From these eight blocks, 15 wards or census

enumeration blocks (CEBs) were randomly selected (each CEB has a population similar to that of a ward). In the next stage, 7 households were selected from each CEB. Again, examination was to be done for 105 subjects from each age group (5, 12, 15, 35-44 and 65-74), with half of them being males and half females.

4. STUDY TOOLS

In order to cover the total scope of the study, two types of questionnaires/schedules were used in the survey. One was the WHO schedule on Oral Health Assessment and the second was an individual questionnaire (specially developed by the Dental Council of India) for collecting information on etiologic factors related to oral health awareness, knowledge and practices of individuals on factors affecting oral health and their treatment seeking behaviour.

5. DATA COLLECTION

A small nucleus Central Survey Unit was set up in the office of the Dental Council of India in New Delhi. For the fieldwork, one dental state coordinator and his/her dental college were selected for each state. This coordinator was to oversee the fieldwork in the state in coordination with the Central Survey Unit. Each coordinator was to form field teams consisting of two dentists and one social worker. While the dentists were to examine the oral health of the subjects and record information on the Oral Health Assessment questionnaire, the social worker was to record information on etiological factors.

The quality of data was given utmost consideration. Besides a state coordinator, supervisors were appointed to move with the teams when went for data collection. The supervisors, who were senior members of the dental colleges, were given total responsibility for scrutiny and checking of the data. The data was scrutinised at three levels, in the field, in the state coordinator's office and at the central level before processing.

Water samples were taken from the selected households for testing fluoride levels. Such tests for all water samples were conducted in a laboratory in Mumbai.

6. CALIBRATION AND TRAINING WORKSHOPS

A three-day calibration and training workshop was organised where all the coordinators and supervisors were given training in field logistics, data collection and standardisation of the assessment of oral health problems. The last was very important and a very thorough training was given for it, so that all field teams adopted uniform assessment methods to record dental problems. Another workshop on report writing was organised in Mumbai to standardise the format of each state report.

7. AREA COVERAGE IN SURVEY

The National Oral Health Survey was designed to cover all Agro-Climate regions of the state and all the four regions in which the state is divided were covered.

8. FINDINGS (ORAL HEALTH KNOWLEDGE AND PRACTICES)

8.1 Characteristics of households surveyed

- About 52 per cent of the households lived in semi pucca houses (31 per cent in urban and 63 per cent in rural areas). The Hills & Coastal Region had a greater percentage of households living in pucca houses (49 per cent), with 38 per cent living in semi pucca houses.
- A majority of the households in the state as well as in the regions reported their monthly expenditure of Rs. 2500 and below.
- About 87 per cent of population was comprised of Hindus and 10 per cent Muslims. Scheduled caste population was 7 per cent; Scheduled Tribe 3 per cent and OBCs 9 per cent. The distribution of households by religion & castes in all region was similar to that in the state.
- The staple food was rice, with 57 per cent of those surveyed being vegetarians.
- About 55 per cent of the subjects said their source of water supply was tubewell and handpumps.

8.2 Profile of population across age groups

- There was increase in the percent of illiterates with increase in their ages. That is the level of literacy decreased with increase in age and this was accompanied by decrease in percent reading news paper daily & sometimes with increase in their ages.
- With regard to exposure to media, TV was found to be the most utilized media. Analysis of daily habits across age groups revealed that 43 per cent watched TV while 28 per cent read newspapers and 34 per cent listened to the radio daily. Exposure to cinema was much lower, with only 12 per cent respondents across age groups watching cinema once in 3 months.

8.3 Abnormal habits across age groups

- The prevalence of each of abnormal habits, across age groups was generally very low. More so each of these was more low in higher groups than in young age groups.

8.4 Eating habits across age groups

- About 24-30 percent of respondents, across age groups, both sexes & places of residence reported taken sugar one time in last 24 hours. While about 14-15 across age groups had taken sugar two & more times in the state.

8.5 Oral hygiene practices across Age Groups

- The practice of cleaning teeth was universal across age groups.
- More than 60 per cent of the subjects in all age groups, except in the 65-74 age group, across both sexes and more in urban reported using toothbrush to clean their teeth. Similar per cent reported the use of toothbush in four regions, except the Hills & Coastal Region which had highest proportion of respondents using toothbrush (over 80 per cent).

- About 87-94 per cent of the subjects, across both sexes and more in rural areas, cleaned their teeth once a day. In urban areas, more respondents reported cleaning teeth twice a day.
- About 56-64 per cent subjects across all age groups, except 65-74 year old, and across both sexes more in urban reported use of toothpaste. The Hills & Coastal Region had higher proportional using toothpaste.
- About 47-53 per cent respondents across all age / age groups, sexes and more in rural areas, reported the use of non-fluoridated toothpaste/ powder users. While the Central Region topped in the use of fluoridated toothpaste/powder.
- About 42-48 per cent in across age groups, sexes and area of residence, had changed their toothbrush once in 3 months.
- About two-thirds of the respondents, across all age groups, sexes and area of residence, had rinsed their mouth, either always or sometimes.

8.6 Dental problems and treatment practices across age groups

- 13 - 27 per cent of respondents 15 years and below and 43-49 per cent in the 35-44 and 65-74 age groups reported had some oral health problems in the last one year. There were more females and more living in urban areas. The main problem reported was dental decay, followed by another problem, and reported was gum disease. About 35-55 per cent of the respondents across age groups, sexes and area of residence consulted a trained dentist.
- More than 50 per cent respondents were aware of Government and private dental facility. Over 68 per cent more in urban areas reported that the time to reach such facility less than half-an-hour.

8.7 Awareness of dental health problems across age groups

- About 36 per cent subjects across age groups and both sexes, but more in urban areas, were aware of oral health problems. The problems most reported were tooth decay and gum disease.
- About 30 to 45 per cent of the respondents across all age groups and sexes, and more in urban areas were aware of the factors that cause oral health problems. Most of them reported "eating sweets/ice creams", (13-36 per cent) followed by not brushing regularly (11-18 per cent) while very few reported consuming tobacco (1-9 per cent).
- About 30-45 percent more females than males more in rural were aware of preventive measures.

8.8 Tobacco smoking and chewing habits across age groups

- About 30-39 per cent subjects, more males and more in rural areas across age groups, had the habit of smoking tobacco. Over two-thirds of them, more males and more in rural areas reported smoking Bidis. This followed by those smoking cigarettes, living in urban areas. Nearly two-thirds (64 per cent) of the smokers, across both sexes and place of residence, reported smoking less than 10 times in a day. There were more in the Hills & Coastal Region.

- About 18-39 per cent subjects, across age groups, sexes and place of residence, reported chewing pan or pan masala with tobacco. Around 43 per cent of them, in the 35-44 year age group said they were chewing for less than 5 years. Similarly, 44 per cent of the subjects in the 65-74 age group, having this habit said they had had it for more than 10 years. Most of them were chewing subjects said they did this less than 5 times in a day.
- About 20 per cent subjects, across all ages, more males and more in rural areas, reported consuming alcohol three times a week. About 41 per cent subjects in the Hills & Coastal Region said they consumed alcohol occasionally.

9. FINDINGS (ORAL HEALTH ASSESSMENT)

The oral health status of the subjects was clinically assessed in field conditions by teams of dental surgeons, who had been previously trained and calibrated. The WHO Clinical Assessment Form (1997) was used to record the clinical conditions. The clinical findings are presented in Chapter VI under the following broad heads:

1. Dental Caries Status and Treatment Need
2. Periodontal Disease Status
3. Malocclusion Status
4. Oral Cancers and other Oral Mucosal Lesions
5. Dental Fluorosis Status
6. Other conditions:

   Extra Oral Lesions; TMJ Signs and Symptoms; Enamel Opacities and Hypoplasia; Prosthetic Status and Need; and Community Need for Immediate Care and Referrals.

9.1 Dental caries

- Overall the mean number of teeth present in the mouth of individuals decreased significantly in 65-74 years age group with 22.4 indicating a loss of more than one fourth of normally present 32 in an average mouth. Nearly 10 per cent subjects in the age group of 65-74 years age group, more females than males, were edentulous or without natural teeth, distributed more in rural than urban areas.
- The prevalence of dental caries experience increased incrementally as age advanced from 5 years to 65-74 years. The prevalence of dental caries was approximately 40.5 per cent in 5 years; 22.3% in the age group of 12years; 33.1 per cent in 15 years; 63.3 per cent in 35-44 years and 81.7 per cent in 65-74 years age group.
- The mean DMFT values were highest for the age group in 65-74 year age group. The mean dmft at 5 years was upto 1.7. The mean DMFT was upto 2.0 in 12 years, 1.3 in 15 years, upto 3.0 in 35-44 years and upto 11.1 in 65-74 years. This indicates a high cumulative value of caries experience as age advances in the subjects surveyed. The deft/dmft/DMFT value of 1-3 teeth was most prevalent in subjects with caries experience in all age groups except females in 35-44 years and 65-74 years where DMFT value of 4-8 was more prevalent.

- The component of decayed teeth (dt/DT) contributed most to the dmft/DMFT in all age groups except in 65-74 years age groups where the missing teeth component (MT) contributed most. The filled teeth component (ft/FT) contributed only negligibly to the dmft/DMFT and that too only in urban residents. The mean DMFT appeared slightly higher in urban subjects than in rural subjects, also higher in Kodagu District than other regions. The pattern of distribution of the components of DMFT was similar in urban and rural areas.

- The SiC index measures the mean DMFT for the one third of the population with the highest DMFT values. This identifies the group of population with the highest caries experience by number of teeth affected and therefore the high-risk group. The SIC was the lowest in subjects aged 15 years. At 65-74 years, the SiC index, because of a high number of edentulous subjects in that age group.

- The prevalence of root caries was 14.2 percent in 35-44 years and 18.2 percent in 65-74 years. The mean number of teeth with root caries was very low and ranged from 0.4 to 0.7. There were no subjects in the state with root fillings.

- The high levels of mean number of teeth decayed and missing, together with negligible numbers of filled teeth indicate that either there was little priority for treatment of decayed teeth or it is not affordable for most people. Another possibility is the in accessibility (difficult reach facilities) or non-availability of dental services in the area where the subjects live. Intensive motivational health education may help in raising the priority or oral health care in people's minds.

9.2 Treatment need

- The treatment needed was lowest in the 5 years age group (55.5 per cent) and highest for the 64-74 year age group (77.0 per cent). Preventive care was recommended for 0.2-10.8% of the participants, across age groups.

- Amongst the subjects requiring treatment, the majority required fillings and a small number required pulp care across age groups except for 65-74 years age group where the need for extractions was higher than the need for fillings. The need for extractions increased with age from 15 years onwards.

- The mean number of teeth, which required treatment in the state, was highest (15.7) in males and 1.0 in females) in 65-74 years. The mean number of teeth requiring treatment was 1.9 in females in 5 years, 2.9 in 12 years; 2.2 in females in 15 years, and 3.5 in 35-44 years age group. The treatment need was slightly higher in rural than urban and Kodagu District than other regions. The mean number of teeth requiring fillings was lowest in 65-74 years (0.7) 15 years while it was highest in 12 years (1.6). The mean number of teeth indicated for extraction ranged form 0.1-5.7 and was higher in the age group of 65-74 years. The pattern of needs were similar in urban and rural and all regions.

9.3 Periodontal status

- Bleeding calculus and pockets
- The periodontal status was assessed using the Community Periodontal Index (CPI) with its three indicators of gingival bleeding, calculus and periodontal pockets. In addition, the loss of epithelial attachment was also measured to provide an indication of the status of periodontal health.
- The prevalence of periodontal disease in the state steadily increased with age. In subjects with periodontal disease, the two most prevalent conditions were bleeding and calculus in 12 years and 15 years, wherein calculus were more prevalent compared to bleeding. Whereas in 35-44 years and 65-74 years it was calculus and shallow pockets.
- The mean number of sextants for bleeding and calculus was highest in 12 years (2.4 and 2.3 respectively). While gingival bleeding was a more prevalent condition in the lower age groups, accumulated calculus became an increasingly high problem as age advanced.
- Overall, the prevalence of subjects with loss of attachment in one or more sextants was lowest in the 15-year age group and highest for 65-74 year age group in the state. The least severe form of loss of attachment was the most prevalent in all age groups followed by the more severe for of 6-8 mm except in 65-74 years males where loss of attachment of 6-8 mm was predominant followed by 4-5 mm loss of attachment.
- The proportion of urban residents with loss of attachment was higher than rural residents and also in Dharwad District than other regions. But the pattern of distribution of severity of loss of attachment remained similar in rural and urban areas.

9.4. Malocclusion status

9.4.1 The prevalence of malocclusion (definite malocclusion) was high in 12-year age group where 13.9% males and 12.2% females were affected. About 10.9% subjects in 35-44year age group had definite malocclusion

9.5. Oral cancer & oral mucosal lesions

9.5.1 The prevalence of Oral Mucosal Lesions increased with age in the state. Oral cancer was detected in all age groups, rural and urban and in all maels and females in a maximum of 1.2 per cent subjects in any age group. The lesions were located in the mouth on the vermillion border, commissure, buccal mucosa and tongue. The precancerous lesion, Leukoplakia was detected all except in 35-44 years age group. It appeared in the buccal mucosa and vermillion border . Leukoplakia was more in rural than in urban area. The other commonly present conditions were Ulceration and Abscess.

9.6. Dental fluorosis status

9.6.1 The prevalence of fluorosis ranged from 2.3 to 13.1 per cent. Very mild and mild fluorosis was most prevalent in all the age groups. Moderate/severe form of fluorosis was prevalent in no more than 2.5 per cent in any age group. Fluorosis was slightly higher in urban than rural and also Dharwad District than other regions

9.7. Other lesions

9.7.1 Extra oral lesions

9.7.1.1 The prevalence of extra oral lesions was no more than 1.2 per cent (5 years) in any age group, lowest in 12 years (0.5% per cent).

9.7.1.2. The most prevalent extra oral lesion in the state was ulcerations, sores, erosions or fissures in the head, neck and limbs regions.

9.7.2 T M joint symptoms and signs

9.7.2.1 TM Joint symptoms and signs were found in small numbers in all age groups of the surveyed population. Symptoms were recorded to the maximum in 65-74 years age group (4.9). The signs present were clicking, tenderness and reduced jaw mobility, in that order, across age groups.

9.7.3 Enamel defects (opacities, hypoplasia)

9.7.3.1 Overall the prevalence of enamel defects including opacities and hypoplasia ranged from 1.2 per cent (65-74 years) to 12.4 per cent (15 years) in the state. Ranked by the type of defect and mean number of teeth affected, the demarcated opacity and diffused opacity had the highest mean score.

9.8 Prosthetic status & need

9.8.1 The percent subjects wearing prosthesis was lowest in 15 years and highest in 65.74 years age group. Bridge was more prevalent in 15 years, partial denture in 35-44 years and full removable denture in 65-74 years.

9.8.2 There was a higher need for prosthesis as the age advanced. In 65-74 years, the need for full prosthesis was most prevalent amongst males and females. In 35-44 years age group, the most prevalent need was multiunit prosthesis and one unit prosthesis.

9.8.3 There appeared to be a relatively greater need for prosthesis in the lower arch than upper arch in 35-44 years while need for upper arch was greater than lower arch in 65-74 years age group.

9.9. Community need for immediate care and referrals

9.9.1 Life threatening conditions were recorded in 0.4% of 65-74% year age group, which represented 0.6% of rural population. Pain or infection was recorded in 2% males and 1.5 % females of 5 years and in 12 years (0.3% males and 0.2% females). Referrals were made for almost all of the conditions recorded

Table: Summary of findings of important oral health conditions and practices by age in Karnatka state.

	Findings	Age in years				
		5	12	15	35-44	65-74
1.	**Oral disease conditions**					
1.1	Dental Caries					
	% Prevalence	40.5	22.3	33.1	63.3	81.7
	Mean DMFT	1.7	2.0	1.3	3.0	11.0
	SiC Index	5.6	6.0	3.8	7.6	25.3
1.2	Periodontal disease					
	Bleeding, calculus or pockets					
	% Prevalence	46.5	8.7	86.8	94.3	77.2
	Mean no of Sextants affected	0.1	4.7	4.9	5.4	3.4
1.3	Loss of attachment					
	% Prevalence	NA	NA	4.8	33.0	47.9
	Mean no of Sextants affected	NA	NA	0.2	1.1	1.3
1.4	Malocclusion (%)	0.3	19.4	18.5	26.2	NA
1.5	Dental Fluorosis (%)	3.0	13.1	11.0	5.2	2.7
1.6	Oral mucosal conditions (%)	1.2	0.5	0.9	0.6	0.7
1.7	Oral Cancer (nos.)	1.2	0.4	0.9	0.3	0.7
1.8	Edentulousness (nos.)	NA	NA	0	2	122
2	**Oral Health Practices**					
2.1	Sugar Intake in last 24 hours					
	Once	30.0	30.2	39.6	27.1	23.3
	Two & more times	24.2	20.6	20.6	14.4	10.9
2.2	Clean teeth with					
	Tooth Brush	60.9	65.4	72.0	63.2	37.8
	Fingers	38.6	33.7	27.0	35.0	58.4
2.3	Rinsing mouth					
	Always	24.9	30.0	37.5	43.9	43.0
	Sometimes	40.4	48.2	46.0	42.8	41.0
2.4	Tobacco smoking	NA	NA	NA	16.1	21.0
2.5	Frequency of tobacco smoking					
	Less than 10 times	NA	NA	NA	80.6	72.5
	10 or more times	NA	NA	NA	19.3	27.5

CHAPTER I
INTRODUCTION

1.1 BACKGROUND OF THE STATE

1.1.1 Geographical location

Karnataka acquired the status of a state in the Indian Union, with Bangalore as its capital, in 1956, when the State Reorganization Act (1956) came into force. With a total land area of 191,791 sq. km., Karnataka has 6 per cent of the country's total land mass. The state is divided into four administrative divisions and 27 districts. Geographically, Karnataka can be divided into four regions, namely Coastal, Malnad, Northern Maidan, and Southern Maidan. Every region has distinct social, economic, and cultural characteristics, apart from different local dialects of Kannada.

1.1.2 Population and demographic profile

Karnataka has been undergoing slow but steady urbanisation. The percentage of the total population living in the urban areas in the state increased from 24 per cent in 1971 to 29 per cent in 1981, 31 per cent in 1991, and to 34 per cent in 2001. According to the 1991 census, Hindus constituted 85.54 per cent of the population, Muslims 11.64 per cent and Christians 1.91 per cent. About 16 per cent of the state's population comprises of scheduled castes and 4 per cent of scheduled tribes. The percentage of scheduled caste and scheduled tribes has increasing due to the inclusion of new castes and tribes in the scheduled category.

For 1997, the Sample Registration System estimated the infant mortality rate in Karnataka at 53 per 1,000 live births, which is much lower than the all-India rate of 71. For 1996-2001, life expectancy is projected to be 65.6 years for males and 66.6 years for females, a substantial increase from the 1986-91 estimates of 62.2 for males and 63.3 for females (Office of the Register General, 1996). The sex ratio of the population (number of females per 1000 males) has been fairly constant for the past seven decades. The sex ratio was 965 in 1931 and 964 in 2001. The percentage of the population age 0-14 years, which was 42 per cent in 1971, dropped to 40 per cent in 1981 and to 36 per cent in 1991. The percentage of the population aged 65 and more increased slightly from 3.5 per cent in 1971 to 4.1 per cent in 1991.

1.1.3 Socio-economic characteristics

Karnataka is predominantly an agricultural state with a majority of its population living in the rural areas. However, the importance of the agricultural sector has declined over time, with the manufacturing and other sectors increasing their share of the state domestic product. At the time of the 1991 Census, the agricultural sector provided a livelihood for 63 per cent of the state's labour force (Office of the Registrar General and Census Commissioner, 1992). Karnataka grows kharif and rabi crops and the major agricultural products include rice, ragi and jowar. Other important crops include groundnuts, sugarcane and cotton. The industrial sector has been playing an increasingly important role in Karnataka. In fact, Bangalore is called the Silicon Valley of India.

The average annual per capita net domestic product of the state increased from Rs. 1,520 in 1980-81 to Rs. 2,641 in 1996-97 at 1980-81 prices or Rs. 10,279 at current prices (EPW Research Foundation, 1998). As per the estimates given by the Planning Commission for 1993-94, 30 per cent of the rural population and 40 per cent of the urban population were below the poverty line.

According to the 1991 and 2001 censuses, the literacy rate among the population age 7 and above was 56 per cent in 1991 and 67 per cent in 2001, compared with 52 per cent and 65 per cent respectively, for India as a whole. Karnataka had a population of 45.0 million at the time of the 1991 Census and 52.7 million at the time of the 2001 Census (Office of the Registrar General and Census Commissioner, 2001). The total population of the state was 29.3 million in 1971 and 37.1 million in 1981. Thus, the population grew by almost 8 million in each of the decades from 1971-2001. The decadal growth rate increased from 24.2 per cent in 1961-71 to 26.8 per cent in 1971-81 and then decreased to 21.1 per cent in 1981-91 and 17.2 per cent in 1991-2001.

1.2 NEED FOR ORAL HEALTH SURVEY

1.2.1 Oral health problems

Oral Health is a very important component of the general health of the people. The high prevalence and severity of oral diseases such as dental caries, periodontal disease, oral cancers and various stages of malocclusions and crippling nature of these diseases lead to significant absenteeism and economic loss. Dental illness, thus, contributes to considerable reduction in national productivity and overall national development.

It is reported that almost 85 per cent of children and 95-100 per cent of the adult population suffers from periodontal disease at any given point of time. About 35 per cent of children suffer from misaligned teeth and jaws, which affects their proper functioning. These children lose school time and suffer from pain of dental origin. This not only affects their normal life but also causes a good deal of discomfort to their parents in several ways. These dental problems are initially painless but can become chronic and self-destructive, eventually leading to tooth loss. Dental caries has a crippling effect on the functional components of oral cavity that leads to malnutrition because of one's incapacity to chew any coarse food. Unfortunately, this is still not considered a public health problem and thus no action has been taken to correct it. In other words, there is need to make people aware of the preventive and curative aspects of oral health so that quality of their life can be improved.

Oral diseases also have an adverse effect on other vital organs of the body. Pus oozing pockets in advanced periodontal disease in adults act as a focus of infection for other vital organs of body like the kidney, heart, lungs, brain, etc. Limited information available from micro-level studies suggests that 35-40 per cent of all body cancers are oral cancers. That is, incidence of simple oral morbidity becomes chronic and ultimately life threatening. One needs not only to take preventive measures, but early curative steps as well. It is unfortunate that oral health has received much less attention perhaps because of its lower life threatening risk. Its role in quality of life has now been recognised and thus all efforts should be undertaken to improve the oral health of the people.

Several adverse effects of poor oral health necessitate preventive, curative and educational services/ activities. These necessitate a proper understanding of people's knowledge, awareness and attitudes towards oral health and oral health practices, besides the magnitude of the problems

and the corrective and treatment-seeking measures that people adopt. This information is basic for the formulation of policy, developing strategic measures and meeting appropriate manpower needs, and creating programs for improvement of the oral health of people.

1.2.2 Lack of data for policies and manpower development

No authentic, reliable or consolidated data on the magnitude of oral health problems, behavioural practices of people for preventive and curative care, dental manpower, infrastructure and on the appropriateness and efficiency of existing oral health care services, including educational and awareness-raising activities, are available in the country. However, a wide spectrum of oral health services exists in many urban/rural areas. These services range from rudimentary and sporadic in rural areas to sophisticated and state-of-the-art in urban areas. It is unfortunate that there has neither been any systematic assessment of the need and form of educational activities and curative services, nor of the impact of existing services on the oral health of the people. The vacuum of an effective monitoring and evaluation system is being felt; dental professionals are very keen to fill the gap between emerging needs and existing services. A strong need exists to understand oral health care practices and treatment-seeking behaviour of the people and to assess the existing oral health care services. An appropriate and relevant oral health policy for the country should address local problems in the broad context of the World Health Organization's (WHO) primary health care approach framework. Ultimately, data needs to be generated to help address and improve the overall oral health of the people in the country.

Since the quantity of intake of fluorides has an effect on dental caries prevention and control, it is also necessary to know the intake of fluoride through water, toothpaste or any other source. This will help to bring out area-specific policies to meet the fluoride needs of the people.

In conclusion, it was felt that two types of studies were needed. One, on the incidence/ prevalence of oral health problems and the knowledge and behavioural practices of people for the prevention/ treatment of such problems. Second, an assessment the existing facilities and infrastructure for their cost effectiveness and utilisation patterns. Such studies and their analysis, it was felt, would ultimately help in bringing about a balance between the needs and the services required to meet such needs.

1.3 INITIATIVE OF THE DENTAL COUNCIL OF INDIA

The Dental Council of India, as per its objective, has always been concerned with the oral health of people in the country. It has, on the one hand, been attempting to strengthen the quality of oral health activities by arranging workshops/seminars to inform and involve dentists in this important area, and, on the other, been raising its concern with the Government on the poor oral health situation prevailing in the country. The idea is to work with both the stakeholders in improving oral health in the country. It has also been making recommendations and suggesting ways and means to bring about an improvement in the overall oral health situation in the country.

1.4 NATIONAL ORAL HEALTH SURVEY

As indicated above, it was felt that there was a need to conduct two types of studies on oral health to bring about a balance between the oral health needs of the people and the services needed to meet such needs. The first involved a community survey to assess (i) the knowledge of the people

on appropriate dental health promoting behaviours, including treatment seeking behaviours, and (ii) the oral health status of the population. The second was a survey and assessment of available dental care services. The Dental Council of India undertook a community survey, the National Oral Health Survey, to assess the dental problems and practices related to oral health in 2002. This report presents the results of this survey, where a representative sample of community members in all the states were contacted to assess their dental service needs and understand their knowledge and behaviour with regard to practices affecting oral health. The priority and the need for such a survey had first been emphasised in 1991 in the National Workshop on "Exploring New Frontiers in Dental Public Health: Planning for the Future" that had been organised by the Dental Council of India under the Presidentship of Dr. R.K. Bali. This workshop had highlighted the lack of data and framework for planning oral health manpower and services in the country and had recommended a nation-wide oral health survey to assess the current status of oral health. As a follow up of this recommendation, the Dental Council of India, again under the Presidentship of Dr. R.K. Bali, developed a proposal to conduct a National Oral Health Survey to assess oral health problems in the country and the behavioural practices affecting them. Mapping of the fluoride levels in the country was also made a part of this survey. It approached several individuals and agencies for technical and financial support for undertaking this national survey.

1.4.1 Support of Government of India

The proposal to conduct a National Oral Health Survey was submitted to Ministry of Health & Family Welfare, Government of India for (i) seeking their formal approval, and (ii) grant of financial assistance and necessary logistical support. While the Government recognised the need and importance for national survey after several meetings between the President of the Dental Council of India and officials of the Ministry of Health & Family Welfare, it, however, could not provide financial assistance for the survey in view of its other more pressing commitments. However, the Ministry of Heath & Family Welfare agreed to support the Council's efforts to seek financial and technical support from other agencies.

1.4.2 Support from Colgate India/International

The President of the Dental Council of India, Dr. R K Bali, subsequently approached Colgate India and Colgate International for funding this survey. After a series of meetings in New Delhi, Mumbai and in the US, the company management agreed to grant a major financial assistance for this national survey.

1.4.3 Support of individuals and dental colleges in India

The Dental Council of India did not have the manpower to manage such a large survey by itself and thus decided to undertake it in collaboration with dental colleges in India and the Indian Association of Public Health Dentistry (IAPHD). A bare minimum technical unit was set up for this purpose. It consisted of Dr. R.K. Bali as Chairman and Project Coordinator, Dr. V.B. Mathur as Project Officer and Mr. H.B. Chanana as Statistician. Professor P.P. Talwar, an eminent expert in statistics and demography, was appointed as the consultant for survey methodology. **Annexure-1** Collectively, they formed the Central Survey Team for the National Oral Health Survey & Fluoride Mapping and were located in the office of the Dental Council of India in New Delhi. It was also decided that the Central Survey Team would involve Principals/ Deans/ Heads of Dental Colleges

at Regional/ State levels and a few members of the IAPHD for technical development of the survey, data collection in their states and subsequently for report writing. This model was thought to be the best for inducing a sense of ownership and commitment among the dental colleges. Accordingly, the President of the Dental Council of India sent a copy of the proposal/ protocol of the National Oral Health Survey to these colleges, seeking their active support and participation. On their part, the colleges enthusiastically took part in the survey and generated, shared and pooled local level resources to supplement the grant for the survey. In fact, almost all resource persons and Deans/ Principals of the dental colleges agreed with his request and expressed willingness to participate in this national endeavour.

The Dental Council of India also appointed a core technical committee consisting of experts in oral health and survey methodology (statistics) to work out technical and field details for the National Oral Health Survey. Joint expertise was felt necessary so that the survey could provide scientific estimates of the prevalence of various oral health problems and the knowledge and behavioural practices of the people. The members of the committee are listed in the annexure to this report. **Annexure - 2**

1.5 SCOPE OF THE SURVEY

This survey recognised the fact that India is a vast country with great diversity in eating habits and behavioural practices which could affect the oral health of the people. It was, therefore, decided to conduct the survey in such a way that state-wise oral health problems and practices could be determined. This would help in formulation and implementation of state-wise policies and programmes on oral health activities and services.

As indicated earlier, it was also decided to collect water samples from representative areas to assess the level of fluoride in water because of its implications on oral health. Such data was ultimately to help in fluoride mapping at the state level.

The scope of data collection was enlarged in the sense that it would collect data not only on the incidence/ prevalence of oral health problems (WHO clinical form), but also on dental hygiene practices, food habits, knowledge of dental problems and behavioural practices related to dental health.

Thus, the scope of the survey was to have state-wise and national data and reports containing information on the following components of oral health:

- Prevalence of important oral health problems
- Fluoride mapping
- Dental cleaning practices
- Awareness and knowledge of people on factors affecting oral health and their related dietary and dental cleaning practices
- Treatment-seeking behaviour of the people for their oral health problems.

The survey also explored the association between oral health and its related practices.

1.6 OBJECTIVES

The long-term goal of the survey was to provide state-wise data for improvement of the overall oral health of the people of India. It was done by collecting enough information for formulation of a national oral health policy and for implementation of oral health programmes in each state. All its dimensions of preventive, promotive and curative oral health care was to be addressed in the survey.

More specifically, the objectives of the National Oral Health Survey were:

1.6.1 To collect data on oral health status, particularly on,

- Dental Caries
- Periodontal disease
- Malocclusion
- Oral cancers
- Fluorosis
- Mucosal and Bony lesions

1.6.2 To understand eating and dental cleaning practices that affect oral health and determine the degree of association/ correlation between some of the known etiologic factors which affect oral health status; particularly included were

- Food habits (affecting oral health)
- Eating habits (affecting oral health)
- Dental cleaning practices, and
- Intake of fluoride

1.6.3 To assess awareness and knowledge of people on the factors affecting oral health, and

1.6.4 To determine the treatment-seeking behaviour of the people for their oral health problems.

It was presumed that the data collected would lead to development of programmes on preventive, promotive and curative dimensions of the oral health problems in each state. It was also to serve as a baseline data against which progress of dental programmes could be assessed in future years.

1.7 CHAPTERIZATION PLAN

The report is comprised of the following main chapters:

0 Executive Summary

1. Introduction
2. Methodology & Data Collection
3. Background Characteristics of the Surveyed Population
4. Mapping of the Fluoride Levels
5. Oral Health Knowledge and Practices
6. Status of Oral Health

CHAPTER II

METHODOLOGY AND DATA COLLECTION

2.1 BASIC CONSIDERATIONS IN SURVEY DESIGN

The following considerations were taken into account while designing the survey:

1. Estimates of oral health problems and related practices needed to be made at the state level.
2. The study should be able to capture intra-state regional variations in oral health problems. Thus, regional differentials (within a state) in oral health problems should be assessed to suggest region-specific programmes.
3. The scope of information should be so decided that individual states should be able to formulate oral health policies and programmes. Thus, information should be collected on:
   - Levels of oral health problems
   - Etiological factors affecting oral health
   - Behavioural practices with regard to dental cleaning practices
   - Awareness of dental problems and practices followed to seek treatment, and
   - Fluoride mapping and issues related to fluoride in toothpaste/ powder
4. Available financial resources (limited) should be used to undertake the survey in all states, unless some other prohibitive factors operate in a state.

2.2 SAMPLE DESIGN

2.2.1 Sample size

The following considerations were made in working out the sample size:

(i) The estimates should be valid at the state level, and

(ii) Intra-state regional variations in oral health problems and related practices may be captured.

The World Health Organization (WHO) has recommended a sample of 300-600 dental examinations of people in the 5, 12, 15, 35-44 and 65-74 age groups from a homogeneous region of a state. Hence, this sample size was kept in mind while deciding on the number of households to be selected from different homogeneous regions (within a state). It was decided that 315 households, covering both rural and urban areas, would be selected from each homogeneous region in the state. It was expected that this sample would give 315 respondents/examinees in each of the five age groups of 5, 12, 15, 35-44 and 65-74 years. In case this number of respondents (315 in each of the five ages) was not available from the selected 315 households, then more households would be covered to get these numbers of examinees/ respondents. It may be pointed out that while the selected sample size was closer to the lower limit of the WHO recommendations, this was done given the financial constraints under which this study was undertaken.

It may be reiterated here that the sample size of 315 households or more was for each homogeneous region within a state. Thus, the actual sample size at the state level varied according to the number of homogeneous regions in which the state had been divided. For instance, if a state had five homogeneous regions, then the total sample size would be 5x315= 1,575 or more households to cover 1,575 respondents/ examinees of each of the five age groups, resulting in a total 7,875 oral examinations.

In order to give representation to urban population, which forms a small proportion of the total population in most regions/states in India, the urban sample was over-sampled so as to get estimates with a reasonable margin of sampling error of the parameters under study. Accordingly, it was decided that two-thirds of the sample would be from the rural areas and one-third from urban. Thus, 210 households were selected from rural areas and 105 from urban areas. Weights (for rural and urban proportions) were applied to these estimates to get parameter estimates at the stratum (region) level and then at the state level.

As indicated above, though it was expected that 315 households from each region would yield a sample of 315 individuals each in the 5, 12, 15, 35-44 and 65-74 age groups. Instructions were, however, issued to the field teams that they should visit more households if there was shortfall in any category in the 315 selected households.

It was also decided to have an equal number of males and females in the sample. Therefore, when the field teams were to visit the households, they had to make sure that the 315 respondents/ examinees were equally divided between males and females. In other words, the field teams had to start with a larger sample of households in order to cover 315 respondents/ examinees of each of the five age groups with an equal number of males and females.

2.2.2 Selection of sample

The Planning Commission of India in an exercise to group districts into homogeneous regions in a state had divided each of the 18 major states into a few homogeneous agro-climatic regions on the basis of socio-economic indicators and agricultural parameters. In the case of the remaining states/Union Territories, the homogeneous physio-geographic regions determined by the office of Registrar General of India, were used. Each homogeneous region thus formed a stratum for collection of data from 315 respondents/ examinees of each age, equally divided between males and females. **Annexure - 3**

2.2.2.1 Rural sample

In order to get a sample of rural households in a stratum (region), the three-stage sampling method was adopted. The first stage saw the selection of one district from the group of districts in that particular region; the second stage, involved selection of 15 villages from this selected district and the third, selection of 14 households from the villages so selected. The district was selected randomly. For the selection of 14 sample villages, all villages in the selected district were arranged in an array according to their size, so as to get a cumulative total of their population. This cumulative total array was then divided into three sections, each having equal population size. Five villages with probability proportional to the population size (pps) of the village were then selected from each of three sections. The list of villages were taken from the sampling frame developed for the Rapid Household Survey, a district-wise survey conducted by the Government of India and

coordinated by the International Institute for Population Sciences, Mumbai; the list was based on the 1991 Census. In the third stage, 14 or more households were selected randomly from a village (by dividing it into two equal parts) to get a sample of 14 respondents/ examinees from each of the five age groups – 5, 12, 15, 35-44 and 65-74, half of them being males. Thus, a sample of 210 or more households was selected to interview 14 members (half male and half female) in each of the five age groups of 5,12, 15, 35-44 and 65-74 years.

2.2.2.2 Urban sample

For the urban sample also, the three-stage sampling design was adopted. In the first stage, eight blocks/ wards were selected randomly from the list of urban blocks/wards in the selected district. The second stage was selection of 15 Census Enumeration Blocks (CEBs) from selected eight blocks/ wards (the population size in each CEB is approximately equal). The list of CEBs was obtained from the District Census Office and was for the year 1991. The third stage was a systematic sample of seven or more households in each CEB to get seven members of each of the five age groups of 5, 12, 15, 35-44 and 65-74 years. Half of them were to be males in each age group. Thus, a total of 105 or more households were randomly selected from the selected 15 CEBs.

On the basis of this sampling design, the number of households to be covered in the state were 28,350 or more to cover 28,350 respondents/ examinees in each of the five age groups of 5, 12, 15, 35-44 and 65-74 years. Half of them were to be males. Thus, the total number of examinations to be done was 1,41,750. The actual coverage was a minimum of 18,585 households, a total of 92,925 examinations. Their state-wise, rural/urban distribution is shown below:

Table 2.1. States, number of regions and sample of rural/urban households.

Sl. No.	State	Coverage as per design				Actual coverage			
		No. of regions	No. of households		Total	No. of regions	No. of households		Total
			Rural	Urban			Rural	Urban	
1.	Andhra Pradesh	6	1260	630	1890	6	1260	630	1890
2.	Assam	3	630	315	945	2	420	210	630
3	Bihar	3	630	315	945	Not covered			
4.	Jharkhand	2	420	210	630	Not covered			
5.	Gujarat	7	1470	735	2205	7	1470	735	2205
6.	Haryana	3	630	315	945	3	630	315	945
7.	Himachal Pradesh	2	420	210	630	2	420	210	630
8.	Karnataka	4	840	420	1260	4	840	420	1260
9.	Kerala	3	630	315	945	3	630	315	945
10.	Madhya Pradesh	8	1680	840	2520	4	840	420	1260
11.	Chattisgarh	3	630	315	945	Not covered			
12.	Maharashtra	6	1260	630	1890	5	1050	525	1575
13.	Orissa	5	1050	525	1575	5	1050	525	1575
14.	Punjab	3	630	315	945	3	630	315	945
15.	Rajasthan	5	1050	525	1575	3	630	315	945
16.	Tamil Nadu	7	1470	735	2205	7	1470	735	2205
17.	Uttar Pradesh,	6	1260	630	1890	2	420	210	630
18.	Uttranchal	2	420	210	630	Not covered			
19.	W. Bengal	6	1260	630	1890	Not covered			
20.	Jammu & Kashmir	3	630	315	945	3	630	315	945
21.	Chandigarh	1	105	210	315	1	105	210	315
22.	Delhi	1	105	210	315	1	105	210	315
23.	Goa	1	105	210	315	1	105	210	315
24.	Pondicherry	1	105	210	315	1	105	210	315
	Total	**91**	**18690**	**9975**	**28665**	**63**	**12810**	**7035**	**19845**

Note: Names of the regions and selected districts are shown in Annexure-3.

Table 2.1(a): Presents regions/districts within region and sampled district in the state of Karnataka

Table 2.1(a) STATEMENT SHOWING REGIONS/DISTRICTS WITHIN REGIONS AND SAMPLED DISTRICT IN THE STATE OF KARNATAKA

Code	Region	Districts	Sampled District	*Coverage as per design*			*Actual Coverage*		
				No. of Households			*No. of Households*		
				Rural	Urban	Total	Rural	Urban	Total
1	Northern Dry Region	i) Belgaum							
		ii) Bellary							
		iii) Bidar							
		iv) Bijapur							
		v) Dharvad	Dharwad	210	105	315	210	105	315
		vi) Gulbarga							
		vii) Raichur							
		viii) Bagalkot							
		ix) Koppal							
		x) Gadag							
2	Central Region	i) Bangalore	Bangalore	210	105	315	210	105	315
		ii) Chitradug							
		iii) Kolar							
		iv) Tumkur							
3	Southern Region	i) Mandya							
		ii) Mysore	Mysore	210	105	315	210	105	315
		iii) Hassan							
		iv) Chamarajnagar							
4	Hills & Coastal Region	i) Uttar Kannada							
		ii) Dakshin Kannada							
		iii) Chickmagalur							
		iv) Kodagu v) Shimoga	Kodagu	210	105	315	210	105	315
		vi) Haveri							
		vii) Davangiri							
		viii) Udpi							
Total	**4**	**26**	**4**	**840**	**420**	**1260**	**840**	**420**	**1260**

It may be noted that sample size shown, both on the basis of design and actual coverage, is for the minimum number of households. They were selected to give this number of respondents from each of the five age groups – 5,12,15, 35-44 and 65-74 years -equally divided between males and females.

2.3 STUDY TOOLS

In order to cover the total scope of the study, two types of questionnaire/ schedules were used for data collection. The first was the Oral Health Assessment Questionnaire (WHO, 1997) for recording the results of the examination of oral health of individuals. The second was the Individual Questionnaire (specially developed by

DCI) for collecting information on etiologic factors related to oral health awareness, knowledge and practices of individuals on factors affecting oral health and their treatment seeking behaviour. These questionnaires were pre-tested and finalised by the Central Survey Unit in Delhi with the help of a consultant. A copy each of the tools used is annexed in this report. **Annexure - 7**

2.3.1 Oral health assessment form

This survey used the Oral Health Assessment form recommended by the World Health Organization. It followed all the instructions given in the WHO publication, "Oral Health Surveys: Basic Methods". By keeping the WHO form unchanged, it was considered possible to collect data comparable to other sets of data in the WHO databank.

2.3.2 Questionnaire on food habits and oral health practices

As indicated, this survey did not limit itself only to oral health assessment because its aim was to help formulate dental policies and programmes. Therefore, it was essential to collect information on all parameters like food habits, dental cleaning practices and treatment seeking practices that ultimately affect the oral health of the people.

The core technical group working on this national survey developed a questionnaire wherein all information related to factors that affected oral health was collected from respondents/ examinees. The idea was (1) to understand factors that affected their oral health status, and (2) determine relationships between different etiological factors and the oral health status. The questionnaire had the following sections:

1. Socio-economic and demographic characteristics of the population
2. Abnormal oral habits
3. Eating habits
4. Oral hygiene practices
5. Pattern of practices for dental treatment
6. Awareness and knowledge of dental problems, and
7. Tobacco smoking and chewing habits

2.4 DATA COLLECTION

Since individuals of different ages and sex were to be examined/ interviewed, it was necessary that dentists should be involved in the data collection teams. Therefore, it was decided that dental colleges, particularly their Departments of Community Dentistry, should be involved in the data

collection work. It was also hoped that their involvement would help reduce the cost of the survey as not only could their manpower but also their infrastructure and equipment be deployed in the survey work. However, this was based on the assumption that it would be in their interest, both professionally and personally, if they cooperated with the Dental Council of India in conducting the national survey, a long overdue activity of immense importance to the dental profession. Keeping this in mind, the technical group formed for the survey identified dental colleges and individuals in each state whose involvement could be helpful in quality data collection work. The President of the Dental Council of India then wrote to these identified individuals and dental colleges seeking their cooperation in this national effort. The response was very positive and almost all the invitees were very enthusiastic about their involvement. **Annexure - 4**

The first stage in the data collection work was to set up a Central Survey Unit in the Dental Council of India's Office in New Delhi to coordinate all activities related to the survey in each state. Because of the limited resources available, a small nucleus was set up in the office of the DCI. This nucleus consisted of an experienced senior public health dental surgeon, whose services were taken on deputation from the Delhi Municipal Corporation, a full-time statistician and a part-time consultant in survey techniques.

This Central Survey Unit worked out the fieldwork logistics to get maximum output at minimum cost. Based on the pre-test and the experience of the WHO Assessment Form, it was found that two field teams, each comprising two dentists and one worker having a social science background, could complete field work in one village – i.e. cover 14 or more households, involving interviews/ examinations of 14 individuals in each of the five age groups — in one day. The two dentists in the team had an inter-changeable role of examining the mouths of the respondents and completing the WHO Assessment Form, in order to reduce the fatigue factor. The worker with the social science background, the third member of the team, was to complete the questionnaire related to awareness and practices of the respondents related to dental health.

The quality of data was given utmost consideration. It was decided that supervisors would continuously move with the field teams to guide data collection work. They were to help the team select the households (as per the study design) whose members were to be interviewed/ examined, and also scrutinise the completed forms before sending them to the state headquarters. In view of the limited resources available, it was decided that there would be one supervisor for every four field teams. This would enable them to accompany the teams alternately (as stated earlier, two teams were to travel together to collect data).

After working out logistics of the fieldwork, it was necessary to identify the teams in each state that would be involved in the survey. Three types of persons were needed from each state, a Coordinator, a Supervisor and dentists for the field teams. The former was to coordinate all survey activities at the state-level and liase with the Central Survey Unit. The Supervisor was to supervise and guide fieldwork activities, working under the overall direction of the Coordinator. The Coordinators were expected to be senior, experienced professionals having an inclination for research – principals, deans or professors of the Departments of Community Dentistry in various dental colleges. The Coordinators were selected by the Technical Committee for the survey, which then asked them to select their field team Supervisors — senior dental surgeons from dental colleges. **Annexure - 5**

These Coordinators and Supervisors were to identify the field teams. The number of field teams was to be equal to the number of homogeneous zones/ regions in the state so that each team could complete fieldwork in a district within two months. Again, the two-dentists/ dental surgeons/ interns for each team were to be from dental colleges in the state. This was not only to reduce costs but was also meant to give them 9 dentists with experience in oral examinations under the guidance of Supervisors.

2.5 CALIBRATION AND TRAINING

Before initiating work at the state level, it was necessary to evolve common standards for the examination and recording of dental problems. For such training and standardisation, the Dental Council of India, in collaboration with the Manipal Academy of Higher Education (MAHE), organised a three-day calibration workshop at Manipal, Karnataka in March 2002. All state Coordinators and selected Supervisors were invited to this workshop. They were explained the sampling design, study tools and the field logistics of data collection. They were taken to the field to practice selection of sample households and complete the questionnaire related to practices that affect oral health. They were also taken to dental chairs in the Manipal Dental College to get practical experience of the dental problems of the patients. A good deal of discussion was held along with the Coordinators and the Supervisors to ensure that all had a common and uniform understanding of the dental problems that were to be recorded. This was an ongoing exercise until it was felt that all the Coordinators and Supervisors had a uniform understanding on how to measure dental problems. The calibration workshop helped standardise measurement of dental problems, vital to ensure comparability of data from different states. After their training, the Coordinators and Supervisors then had to train their field teams, which would actually collect the data.

2.6 CLINICAL ASSESSMENT AND CONSIDERATIONS

The information on behavioural practices was sought directly from the respondents and their answers recorded on the prescribed proforma. In the case of clinical assessment of oral health status, however, there was need for common and uniform understanding of the recording criteria amongst the field teams. Therefore, special efforts were made to standardise methods of assessment and the field teams were trained and calibrated accordingly. The details on how the clinical assessment was made and some considerations in clinical assessment are described below.

The recording criteria used for various oral health conditions were as prescribed and described for pathfinder survey methodology in "Oral Health Surveys: Basic Methods", 4th Edition, 1997, WHO, Geneva. The WHO Oral Health Assessment Form 1997 was used in the National Oral Health Survey. All columns for clinical data (column no. 32 to column no.180) were filled by the teams in the field.

The main instruments and utilities that formed a part of the field kit carried by each of the teams during the course of clinical examinations were:

1. Mouth mirrors, tweezers, curved double-ended probes and WHO CPI ball-ended probes.
2. Supplies of cotton rolls, masks and gloves, cold sterilizing solution, alcohol or spirit, instrument trays and chittle forceps. The cold sterilising solution was used in field conditions for the instruments, although these were previously boiled for 20-30 minutes.

3. Lightweight folding chair for clinical dental examination of subjects.

4. Torches and batteries.

A portable, lightweight field chair was used to seat the subjects in such a manner that the head was aligned with the back of the chair and the lower jaw was horizontal (parallel to the floor). Examinations were carried out in natural light (daylight) and a simple two-cell torch was used to illuminate oral and dental tissues. The examiner stood behind and on-side of the subject during the examination. A combination of natural and torchlight was used to provide consistency and adequate visibility during examinations of different subjects. The torch was held in place by an assistant from within the team or from the community where the examinations were being carried out. (As stated earlier, all trainers were trained in the Manipal workshop to adopt this method so that the approach and results were uniform and widely comparable.)

Clinical oral examinations were carried out by previously trained and calibrated dental surgeons, who were normally interns, junior residents or other dental surgeons drawn from regional dental colleges. They were carefully selected by senior faculty members responsible for the survey in their area. Two dental surgeons formed one clinical examination team. One member was the examiner who examined the selected subject and called out the scores for each item. The other member was the recorder, who orally repeated the scores for the examiner to hear and correct, if necessary, and then entered it in the appropriate place in the paper proforma. In order to avoid monotony and fatigue, the roles of the examiner and recorder were interchanged from time to time, but not during the course of any one examination.

The teams used the instruments and utilities as detailed above for the detection of caries, periodontal disease and other conditions. Sufficient numbers of instruments were carried by the field teams after proper sterilisation.

The data was collected by the field teams led by their Supervisors and scrutinised by the State Coordinators, who forwarded the completed forms to the Central Project Cell in the office of the Dental Council of India in New Delhi. The clinical data forms were scrutinised again before being sent for analysis and preparation of tables.

The clinical findings are presented in Chapter VI under the following broad heads:

1. Summary of Findings
2. Dental Caries Status and Treatment Need
3. Periodontal Disease Status
4. Malocclusion Status
5. Oral Cancers and other Oral Mucosal Lesions
6. Status of Dental Fluorosis
7. Other conditions:

   Extra Oral Lesions; TMJ Signs and Symptoms; Enamel Opacities and Hypoplasia; Prosthetic Status and Need; and Community Need for immediate Care and Referrals.

While the criteria used for recording caries is as described in the WHO manual, the data on caries status is presented in tables which also provide information on the distribution of subjects with mean values of dmft and DMFT. The following range is used for purposes of reporting the results of the survey:

Primary teeth (5 yr)	Permanent teeth (12 & 15 yr)	Permanent teeth (35-44 yr & 65-74 yr)
dmft = 0	DMFT = 0	DMFT = 0
dmft = 1 to 3	DMFT = 1 to 3	DMFT = 1 to 3
dmft = 4 to 5	DMFT = 4 to 7	DMFT = 4 to 8
dmft = 6 to 10	DMFT = 8 to 14	DMFT = 9 to 16
dmft = 11 to 15	DMFT = 15 to 21	DMFT = 17 to 24
dmft = 16 to 20.	DMFT = 22 to 28.	DMFT = 25 to 28.
		DMFT = 29 to 32.

A new approach to grouping of dmft/ DMFT by range according to the percentage of affected teeth in the mouth has been introduced in this survey report. The first range is the dmft/ DMFT value of 1 to 3. This provides an estimate of subjects who had less than 4 decayed, missing or filled teeth. Further, the dentition has been divided into 4 equal parts (quarters) on the basis of the number of teeth normally present (maximum being 20 for primary teeth and 28 or 32 for permanent teeth). The ranges, therefore, reflect these four quarters in each case as explained above. The rationale for this distribution is to facilitate reporting in terms of the percentage teeth that are decayed, missing or filled, out of the number of teeth normally present for the age group concerned.

The status of malocclusion as presented is based on the Dental Aesthetic Index (DAI) scores for the 12, 15 and 35-44 year age groups, computed as per the WHO's instructions.

The severity of malocclusion within a population is classified based on their Dental Aesthetic Index (DAI) Index scores. The regression equation (WHO 1997) used for calculating standard DAI scores is as follows:

(missing visible teeth x 6) + (crowding) + (spacing) + (diastema x 3) + (largest anterior maxillary irregularity) + (largest anterior mandibular irregularity) + (anterior maxillary overjet x 2) + (anterior mandibular overjet x 4) + (vertical anterior openbite x 4) + (antero-posterior molar relation x 3) + 13

2.7 FLUORIDE ESTIMATION IN DRINKING WATER SAMPLES

As stated earlier, drinking water samples from various states were directly sent for analysis by the various Regional Coordinators and received by M/s Medlar Laboratories Pvt Ltd., (a Unit of M/ s Cipla), Mumbai. Dr. P M Dixit, Chief Chemist, has provided the following information on the analysis procedure.

Medlar Labs used sophisticated equipment and intricate chromatographic separation methodology to analyse the water samples with accuracy and precision.

The procedure was based on the Ion Chromatographic separation in Anion Exchange mode and Suppressed Conductivity Detection. The basic separation was performed by anion exchange mechanism of water samples on high efficiency IonPac AG 11RC and IonPac AS 11RC connected in series and through elution (the process of extracting one material from another by washing it with a solvent to remove adsorbed material from an adsorbent) with sodium hydroxide mobile phase.

Under this technique, a standard stock solution of fluoride (100 ppm F anion) is prepared (0 – 5.0 ppm) in order to build a calibration graph prior to the start of the analysis.

The actual water samples were thoroughly mixed by vigorously shaking and filtering them through a 0.45 u Nylon membrane. The effluent was collected into a clean dry conical glass tube. This was used for fluoride estimation. The actual water sample was loaded into a mobile phase container connected to a pump and made to run on the system. After about 20 minutes to enable stabilisation, the actual concentration of fluoride ion in the water was analysed.

The following modules were used to assemble the fluoride analyser:

1. Isocratic pump-M/s Dionex Corp., USA, IP 20 Pump (I. No. -1)
2. AS300 Auto sampler- M/s Thermo Separation Products
3. Conductivity Detector-M/s Dionex Corp., USA, Model CD 20, (I. No. 4)
4. Anion Self Regenerating Suppressor- M/s Dionex Corp., USA, Model ASRS Ultra.
5. IonPac AG 11RC, as guard column, 4 x 50 mm- M/s Dionex Corp., USA
6. IonPac AS 11RC, as analytical column, 4 x 250 mm- M/s Dionex Corp., USA.
7. WinchromEx, data acquisition software in personal computer, PC 2.

In order to confirm the system stability and performance, one standard stock solution of fluoride (strength 1.0 ppm) was injected after every 10 samples.

2.8 FIELD WORK EXPERIENCES

2.8.1 Pre-field work activity

To start with, Director, Census Operation, Karnataka, was approached regarding information about the Households, Census Enumeration Blocks (CEBs),Wards/Divisions in the following regions.

Region 1	-	N. Dry Region (Dharwad District)
Region 2	-	Central Region (Bangalore District)
Region 3	-	S. Region (Mysore District)
Region 4	-	Hills & Coastal Region (Kodagu District)

Six field teams were formed to collect data from rural and urban areas of these Districts. Each consisted of three members for examination, recording and collecting demographic information. They were taken from various dental colleges. **Annexure - 7**

2.8.2 Identification and training of field teams

Extensive training/calibration of the team was conducted for three days in July 2002 at Govt Dental College, Bangalore, by State Co-ordinator and Supervisors. They were given thorough training in theoretical, clinical and field aspects of data collection work. After this, their efficiency in data collection was evaluated and borderline problems discussed. A field trip was arranged for teams to acquaint them with data collection work. They were explained the questionnaire and logistics of the fieldwork.

2.8.3 Fieldwork

After the classroom and dental college training, the teams were taken to the field to make sure that they had understood the method of selection of the households, interview the individuals, fill the questionnaires and undertake clinical examination of the dental problems. Once it was found that the teams had understood all the issues and were in a position to work independently, they were sent to the field.

2.9 SCRUTINY OF DATA

As stated earlier, all efforts were made to ensure that quality of data was good. A senior-level person was moving with the teams to guide them in case of any doubts. He/ she was also responsible for scrutiny of the completed forms before the team returned from the field. It was his/ her responsibility to scrutinise the forms, if they could not be checked in the field. This scrutiny was necessary before they were submitted to the state Coordinator and then to the Central Survey Unit. The Coordinator was also responsible of scrutinising the forms, fully in the initial stages and then on sample basis before sending them to the Central Survey Unit in New Delhi.

The Central Survey Unit was particularly careful in scrutinising forms from each state. First two batches of forms from each survey team from each state were scrutinised to determine gaps in the form of blanks, wrong recording and inconsistencies. The Coordinators were immediately contacted in case such problems were spotted, both telephonically and by facsimile transmission. In such cases, the next batch again scrutinised carefully to ensure that deficiencies were not repeated. Subsequent to this initial scrutiny, the form was scrutinised on a sample basis to ensure that there had been no slackness – the fatigue factor should not affect the quality of data.

2.10 DATA ANALYSIS

In the absence of any resources for data analysis at the Dental Council of India, all the work relating to data entry, validity checks and production of desired tables (as per analysis plan) was contracted out to TNS MODE, an organisation with research experience in studies related to health. All efforts were also made to monitor work quality at this stage. The Central Survey Unit had worked out the type of tables needed, and the level (Zone or Region/ State/ Country) for which such the analysis was needed. The necessary weights were also worked out to ensure that the

estimates were valid for the level to which they related. These blank tables were given to the agency (TNS MODE) to complete. In order to ensure that the values given in each cell were right, the software package developed by TNS MODE was tested in a limited number of schedules by manually checking the results.

2.11 REPORT WRITING

The Central Survey Unit, Delhi prepared two reports, for Delhi and Maharashtra, as model reports after detailed discussions on the report and tabular format. Once these reports were ready, an effort was made to identify Coordinators who could find time and resources to write reports for their own states. The idea was to conduct a report writing workshop to orient them with the chapterisation plan, data tables of their own states and share with them the style of writing adopted in the model reports (Delhi and Maharashtra). This was felt necessary to make sure that all state reports were written in a uniform style/pattern. For other states, it was decided that the Central Survey Unit, Delhi would write the reports and send it to them for their modifications, if any. The Central Survey Unit also prepared all the sections and sub-sections of Chapters 1 (Introduction) and 2 (Methodology and Data Collection), which were to be common to all reports. These chapters were also given to the Coordinators involved in the report writing workshop.

Dr. S. G. Damle, Dean, Nair Dental Hospital, Mumbai & Director, Medical Education & Public Health, Municipal Corporation of Maharashtra, co-hosted the report writing workshop in Mumbai on January 10-11, 2004 where the staff of the Central Survey Unit discussed all the issues involved in writing the reports with Coordinators from the States of Andhra Pradesh, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Pondicherry, Punjab and Tamil Nadu. They were given two reports (models), a set of tables for their own state and even a CD containing raw data. They were told that their state report should adopt the format shown in the model reports; they could do more analysis, if needed, by using their own raw data. It was also decided and agreed that report should be ready in one month's time.

CHAPTER III

BACKGROUND CHARACTERISTICS OF THE SURVEYED POPULATION

3.1 CHARACTERISTICS OF HOUSEHOLDS

The characteristics of household surveyed are shown in Table 3.1. It may be noted that about 52 per cent of households live in semi pucca houses (31 per cent in urban and 63 per cent in rural areas). In regions, the Hills & Coastal Region had comparatively a lesser percentage of households living in semi pucca houses (38 per cent), while more residing in pucca houses (49 per cent).

The monthly expenditure was taken as proxy of monthly income in this survey. About 68 per cent of the respondents had a monthly expenditure less than or equal to Rs. 2500 (78 per cent in rural areas and 47 per cent in urban areas). Similar response was noted in all the four regions.

Hindu households formed about 87 per cent of the surveyed (90 per cent in rural and 83 per cent in urban areas), followed by Muslims (10 per cent), and Christians (1.3 per cent).

About, 7 per cent households were of Scheduled Castes (SC), 3 per cent of Scheduled Tribes (ST) and 9 per cent of Other Backward castes (OBC). Similar proportions were noted in urban and rural areas, and in all the four regions.

It was observed that about 30 percent of the households (65 percent in urban & 13 percent in rural area were getting piped/tap water for drinking in the state.

Others that about 55 per cent of the households used tubewells/ handpumps as their source of drinking water (72 per cent in rural areas and 25 per cent in urban areas). This was common to all regions barring the Hills & Coastal Region, where only 35 per cent of the surveyed household had used tubewells/ handpumps. Among regions comparatively more reported getting drinking water from tube wells/hand pump in North Dry region than in remaining regions.

It was noted that 69 per cent of the sampled households a had rice as a staple food (65 per cent in rural and 74 per cent in urban areas), barring Hills & Coastal Region where only 18 per cent had rice as a staple food. About 57 per cent of the households were comprised of vegetarians. Similar proportion was noted in urban and rural areas. The Hills & Coastal Region had a lower percentage of vegetarians (22 per cent) when compared to other regions.

CHARACTERISTICS OF HOUSEHOLDS SURVEYED (SUMMING UP)

About 52 per cent of the households lived in semi pucca houses (31 per cent in urban and 63 per cent in rural areas). The Hills & Coastal Region had a greater percentage of households living in pucca houses (49 per cent), with 38 per cent living in semi pucca houses.

A majority of the households in the state as well as in the regions reported their monthly expenditure of Rs. 2500 and below.

About 87 per cent of population was comprised of Hindus and 10 per cent Muslims. Scheduled caste population was 7 per cent; Scheduled Tribe 3 per cent and OBCs 9 per cent. The distribution of households by religion & castes in all region was similar to that in the state.

The staple food was rice, with 57 per cent of those surveyed being vegetarians.

About 55 per cent of the subjects said their source of water supply was tubewell and handpumps.

Table : 3.1 Percent distribution of the households by characteristics and geographical area. STATE : Karnataka

	Household Charactersties		REGIONS				STATE		
			1	2	3	4	R	U	T
1	**Type of household**	n=	**516**	**647**	**699**	**925**	**1883**	**904**	**2787**
	Kuccha		9.9	4.8	5.4	12.3	10.5	4.7	8.7
	Semi Pucca		67.1	50.4	58.1	38.4	63.6	31.2	52.1
	Pucca		23.0	44.8	36.4	49.4	25.9	64.2	39.2
2	**Monthly expenditure (in Rs.)**								
	<= 2500		73.1	56.2	76.3	71.7	78.9	47.3	68.3
	2,501 - 5,500		20.9	40.4	18.9	25.7	19.2	44.0	27.9
	5,501 - 10,000		5.4	2.9	4.3	2.1	1.4	8.1	3.3
	10,000 +		0.6	0.5	0.5	0.5	0.5	0.6	0.5
3	**Religon**								
	Hindus		91.3	90.4	93.4	81.1	90.7	83.4	87.8
	Muslims		7.5	7.8	6.4	14.8	7.5	13.9	10.0
	Sikhs		0.0	0.0	0.0	0.1	0.1	0.0	0.0
	Christians		0.2	1.5	0.3	2.3	0.6	2.3	1.3
4	**Caste**								
	Scheduled Caste		4.1	10.5	6.0	7.2	7.0	7.0	7.0
	Scheduled Tribe		4.9	2.5	3.5	1.8	3.4	2.7	3.3
	Other Backward Classes		5.6	7.6	7.4	14.5	8.2	10.5	9.4
	Others		85.4	79.5	83.1	76.5	81.4	79.8	80.3
5	**Sources of drinking water**								
	Pipe/tap		18.5	32.4	38.5	35.3	12.8	64.9	30.4
	Tubewell/handpump		70.8	67.2	51.2	35.3	72.2	25.5	55.8
	Others		10.7	0.5	10.3	29.4	15.1	9.6	13.7
6	**Staple food**								
	Wheat		19.3	4.5	7.5	0.0	3.3	17.1	7.4
	Rice		18.0	81.1	79.9	99.8	65.8	74.2	69.0
7	**Nature of food**								
	Vegetarian		89.6	52.1	72.0	22.7	58.6	54.2	57.7
	Non-vegetarian		10.4	47.9	28.0	77.3	41.4	45.8	42.3

3.2 PROFILE OF POPULATION

3.2.2 12 year olds

3.2.2.1 Educational levels

About 97 percent, across both sexes & places of residence had education up to middle in the state as well as in each region. Table 3.2.2

3.2.3 15 year olds

3.2.3.1 Educational levels

The level of literacy in this age group was over 95 per cent across both sexes and areas of residence. The N. Dry region had the highest proportion of literates (98 per cent) among regions.

3.2.3.2 Exposure to media

Newspaper reading habits either daily and sometimes were observed in more than 62 per cent of the population. This was slightly higher among males than among females. More than 75 per cent of the urban population reported reading newspapers as compared to about 56 per cent of the rural population. Over 67 per cent of the subjects in the N. Dry Region had read newspapers daily & sometimes.

Radio listening habits, either daily or sometimes, were seen in about 70 per cent of the population, slightly more among males (71 per cent) and more in the urban areas (81 per cent). The Central Region had a higher percentage of males (76) who listened to radios than in the other regions.

Similarly, about 77 per cent more males (78 per cent) than females (76 per cent), and more in urban areas (90 per cent) than in rural areas (80 per cent) reported watching TV daily and sometimes. However, 45 per cent subjects in the S. Region said they did not watch TV and this percent was the highest among all regions.

About 53 per cent did not have the habit of cinema watching. This was more so in females (55 per cent) than in males (50 per cent) and more in rural areas (60 per cent) than in urban areas (42 per cent). Region-wise, 75 percent in Hills & Coastal region, the higher percent among regions, did not watch cinema at all.

Table 3. 2. 2 Percent distribution of 12 year olds by educational level and media exposure, sex & geographical area.

AGE: 12 yrs STATE: Karnataka

Educational level & Media Exposure		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Educational level	n=	157	157	153	170	427	210	637	161	158	155	161	423	212	635	1272
Illiterate		0.7	1.0	2.0	2.5	1.5	1.0	1.3	0.7	2.4	2.9	0.5	1.3	1.7	1.4	**1.4**
Upto middle		99.3	98.1	95.7	93.6	97.4	96.7	97.2	98.8	97.6	93.0	92.3	95.9	97.2	96.3	**96.8**
High school & above		0.0	0.9	2.4	3.9	1.0	2.3	1.4	0.5	0.0	4.2	7.2	2.8	1.1	2.3	**1.9**
2 Newspaper reading habits							NOT ASKED									
3 Radio listening habits							NOT ASKED									
4 TV watching habits							NOT ASKED									
Daily																
Sometimes																
Not at all																
5 Cinema watching habits							NOT ASKED									
Once in 3 months																
Less often																
Not at all																

Table 3. 2. 3 Percent distribution of 15 year olds by educational level and media exposure, sex & geographical area.

AGE: 15 yrs STATE: Karnataka

Educational level & Media Exposure		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Educational level	n=	160	157	151	163	420	211	631	157	157	156	155	417	208	625	1256
Illiterate		1.3	6.2	10.0	5.1	5.1	3.6	4.6	1.4	6.2	5.0	3.9	4.3	2.8	3.8	**4.2**
Upto middle		53.7	20.8	21.9	26.6	37.3	29.2	34.6	58.0	19.6	35.4	28.7	42.7	28.7	38.1	**36.4**
High school & above		45.0	73.0	68.2	68.3	57.6	67.1	60.8	40.6	74.2	59.6	67.5	53.0	68.4	58.2	**59.5**
2 Newspaper reading habits																
Daily		50.5	30.9	27.3	35.7	31.2	53.3	38.5	51.4	24.0	23.0	36.1	29.0	51.0	36.3	**37.4**
Sometimes		16.8	30.8	27.9	26.5	25.4	22.2	24.3	20.9	30.6	23.5	28.3	26.2	24.5	25.6	**25.0**
Not at all		32.7	38.3	44.8	37.8	43.5	24.5	37.2	27.7	45.4	53.5	35.6	44.9	24.5	38.1	**37.7**
3 Radio listening habits																
Daily		56.2	42.2	26.9	43.6	41.3	54.4	45.6	50.9	36.9	26.1	39.3	36.5	50.0	41.0	**43.3**
Sometimes		16.9	34.1	19.8	30.2	24.3	26.5	25.0	22.2	33.9	29.3	30.5	28.6	27.5	28.2	**26.6**
Not at all		27.0	23.7	53.3	26.2	34.4	19.2	29.3	26.9	29.1	44.6	30.2	34.9	22.5	30.8	**30.1**
4 TV watching habits																
Daily		72.6	66.0	39.1	54.0	54.4	78.1	62.3	69.8	65.6	41.9	46.8	51.5	76.7	59.9	**61.1**
Sometimes		13.4	17.5	15.5	18.3	17.9	11.9	15.9	14.2	15.3	19.1	16.0	18.4	10.0	15.6	**15.8**
Not at all		14.0	16.5	45.3	27.8	27.6	10.0	21.8	16.0	19.1	39.0	37.2	30.1	13.2	24.5	**23.2**
5 Cinema watching habits																
Once in 3 months		31.7	20.9	34.0	3.8	19.6	29.3	22.8	33.5	16.8	20.7	5.2	17.8	27.5	21.0	**21.9**
Less often		27.3	24.6	22.2	32.0	25.9	28.7	26.9	24.2	25.4	31.5	19.0	21.6	29.6	24.3	**25.6**
Not at all		41.1	54.5	43.8	64.2	54.5	42.0	50.3	42.4	57.9	47.9	75.8	60.6	42.9	54.7	**52.5**

3.2.4 35-44 year olds

3.2.4.1 Educational levels

The literacy level of respondents was over 68 per cent, with considerable difference between males (75 per cent) and females (62 per cent). Also literacy levels were higher in the urban areas (90 per cent) than in the rural areas (67 per cent). The Hills & Coastal Region had higher percentage of literates (82 per cent) (Table 3.2.4) among regions. Table 3.2.4

3.3.4.2 Exposure to media

About 51 percent, reported reading newspaper daily & sometimes. Newspaper reading habits were observed more in males (60 per cent) than in females (40 per cent). A higher percentage of the urban population (72 per cent) had the habit of reading newspaper daily & sometimes.

Radio listening habits were observed in about 63 per cent of the surveyed population, slightly higher among males (67 per cent) than among females (59 per cent). This was more in the urban areas (80 per cent) than in rural areas (60 per cent).). Among regions, 72 percent males in the Central region listened to radio they were more than in the other regions.

TV viewership in the surveyed population (66 per cent) was more among males (68 per cent) than females (63 per cent). It was considerably higher in urban areas (80 per cent) than in rural areas (58 per cent). Also, more subjects in the Central Region had watched TV (76 per cent).

About 64 percent of respondents more females (67per cent) than males (61 per cent), did not watch cinema at all. This was more in the rural areas (77 per cent) than in the urban areas (48 per cent). Comparatively more Hills & Coastal Region (74 per cent) than in other regions did not watch cinema at all.

Table 3. 2. 4 Percent distribution of 35-44 year olds by educational level and media exposure, sex & geographical area.

AGE: 35-44 yrs STATE: Karnataka

Educational level & Media Exposure		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Educational level	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
Illiterate		25.7	25.8	29.2	17.8	32.1	9.9	24.8	38.5	38.4	49.8	28.8	48.7	16.6	38.1	31.5
Upto middle		34.7	17.2	23.7	24.6	30.2	18.4	26.4	36.0	21.4	31.1	29.1	31.2	26.6	29.7	28.1
High school & above		39.6	57.0	47.0	57.5	37.7	71.6	48.8	25.5	40.2	19.1	42.1	20.1	56.8	32.2	40.5
2 Newspaper reading habits																
Daily		49.4	43.2	34.4	44.9	33.2	67.1	44.3	30.4	23.9	20.6	34.9	17.9	48.4	28.0	36.2
Sometimes		15.7	16.2	13.2	18.3	17.3	13.6	16.1	14.1	14.3	7.6	11.8	11.7	14.9	12.8	14.5
Not at all		34.9	40.6	52.4	36.8	49.5	19.2	39.6	55.5	61.7	71.8	53.4	70.4	36.7	59.3	49.5
3 Radio listening habits																
Daily		41.8	41.2	34.7	47.3	35.3	54.4	41.6	34.1	27.7	24.8	43.6	29.6	40.4	33.2	37.4
Sometimes		23.2	31.0	22.5	24.2	25.7	25.5	25.6	24.5	32.0	20.5	24.1	21.8	34.2	25.9	25.8
Not at all		35.0	27.7	42.8	28.4	39.0	20.1	32.8	41.3	40.4	54.7	32.3	48.6	25.4	41.0	36.9
4 TV watching habits																
Daily		43.8	63.3	46.1	47.7	36.0	78.3	49.9	45.7	62.1	34.7	44.0	33.8	76.6	48.0	49.0
Sometimes		20.9	18.1	12.4	18.4	22.1	11.6	18.6	17.2	12.3	14.7	13.2	17.9	8.2	14.7	16.7
Not at all		35.4	18.6	41.5	33.9	41.9	10.1	31.5	37.0	25.6	50.7	42.8	48.2	15.2	37.3	34.4
5 Cinema watching habits																
Once in 3 months		19.1	18.2	22.5	3.1	9.3	28.8	15.7	19.1	15.8	12.9	5.2	8.2	25.5	13.9	14.8
Less often		18.2	25.4	33.9	22.3	19.4	30.2	22.9	13.6	21.9	24.6	20.5	14.7	27.0	18.8	20.9
Not at all		62.8	56.4	43.6	74.5	71.3	41.0	61.4	67.3	62.3	62.5	74.3	77.1	47.5	67.3	64.4

3.2.5 65-74 year olds

3.2.5.1 Educational levels

The literacy level was considerably lower in this age group, with considerable difference between males (55 per cent) and females (29 per cent). A similar difference among sexes was seen both in urban and rural areas. The number of illiterates was higher in rural areas (64 per cent) than in urban areas (40 per cent). The Hills & Coastal Region had a higher number of literates (51 per cent) (Table 3.2.5).

3.2.5.2 Exposure to media

Newspaper reading habits were again poor in this age group of respondents, with significant difference between males (42 per cent) and females (19 per cent). A higher proportion of urban subjects (46 per cent) had the habit of reading newspaper daily and sometimes. While among regions, Hills & Coastal Region had a higher proportion of subjects with reading habits (39 per cent).

Radio listening habits were higher among males (55 per cent) and in urban areas (63 per cent). The Hills & Coastal Region more subjects had radio listening habits (61 per cent) than in other regions.

TV watching habits were more in males (54 per cent) than in females (50 per cent). This was considerably higher in urban areas (75 per cent) than in rural areas (44 per cent). The Central Region had a higher proportion of subjects who reported watching TV (62 per cent) daily & sometimes.

82 percent of respondents, more females (84 per cent) than males (78 per cent) did not watch cinema at all. Their number was relatively higher in rural areas (87 per cent) than in urban areas (70 per cent) and more pronounced in N. Dry Region (84 per cent) than in other regions.

PROFILE OF POPULATION ACROSS AGE GROUPS (SUMMING UP)

- There was increase in the percent of illiterates with increase in their ages. That is the level of literacy decreased with increase in age and this was accompanied by decrease in percent reading news paper daily & sometimes with increase in their ages.
- With regard to exposure to media, TV was found to be the most utilized media. Analysis of daily habits across age groups revealed that 43 per cent watched TV while 28 per cent read newspapers and 34 per cent listened to the radio daily. Exposure to cinema was much lower, with only 12 per cent respondents across age groups watching cinema once in 3 months.

Table 3. 2. 5 Percent distribution of 65-74 year olds by educational level and media exposure, sex & geographical area.

AGE: 65-74 yrs STATE: Karnataka

Educational level & Media Exposure		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Educational level	n=	160	157	155	160	427	205	632	156	157	154	161	416	212	628	1260
Illiterate		39.2	57.3	55.6	31.3	50.6	33.3	45.0	67.6	81.6	73.9	57.2	77.1	57.1	70.4	57.7
Upto middle		30.2	14.9	22.6	21.9	25.8	17.8	23.2	23.3	13.6	17.9	17.8	14.3	26.7	18.4	20.8
High school & above		30.6	27.8	21.8	46.8	23.6	48.9	31.8	9.1	4.9	8.2	25.0	8.6	16.2	11.1	21.5
2 Newspaper reading habits																
Daily		32.5	26.9	25.4	37.6	23.1	47.0	30.8	17.8	9.7	9.2	18.2	7.7	27.2	14.2	22.5
Sometimes		14.3	10.0	4.6	12.1	11.8	10.6	11.4	3.7	3.4	4.9	9.3	4.1	6.6	5.0	8.2
Not at all		53.1	63.1	70.0	50.3	65.2	42.4	57.8	78.5	86.9	85.9	72.5	88.2	66.2	80.9	69.4
3 Radio listening habits																
Daily		35.4	31.2	24.4	44.6	31.9	40.2	34.6	24.3	19.4	18.1	30.2	17.0	35.2	23.1	28.9
Sometimes		18.3	22.0	21.2	23.0	17.5	27.0	20.6	16.5	24.6	16.0	23.3	18.8	23.1	20.2	20.4
Not at all		46.3	46.8	54.4	32.4	50.5	32.8	44.8	59.2	56.0	65.9	46.5	64.2	41.7	56.7	50.8
4 TV watching habits																
Daily		36.9	45.6	30.6	40.7	26.4	65.1	38.9	31.3	42.6	31.2	36.8	24.1	57.8	35.3	37.1
Sometimes		14.4	16.7	12.9	17.5	18.1	10.4	15.6	16.0	18.4	9.1	13.9	15.1	15.7	15.3	15.5
Not at all		48.7	37.7	56.5	41.8	55.5	24.6	45.5	52.7	39.0	59.6	49.3	60.8	26.5	49.4	47.5
5 Cinema watching habits																
Once in 3 months		6.0	11.5	9.3	4.2	4.7	13.6	7.6	7.4	4.8	8.0	2.9	2.8	11.4	5.7	6.7
Less often		11.4	12.9	14.9	17.8	11.1	18.7	13.6	7.1	10.6	15.8	12.9	7.5	16.1	10.4	12.0
Not at all		82.5	75.5	75.8	78.0	84.2	67.7	78.9	85.5	84.6	76.2	84.2	89.7	72.5	84.0	81.5

CHAPTER IV

MAPPING OF FLUORIDE LEVELS

4.1 INTRODUCTION

As stated in Chapter 2 (Objectives), one of the objectives of the National Oral Health Survey was to map the fluoride levels in different parts of the country. For this purpose, the field teams were expected to collect drinking water samples from the households they visited for collection of information related to oral health practices and the current situation of oral health. This chapter presents results of the analysis of fluoride levels from such water samples.

4.2 COLLECTION OF WATER SAMPLES

The field teams were given the following instructions about collection of water samples from the households they visited:

1. Each team would carry along with it a set of sterilised plastic bottles. These bottles had been specially ordered for the purpose of the survey from a Hyderabad-based manufacturer and had the following characteristics:

   (1) A capacity of 500 ml as had been recommended by M/s Medlar Labs, Mumbai, where the water samples were to be analysed for fluoride levels. (M/s Medlar Labs have since accepted that a sample of even 200 ml would have been enough). This quantity of water was decided to take account of any possible spillage during transportation.

   (2) The plastic was of a quality able to withstand transportation pressures, first from Hyderabad to each state where the survey was being conducted, then with the field teams and then to Mumbai where the samples were sent for analysis.

   (3) The bottles were sterilised to ensure that samples did not get contaminated, and

   (4) Two corks were provided for each bottle so as to minimise any spillage and ensure the M/s Medlar Labs got sufficient quantity of water to analyse the fluoride levels.

2. Each field team was instructed to collect water samples from the first household they visited every day. Subsequent samples were to be collected only if the sources of supply were different from that in the first house. In other words, water samples were collected from all sampled households that had different sources of drinking water in the area of coverage. It means that water samples were collected from a representative sample of households of the villages/urban blocks. Since the villages and urban areas were themselves representative of the other areas of zones/states, the water samples collected were representative of all the area units of the zones/states.

3. All water sample bottles had to carry identification particulars of the household, including the state, zone and serial number given to the household for the purpose of the survey Thus, every household covered had a unique serial number within a zone. The water sample bottles were labelled with this number, thereby uniquely matching each sample with the information on oral health collected from that household.

4. This linkage of the water sample with other information from the household was done for two purposes. The first was that the collected household drinking water samples would represent the situation of water supply in rural and urban households in the zone and ultimately that of the state (after proper weights had been assigned to the rural and urban areas). This analysis would help map the fluoride levels in different areas of the state and the country. The other purpose was to try to link the fluoride levels in drinking water, with the oral health related dental practices and the actual status of oral health of the households and individuals.

4.3 ANALYSIS OF WATER SAMPLES

Since analysis of water samples for their fluoride levels requires special equipment, Dr. R. K. Bali, the President, Dental Council of India, contacted Colgate-India for help. Colgate-India, which has been very supportive of effort of the Dental Council of India in conducting the National Oral Health Survey having also provided financial assistance for it, agreed to his request and nominated M/s Medlar Labs, Mumbai for such analysis.

The methodology M/s Medlar Labs adopted for analysing the fluoride levels has been described in section 2.3.3 of the chapter on Methodology and Data Collection.

4.4 FINDINGS

The levels of fluoride in different regions, rural and urban areas and total Karnataka are shown in Table 4.1.

Table 4.1 Per cent distribution of water samples by levels of fluoride in different regions, rural, urban and total Karnataka.

Levels of ppm	Regions				State	
	II	III	IV	Rural	Urban	Total
0.0-0.5	1.2	9.1	1.9	3.1	0.0	2.4
0.51-1.00	23.1	28.6	33.9	28.8	25.1	28.6
1.01-1.50	8.5	0.4	30.7	21.0	0.0	15.7
1.51-2.00	40.1	8.0	19.1	23.5	43.1	27.4
2.01-4.00	27.1	54.0	14.5	23.5	31.0	25.9
4.01-8.00	0.0	0.0	0.0	0.0	0.0	0.0
8.01 +	0.0	0.0	0.0	0.0	0.0	0.0

Note : Karnataka has been divided into four agro-climatic regions. Namely (1) N. Dry Region, (2) Central Region, (3) South Region and (4) Hills & Coastal Region. Their boundaries and districts within them may be seen in the State map. The fluoride levels in N. Dry Region were not available and thus the state figures have been computed on the basis of information on only three regions.

The fluoride levels in the water of Karnataka are generally high – more in urban areas than rural. This is particularly so in the S. Region.

Fig. 4.1 Drinking water levels of fluoride in Karnataka

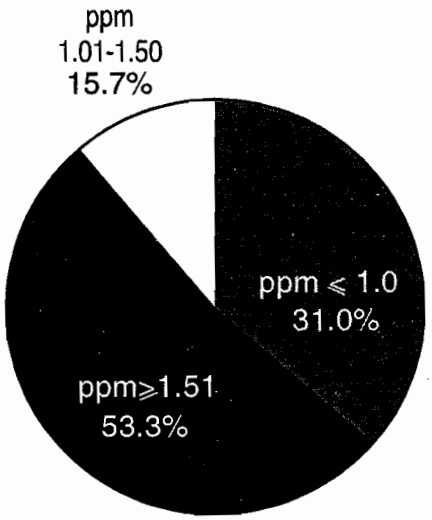
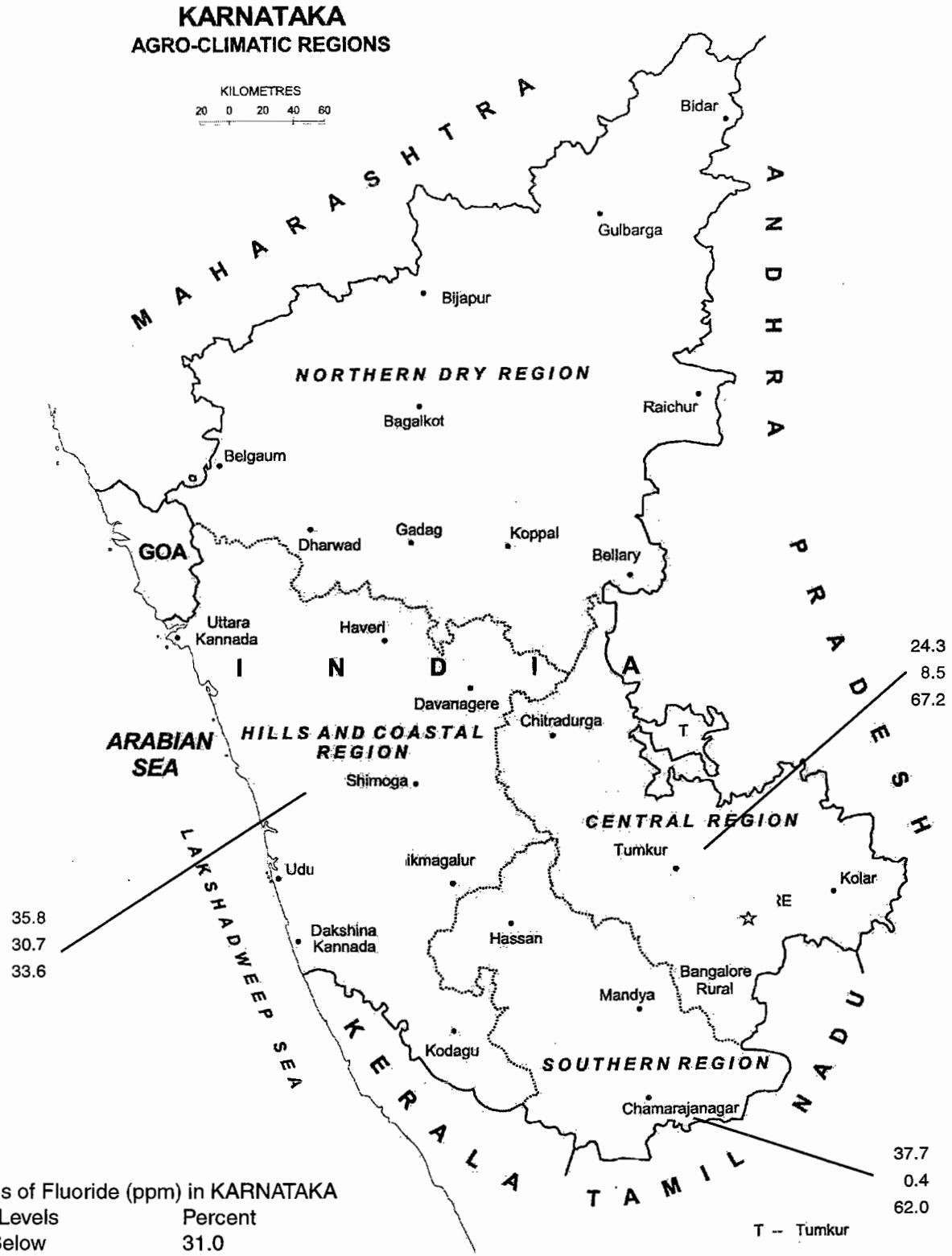


Fig. 4.2 Drinking water levels of Fluoride (ppm) in Karnataka, INDIA



Levels of Fluoride (ppm) in KARNATAKA

ppm Levels	Percent
1 & Below	31.0
1.01-1.50	15.7
1.51 & Above	53.3

The district headquarters of Bangalore and Bangalore Rural is located at Bangalore.

CHAPTER V

ORAL HEALTH KNOWLEDGE & PRACTICES

A series of questions were asked on food habits and other habits/practices that could affect oral health. Prevalence of each of those practices for different ages/age groups, males and females, rural and urban areas and for each Region is discussed in this chapter. These figures should help suggest appropriate educational activities to improve practices related to oral health and thus improve oral health of the population.

5.1 ABNORMAL ORAL HABITS

Five questions on abnormal habits, "breathing from mouth", "habit of sucking or biting fingers or thumb", "thrusting tongue on teeth", "biting nails, lips or objects like pencil", and "habit of grinding/gritting teeth" were enquired from each adult respondent (from his/her caretaker for a child). Responses are reported in Table 5.1.

The prevalence of each of the abnormal oral habits across age groups was generally very low. But the prevalence of each of these habits/practices were comparatively more low in respondents aged 15 years and above.

5 years old respondents across all ages had higher rate of prevalence of each of abnormal habits followed by prevalence of these habits in respondents aged 12, 15, 25-44 & 65-74 years. The habit of "grinding/gritting teeth" was comparatively more pronounced across all ages than other abnormal habits in each age group of respondents in the state as well as in each region. This was prevalent more in males respondents & more in rural areas.

ABNORMAL HABITS ACROSS AGE GROUPS (SUMMING UP)

The prevalence of each of abnormal habits, across age groups was generally very low. More so each of these were more low in higher groups than in young age groups.

Table 5.1. Percent respondents by habits affecting oral health age, sex & geographical area.

AGE: 5 yrs **STATE: Karnataka**

Habits affecting oral health		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	163	157	155	166	427	214	641	152	156	152	154	410	204	614	1255
1 Breathing from mouth		5.1	4.3	8.3	4.3	5.8	3.8	5.1	2.1	4.3	3.5	0.7	3.5	1.0	2.7	**3.9**
2 Sucking or biting fingers/thumb		6.8	4.8	2.2	17.9	8.3	7.7	8.1	11.0	3.3	4.2	13.9	9.8	5.9	8.5	**8.3**
3 Thrusting tongue on teeth		2.4	2.4	2.7	13.7	4.7	5.0	4.8	1.9	1.4	2.3	11.7	3.9	3.6	3.8	**4.3**
4 Biting nails/lips/objects like pencil		3.8	2.4	3.4	10.0	4.3	5.4	4.7	4.9	0.9	5.5	9.5	6.1	2.3	4.8	4.8
5 Grinding / gritting teeth		9.1	4.8	4.1	6.6	8.4	3.6	6.8	4.9	5.2	2.0	7.2	6.4	2.8	5.2	**6.0**

AGE: 12 yrs **STATE: Karnataka**

Habits affecting oral health		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	157	157	153	170	427	210	637	161	158	155	161	423	212	635	1272
1 Breathing from mouth		1.4	3.8	6.0	4.3	4.4	1.1	3.3	4.0	3.8	6.5	2.5	4.5	3.0	4.0	**3.7**
2 Sucking or biting fingers/thumb		1.9	1.4	0.7	6.2	3.4	0.9	2.6	2.6	0.0	2.6	2.7	2.5	0.8	1.9	**2.3**
3 Thrusting tongue on teeth		1.8	2.9	0.7	5.7	3.2	2.0	2.8	0.7	1.4	2.1	6.1	2.4	1.8	2.2	**2.5**
4 Biting nails/lips/objects like pencil		4.7	0.5	0.7	4.3	4.3	0.3	3.0	3.3	0.5	1.2	5.0	3.5	0.8	2.6	**2.8**
5 Grinding / gritting teeth		4.7	2.9	1.5	1.9	4.0	1.6	3.2	5.3	4.7	2.7	1.2	4.5	2.9	4.0	**3.6**

AGE: 15 yrs **STATE: Karnataka**

Habits affecting oral health		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	160	157	151	163	420	211	631	157	157	156	155	417	208	625	1256
1 Breathing from mouth		3.3	1.4	7.2	3.0	3.8	2.2	3.2	0.7	1.4	3.1	0.5	1.5	0.7	1.2	**2.2**
2 Sucking or biting fingers/thumb		3.3	0.0	2.5	3.0	2.8	1.0	2.2	2.7	0.0	0.5	1.6	1.6	1.2	1.4	**1.8**
3 Thrusting tongue on teeth		1.3	0.0	1.5	3.8	2.1	0.3	1.5	1.8	1.9	0.7	2.3	0.8	3.8	1.8	**1.7**
4 Biting nails/lips/objects like pencil		4.0	2.4	0.8	3.3	3.7	1.6	3.0	2.7	1.4	0.0	3.0	2.2	1.8	2.1	**2.6**
5 Grinding / gritting teeth		4.7	5.2	2.3	2.5	4.4	3.5	4.1	4.1	3.8	0.7	1.9	3.8	1.9	3.2	**3.7**

AGE: 35-44 yrs **STATE: Karnataka**

Habits affecting oral health		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
1 Breathing from mouth		1.3	0.9	4.6	1.6	1.6	1.9	1.7	0.0	4.8	1.7	3.3	1.4	4.1	2.3	**2.0**
2 Sucking or biting fingers/thumb		0.7	0.0	0.5	0.0	0.4	0.2	0.3	0.7	0.0	0.5	0.0	0.4	0.2	0.3	**0.3**
3 Thrusting tongue on teeth		0.7	2.4	0.0	0.5	1.0	1.1	1.0	0.0	1.9	0.5	3.8	0.8	2.7	1.5	**1.3**
4 Biting nails/lips/objects like pencil		2.0	0.5	0.0	0.7	1.6	0.0	1.1	0.7	2.9	0.7	0.0	0.9	1.6	1.1	**1.1**
5 Grinding / gritting teeth		4.0	5.7	2.2	4.6	5.2	2.7	4.4	3.4	2.8	0.0	3.3	3.5	1.4	2.8	**3.6**

AGE: 65-74 yrs **STATE: Karnataka**

Habits affecting oral health		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	160	157	155	160	427	205	632	156	157	154	161	416	212	628	1260
1 Breathing from mouth		0.0	3.4	4.1	6.5	2.0	4.6	2.8	0.7	3.4	0.7	5.6	2.9	1.8	2.5	**2.7**
2 Sucking or biting fingers/thumb		0.0	0.0	0.5	0.0	0.0	0.2	0.1	0.0	1.0	0.0	0.0	0.0	0.8	0.3	**0.2**
3 Thrusting tongue on teeth		0.0	1.4	1.9	1.7	0.7	1.7	1.0	0.0	0.0	0.0	2.2	0.2	1.0	0.5	**0.8**
4 Biting nails/lips/objects like pencil		1.3	0.0	0.0	0.7	1.0	0.0	0.7	0.0	0.5	0.0	0.5	0.2	0.3	0.2	**0.5**
5 Grinding / gritting teeth		3.9	7.2	5.9	6.1	5.3	6.0	5.5	4.1	3.9	1.5	3.1	4.1	2.3	3.5	**4.5**

Table 5.2. Percent respondents by pattern of sugar in take, age, sex & geographical area.

AGE: 5 yrs **STATE: Karnataka**

Pattern of sugar intake in last one day		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	163	157	155	166	427	214	641	152	156	152	154	410	204	614	1255
1 Not taken		43.7	48.5	56.3	37.2	49.0	38.0	45.4	41.9	46.6	64.9	41.7	52.3	34.7	46.4	**45.9**
2 Taken one time		40.9	13.9	15.9	36.7	30.1	27.7	29.3	39.7	22.4	12.6	36.8	28.6	33.9	30.4	**29.9**
3 Taken two times		12.1	30.4	11.2	18.5	13.9	27.2	18.3	15.0	23.8	11.5	14.8	14.4	22.3	17.0	**17.7**
4 Taken 2+ times		3.3	7.2	16.7	7.6	7.0	7.1	7.0	3.4	7.2	11.1	6.7	4.7	9.1	6.2	**6.6**

AGE: 12 yrs **STATE: Karnataka**

Pattern of sugar intake in last one day		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	157	157	153	170	427	210	637	161	158	155	161	423	212	635	1272
1 Not taken		38.1	57.4	60.4	52.7	52.6	43.6	49.7	38.4	56.3	63.3	47.7	55.1	36.4	48.9	**49.3**
2 Taken one time		45.8	17.3	15.5	29.3	29.5	31.7	30.2	41.1	16.6	15.8	38.6	25.3	39.7	30.1	**30.2**
3 Taken two times		12.8	23.5	14.4	12.6	13.7	20.6	15.9	12.6	21.4	14.4	9.3	13.2	17.6	14.6	**15.3**
4 Taken 2+ times		3.3	1.9	9.7	5.4	4.2	4.2	4.2	7.8	5.7	6.5	4.4	6.4	6.3	6.4	**5.3**

AGE: 15 yrs **STATE: Karnataka**

Pattern of sugar intake in last one day		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	160	157	151	163	420	211	631	157	157	156	155	417	208	625	1256
1 Not taken		33.9	59.7	62.2	59.0	53.0	44.8	50.3	35.7	61.2	59.3	52.1	50.3	48.1	49.6	**50.0**
2 Taken one time		45.3	13.3	12.0	27.9	26.3	31.9	28.1	42.9	14.9	23.3	37.0	31.6	29.9	31.0	**29.6**
3 Taken two times		12.8	24.7	18.0	11.8	14.5	20.7	16.6	11.9	19.2	14.8	10.2	11.2	19.5	14.0	**15.3**
4 Taken 2+ times		8.0	2.4	7.9	1.3	6.2	2.7	5.0	9.4	4.8	2.6	0.7	7.0	2.4	5.5	**5.3**

AGE: 35-44 yrs **STATE: Karnataka**

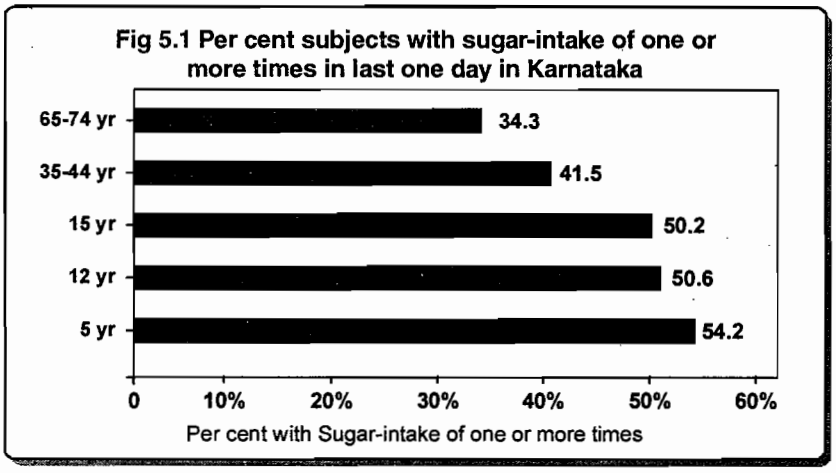
Pattern of sugar intake in last one day		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
1 Not taken		45.2	68.9	74.0	69.6	64.4	53.4	60.8	41.8	65.7	68.9	59.6	58.7	51.2	56.2	**58.5**
2 Taken one time		37.2	16.8	12.4	24.3	21.4	33.4	25.3	38.9	18.1	12.2	36.0	26.7	33.2	28.8	**27.1**
3 Taken two times		12.4	11.0	10.0	4.0	9.7	10.4	9.9	14.0	13.3	10.7	3.8	10.2	12.5	11.0	**10.5**
4 Taken 2+ times		5.3	3.4	3.6	2.0	4.5	2.8	3.9	5.4	2.9	8.1	0.6	4.4	3.1	3.9	**3.9**

AGE: 65-74 yrs **STATE: Karnataka**

Pattern of sugar intake in last one day		MALE							FEMALE							State Total
		Regions				State			Regions				State			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
	n=	160	157	155	160	427	205	632	156	157	154	161	416	212	628	1260
1 Not taken		51.2	76.1	77.5	70.1	66.7	63.5	65.7	47.9	78.2	80.0	71.6	69.1	59.7	65.9	**65.8**
2 Taken one time		33.6	11.5	14.0	23.7	19.4	29.2	22.5	40.5	10.7	9.1	23.6	20.6	31.1	24.1	**23.3**
3 Taken two times		9.2	11.5	5.1	4.2	8.9	7.1	8.3	6.8	10.7	7.1	4.1	7.2	7.7	7.4	**7.9**
4 Taken 2+ times		6.0	0.9	3.4	2.0	5.0	0.2	3.5	4.7	0.5	3.9	0.7	3.1	1.5	2.6	**3.1**

5.2 SUGAR CONSUMPTION HABITS

The respondents were asked, "How many times they had taken sugar in last 24 hours "? 50-60 percent respondents across all ages did not take sugar in the last 24 hours, more so in rural areas than in urban areas. There was little difference between males and females. About 30 percent of respondents across all ages both sexes, more or less evenly distributed by places of residence reported to have taken sugar one time in the last 24 hours. While about 20 percent of respondents aged 5, 12, & 15 years, across both sexes & places of residence & 12-14 percent of aged (35-44) years & (65-74) years reported taken sugar two & more times in last 24 hours. (Table 5.2 and Fig. 5.1).



EATING HABITS ACROSS AGE GROUPS (SUMMING UP)

About 24-30 percent of respondents, across age groups, both sexes & places of residence reported taken sugar one time in last 24 hours. While about 14-15 across age groups had taken sugar two & more times in the state.

5.3 ORAL HYGIENE PRACTICES

A series of questions were asked about oral hygiene practices covering aspects like how teeth are cleaned, what material is used to clean them, whether this is fluoridated, how often teeth are cleaned and whether and how often the mouth is rinsed after meals? The responses to these questions are shown in Tables 5.3.1 to 5.3.5 and presented in Fig. 5.2 and are discussed in the section below by age group of the respondents.

Table 5 . 3. 1 Percent 5 year olds by oral hygiene practices, sex & geographical area.

AGE: 5 yrs

STATE: Karnataka

Oral Hygiene Practices		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Clean teeth with	n=	**163**	**157**	**155**	**166**	**427**	**214**	**641**	**152**	**156**	**152**	**154**	**410**	**204**	**614**	**1255**
finger		59.1	20.1	38.2	18.2	49.3	12.7	37.3	64.3	20.9	42.2	20.2	54.1	11.9	40.0	**38.7**
brush		40.9	77.5	61.0	81.8	49.6	87.3	61.9	35.7	78.7	57.8	79.8	45.6	88.1	59.9	**60.9**
datun		0.0	2.4	0.7	0.0	1.2	0.0	0.8	0.0	0.5	0.0	0.0	0.2	0.0	0.1	**0.5**
others		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
2 Frequency of cleaning teeth	n=	**163**	**152**	**154**	**166**	**421**	**214**	**635**	**152**	**155**	**152**	**154**	**409**	**204**	**613**	**1248**
Once a day		96.8	95.6	93.5	90.2	96.0	91.9	94.6	93.2	93.8	87.5	92.3	94.2	89.0	92.5	**93.6**
Twice a day		3.2	3.9	6.5	9.8	3.8	8.1	5.2	5.4	5.8	9.8	7.7	4.3	10.8	6.5	**5.9**
After every meal		0.0	0.5	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
3 Material used for cleaning teeth																
Tooth paste		37.0	64.7	67.2	77.9	43.6	83.4	56.8	37.0	64.3	66.1	78.6	41.7	86.8	56.9	**56.9**
Tooth powder		40.4	24.5	24.1	10.7	36.0	11.4	27.9	43.4	25.2	28.7	10.9	40.0	9.5	29.7	**28.8**
4 Type of toothpaste/ powder	n=	**128**	**134**	**142**	**148**	**347**	**205**	**552**	**124**	**136**	**145**	**138**	**346**	**197**	**543**	**1095**
Flouridated		7.7	49.3	33.4	27.4	20.9	38.6	27.5	6.7	55.7	30.7	23.0	19.9	42.0	28.2	**27.9**
Non flouridated		51.3	41.9	45.6	58.5	54.1	42.1	49.6	54.9	37.9	53.0	60.8	59.5	37.0	51.1	**50.4**
5 Change of toothbrush once in	n=	**71**	**117**	**100**	**137**	**236**	**189**	**425**	**59**	**117**	**94**	**124**	**213**	**181**	**394**	**819**
1-3 months		14.5	52.8	37.3	58.1	43.7	42.1	42.9	25.2	51.6	40.3	48.5	40.6	46.6	43.6	**43.3**
4-6 months		33.4	39.8	31.6	25.9	31.8	35.0	33.3	36.3	36.4	42.2	33.7	40.1	32.7	36.5	**34.9**
6 + months		44.7	6.8	29.8	14.5	21.1	21.2	21.2	33.3	12.1	16.2	17.8	18.1	19.3	18.7	**20.0**
6 Rinse mouth after eating	n=	**163**	**157**	**155**	**166**	**427**	**214**	**641**	**152**	**156**	**152**	**154**	**410**	**204**	**614**	**1255**
Sometimes		34.5	41.8	57.5	37.6	38.5	43.1	40.0	36.8	43.3	53.8	36.7	37.3	47.5	40.7	**40.4**
Always		14.7	37.0	18.4	38.3	24.4	30.6	26.4	9.1	31.4	22.3	38.3	22.2	26.0	23.4	**24.9**

5.3.1 5 year olds

About 61 per cent respondents of this age across both sexes and 48 per cent in rural and 88 per cent in urban areas reported the use of toothbrush to clean their teeth, (Table 5.3.1). The Hills & Coastal Region comparatively, had a higher percent of subjects who reported the use of tooth brush (81 per cent).

Most of the respondents (94 percent) said they cleaned their teeth once a day, in the morning. While 57 per cent subjects said they used toothpastes, their number was considerably higher in urban areas (86 per cent) than in rural areas (43 per cent). However, about 50 per cent of those used toothpastes/tooth powder, used non-fluoridated one. The Hills & Coastal Region had a higher proportion of people who used toothpaste (78 per cent).

About 43 per cent of the subjects said they changed their toothbrushes once in 1-3 months; another 34 per cent reported changing once in four to six months; and about 20 per cent more males than females across places of residence did so after six or more months of use.

About 24 percent of the respondents reported rinsing their mouth always i.e. after every meal. While other 40 percent reported rinsing mouth sometimes. This was so across both sexes and areas of residence. The Hills & Coastal Region had a higher proportion of people who rinsed their mouth (38 per cent) always.

5.3.2 – 5.3.3 12 and 15 year olds

The oral hygiene practices followed by subjects in these age groups were largely similar to those in the 5-year age group. About 68 per cent of the respondents in these age groups said they were using toothbrush to clean their teeth (over 50 per cent in rural and 86 per cent in urban areas) (Tables 5.3.2 and 5.3.3). There was little difference between male and female subjects. Among regions, the Hills & Coastal Region had a higher proportion of respondents reported the use of tooth brush (83 per cent). Most respondents cleaned their teeth once only, in the morning. While over 56 per cent respondents reported the use of toothpaste, over 47 per cent of these used non-fluoridated. The number of people using toothpaste was considerably higher in urban than rural areas, and more in the Hills & Coastal Region (over 80 per cent).

Over 45 per cent of the respondents changed their toothbrushes within three months. There were little urban-rural differences in this regard. The Hills & Coastal Region had a higher proportion (50 per cent) that changed their tooth brushes once in three months as compared to other regions. Other, over 31 per cent of the respondents changed their tooth brushes once in 4-6 months (slightly higher in urban than in rural areas).

About 34 percent & 47 percent of the respondents reported the habit of rinsing their mouth always and sometimes respectively in the state.

Table 5 . 3. 2 Percent 12 year olds by oral hygiene practices, sex & geographical area.

AGE: 12 yrs **STATE: Karnataka**

Oral Hygiene Practices		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Clean teeth with	n=	**157**	**157**	**153**	**170**	**427**	**210**	**637**	**161**	**158**	**155**	**161**	**423**	**212**	**635**	**1272**
finger		57.7	20.0	33.2	15.0	47.2	9.4	34.9	53.3	20.8	23.3	14.7	43.5	10.4	32.5	**33.7**
brush		41.7	77.6	63.8	85.0	50.8	90.6	63.8	46.7	78.7	74.5	85.3	55.8	89.6	67.1	**65.5**
datun		0.0	2.4	1.5	0.0	1.3	0.0	0.9	0.0	0.5	1.5	0.0	0.5	0.0	0.3	**0.6**
others		0.7	0.0	1.5	0.0	0.7	0.0	0.4	0.0	0.0	0.7	0.0	0.1	0.0	0.1	**0.3**
2 Frequency of cleaning teeth	n=	**156**	**152**	**149**	**170**	**417**	**210**	**627**	**161**	**157**	**152**	**161**	**419**	**212**	**631**	**1258**
Once a day		91.1	95.6	86.2	93.5	94.4	88.2	92.4	93.6	91.9	86.2	89.4	93.1	87.7	91.3	**91.9**
Twice a day		8.9	3.9	13.8	6.5	5.4	11.8	7.5	6.4	8.1	13.8	10.1	6.9	12.0	8.6	**8.1**
After every meal		0.0	0.5	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.5	0.0	0.3	0.1	**0.1**
3 Material used for cleaning teeth																
Tooth paste		40.1	57.1	63.8	81.6	43.5	83.4	56.6	44.7	64.0	65.5	80.3	46.0	87.3	59.8	**58.2**
Tooth powder		37.1	30.3	31.4	6.7	35.2	13.0	27.9	30.8	26.5	30.0	10.4	33.4	9.6	25.5	**26.7**
4 Type of toothpaste/ powder	n=	**122**	**127**	**142**	**151**	**340**	**202**	**542**	**124**	**141**	**146**	**147**	**350**	**208**	**558**	**1100**
Flouridated		9.2	50.1	34.8	28.6	21.4	41.5	29.0	8.9	51.7	33.3	31.8	23.3	41.5	30.2	**29.6**
Non flouridated		50.8	42.6	43.7	60.7	56.7	38.9	50.0	50.6	39.9	46.5	54.1	52.7	39.7	47.8	**48.9**
5 Change of toothbrush once in	n=	**69**	**113**	**103**	**146**	**239**	**192**	**431**	**79**	**120**	**120**	**139**	**262**	**196**	**458**	**889**
1-3 months		24.7	47.5	37.5	50.7	42.7	40.7	41.8	29.0	53.7	45.5	52.4	43.2	48.8	45.7	**43.8**
4-6 months		37.8	42.7	34.4	31.0	35.3	38.9	37.0	29.0	34.3	31.6	30.2	31.6	31.4	31.5	**34.3**
6 + months		29.4	7.4	26.9	17.0	16.8	19.1	17.8	35.6	12.0	22.9	16.6	23.4	17.8	20.9	**19.4**
6 Rinse mouth after eating	n=	**157**	**157**	**153**	**170**	**427**	**210**	**637**	**161**	**158**	**155**	**161**	**423**	**212**	**635**	**1272**
Sometimes		48.1	54.1	60.6	50.1	47.2	60.8	51.6	42.4	47.8	59.5	37.2	40.0	54.5	44.8	**48.2**
Always		20.0	29.6	24.1	39.6	29.2	24.4	27.7	17.6	44.6	25.7	46.5	31.3	34.6	32.4	**30.1**

Table 5 . 3. 3 Percent 15 year olds by oral hygiene practices, sex & geographical area.

AGE: 15 yrs **STATE: Karnataka**

Oral Hygiene Practices		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Clean teeth with	n=	**160**	**157**	**151**	**163**	**420**	**211**	**631**	**157**	**157**	**156**	155	417	**208**	**625**	**1256**
finger		40.5	14.1	21.1	16.0	35.2	6.6	25.7	46.5	17.2	24.4	11.7	36.2	12.5	28.3	**27.0**
brush		59.5	84.0	75.9	83.4	63.4	93.1	73.3	53.5	80.0	74.2	88.3	62.7	86.7	70.7	**72.0**
datun		0.0	1.4	3.0	0.5	1.2	0.3	0.9	0.0	1.9	1.5	0.0	1.1	0.0	0.8	**0.9**
others		0.0	0.5	0.0	0.0	0.2	0.0	0.1	0.0	1.0	0.0	0.0	0.0	0.8	0.3	**0.2**
2 Frequency of cleaning teeth	n=	**160**	**153**	**147**	**162**	**412**	**210**	**622**	**157**	**152**	**154**	**155**	**411**	**207**	**618**	**1240**
Once a day		87.2	92.7	88.5	91.8	92.8	84.6	90.0	92.3	87.2	80.2	86.9	89.8	84.9	88.2	**89.1**
Twice a day		12.8	7.3	11.5	8.2	7.2	15.4	10.0	7.7	12.3	19.8	13.1	10.0	15.1	11.7	**10.9**
After every meal		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.2	0.0	0.1	**0.1**
3 Material used for cleaning teeth																
Tooth paste		49.0	70.7	72.1	80.0	51.3	89.5	64.1	46.1	62.2	68.9	85.5	49.5	85.0	61.4	**62.8**
Tooth powder		31.3	22.1	25.6	10.8	31.4	9.0	23.9	32.3	28.4	23.3	8.9	32.8	10.7	25.4	**24.7**
4 Type of toothpaste/ powder	n=	**130**	**138**	**144**	**148**	**353**	**207**	**560**	**125**	**135**	**143**	**146**	**351**	**198**	**549**	**1109**
Flouridated		9.1	52.1	42.0	23.2	25.4	36.2	29.4	9.6	44.7	41.0	28.3	22.7	38.2	28.4	**28.9**
Non flouridated		49.0	42.1	42.9	63.5	53.7	42.6	49.5	54.3	51.0	42.5	53.4	55.5	45.0	51.6	**50.6**
5 Change of toothbrush once in	n=	**98**	**125**	**118**	**137**	**282**	**196**	**478**	**87**	**122**	**119**	**137**	**282**	**183**	**465**	**943**
1-3 months		44.1	52.0	42.4	51.2	48.7	47.5	48.2	41.3	43.1	39.9	51.2	45.8	42.2	44.3	**46.3**
4-6 months		30.5	42.4	31.2	31.8	33.6	36.5	34.8	33.8	46.7	33.5	32.4	34.1	42.3	37.5	**36.2**
6 + months		20.2	4.5	24.4	17.0	14.8	14.7	14.8	22.4	9.6	23.7	14.9	17.1	15.5	16.4	**15.6**
6 Rinse mouth after eating	n=	**160**	**157**	**151**	**163**	**420**	**211**	**631**	**157**	**157**	**156**	155	**417**	**208**	**625**	**1256**
Sometimes		44.9	50.7	58.8	31.6	39.5	56.6	45.2	45.5	51.2	56.1	37.9	44.4	51.7	46.8	**46.0**
Always		28.6	41.7	24.9	55.2	38.2	36.5	37.6	30.9	39.2	34.3	48.4	38.2	35.9	37.4	**37.5**

5.3.4 35-44 year olds

About 63 percent of the respondents in this age group across both sexes & more in urban reported the use of toothbrush to clean their teeth (51 per cent in rural and 88 per cent in urban areas) (Table 5.3.4). Hills & Coastal Region irrespective of sex had a higher proportion of respondents reported the use of tooth brush (84 per cent). Most of the respondents had cleaned their teeth once a day, in the morning. While 9 percent more females & more in urban had cleaned teeth twice a day.

About 59 per cent of the respondents across both sexes said to have used toothpaste — more so in urban areas than in rural areas – and 52 per cent of these had used non-fluoridated tooth paste/ powder. The Hills & Coastal Region had a higher proportion of people who used toothpaste (84 per cent). Only about 28 per cent of the respondents reported the use of fluoridated toothpastes/ powder.

About 44 per cent of the respondents across both sexes & more in urban changed their tooth brushes once in 3 months. While 36 per cent did so once in 4-6 months with little urban-rural difference. These were across both sexes and area of residence.

About 44 per cent of the respondents had the habit of rinsing their mouth always. While other about 43 per cent of them, across sexes and more in urban had rinsed their mouth sometimes. The Hills & Coastal Region had a higher proportion of subjects who rinsed their mouth (over 49 per cent) always.

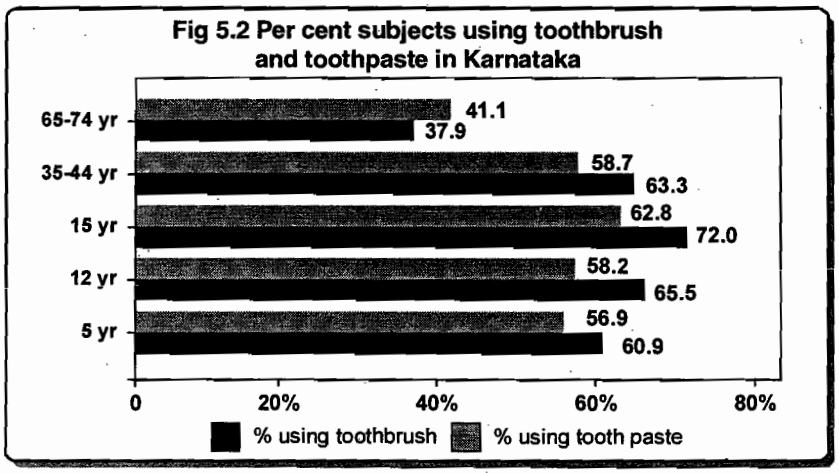


Table 5 . 3. 4 Percent 35-44 year olds by oral hygiene practices, sex & geographical area.

AGE: 35-44 yrs **STATE: Karnataka**

Oral Hygiene Practices		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Clean teeth with	n=	**161**	**157**	**154**	**157**	**422**	**207**	**629**	**155**	**157**	**157**	**180**	**432**	**217**	**649**	**1278**
finger		61.0	23.4	22.4	13.2	46.6	13.8	35.9	54.9	22.3	31.9	15.7	46.8	8.7	34.2	**35.1**
brush		39.0	72.3	75.4	86.1	50.9	86.2	62.4	44.4	74.9	66.7	82.5	51.1	90.5	64.1	**63.3**
datun		0.0	3.8	2.2	0.0	2.1	0.0	1.4	0.0	0.9	0.7	0.6	0.8	0.0	0.5	**1.0**
others		0.0	0.5	0.0	0.7	0.4	0.0	0.3	0.7	1.9	0.7	1.2	1.3	0.8	1.2	**0.8**
2 Frequency of cleaning teeth	n=	**161**	**148**	**151**	**156**	**409**	**207**	**616**	**154**	**152**	**155**	**177**	**422**	**216**	**638**	**1254**
Once a day		89.5	94.0	83.7	93.0	93.5	85.5	90.8	89.9	90.7	81.7	83.6	90.6	81.8	87.7	**89.3**
Twice a day		10.5	6.0	14.8	6.3	6.0	14.5	8.8	9.4	9.3	18.3	15.8	8.8	18.2	11.9	**10.4**
After every meal		0.0	0.0	1.5	0.7	0.5	0.0	0.3	0.7	0.0	0.0	0.6	0.6	0.0	0.4	**0.4**
3 Material used for cleaning teeth																
Tooth paste		38.5	61.7	71.1	84.8	43.4	87.7	58.2	42.1	61.5	65.4	81.7	44.6	88.0	59.1	**58.7**
Tooth powder		26.5	23.4	20.6	7.0	27.3	8.5	21.1	26.1	23.9	27.4	9.3	28.0	9.9	22.0	**21.6**
4 Type of toothpaste/ powder	n=	**108**	**122**	**140**	**144**	**312**	**202**	**514**	**108**	**124**	**145**	**162**	**327**	**212**	**539**	**1053**
Flouridated		10.3	47.1	34.0	28.5	24.9	35.0	29.0	11.3	55.2	33.1	28.5	25.7	40.3	31.6	**30.3**
Non flouridated		56.7	47.0	48.6	59.0	56.4	48.7	53.3	49.4	38.5	47.9	56.5	51.3	42.9	48.0	**50.7**
5 Change of toothbrush once in	n=	**67**	**107**	**120**	**136**	**246**	**184**	**430**	**73**	**109**	**109**	**150**	**244**	**197**	**441**	**871**
1-3 months		31.9	57.0	38.0	47.1	43.6	47.5	45.4	30.1	47.2	33.6	56.1	41.9	46.0	43.8	**44.6**
4-6 months		33.7	36.4	44.5	35.8	36.0	37.9	36.9	37.3	42.6	35.8	30.1	37.6	35.7	36.7	**36.8**
6 + months		32.7	5.9	16.6	16.3	18.6	14.6	16.8	27.0	9.5	28.4	13.1	17.7	16.9	17.3	**17.1**
6 Rinse mouth after eating	n=	**161**	**157**	**154**	**157**	**422**	**207**	**629**	**155**	**157**	**157**	**180**	**432**	**217**	**649**	**1278**
Sometimes		42.8	47.4	47.5	37.3	38.8	52.7	43.3	35.1	45.7	50.9	44.5	41.2	44.1	42.2	**42.8**
Always		32.7	49.8	47.6	51.0	43.9	42.0	43.3	42.2	48.1	41.0	46.0	42.8	48.1	44.5	**43.9**

5.3.5 65-74 year olds

The use of toothbrush, in this age group, was relatively low (about 38 per cent) and was more in urban areas than in rural areas (Table 5.3.5). There was little difference between males and females. About 64 percent, more females & more in rural reported the use of fingers to clean their teeth. The Hills & Coastal Region had a higher proportion of respondents who used toothbrush (over 61 per cent). Most of the respondents (95 percent) had cleaned their teeth once a day, in the morning. While other about 5 percent, across both sexes & more in urban had cleaned teeth twice a day.

About 41 per cent of the subjects across both sexes had used toothpaste (they were more in urban than in rural areas) of which about 52 per cent used non-fluoridated tooth paste/ powder. The Hills & Coastal Region had a higher proportion of people who used toothpaste (62 per cent) as compared to other regions. Only about 23 per cent respondents had used fluoridated toothpaste powder.

About 44 per cent of the respondents across both sexes changed their tooth brushes once in 3 months (more in urban than rural areas) while over 36 per cent did so once in 4-6 months with little urban–rural differences. The remaining 18 percent, across both sexes & little more in rural had changed tooth brushes once after 6 months.

More than 82 per cent of the respondents were equally divided by periodicity of rinsing mouth i.e. always and sometimes. They were equally divided by sex & were little more in urban.

ORAL HYGIENE PRACTICES ACROSS AGE GROUPS (SUMMING UP)

1. The practice of cleaning teeth was universal across age groups.
2. More than 60 per cent in all ages except in the age group 65-74 years, across both sexes and more in urban areas reported the use of toothbrush to clean their teeth. Similar percent reported the use of toothbrush in four regions except Hills & Coastal Region which had a highest proportion of respondents using tooth brush (over 80 per cent).
3. About 87-94 per cent, across both sexes and more in rural areas cleaned their teeth once a day. In urban areas, more people reported cleaning teeth twice a day.
4. About 56-64 per cent across ages except 65-74 years old, across both sexes and more in urban areas reported the use of the toothpaste. The Hills & Coastal Region had a higher proportion using toothpaste.
5. About 47-53 per cent across age, all age groups ,sexes and more in rural areas reported the use of non-fluoridated tooth paste/ powder. While the Central Region topped in the use of fluoridated toothpaste/powder.
6. About 42-48 per cent across all age groups, sexes and area of residence had changed toothbrushes once in 3 months.
7. About two-thirds of the respondents, across all age groups, sexes and area of residence had rinsed their mouth either always or sometimes.

Table 5 . 3. 5 Percent 65-74 year olds by oral hygiene practices, sex & geographical area.

AGE: 65-74 yrs

STATE: Karnataka

Oral Hygiene Practices		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Clean teeth with	n=	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
finger		79.6	44.4	52.2	32.0	68.4	31.5	56.4	71.3	59.3	65.0	38.3	71.0	39.1	60.4	**58.4**
brush		19.3	52.8	36.0	64.3	28.0	65.1	40.0	24.1	38.8	28.7	58.0	24.4	58.3	35.7	**37.9**
datun		0.0	1.4	2.2	0.7	1.2	0.0	0.8	0.0	1.0	0.7	1.3	1.0	0.0	0.7	**0.8**
others		1.1	1.4	9.6	3.1	2.4	3.4	2.7	4.7	1.0	5.6	2.4	3.6	2.6	3.3	**3.0**
2 Frequency of cleaning teeth	n=	**158**	**151**	**136**	**154**	**406**	**193**	**599**	**149**	**153**	**143**	155	**398**	**202**	**600**	**1199**
Once a day		97.1	97.1	92.1	89.2	95.8	92.9	94.9	97.1	96.1	88.5	88.9	94.0	93.9	94.0	**94.5**
Twice a day		2.9	2.9	6.2	9.5	3.7	6.8	4.7	2.9	3.9	8.3	8.4	4.7	5.7	5.1	**4.9**
After every meal		0.0	0.0	0.0	0.7	0.2	0.0	0.1	0.0	0.0	0.8	1.4	0.6	0.0	0.4	**0.3**
3 Material used for cleaning teeth																
Tooth paste		23.7	48.9	48.9	62.2	29.3	66.9	41.5	28.8	40.1	44.1	63.1	26.1	69.5	40.7	**41.1**
Tooth powder		27.9	22.6	30.4	17.7	26.7	20.1	24.6	22.4	28.0	29.6	15.5	25.6	19.5	23.6	**24.1**
4 Type of toothpaste/ powder	n=	**85**	**102**	**110**	**124**	**250**	**171**	**421**	**80**	**94**	**108**	**123**	**225**	**180**	**405**	**826**
Flouridated		13.6	34.5	27.4	20.3	20.2	28.4	23.7	17.2	38.5	30.8	26.5	26.6	29.8	28.1	**25.9**
Non flouridated		41.6	45.5	44.0	68.1	54.7	43.7	50.0	43.5	49.2	46.8	56.4	49.1	49.0	49.1	**49.6**
5 Change of toothbrush once in	n=	**34**	**73**	**62**	**104**	**137**	**136**	**273**	**41**	**53**	**48**	**95**	**113**	**124**	**237**	**510**
1-3 months		26.6	52.8	29.8	48.3	39.5	47.8	43.9	31.3	48.8	37.1	52.0	38.7	48.9	44.3	**44.1**
4-6 months		37.8	42.7	45.4	27.5	36.9	37.2	37.0	36.4	39.9	42.4	26.6	37.1	32.9	34.8	**35.9**
6 + months		32.2	3.6	24.9	23.1	20.7	15.1	17.8	24.3	10.0	18.8	17.9	17.4	16.8	17.1	**17.5**
6 Rinse mouth after eating	n=	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
Sometimes		34.6	52.1	50.7	40.3	42.9	42.6	42.8	39.9	36.2	49.6	36.8	37.3	43.4	39.3	**41.1**
Always		38.1	44.6	40.2	49.3	38.8	49.9	42.4	33.5	53.1	43.0	48.6	44.0	42.8	43.6	**43.0**

5.4 DENTAL PROBLEMS AND TREATMENT PRACTICES

The respondents were asked whether they had any dental problem in the last one year and whom they consulted for this. Furthermore, they were asked about the access they had to dental facilities. They were also asked if they ever had problems like hypertension, diabetes, epilepsy, jaundice or asthma. Responses on all these aspects are shown in Tables 5.4.1 to 5.4.5.

5.4.1 5 year olds

About 16 percent of this age, about 14 per cent of males and 18 per cent of females, more in urban than in rural areas, reported (through their guardians) dental problems in the last year. Most of them reported the problem of dental decay (95 per cent) while few had gum disease (4 per cent).

About 34 per cent subjects consulted trained dentist, more in urban areas (52 per cent) than in rural areas (19 per cent). About 56 per cent of the respondents had knowledge of dental facility (Government and Private), more in urban areas (94 per cent) than in rural areas (37 per cent). About 74 per cent subjects more females & more in urban reported less than half-an-hour to reach the dental care facility.

The Hills & Coastal Region had a higher proportion of subjects who suffered from oral health problems in the last one year (26 per cent). They had dental decay (96 per cent). Also, more than 50 per cent of such subjects did not consult any dentist. Most of the subjects (86 per cent) had knowledge of dental facility and reported to reach these within one hour.

Table 5 . 4. 1 Percent 5 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 5 yrs STATE: Karnataka

Nature of Dental Problems and Treatment related aspects		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Suffered from oral health	**n=**	**163**	**157**	**155**	**166**	**427**	**214**	**641**	**152**	**156**	**152**	**154**	**410**	**204**	**614**	**1255**
problems in last one year		8.4	14.0	12.6	23.3	11.5	18.0	13.6	11.6	19.6	11.8	29.0	14.2	24.0	17.5	**15.6**
2 Type of oral health problems	**n=**	**14**	**19**	**21**	**39**	**52**	**41**	**93**	**18**	**27**	**19**	**46**	**60**	**50**	**110**	**203**
Dental decay		85.9	96.6	94.1	94.4	90.1	96.8	93.0	95.1	95.1	93.7	97.6	97.4	94.2	95.9	**94.5**
Gum disease		7.7	0.0	0.0	5.6	7.0	0.0	3.9	4.9	2.4	6.3	2.4	4.1	2.5	3.4	**3.7**
Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
Bleeding gums		0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	0.0	0.0	0.0	2.8	0.0	1.5	**0.8**
Others		0.0	0.0	5.9	0.0	1.2	0.0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.4**
3 Consulted (out of those suffered)																
None		57.7	37.7	50.2	52.0	61.6	33.4	49.4	50.0	48.7	56.6	58.4	62.9	42.0	53.3	**51.4**
Trained dentist		20.4	38.1	26.3	45.2	23.4	50.1	35.0	20.9	41.6	30.7	34.9	14.7	54.1	32.8	**33.9**
4 Availaibility of dental facility	**n=**	**163**	**157**	**155**	**166**	**427**	**214**	**641**	**152**	**156**	**152**	**154**	**410**	**204**	**614**	**1255**
None		65.0	8.1	29.5	14.6	47.4	7.5	34.3	64.9	10.0	26.7	11.6	45.2	9.1	33.1	**33.7**
Govt. facility		14.8	39.4	26.7	39.1	22.5	39.8	28.1	18.5	45.3	24.9	36.4	22.3	47.0	30.6	**29.4**
Pvt. facility		15.1	30.9	24.8	47.2	15.1	52.0	27.2	16.0	24.9	28.5	48.2	15.9	48.0	26.6	**26.9**
Do not know		7.8	36.5	27.8	12.7	19.1	20.1	19.4	3.5	31.3	29.1	17.8	20.0	14.2	18.0	**18.7**
5 Time taken to reach the facility	**n=**	**50**	**82**	**73**	**121**	**169**	**157**	**326**	**53**	**84**	**74**	**109**	**162**	**158**	**320**	**646**
Less than 1/2 hr.		79.0	74.0	73.0	65.0	60.6	82.1	71.7	79.4	83.8	89.5	61.0	59.6	91.0	76.1	**73.9**
1/2 - 1 hr.		14.6	19.9	16.9	24.4	31.0	10.0	20.2	17.0	13.7	2.8	26.3	33.1	3.3	17.4	**18.8**
> 1 hr.		2.0	3.5	7.3	9.9	6.3	5.3	5.8	0.0	0.8	5.0	12.7	6.8	2.9	4.7	**5.3**
Cannot say		4.4	2.6	2.8	0.7	2.1	2.6	2.4	3.6	1.6	2.8	0.0	0.4	2.9	1.7	**2.1**
6 Ever suffered from	**n=**	**163**	**157**	**155**	**166**	**427**	**214**	**641**	**152**	**156**	**152**	**154**	**410**	**204**	**614**	**1255**
Hyperfension		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.0	0.0	0.5	0.4	0.9	0.6	**0.3**
Diabetes		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.5	0.1	0.3	0.2	**0.1**
Epilepsy		0.7	1.0	0.7	0.0	0.5	0.8	0.6	0.6	0.0	0.0	0.0	0.0	0.6	0.2	**0.4**
Jaundice		0.0	1.0	1.2	0.0	0.1	1.0	0.4	0.0	0.0	0.8	0.0	0.1	0.0	0.1	**0.3**
Asthma		0.0	0.0	0.5	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**

5.4.2 12 year olds

About 26 per cent of this age, more males & more in urban & across regions reported dental problems in the last one year. Most of them reported dental decay (87 per cent) and gum problems (6 per cent) in the state. While in regions the percent similar to that in the state reported problem of dental decay in each region. But 8-10 percent reported gum disease in North Dry Region & Hills & Coastal Region.

About 40 per cent of the subjects across both sexes & more in urban consulted trained dentist in the state. Except 23 percent in N. Dry Region, 45-50 percent in remaining Regions had consulted trained dentist. About 62 percent were aware of the availability of dental facility (Government and Private) in their area. They were more in urban. Except in North Dry Region, comparatively more were aware of dental facility in remaining regions. About 75 per cent subjects said they could reach the facility in less than half-an-hour (90 per cent in urban and 57 per cent in rural areas) in the state as well as in each region.

5.4.3 15 year olds

About 23 per cent of subjects, across both sexes and more in urban areas than in rural areas, reported dental problems in the last one year. Most of them reported dental decay (82 per cent) followed by gum problems (8 per cent). The percent reported problem of dental decay in each region was similar to that in the state. But gum disease was comparatively reported by more in N. Dry Region & Hills & Coastal Region.

About 41 per cent across both sexes & more in urban consulted trained dentist. More than 67 per cent of the respondents reported availability of Govt. & Pvt. dental facility (more in urban and than in rural areas). Among regions, most respondents in the Hills & Coastal Region reported the availability of Govt. & Pvt. dental facility. About 63 per cent, more males & more in urban reported less than half-an-hour to reach dental care facility.

Table 5 . 4. 2 Percent 12 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 12 yrs **STATE: Karnataka**

Nature of Dental Problems and Treatment related aspects		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Suffered from oral health	**n=**	**157**	**157**	**153**	**170**	**427**	**210**	**637**	**161**	**158**	**155**	**161**	**423**	**212**	**635**	**1272**
problems in last one year		26.1	28.2	26.7	30.4	28.7	25.9	27.8	20.7	29.9	25.9	23.0	20.6	31.9	24.3	**26.1**
2 Type of oral health problems	**n=**	**40**	**44**	**42**	**52**	**120**	**58**	**178**	**33**	**43**	**42**	**39**	**87**	**70**	**157**	**335**
Dental decay		75.0	89.8	94.4	92.1	86.3	84.9	85.8	81.3	95.2	95.3	84.5	85.9	92.1	88.6	**87.2**
Gum disease		14.6	0.0	0.0	8.3	8.2	4.6	7.1	2.6	4.8	0.0	16.1	5.2	6.3	5.7	**6.4**
Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2	0.0	0.0	2.3	1.9	1.0	1.5	**0.8**
Bleeding gums		7.8	3.4	0.0	0.0	4.0	3.1	3.7	3.2	0.0	0.0	0.0	1.9	0.0	1.0	**2.4**
Others		0.0	3.4	5.6	0.0	1.0	3.1	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.8**
3 Consulted (out of those suffered)																
None		55.7	35.5	32.4	37.2	51.4	23.2	42.8	58.0	34.9	55.6	38.7	57.0	31.8	46.0	**44.4**
Trained dentist		18.4	49.3	40.9	61.1	27.1	69.5	40.0	27.7	46.1	36.8	53.2	27.9	56.2	40.2	**40.1**
4 Availaibility of dental facility	**n=**	**157**	**157**	**153**	**170**	**427**	**210**	**637**	**161**	**158**	**155**	**161**	**423**	**212**	**635**	**1272**
None		68.6	15.7	31.0	14.5	51.4	8.5	37.5	67.8	15.1	30.4	11.7	49.9	10.2	36.7	**37.1**
Govt. facility		16.1	46.5	28.1	37.1	22.0	48.2	30.5	16.9	56.5	19.5	29.6	19.5	53.3	30.7	**30.6**
Pvt. facility		14.8	29.8	24.3	60.8	18.0	55.0	30.1	16.1	29.5	30.9	66.2	20.4	55.2	32.0	**31.1**
Do not know		2.7	19.1	25.4	5.8	12.5	7.7	10.9	2.0	15.1	25.3	8.5	14.2	2.2	10.2	**10.6**
5 Time taken to reach the facility	**n=**	**50**	**94**	**73**	**137**	**177**	**177**	**354**	**54**	**99**	**75**	**130**	**175**	**183**	**358**	**712**
Less than 1/2 hr.		84.3	80.5	77.0	67.3	59.9	90.1	76.0	83.3	80.4	80.8	62.0	55.3	90.8	74.7	**75.4**
1/2 - 1 hr.		15.7	15.8	18.0	23.1	33.8	5.8	18.9	10.2	14.9	12.1	24.7	32.6	4.3	17.1	**18.0**
> 1 hr.		0.0	2.9	5.0	8.8	5.1	4.1	4.6	4.4	2.7	7.1	11.0	9.3	3.7	6.2	**5.4**
Cannot say		0.0	0.7	0.0	0.8	1.2	0.0	0.5	2.2	2.0	0.0	2.3	2.8	1.3	2.0	**1.3**
6 Ever suffered from	**n=**	**157**	**157**	**153**	**170**	**427**	**210**	**637**	**161**	**158**	**155**	**161**	**423**	**212**	**635**	**1272**
Hypertension		0.7	0.0	0.0	0.0	0.4	0.0	0.3	0.5	1.0	0.0	0.7	0.2	1.4	0.6	**0.5**
Diabetes		0.7	0.0	0.0	0.0	0.4	0.0	0.3	0.0	0.0	0.0	0.5	0.0	0.3	0.1	**0.2**
Epilepsy		0.0	1.4	0.7	0.6	0.6	0.8	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.3**
Jaundice		1.4	0.0	0.0	0.0	0.8	0.0	0.5	0.7	0.0	0.0	0.0	0.4	0.0	0.3	**0.4**
Asthma		0.0	0.0	0.0	0.6	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**

Table 5 . 4. 3 Percent 15 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 15 yrs **STATE: Karnataka**

Nature of Dental Problems and Treatment related aspects		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Suffered from oral health	**n=**	**160**	**157**	**151**	**163**	**420**	**211**	**631**	**157**	**157**	**156**	**155**	**417**	**208**	**625**	**1256**
problems in last one year		24.2	25.6	19.3	22.2	21.9	26.9	23.6	25.7	22.0	22.7	25.4	23.9	24.9	24.2	**23.9**
2 Type of oral health problems	**n=**	**38**	**37**	**32**	**37**	**85**	**59**	**144**	**40**	**32**	**37**	**39**	**95**	**53**	**148**	**292**
Dental decay		70.8	88.9	91.1	87.1	79.8	84.8	81.7	82.0	78.2	92.7	86.9	84.1	81.9	83.4	**82.6**
Gum disease		10.5	1.8	7.8	11.2	10.4	3.4	7.7	10.1	0.0	0.0	2.1	4.9	3.7	4.5	**6.1**
Foul breath		2.8	0.0	0.0	2.3	1.7	1.2	1.5	0.0	0.0	2.0	0.0	0.0	0.8	0.3	**0.9**
Bleeding gums		11.0	3.7	2.5	3.0	8.0	3.6	6.3	10.6	15.3	0.0	0.0	7.4	9.6	8.2	**7.3**
Others		0.0	1.8	0.0	0.0	0.9	0.0	0.6	0.0	0.0	3.2	2.7	1.5	0.0	1.0	**0.8**
3 Consulted (out of those suffered)																
None		60.3	35.1	33.5	30.0	48.9	35.3	43.7	55.8	19.5	41.4	47.4	54.4	21.3	43.0	**43.4**
Trained dentist		23.8	51.9	40.4	64.7	34.8	54.8	42.3	19.7	69.7	32.1	47.8	28.0	63.2	40.1	**41.2**
4 Availaibility of dental facility	**n=**	**160**	**157**	**151**	**163**	**420**	**211**	**631**	**157**	**157**	**156**	**155**	**417**	**208**	**625**	**1256**
None		66.7	14.6	30.0	12.2	49.9	8.4	36.2	64.4	11.9	35.3	9.7	49.3	5.7	34.7	**35.5**
Govt. facility		19.5	59.8	23.8	42.7	25.6	57.0	36.1	19.0	53.2	26.3	33.1	23.9	49.2	32.3	**34.2**
Pvt. facility		15.8	30.9	36.6	59.5	19.9	55.4	31.7	19.9	39.9	30.2	64.2	22.3	62.6	35.7	**33.7**
Do not know		0.7	9.4	18.1	4.6	8.3	2.1	6.2	0.0	10.5	16.7	7.7	8.5	3.5	6.8	**6.5**
5 Time taken to reach the facility	**n=**	**57**	**111**	**86**	**137**	**200**	**191**	**391**	**61**	**113**	**82**	**129**	**198**	**187**	**385**	**776**
Less than 1/2 hr.		84.0	77.6	67.5	67.1	57.5	89.7	74.1	67.1	73.6	75.6	62.8	51.7	84.6	68.8	**71.5**
1/2 - 1 hr.		8.2	17.4	18.7	25.6	34.0	4.1	18.6	29.0	22.1	12.5	20.8	36.3	9.9	22.6	**20.6**
> 1 hr.		1.7	2.5	11.4	6.6	5.4	3.9	4.6	1.9	2.5	5.4	13.4	7.5	4.4	5.9	**5.3**
Cannot say		6.1	2.5	2.4	0.6	3.1	2.3	2.7	1.9	1.8	6.5	3.0	4.5	1.1	2.7	**2.7**
6 Ever suffered from	**n=**	**160**	**157**	**151**	**163**	**420**	**211**	**631**	**157**	**157**	**156**	**155**	**417**	**208**	**625**	**1256**
Hypertension		0.7	0.0	0.8	0.0	0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.2**
Diabetes		0.0	0.0	0.8	0.5	0.1	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
Epilepsy		0.0	0.5	0.5	0.0	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.1**
Jaundice		1.3	0.0	0.0	0.0	0.8	0.0	0.5	1.4	0.0	0.0	0.0	0.8	0.0	0.5	**0.5**
Asthma		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.0**

5.4.4 35-44 year olds

About 44 per cent of the respondents across both sexes & more in urban reported dental problems in last one year. Most of them reported dental decay followed by gum disease. The S. region had higher proportion of respondents reporting dental decay (82 percent).

About 51 percent of those had dental problems more males & more in urban consulted trained dentist. About 34 percent more males & more in urban were aware of Govt. dental care facility in their area. As regard time to reach Govt. or Pvt. dental care facility. 71 percent more males & more in urban told less than half hour to reach the facility. Other 27 percent, more females & more in rural reported one half to more than an hour to reach the dental care facility.

As regard to respondents ever suffered from non-communicable disease 4 percent across both sexes & more in urban reported suffered from hypertension. Nearly one percent of respondents reported to have ever suffered from each of the disease such as diabetes, epilepsy, Jaundices and asthma.

5.4.5 65-74 year olds

About 50 percent of respondents, across both sexes & places of residence reported to have suffered from dental problems in last one year.

There were comparatively more reported dental problems in Hills & Coastal region than in other region last one year.

As regard nature of problems about 58 percent, more males & more in urban had suffered from dental decay. While other 53 percent more females & more in rural reported gum disease. Other about 7 percent, more in rural had problem of foul breath & bleeding gums in the state.

About 40 percent, of those reported problems, consulted trained dentist. About 34 percent, more females & more in rural were aware of Govt. dental care facility.

As regard to time required to reach Govt. or Pvt. dental care facility 72 percent across both sexes & more in urban told less than half hour.

As regard to respondents ever suffered from non-communicable diseases about 18 percent across both sexes & more in urban had hypertension. Another 7 percent across both sexes & more in rural had diabetes problems.

DENTAL PROBLEMS AND TREATMENT ASPECTS ACROSS AGE GROUPS (SUMMING UP)

1. 13-27 per cent of 15 year olds and below respondents and 43-49 per cent in the age groups 35-44 and 65-74 years reported some oral health problems in the last one year. These were more females and more in urban. The main problem reported was dental decay, While followed by another problem of gum disease. About 35-55 per cent of the respondents across age groups, sexes and area of residence consulted a trained dentist.
2. More than 50 per cent were aware of Government and private dental facilities. Over 68 per cent of the respondents more in urban reported time to reach the facility less than half an hour.

Table 5 . 4. 4 Percent 35-44 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 35-44 yrs **STATE: Karnataka**

Nature of Dental Problems and Treatment related aspects		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Suffered from oral health	**n=**	**161**	**157**	**154**	**157**	**422**	**207**	**629**	**155**	**157**	**157**	**180**	**432**	**217**	**649**	**1278**
problems in last one year		44.8	41.2	45.4	46.3	43.6	45.4	44.2	40.1	39.5	53.1	47.6	42.7	44.7	43.4	**43.8**
2 Type of oral health problems	**n=**	**71**	**63**	**74**	**74**	**177**	**105**	**282**	**62**	**61**	**86**	**86**	**188**	**107**	**295**	**577**
Dental decay		52.9	74.4	81.6	77.1	62.5	77.4	67.5	65.6	85.6	86.9	82.8	75.4	84.1	78.3	**72.9**
Gum disease		45.6	15.1	20.5	28.5	36.7	18.8	30.7	27.9	18.0	21.2	21.9	25.3	18.3	22.9	**26.8**
Foul breath		1.5	2.3	2.7	0.0	2.1	0.4	1.6	0.0	6.0	0.0	1.0	0.5	4.2	1.7	**1.7**
Bleeding gums		5.9	2.3	2.7	1.5	4.3	2.2	3.6	11.1	6.0	2.6	1.3	5.5	6.9	5.9	**4.8**
Others		1.5	5.8	1.6	0.0	2.6	1.8	2.3	1.7	0.0	3.1	4.7	2.7	1.5	2.3	**2.3**
3 Consulted (out of those suffered)																
None		40.5	24.3	24.3	25.0	41.5	10.6	31.1	55.1	37.3	22.7	25.2	43.2	28.0	38.0	**34.6**
Trained dentist		37.9	63.0	62.7	73.6	40.8	83.3	55.1	25.2	52.0	56.4	65.5	37.6	65.2	47.0	**51.1**
4 Availaibility of dental facility	**n=**	**161**	**157**	**154**	**157**	**422**	**207**	**629**	**155**	**157**	**157**	**180**	**432**	**217**	**649**	**1278**
None		67.0	11.4	36.2	10.8	50.2	7.3	36.1	67.7	16.1	31.7	14.9	50.8	8.7	36.9	**36.5**
Govt. facility		18.7	63.7	21.3	38.9	26.7	53.9	35.6	16.2	59.1	21.7	33.0	21.9	53.8	32.4	**34.0**
Pvt. facility		17.5	38.9	40.6	70.6	24.4	63.3	37.2	17.7	37.7	42.9	66.8	25.7	61.8	37.6	**37.4**
Do not know		0.0	6.7	10.8	0.7	4.6	1.0	3.4	0.0	7.6	10.6	2.9	5.6	1.3	4.2	**3.8**
5 Time taken to reach the facility	**n=**	**58**	**122**	**90**	**140**	**217**	**193**	**410**	**55**	**113**	**98**	**150**	**216**	**200**	**416**	**826**
Less than 1/2 hr.		81.0	79.7	71.9	61.4	55.8	90.5	73.1	76.0	72.6	71.7	62.6	51.7	86.8	69.4	**71.3**
1/2 - 1 hr.		15.0	17.4	16.6	25.7	33.9	5.4	19.7	11.2	20.5	15.8	23.8	32.1	7.2	19.5	**19.6**
> 1 hr.		2.0	2.3	10.1	11.3	7.7	4.1	5.9	8.5	6.3	11.2	12.1	12.7	6.0	9.3	**7.6**
Cannot say		2.0	0.6	1.4	1.5	2.6	0.0	1.3	4.3	0.6	1.3	1.5	3.5	0.0	1.7	**1.5**
6 Ever suffered from	**n=**	**161**	**157**	**154**	**157**	**422**	**207**	**629**	**155**	**157**	**157**	**180**	**432**	**217**	**649**	**1278**
Hypertension		1.9	5.8	3.4	3.7	2.4	5.8	3.5	3.1	6.7	3.6	6.6	3.7	7.5	4.9	**4.2**
Diabetes		0.7	2.4	0.9	2.4	1.0	2.6	1.6	1.8	1.4	2.8	1.2	1.3	2.5	1.7	**1.7**
Epilepsy		0.0	0.5	0.5	0.0	0.2	0.2	0.2	0.0	0.0	0.7	0.0	0.1	0.0	0.1	**0.2**
Jaundice		0.7	0.0	0.0	0.0	0.4	0.0	0.3	0.7	1.0	0.7	0.0	0.5	0.8	0.6	**0.5**
Asthma		0.7	0.0	0.5	0.7	0.6	0.2	0.5	0.7	1.4	1.2	1.1	0.9	1.3	1.0	**0.8**

Table 5 . 4. 5 Percent 65-74 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 65-74 yrs **STATE: Karnataka**

Nature of Dental Problems and Treatment related aspects		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Suffered from oral health	**n=**	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
problems in last one year		49.0	42.7	53.2	65.4	52.3	49.3	51.3	50.8	48.8	39.5	52.2	46.1	54.9	49.0	**50.2**
2 Type of oral health problems	**n=**	77	**62**	**83**	**105**	**220**	**107**	**327**	**79**	**73**	**65**	**85**	**182**	**120**	**302**	**629**
Dental decay		44.1	70.8	66.3	66.7	56.3	66.1	59.4	35.3	74.3	79.1	57.9	51.2	63.8	55.9	**57.7**
Gum disease		55.6	39.3	33.6	61.3	50.9	49.2	50.4	58.9	42.5	49.2	70.9	57.4	53.7	56.0	**53.2**
Foul breath		4.1	1.1	1.4	2.8	3.6	0.7	2.7	1.3	4.0	0.0	1.3	2.2	1.5	1.9	**2.3**
Bleeding gums		6.5	0.0	4.1	2.8	4.5	1.9	3.7	9.2	5.9	6.2	0.0	7.5	3.2	5.9	**4.8**
Others		1.4	5.6	9.0	2.0	3.0	4.9	3.6	2.7	10.9	3.6	2.0	3.1	8.1	4.9	**4.3**
3 Consulted (out of those suffered)																
None		51.4	35.8	40.2	36.8	50.4	25.2	42.6	70.6	44.4	36.0	46.8	67.9	32.3	54.6	**48.6**
Trained dentist		34.2	55.2	38.3	57.9	38.0	63.2	45.8	14.0	42.7	50.3	51.1	20.3	56.8	33.9	**39.9**
4 Availaibility of dental facility	**n=**	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
None		65.5	11.4	37.4	15.2	50.4	7.3	36.5	64.1	11.0	30.4	12.6	48.3	5.8	34.2	**35.4**
Govt. facility		19.3	54.6	21.2	38.0	24.1	52.0	33.1	22.6	57.5	25.1	37.0	27.2	52.7	35.6	**34.4**
Pvt. facility		17.2	42.7	38.0	67.0	24.7	63.4	37.2	14.8	36.4	38.8	57.7	20.4	57.6	32.8	**35.0**
Do not know		0.7	9.5	11.2	2.5	6.6	1.5	5.0	0.7	14.4	14.5	8.7	9.4	5.6	8.1	**6.6**
5 Time taken to reach the facility	**n=**	**59**	**116**	**87**	**134**	**208**	**188**	**396**	**60**	**109**	**91**	**128**	**201**	**187**	**388**	**784**
Less than 1/2 hr.		69.6	77.1	63.7	68.1	51.4	89.8	70.8	72.3	79.4	74.7	66.4	54.0	91.0	72.9	**71.9**
1/2 - 1 hr.		17.0	20.5	17.9	23.1	36.0	5.5	20.7	16.8	18.7	16.1	22.4	35.6	4.0	19.5	**20.1**
> 1 hr.		11.4	2.4	12.6	8.8	10.4	4.6	7.5	9.0	0.0	7.5	9.6	8.4	3.3	5.8	**6.7**
Cannot say		2.0	0.0	5.7	0.0	2.2	0.0	1.1	1.9	2.0	1.7	1.5	1.9	1.7	1.8	**1.5**
6 Ever suffered from	**n=**	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
Hypertension		17.5	14.4	15.4	22.2	13.8	24.4	17.2	16.9	24.3	14.6	21.4	13.1	32.0	19.4	**18.3**
Diabetes		4.8	6.2	8.9	10.1	4.8	11.0	6.8	6.8	12.1	6.7	5.8	4.2	15.6	8.0	**7.4**
Epilepsy		1.1	0.0	0.5	0.0	0.0	1.4	0.5	0.0	0.0	1.2	0.0	0.1	0.2	0.2	**0.4**
Jaundice		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.2	0.1	**0.1**
Asthma		3.7	2.4	4.4	9.9	6.3	1.5	4.8	4.0	1.0	1.2	2.4	3.0	1.4	2.4	**3.6**

5.5 AWARENESS OF DENTAL HEALTH PROBLEMS

All respondents were asked three questions on the awareness of dental health problems. The first was about common dental problems, the second about the major factors responsible for such problems and the third question was on how such dental problems could be prevented. The responses are shown in Tables 5.5.2 to 5.5.5.

5.5.2 12 year olds

About 41 per cent respondents across both sexes, more in rural were aware of common dental health problems (Table 5.5.2). 39 per cent respondents across both sexes cited tooth decay (51 per cent in urban areas and 32 per cent in rural areas) followed by gum disease (2.3 per cent males and 1.5 per cent females). Very few knew about problems like bad smell and stained teeth. Among regions, about 30-45 per cent of the respondents in each region reported aware of tooth decay - a oral health problem.

When asked about factors responsible for such problems 61 per cent of the respondents across both sexes had no knowledge. They were 70 per cent in rural areas and 45 per cent said in urban areas. Among those aware, of factors by 33 per cent of them reported eating sweets/ ice creams/ chocolates (26 per cent in rural areas and 47 per cent in urban areas). Other 11 per cent respondents cited not brushing regularly as another factor (7 per cent in rural areas and 19 per cent in urban areas). There was not much difference across sexes. Among regions, 50 per cent respondents in the Central Region more than in remaining regions said they were aware about the factors that cause oral health problems, and of them 45 per cent eating sweets/ice cream/ chocolates, a major factor that can cause oral health problems.

When asked about the preventive measures, two-thirds of the respondents said they were not aware of any preventive measure, more so in rural areas (73 per cent) than in urban areas (51 per cent). The two most important preventive measures suggested were cleaning of teeth regularly by 20 per cent respondents (32 per cent in urban areas and 14 per cent in rural areas) and avoid sweet items by 14 per cent respondents (21 per cent in urban areas and 10 per cent in rural areas). There was little male-female difference in this regard. Among regions, the Central Region reported certain preventive measures, most important avoid sweet items (23 per cent) and cleaning teeth regularly (20 per cent).

Table 5 . 5. 2 Percent 12 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

AGE: 12 yrs **STATE: Karnataka**

Awareness of Oral Health Problems, Causes and Preventive Measures		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Awareness of Oral Health Problems	n=	157	157	153	170	427	210	637	161	158	155	161	423	212	635	1272
No knowledge		61.9	54.4	69.9	51.9	67.1	41.7	58.8	63.6	49.2	69.7	53.6	64.5	46.0	58.3	**58.6**
Tooth decay		36.3	44.6	29.3	40.9	31.1	54.0	38.6	35.2	49.9	29.8	39.6	33.2	52.0	39.5	**39.1**
Gum disease		0.6	1.4	0.5	7.3	1.5	3.9	2.3	0.0	0.5	0.0	6.6	1.5	1.6	1.5	**1.9**
Bad smell		0.6	0.0	0.7	1.1	0.4	0.9	0.5	1.6	1.9	0.0	0.7	0.2	3.3	1.2	**0.9**
Stained teeth		0.6	0.0	0.0	0.0	0.0	0.6	0.2	0.7	0.0	0.0	1.3	0.8	0.0	0.5	**0.4**
Others		0.7	0.0	0.0	0.0	0.4	0.0	0.3	1.3	0.9	0.5	0.7	1.4	0.2	1.0	**0.7**
2 Factors that cause Oral Health Problems																
Eating sweets/ice cream		28.2	44.6	25.9	28.9	24.3	49.5	32.5	27.2	46.5	19.9	30.9	27.0	43.3	32.4	**32.5**
Not brushing regularly		9.4	13.9	2.2	16.3	8.0	17.9	11.2	7.1	18.5	2.1	13.9	6.7	19.7	11.0	**11.1**
Not rinsing		0.7	0.0	0.0	1.1	0.6	0.3	0.5	0.0	0.0	0.7	0.5	0.1	0.3	0.2	**0.4**
Consuming tobacco		0.7	0.0	0.0	0.0	0.4	0.0	0.3	0.0	0.0	0.7	0.0	0.1	0.0	0.1	**0.2**
Do not know		64.2	51.1	72.9	60.9	70.4	42.0	61.1	66.1	49.2	78.1	59.2	68.3	48.0	61.6	**61.4**
3 Reported Preventive Measures																
Not consuming Tobacco		2.5	2.9	4.4	0.0	1.7	3.4	2.3	0.7	2.9	2.9	1.3	1.8	1.6	1.7	**2.0**
Cleaning teeth regularly		20.4	16.8	8.2	28.3	14.6	29.4	19.4	20.0	20.4	6.5	26.7	13.1	32.5	19.5	**19.5**
Visiting dentist regularly		1.8	0.5	2.0	1.9	1.5	1.4	1.5	0.0	0.5	0.5	5.6	1.5	1.1	1.4	**1.5**
Using flouride paste / powder		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	1.2	0.0	0.5	0.8	0.6	**0.3**
Avoid sweet items		8.6	23.0	15.2	8.9	9.5	21.8	13.5	9.7	20.9	14.2	9.8	10.8	18.7	13.4	**13.5**
Do not know		66.8	63.0	73.3	64.6	73.3	51.8	66.3	67.8	59.6	75.1	61.8	72.5	51.1	65.4	**65.9**

5.5.3 15 year olds

About half of the respondents in this age group across both sexes (65 per cent in urban and 43 per cent in rural areas) were aware of oral health problems (Table 5.5.3). About 45 per cent (58 per cent in urban areas and 39 per cent in rural areas) cited tooth decay as the most common oral health problem, followed by gum diseases (7 per cent males and 4 per cent females). There was little awareness about problems like bad smell, stained teeth and others. In regions, about 56 per cent of the respondents in the Central Region comparatively higher among regions were aware of tooth decay.

About 55 percent of respondents across both sexes and did not know (62 per cent in rural and 40 per cent in urban areas) about factors that cause oral health problems. The most frequently reported factor by 35 per cent respondents (30 per cent in rural and 47 per cent in urban areas) was eating sweets/ ice creams followed by not brushing regularly by 15 per cent respondents (11 per cent in rural areas and 23 per cent in urban areas). There was little male-female difference in this regard. In regions, about 56 per cent of the respondents in the Central Region comparatively highest among regions was aware of the factors that cause oral health problems; 50 per cent of these aware said eating sweets/ice cream - a factor that cause oral health problems.

About 59 per cent of the respondents across both sexes & more in rural were not aware of any preventive measures. About 21 per cent respondents & those aware suggested cleaning teeth regularly and 17 per cent said avoid sweet items. There was little difference across sexes. Among regions, 33 per cent respondents in the Hills & Coastal Region suggested cleaning teeth regularly while 28 per cent in the Central Region suggested avoid sweet items, the measures to prevent oral health problems.

Table 5 . 5. 3 Percent 15 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

AGE: 15 yrs STATE: Karnataka

Awareness of Oral Health Problems, Causes and Preventive Measures		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Awareness of Oral Health Problems	n=	160	157	151	163	420	211	631	157	157	156	155	417	208	625	1256
No knowledge		59.9	42.1	62.6	39.7	57.2	38.7	51.0	58.6	42.0	56.9	40.6	57.3	35.6	50.1	**50.6**
Tooth decay		35.0	55.5	36.6	51.4	39.1	55.1	44.4	37.6	56.1	40.9	53.4	39.4	60.5	46.4	**45.4**
Gum disease		5.2	3.8	0.8	16.5	6.2	7.4	6.6	2.6	3.8	0.5	6.7	2.7	5.1	3.5	**5.1**
Bad smell		2.8	1.0	0.5	2.4	0.8	4.0	1.9	1.2	2.9	0.5	0.5	0.4	3.5	1.4	**1.7**
Stained teeth		0.0	0.0	0.8	0.5	0.1	0.3	0.2	1.2	0.0	0.0	1.4	0.8	0.6	0.8	**0.5**
Others		1.9	0.5	0.0	0.7	1.2	0.6	1.0	0.0	0.5	0.7	1.1	0.4	0.6	0.5	**0.8**
2 Factors that cause Oral Health Problems																
Eating sweets/ice cream		20.9	50.8	32.4	41.0	28.8	47.4	35.0	24.6	47.9	33.2	44.0	31.1	46.7	36.3	**35.7**
Not brushing regularly		15.3	18.5	5.4	19.0	11.9	23.2	15.6	11.0	17.8	5.0	18.4	8.9	22.6	13.5	**14.6**
Not rinsing		1.2	1.0	0.5	0.7	0.6	1.6	0.9	0.0	1.9	0.9	3.2	0.7	2.6	1.3	**1.1**
Consuming tobacco		1.3	0.0	0.0	0.0	0.8	0.0	0.5	3.4	0.0	0.0	0.0	2.0	0.0	1.3	**0.9**
Do not know		63.0	44.9	65.6	49.0	62.2	41.7	55.4	63.6	45.8	64.8	43.8	62.1	40.2	54.8	**55.1**
3 Reported Preventive Measures																
Not consuming Tobacco		3.9	3.3	5.8	2.4	4.8	1.4	3.7	3.2	1.9	4.3	3.3	3.5	2.1	3.0	**3.4**
Cleaning teeth regularly		21.0	21.8	8.1	28.8	16.6	30.2	21.1	18.4	20.2	9.0	36.5	15.7	32.3	21.2	**21.2**
Visiting dentist regularly		3.0	2.4	2.5	5.4	2.3	5.0	3.2	4.7	0.9	2.1	7.9	3.3	5.1	3.9	**3.6**
Using flouride paste / powder		0.0	1.0	0.0	0.5	0.0	1.1	0.4	0.0	1.4	0.5	0.0	0.6	0.2	0.5	**0.5**
Avoid sweet items		10.3	28.5	20.2	13.9	14.2	24.0	17.4	13.2	25.4	21.6	12.4	14.6	23.8	17.6	**17.5**
Do not know		61.2	53.5	67.3	58.1	64.9	48.0	59.3	63.1	55.9	65.0	47.2	64.9	44.8	58.2	**58.8**

5.5.4 35-44 year olds

52 per cent of the respondents (67 per cent in urban areas and 45 per cent in rural areas) were aware of oral health problems (Table 5.5.4). Most of them knew about tooth decay —44 per cent males and 41 per cent females (59 per cent in urban areas and 35 per cent in rural areas). This was followed by awareness about gum diseases (13 per cent), with little male-female and urban-rural differences. Less than 6 per cent of the respondents knew about other problems. Among regions, about 55 per cent of the respondents in the Hills & Coastal Region were aware of tooth decay.

About 44 percent of respondents, more males & more in rural were aware of the factors that cause oral health problems. Among those aware, the most common reported factor by 30 per cent respondents was eating sweets/ice cream (43 per cent in urban areas and 22 per cent in rural areas) followed by 18 per cent reporting not brushing regularly (35 per cent in urban areas and 10 per cent in rural areas). There was little difference across sexes in this regard.

Among regions, about 64 per cent respondents in the Hills & Coastal Region, were aware of the factors that can cause oral health problems, with 42 per cent of them saying eating sweets/ ice creams.

About 40 per cent of the respondents were aware of preventive measures (31 per cent in rural areas and 42 per cent in urban areas). About 23 per cent cited cleaning teeth regularly (15 per cent in rural areas and 39 per cent in urban areas) while 13 per cent reported avoid sweet items (9 per cent in rural areas and 22 per cent in urban areas). There was little male-female difference. Among regions, about 60 per cent of the respondents in the Hills & Coastal Region said they were aware of preventive measures, with 43 per cent of them cited cleaning teeth regularly and 15 per cent told avoid of sweet items measures to prevent.

Table 5 . 5. 4 Percent 35-44 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

AGE: 35-44 yrs **STATE: Karnataka**

Awareness of Oral Health Problems, Causes and Preventive Measures		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Awareness of Oral Health Problems	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
No knowledge		50.3	52.1	45.6	30.9	54.2	30.6	46.5	52.5	53.7	57.8	33.8	56.1	35.6	49.4	**48.0**
Tooth decay		33.7	47.0	50.2	56.9	34.9	63.0	44.1	35.2	43.0	38.8	53.1	35.1	55.5	41.8	**43.0**
Gum disease		13.3	7.2	8.3	24.3	12.4	14.8	13.2	9.4	13.4	6.6	18.7	8.2	20.3	12.2	**12.7**
Bad smell		1.6	0.0	2.0	2.6	0.9	2.3	1.4	1.7	1.4	0.7	3.9	1.4	3.2	2.0	**1.7**
Stained teeth		5.5	0.0	0.0	1.9	2.3	2.7	2.5	3.4	1.0	0.0	0.6	2.1	0.8	1.7	**2.1**
Others		1.9	0.9	0.0	0.5	1.2	0.9	1.1	0.0	0.0	0.0	0.6	0.2	0.0	0.1	**0.6**
2 Factors that cause Oral Health Problems																
Eating sweets/ice cream		13.7	40.3	36.4	46.5	24.8	43.0	30.7	12.1	39.7	31.2	37.4	20.3	43.3	27.9	**29.3**
Not brushing regularly		12.1	18.3	15.2	30.6	9.3	35.3	17.8	13.0	19.6	9.9	30.3	10.9	33.0	18.2	**18.0**
Not rinsing		1.1	1.0	0.5	4.9	0.9	3.5	1.7	0.0	1.0	2.4	5.0	1.5	2.1	1.7	**1.7**
Consuming tobacco		15.4	1.4	0.7	4.9	8.9	4.5	7.4	8.9	1.0	0.7	2.1	5.5	1.4	4.1	**5.8**
Do not know		62.3	56.4	57.1	33.1	63.3	35.6	54.2	68.3	54.1	63.8	39.0	66.7	38.2	57.3	**55.8**
3 Reported Preventive Measures																
Not consuming Tobacco		13.3	3.8	2.4	7.2	8.3	7.3	8.0	6.9	2.9	2.8	3.2	5.1	3.1	4.4	**6.2**
Cleaning teeth regularly		14.1	15.9	16.8	43.5	13.6	35.7	20.8	19.0	24.4	13.3	41.9	16.3	41.9	24.8	**22.8**
Visiting dentist regularly		6.6	1.4	4.6	12.2	3.2	11.6	5.9	2.4	2.4	1.7	10.7	3.7	5.3	4.2	**5.1**
Using flouride paste / powder		1.2	1.0	0.0	1.1	0.4	2.1	0.9	0.6	0.5	0.5	0.0	0.2	0.8	0.4	**0.7**
Avoid sweet items		4.1	22.1	26.1	15.5	9.4	24.3	14.3	3.2	19.1	17.8	12.8	7.6	19.8	11.7	**13.0**
Do not know		64.9	65.9	60.1	38.4	68.9	39.9	59.4	68.5	62.3	70.5	41.7	69.4	44.1	61.1	**60.3**

5.5.5 65-74 year olds

About 37 percent more males & more in urban were aware of oral health problems. Other 27 percent of those reported knowledge of oral health problems cited tooth decay. This was followed by 11 percent told gum disease.

As regard regions about 66 percent of respondents in Hills & Coastal region, the highest among regions, was aware of oral the health problems. Similarly more in Hills & Coastal region had knowledge of oral problems such as tooth decay & gum disease than in other regions.

As regard knowledge of factors, responsible for oral health problems only 29 percent of respondents, more males & more in urban reported knowledge of factors 15 percent, across both sexes & more in urban who had knowledge, told eating sweets/ice cream. Other 14 percent more males & more in rural cited not-brushing regularly. Another 6 percent, across both sexes & more in urban told consuming tobacco another factors that can cause oral health problems.

In regions except 46 percent in Hills & Coastal region, about 70 & more percent in remaining region did not have knowledge of factors responsible for oral health problems.

As regard knowledge of measures to prevent oral health problems 29 percent of respondents more males & more in urban had knowledge of preventive measures. About 14 percent who reported knowledge of preventive measures more males & more in urban told cleaning teeth regularly. Other about 7 percent more males & more in rural cited measure not consuming tobacco. While another 7percent reported avoid sweets item to prevent oral health problems.

Like earlier, there were comparatively more percent of respondents in Hills & Coastal region with knowledge of preventive measures than in other regions. About 30 percent in Hills & Coastal reported cleaning of teeth regularly to prevent oral health problems.

AWARENESS OF DENTAL HEALTH PROBLEMS ACROSS AGE GROUPS (SUMMING UP)

1. About 36 per cent across age groups and both sexes, more in urban areas were aware of oral health problems. The problems most reported were tooth decay and gum disease.
2. About 30 to 45 per cent across all age groups and both sexes, more in urban areas were aware of the factors that cause oral health problems. Most of them reported, 'eating sweets/ice creams', (13-36 per cent) followed by 'not brushing regularly' (11-18 per cent) while very few reported 'not consuming tobacco' (1-9 per cent).
3. About 30-45 percent more females than males & more in rural were aware of preventive measures.

Table 5.5.5 Percent 65-74 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

AGE: 65-74 yrs STATE: Karnataka

Awareness of Oral Health Problems, Causes and Preventive Measures		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Awareness of Oral Health Problems	n=	160	157	155	160	427	205	632	156	157	154	161	416	212	628	1260
No knowledge		62.3	78.9	65.4	35.9	65.8	53.9	61.9	58.5	81.1	69.6	49.2	69.0	55.5	64.5	**63.2**
Tooth decay		23.1	19.2	30.0	50.7	25.7	34.7	28.6	27.3	17.0	26.5	35.2	23.8	30.1	25.9	**27.3**
Gum disease		14.8	1.9	8.6	29.5	12.5	15.3	13.4	16.2	2.4	10.0	27.1	11.5	18.0	13.7	**13.6**
Bad smell		2.2	0.0	0.7	5.4	1.2	3.7	2.0	2.5	1.9	0.7	2.4	1.4	3.4	2.1	**2.1**
Stained teeth		1.9	0.5	0.0	0.5	1.0	0.9	1.0	0.6	0.0	0.0	0.7	0.2	0.6	0.3	**0.7**
Others		0.7	0.0	0.5	1.3	0.8	0.2	0.6	0.7	0.0	0.0	0.7	0.6	0.0	0.4	**0.5**
2 Factors that cause Oral Health Problems																
Eating sweets/ice cream		3.9	15.4	18.1	34.7	10.9	24.9	15.4	7.1	12.6	16.0	25.8	9.6	22.0	13.7	**14.6**
Not brushing regularly		14.4	14.4	6.2	25.4	8.0	30.7	15.3	10.2	8.3	7.0	22.8	5.7	23.7	11.7	**13.5**
Not rinsing		0.0	0.0	1.9	8.8	2.4	1.5	2.1	0.0	1.0	0.0	5.4	1.1	2.1	1.4	**1.8**
Consuming tobacco		13.3	3.4	0.0	2.8	8.0	3.8	6.6	10.9	0.0	0.7	1.2	6.6	0.3	4.5	**5.6**
Do not know		69.3	78.4	77.3	45.5	74.1	55.5	68.1	72.9	85.0	81.1	55.2	80.0	61.4	73.8	**71.0**
3 Reported Preventive Measures																
Not consuming Tobacco		17.7	2.4	1.7	7.7	11.1	5.5	9.3	9.2	1.0	3.2	4.1	5.8	3.5	5.0	**7.2**
Cleaning teeth regularly		12.8	13.9	8.1	29.9	9.8	28.6	15.9	12.0	10.2	8.5	22.7	6.3	26.6	13.0	**14.5**
Visiting dentist regularly		2.3	0.0	2.1	9.8	2.6	4.4	3.2	3.6	1.5	1.2	10.0	3.5	5.0	4.0	**3.6**
Using flouride paste / powder		0.0	0.9	0.5	0.5	0.4	0.5	0.4	0.0	1.0	0.5	0.0	0.0	1.0	0.3	**0.4**
Avoid sweet items		1.1	12.0	10.2	11.5	3.4	16.1	7.5	3.0	8.7	9.4	5.8	2.8	12.4	6.0	**6.8**
Do not know		66.7	79.4	76.8	51.2	74.1	56.7	68.5	73.8	81.1	77.9	60.3	81.2	58.9	73.8	**71.2**

5.6 TOBACCO SMOKING AND CHEWING HABITS

As smoking habits and chewing tobacco have special affect on oral health, the respondents were asked a number of questions related to smoking habits, chewing pan with tobacco and drinking alcohol. The respondents were only from the 35-44 year and 65-74 year age groups as these questions were considered to be most relevant for them. Tables 5.6.4 and 5.6.5 present the findings on these questions.

5.6.4 35-44 year olds

About 16 percent of respondents 30 per cent of males and 2 per cent of females & more in rural reported smoking tobacco (Table 5.6.4).

As regard nature of smoking about 48 percent, more males & more in rural, had the habit of smoking Bidis. This followed by another 40 percent of respondents more females in rural & more males in urban reported smoking cigarettes. Other 7 percent more females & more in rural had the habit of smoking Hookah. It was surprising to find that 9 percent, all females & in urban area were smoking chillum.

In regions, 42 per cent only males comparatively higher among regions, in the Hills & Coastal Region reported the habit of smoking tobacco. Among regions, Bidi smoking was common in the S. Region (74 per cent) while cigarette smoking was more common in the Hills & Central Region (35 per cent).

When asked about frequency of smoking, about 81 percent of the respondents said they did so less than 10 times in a day (78 per cent in rural areas and 90 per cent in urban areas). Among regions, 86 per cent of the respondents all males in the Hills & Central Region reported smoking less than 10 times in a day.

About 19 percent of respondents, more males & more in rural area had the habit of chewing pan/ pan masala with tobacco Around 44 per cent of such respondents said they had been doing so for less than 5 years (58 per cent in urban areas and 41 per cent in rural areas) while 60 per cent said they did so less than 5 times in a day (58 per cent in rural areas and 73 per cent in urban area). Among regions, 33 per cent, males & 28 percent females respondents in the N. Dry Region reported chewing pan/pan masala with tobacco wherein most of them (37 per cent) said they had the habit for the last 5-10 years while 40 per cent said they did so less than 5 times a day.

13 percent of respondents, about 18 percent males & 8 percent females reported taking alcohol. Alcohol consumption was more in rural areas than in urban areas and among males. Most of them (61 per cent) consumed alcohol three times a week. In regions, 45 per cent of only male respondents, comparatively highest in the Hills & Coastal Region were consuming alcohol, with most of them consuming it occasionally.

Table 5. 6. 4 Percent 35-44 year olds by reported smoking, chewing pan & pan masala with tobacco and alcohol taking habits, sex & geographical area.

AGE: 35-44 yrs **STATE: Karnataka**

Tobacco Smoking or Chewing with Pan masala and Alcohol taking habits		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Smoking Habits	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
Subjects smoking tobacco		16.1	35.8	37.3	42.4	34.2	21.5	30.0	5.4	0.5	0.7	0.0	3.0	0.6	2.2	16.1
2 Nature of Smoking	n=	25	61	54	66	160	46	206	8	1	1	0	9	1	10	216
Chillum		0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.5	0.0	0.0	0.0	0.0	100.0	8.7	4.4
Hookah		8.2	1.3	2.0	0.0	3.3	0.0	2.5	12.8	0.0	0.0	0.0	12.7	0.0	11.5	7.0
Cigars		3.4	0.0	0.0	1.6	0.6	2.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6
Cigarettes		15.7	32.2	24.0	35.2	18.6	58.9	28.1	51.2	100.0	0.0	0.0	57.4	0.0	52.4	40.3
Bidis		72.7	66.5	74.0	63.2	77.5	38.3	68.3	25.6	0.0	100.0	0.0	29.9	0.0	27.3	47.8
3 Number of times Smoking in a day																
< 10 times		64.4	56.2	50	86.2	61.3	79.4	65.5	100	100	0.0	0.0	95.4	100	95.8	80.7
10-20 times		27.3	22.6	29.6	7.4	21.8	15.0	20.2	0.0	0.0	100.0	0.0	4.6	0.0	4.2	12.2
20 + times		8.2	21.3	20.4	6.4	16.9	5.5	14.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.1
4 Chewing pan/pan masala habits	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
Chew pan or pan masala with tobacco		33.2	21.1	2.2	14.4	24.6	16.7	22.0	27.7	18.5	3.4	11.4	24.2	6.9	18.5	20.3
5 Number of years of chewing pan or pan masala with Tobacco	n=	52	33	4	22	83	28	111	41	35	5	20	88	13	101	212
Less than 5 years		29.2	59.2	43.8	72.6	39.9	53.9	43.4	38.8	46.2	56.9	60.4	41.8	62.7	44.4	43.9
5 - 10 years		37.7	29.5	21.9	27.4	33.7	34.1	33.8	33.9	23.0	21.6	23.9	29.5	25.9	29.0	31.4
> 10 years		33.2	11.3	34.3	0.0	26.4	12.0	22.8	27.3	30.8	21.6	15.7	28.7	11.4	26.6	24.7
6 Number of times of chewing tobacco in a day																
Less than 5 times		40.0	70.4	56.2	77.4	51.9	58.6	53.6	65.7	66.8	56.9	75.0	64.2	87.0	67.0	60.3
5 - 10 times		36.4	18.2	21.9	22.6	30.2	27.0	29.4	24.4	10.2	21.6	25.0	21.5	13.0	20.4	24.9
> 10 times		23.6	11.4	21.9	0.0	18.0	14.4	17.1	9.9	23.0	21.6	0.0	14.4	0.0	12.6	14.9
7 Alcohol consumption habits	n=	161	157	154	157	422	207	629	155	157	157	180	432	217	649	1278
Consuming alcohol		13.7	18.6	11.1	41.7	24.6	12.7	20.7	4.0	0.0	0.7	0.6	2.2	0.6	1.7	11.2
8 Frequency of alcohol consumption	n=	21	32	15	65	106	27	133	6	0	1	1	7	1	8	141
Daily		18.5	10.2	26.7	19.9	18.1	15.0	17.5	0.0	0.0	0.0	100.0	9.5	0.0	8.4	13.0
3 times a week		62.1	54.0	26.7	34.9	45.0	50.5	46.1	82.8	0.0	100.0	0.0	73.7	100.0	76.6	61.4
Occasionally		19.4	35.8	46.7	45.2	36.8	34.6	36.4	17.2	0.0	0.0	0.0	16.9	0.0	15.0	25.7

5.6.5 65-74 year olds

About 23 percent of respondents 39 per cent of males and 3 per cent of females in this age group reported smoking tobacco. This habit was more common in rural areas (24 per cent) than in urban area (16 per cent). As regard nature of smoking about 80 per cent smoked Bidis. They were more males and more in rural area. This followed by 13 per cent who had the habit of smoking cigarettes were more males & more in urban areas) while 21 per cent more females & more in rural reported smoking hookah in the state.

As regard regions, there was more smoking Bidis, followed by Cigarettes smoking in each region.

About two-thirds of the smokers said they were smoking less than 10 times in a day (75 per cent in rural areas and 63 per cent in urban areas). Among regions, there was more smoking less than 10 times followed by those smoking 10-20 times & more than 20 times in each region.

About 36 percent of respondents, more females & more in rural reported chewing pan/pan masala with tobacco. About 46 per cent of them said they had been doing this for more than 10 years with 46 per cent saying they did so less than 5 times in a day. Among regions, 40 per cent of the respondents in the N. Dry Region said they had this habit, with 46 per cent of such respondents reported that they had this habit for more than 10 years and 45 per cent said they were chewing pan/pan masala 5-10 times in a day.

About 14 percent of respondents more males & more in rural reported consuming alcohol. Most of them 45 percent consumed alcohol occasionally. Among regions, 38 per cent of the respondents all males in the Hills & Coastal Region reported consuming alcohol, with 58 per cent of them saying they did so occasionally.

TOBACCO SMOKING AND CHEWING HABITS ACROSS AGE GROUPS (SUMMING UP)

1. About 30-39 per cent more males and more in rural, across ages had the habit of smoking tobacco. More than two thirds of them, more males and more in rural areas reported smoking Bidis. This was followed by those smoking cigarettes living in the urban areas. Nearly two third (64 percent) of the smokers, across both sexes and place of residence reported smoking less than 10 times in a day. These were more in the Hills & Coastal Region.

2. About 18-39 per cent, across age groups, both sexes and places of residence reported chewing pan or pan masala with tobacco. Around 43 per cent of them in 35-44 year age group said that they were chewing for less than 5 years, while 44 per cent of chewers in 65-74 years age group had this habit for more than 10 years. Most of them were chewing less than 5 times in a day.

3. About 20 per cent, across all ages, more males and more in rural areas reported consuming alcohol 3 times a week. About 41 per cent of subjects in the Hills & Coastal Region said that they were consuming alcohol occasionally.

Table 5. 6. 5 Percent 65-74 year olds by reported smoking, chewing pan & pan masala with tobacco and alcohol taking habits, sex & geographical area.

AGE: 65-74 yrs **STATE: Karnataka**

Tobacco Smoking or Chewing with Pan masala and Alcohol taking habits		MALES							FEMALES							STATE TOTAL
		REGIONS				STATE			REGIONS				STATE			
		1	2	3	4	R	U	T	1	2	3	4	R	U	T	
1 Smoking Habits	**n=**	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
Subjects smoking tobacco		31.1	42.6	46.5	44	44	29.2	39.2	4.8	1.9	0.5	1.6	3.2	2	2.8	**21.0**
2 Nature of Smoking	**n=**	**48**	**69**	**68**	**70**	**196**	**59**	**255**	**7**	**3**	**1**	**3**	**9**	**5**	**14**	**269**
Chillum		1.8	1.1	0.0	0.0	0.5	2.1	0.8	0.0	0.0	0.0	33.3	0.0	16.5	3.9	**2.4**
Hookah		6.4	0.0	1.6	1.5	3.4	0.0	2.6	57.1	0.0	0.0	0.0	49.5	0.0	37.8	**20.2**
Cigars		1.8	1.1	0.0	1.5	0.9	2.1	1.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	**0.6**
Cigarettes		6.0	13.5	7.2	27.7	10.0	24.8	13.6	0.0	0.0	100.0	33.3	0.0	26.2	6.2	**9.9**
Bidis		84.0	84.2	91.2	69.2	85.2	71.1	81.8	42.9	100.0	0.0	33.3	50.5	57.3	52.1	**67.0**
3 Number of times Smoking in a day																
< 10 times		75.1	55.1	41.4	76.4	63.4	66.1	64.1	85.7	49.6	100.0	100.0	87.6	59.2	80.9	**72.5**
10-20 times		16.7	29.2	34.0	13.7	22.9	21.4	22.5	14.3	0.0	0.0	0.0	12.4	0.0	9.4	**16.0**
20 + times		8.2	15.7	24.6	10.0	13.7	12.5	13.4	0.0	50.4	0.0	0.0	0.0	40.8	9.7	**11.6**
4 Chewing pan/pan masala habits	**n=**	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
Chew pan or pan masala with tobacco		39.5	16.6	3.3	23.6	32.5	10.4	25.3	41.0	44.4	15.3	40.9	46.5	23.9	39.0	**32.2**
5 Number of years of chewing pan or pan masala with Tobacco	**n=**	**61**	**33**	**6**	**37**	**114**	**23**	**137**	**62**	**75**	**22**	**63**	**181**	**41**	**222**	**359**
Less than 5 years		19.3	14.3	71.9	52.6	24.4	35.1	25.8	19.7	9.8	6.2	43.9	23.8	12.2	21.4	**23.6**
5 - 10 years		33.8	28.5	0.0	23.7	28.9	38.2	30.1	35.2	35.9	24.3	28.4	31.5	40.1	33.2	**31.7**
> 10 years		46.9	57.1	50.0	23.7	47.2	26.7	44.4	45.2	54.3	69.5	27.7	44.8	47.8	45.4	**44.9**
6 Number of times of chewing tobacco in a day																
Less than 5 times		37.8	37.2	121.9	57.7	43.3	41.9	43.1	52.9	29.3	42.0	67.0	50.3	38.5	47.9	**45.5**
5 - 10 times		45.3	31.4	0.0	28.7	37.2	47.1	38.5	38.8	36.9	37.2	24.8	34.5	36.4	34.9	**36.7**
> 10 times		16.8	31.5	0.0	13.6	19.9	10.9	18.7	8.3	33.7	20.8	8.2	15.1	25.2	17.2	**18.0**
7 Alcohol consumption habits	**n=**	**160**	**157**	**155**	**160**	**427**	**205**	**632**	**156**	**157**	**154**	**161**	**416**	**212**	**628**	**1260**
Consuming alcohol		16.9	25.8	6.5	38.7	24.9	18.4	22.8	1.9	1.9	0.0	7.7	3.4	2.0	2.9	**12.9**
8 Frequency of alcohol consumption	**n=**	**26**	**42**	**10**	**62**	**103**	**37**	**140**	**3**	**3**	**0**	**12**	**14**	**4**	**18**	**158**
Daily		42.5	22.2	29.6	16.5	29.7	16.7	26.3	35.5	0.0	0.0	17.3	24.4	0.0	18.8	**22.6**
3 times a week		33.9	31.5	33.6	25.0	27.3	36.7	29.8	64.5	75.2	0.0	8.6	24.2	68.2	34.3	**32.1**
Occasionally		23.6	46.3	36.8	58.4	43.0	46.5	43.9	0.0	24.8	0.0	74.1	51.4	31.8	46.9	**45.4**

CHAPTER VI
ORAL HEALTH STATUS

6.0 CLINICAL FINDINGS

The clinical findings are presented under the following broad heads:

1. Dental Caries status and Treatment Need
2. Periodontal Disease status
3. Malocclusion status
4. Oral Cancers and other oral mucosal lesions
5. Dental Fluorosis status
6. Other conditions:

   Extra Oral Lesions; TMJ Assessment; Enamel Opacities and Hypoplasia; Prosthetic Status and Need; and Community need for immediate Care and Referrals.

6.1 DENTAL CARIES STATUS

This section presents a review of data for both coronal (crown) caries and root caries. The coronal caries is of interest in all index age groups and reported using a) the conventional dmft/ DMFT Index for primary and permanent teeth and b) the Significant Caries Index (SIC). The Significant Caries Index (SIC) helps identify the one third of the population with the highest caries (mean DMFT value) and the mean DMFT for this group. The root caries develops in the higher age groups and is therefore assessed for the age groups of 35-44 and 65-74 years subjects; its greatest significance lies in the aging population in the 50-60 years or higher age groups.

6.1.1 Coronal caries

Table 6.01 and Fig. 6.01 present the prevalence proportion of subjects by age and sex who were caries-free and those with caries experience using a range of dmft/DMFT values. The range of values has been grouped in such a way as to provide some indication of the proportion of dentition affected with caries out of the normally present (28 or 32) in an average mouth.

Table 6.02 and Fig. 6.02 present the mean number of teeth decayed, missing and filled (mean dmft and mean DMFT) in a surveyed population and includes the Significant Caries (SiC) Index. The Table also gives the mean number of teeth present in the mouth and the per cent subjects who were edentulous

Table 6.03 presents the breakup of the per cent subjects with missing teeth, due to caries and due to other reasons. This is presented for age groups 35-44 and 65-74 years.

The prevalence percentage of caries experience in subjects aged 5 years (primary teeth) was 40.5 per cent in the state. Of these, the highest number, 19.5 per cent had experienced caries in 1-3 teeth (dmft value 1-3). The next highest proportion number of subjects (9.1 per cent) had experienced caries in more than one quarter but not more than 50 per cent of their teeth (dmft

Table 6.01. Percent subjects with caries experience and with dmft/ DMFT values by age, sex and geographical area. State : Karnataka

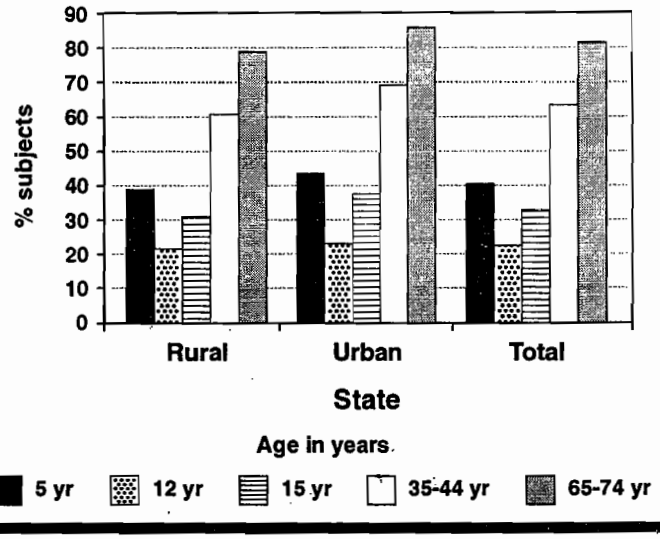
Decayed, Missing, Filled Teeth		5 years			Decayed, Missing, Filled Teeth		12 years			15 years			35-44 years			65-74 years		
		M	F	T			M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	163	152	315	**Region 1**	n=	157	161	318	160	157	317	161	155	316	160	156	316
With caries		33.7	27.6	30.7	With caries		29.9	36.6	33.3	48.1	40.8	44.5	62.1	71.0	66.6	87.5	87.2	87.4
dmft value 1-3		23.9	17.8	20.9	DMFT value 1-3		16.6	11.8	14.2	31.3	24.8	28.1	36.0	38.1	37.1	8.8	15.4	12.1
dmft value 4-5		6.1	6.6	6.4	DMFT level 4-8		0.6	3.1	1.9	13.8	14.0	13.9	21.7	24.5	23.1	26.3	27.6	27.0
dmft value 6-10		2.5	2.6	2.6	DMFT value 9-16		7.6	16.1	11.9	3.1	1.9	2.5	4.3	7.1	5.7	25.6	19.9	22.8
dmft value 11-15		0.6	0.7	0.7	DMFT value 17-24		2.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	10.0	5.8	7.9
dmft value 16 or more		0.6	0.0	0.3	DMFT value 25-28		2.5	3.1	2.8	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.3	1.9
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.7	14.4	17.3	15.9
Region 2	n=	157	156	313	**Region 2**	n=	157	158	315	157	157	314	157	157	314	157	157	314
With caries		32.5	35.9	34.2	With caries		13.4	10.8	12.1	22.3	22.3	22.3	47.8	45.2	46.5	73.9	66.2	70.1
dmft value 1-3		21.0	20.5	20.8	DMFT value 1-3		3.2	4.4	3.8	12.7	17.8	15.3	31.8	26.8	29.3	20.4	24.2	22.3
dmft value 4-5		6.4	9.6	8.0	DMFT level 4-8		0.0	0.0	0.0	7.0	1.9	4.5	12.1	15.3	13.7	17.8	10.8	14.3
dmft value 6-10		4.5	4.5	4.5	DMFT value 9-16		8.3	5.1	6.7	1.9	2.5	2.2	3.8	1.3	2.6	9.6	10.2	9.9
dmft value 11-15		0.6	1.3	1.0	DMFT value 17-24		0.0	0.0	0.0	0.6	0.0	0.3	0.0	1.3	0.7	9.6	8.3	9.0
dmft value 16 or more		0.0	0.0	0.0	DMFT value 25-28		1.9	1.3	1.6	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.5	4.5
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3	12.1	8.3	10.2
Region 3	n=	153	151	304	**Region 3**	n=	153	155	308	151	156	307	154	157	311	155	154	309
With caries		34.2	38.8	36.5	With caries		19.0	22.6	20.8	27.8	36.5	32.2	61.0	71.3	66.2	84.5	80.5	82.5
dmft value 1-3		16.8	16.4	16.6	DMFT value 1-3		5.9	7.1	6.5	15.9	21.8	18.9	31.8	31.8	31.8	14.2	15.6	14.9
dmft value 4-5		8.4	9.2	8.8	DMFT level 4-8		0.7	0.0	0.4	5.3	10.3	7.8	22.1	26.1	24.1	22.6	16.2	19.4
dmft value 6-10		5.2	9.2	7.2	DMFT value 9-16		7.2	11.6	9.4	4.0	3.8	3.9	5.2	12.1	8.7	13.5	15.6	14.6
dmft value 11-15		3.2	2.6	2.9	DMFT value 17-24		2.6	0.6	1.6	2.6	0.6	1.6	1.3	1.3	1.3	12.3	11.7	12.0
dmft value 16 or more		0.6	1.3	1.0	DMFT value 25-28		2.6	3.2	2.9	0.0	0.0	0.0	0.6	0.0	0.3	5.2	7.1	6.2
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	16.8	14.3	15.6
Region 4	n=	162	152	314	**Region 4**	n=	170	161	331	163	156	319	157	180	337	160	162	322
With caries		59.0	60.6	59.8	With caries		23.5	21.7	22.6	30.1	36.5	33.3	66.9	78.9	72.9	86.9	86.4	86.7
dmft value 1-3		21.1	18.1	19.6	DMFT value 1-3		13.5	9.3	11.4	19.0	20.5	19.8	30.6	30.0	30.3	14.4	14.8	14.6
dmft value 4-5		6.6	13.5	10.1	DMFT level 4-8		1.2	1.9	1.6	8.0	12.8	10.4	22.3	26.1	24.2	18.1	19.8	19.0
dmft value 6-10		21.1	22.6	21.9	DMFT value 9-16		7.1	8.1	7.6	2.5	1.9	2.2	12.1	18.9	15.5	20.6	14.8	17.7
dmft value 11-15		6.0	4.5	5.3	DMFT value 17-24		0.0	1.2	0.6	0.6	0.6	0.6	1.3	2.2	1.8	12.5	14.8	13.7
dmft value 16 or more		4.2	1.9	3.1	DMFT value 25-28		1.8	1.2	1.5	0.0	0.6	0.3	0.6	0.6	0.6	8.8	7.4	8.1
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.6	12.5	14.8	13.7
State Rural	n=	425	409	834	**State Rural**	n=	427	423	850	420	418	838	422	432	854	427	417	844
With caries		38.2	39.4	38.8	With caries		21.1	22.7	21.9	30.5	31.1	30.8	55.9	64.8	60.4	82.0	76.7	79.4
dmft value 1-3		20.6	18.2	19.4	DMFT value 1-3		10.5	8.3	9.4	20.7	19.4	20.1	33.4	28.2	30.8	13.1	17.3	15.2
dmft value 4-5		6.3	9.2	7.8	DMFT level 4-8		0.7	0.9	0.8	7.1	9.6	8.4	16.4	25.2	20.8	21.5	15.6	18.6
dmft value 6-10		7.7	10.0	8.9	DMFT value 9-16		7.0	11.3	9.2	2.4	1.9	2.2	5.2	9.3	7.3	15.5	15.6	15.6
dmft value 11-15		1.9	1.0	1.5	DMFT value 17-24		0.9	0.7	0.8	0.2	0.0	0.1	0.5	1.4	1.0	13.1	10.6	11.9
dmft value 16 or more		1.6	1.0	1.3	DMFT value 25-28		1.9	1.4	1.7	0.0	0.2	0.1	0.5	0.2	0.4	5.4	4.6	5.0
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.3	13.3	13.2	13.3
State Urban	n=	210	202	412	**State Urban**	n=	210	212	422	211	208	419	207	217	424	205	212	417
With caries		43.9	43.6	43.8	With caries		22.4	23.6	23.0	35.5	39.9	37.7	66.7	71.4	69.1	85.9	86.8	86.4
dmft value 1-3		21.0	18.1	19.6	DMFT value 1-3		8.6	8.0	8.3	18.0	25.0	21.5	30.9	38.2	34.6	17.1	17.9	17.5
dmft value 4-5		7.9	10.8	9.4	DMFT level 4-8		0.5	1.9	1.2	11.4	10.1	10.8	26.1	18.9	22.5	20.5	24.5	22.5
dmft value 6-10		9.8	9.3	9.6	DMFT value 9-16		8.6	8.0	8.3	3.8	3.8	3.8	8.7	12.0	10.4	21.5	14.2	17.9
dmft value 11-15		4.2	4.9	4.6	DMFT value 17-24		1.9	1.9	1.9	2.4	1.0	1.7	1.0	0.9	1.0	6.8	9.4	8.1
dmft value 16 or more		0.9	0.5	0.7	DMFT value 25-28		2.9	3.8	3.4	0.0	0.0	0.0	0.0	0.0	0.0	4.9	6.1	5.5
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.7	15.1	14.6	14.9
State Total	n=	635	611	1246	**State Total**	n=	637	635	1272	631	626	1257	629	649	1278	632	629	1261
With caries		40.1	40.8	40.5	With caries		21.5	23.0	22.3	32.2	34.0	33.1	59.5	67.0	63.3	83.2	80.1	81.7
dmft value 1-3		20.7	18.2	19.5	DMFT value 1-3		9.9	8.2	9.1	19.8	21.2	20.5	32.6	31.6	32.1	14.4	17.5	16.0
dmft value 4-5		6.9	9.8	8.4	DMFT level 4-8		0.6	1.3	1.0	8.6	9.7	9.2	19.6	23.1	21.4	21.2	18.6	19.9
dmft value 6-10		8.4	9.8	9.1	DMFT value 9-16		7.5	10.2	8.9	2.9	2.6	2.8	6.4	10.2	8.3	17.4	15.1	16.3
dmft value 11-15		2.7	2.3	2.5	DMFT value 17-24		1.3	1.1	1.2	1.0	0.3	0.7	0.6	1.2	0.9	11.1	10.2	10.7
dmft value 16 or more		1.4	0.8	1.1	DMFT value 25-28		2.2	2.2	2.2	0.0	0.2	0.1	0.3	0.2	0.3	5.2	5.1	5.2
					DMFT value 29 or more		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.4	13.9	13.7	13.8

Note: The categories of DMFT values of 4-7, 8-14, 15-21 and 22-28 have been computed and apply to subjects aged 12 and 15 years only. In age groups 35-44 yr and 65-74 yr, the 'M' (Missing) component includes both missing due to caries and missing due to other reasons. Associated Tables :6.02 and 6.03.

value 6-10). The dmft value 4-5 was the third most prevalent with 8.4 per cent subjects affected. Caries experience was higher in urban (43.8 per cent) compared with rural (38.8 per cent) areas. The pattern of distribution by dmft values was similar in urban and rural areas. There was no major differential between male and female subjects. While most regions had a caries prevalence below state average, Kodagu Region showed the highest prevalence (59.8 per cent).

The proportion of subjects in the state with caries experience (permanent teeth) having one or more Decayed, Missing or Filled teeth (DMFT>0) was 22.3 per cent (12 years); 33.1 per cent (15 years) The caries experience was 63.3 per cent in subjects aged 35-44 years while it peaked at 81.7 per cent in 65-74 year old subjects. The DMFT value of 1-3 teeth was most prevalent in the state except in 65-74 year age group where DMFT value 4-8 was higher. Almost 30 per cent subjects had experienced caries in more than 50 per cent of their teeth in subjects in the highest age group (65-74 years) while this figure was very low or even negligible for other age groups. However, the majority of subjects in all age groups had experienced caries in upto 50 per cent of their teeth.

Fig 6.01. Percent subjects with caries experience in Karnataka



More females than males appeared to have caries in the state except in the 65-74 year age group. Caries was more prevalent in urban than in rural areas. There were no major regional variations.

About 10 per cent of the subjects across both sexes in the age group of 65-74 year age group were edentulous or without natural teeth. Overall, the number of teeth present in individuals surveyed decreased as age advanced (Table 6.02). While almost all teeth were present in 5, 12 and 15 years of age. The mean number of teeth present at 35-44 yaers was 30.8 (an average loss of 1.2 teeth) but this figure was 22.4 (loss of 9.6 teeth) in the 65-74 years age- group. This indicates a cumulative tooth mortality which may be due to caries, periodontal reasons, orthodontic reasons or other causes as age advances.

In the 5 year age- group, where only primary teeth are present, the mean dmft value in the state in males and females was 1.7. The decayed teeth (dt) component contributed nearly to the whole of dmft value in this age group (Table 6.02 and Fig. 6.02). The mean dmft in 5 year olds was marginally higher in urban areas compared with rural areas. There were notable differentials between regions. Kodagu District had higher mean dmft in the state. The gender related differentials were not marked.

The mean DMFT was 2.0 in 12 year olds but dropped to 1.3 in 15 year old subjects. It rose to 3.0 in 35-44 year old subjects and was highest (11) in the highest age group of 65-74 years. While the decayed teeth (DT) component contributed almost wholly to the DMFT in 12 and 15 year old subjects, it was the Missing teeth component (MT) which contributed mainly to the DMFT in 65-74 year old subjects. In all age groups except the highest age group of 65-74 years, almost all teeth

Table 6.02 Mean number of teeth decayed, missng, filled by age, sex and geographical area. **State : Karnataka**

Decayed, Missing, Filled Teeth		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	163	152	315	157	161	318	159	157	316	161	155	316	158	154	312
Mean no. of teeth present (mnt/MNT)		20.0	20.0	20.0	28.0	28.0	28.0	28.0	27.9	28.0	31.2	30.7	31.0	21.7	22.0	21.9
Mean dmft and Mean DMFT		1.0	0.8	0.9	2.2	3.6	2.9	1.5	1.3	1.4	2.3	3.2	2.8	12.0	11.5	11.8
Mean no. of Decayed teeth (dt/DT)		1.0	0.8	0.9	2.1	3.5	2.8	1.4	1.2	1.3	1.4	1.8	1.6	1.6	1.4	1.5
Mean no. of Missing teeth (mt/MT)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.8	1.3	1.1	10.3	10.0	10.2
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.1
SIC Index		3.1	2.6	2.9	6.7	10.3	8.5	4.0	3.7	3.9	5.4	7.4	6.4	24.6	24.7	24.7
No. of subjects edentulous		0	0	0	0	0	0	0	0	0	0	2	2	19	23	42
Region 2	n=	157	156	313	157	158	315	156	156	312	157	157	314	157	156	313
Mean no. of teeth present (mnt/MNT)		20.0	20.0	20.0	28.0	28.0	28.0	27.9	28.0	28.0	31.3	31.1	31.2	23.3	25.7	24.5
Mean dmft and Mean DMFT		1.1	1.3	1.2	1.4	1.1	1.3	0.9	0.8	0.9	1.8	2.0	1.9	9.2	7.8	8.5
Mean no. of Decayed teeth (dt/DT)		1.1	1.3	1.2	1.4	1.1	1.3	0.9	0.8	0.9	1.1	1.1	1.1	0.5	1.5	1.0
Mean no. of Missing teeth (mt/MT)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.9	0.8	8.7	6.3	7.5
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0
SIC Index		3.3	3.8	3.6	4.5	3.0	3.8	2.5	2.2	2.4	4.7	5.3	5.0	23.7	20.8	22.3
No. of subjects edentulous		0	0	0	0	0	0	0	0	0	0	0	0	14	7	21
Region 3	n=	153	151	304	153	155	308	151	156	307	152	156	308	152	149	301
Mean no. of teeth present (mnt/MNT)		19.9	19.7	19.8	27.8	27.9	27.9	27.9	28.0	28.0	30.9	31.0	31.0	21.2	22.5	21.9
Mean dmft and Mean DMFT		1.5	2.1	1.8	2.0	2.4	2.2	1.4	1.3	1.4	2.8	3.5	3.2	12.3	11.4	11.9
Mean no. of Decayed teeth (dt/DT)		1.5	1.7	1.6	1.9	2.3	2.1	1.3	1.3	1.3	1.7	2.4	2.1	1.6	1.9	1.8
Mean no. of Missing teeth (mt/MT)		0.0	0.3	0.2	0.1	0.1	0.1	0.0	0.0	0.0	1.1	1.0	1.1	10.8	9.5	10.2
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
SIC Index		4.6	5.9	5.3	6.3	7.2	6.8	4.4	4.2	4.3	7.4	8.3	7.9	27.4	26.5	27.0
No. of subjects edentulous		0	1	1	0	0	0	0	0	0	0	0	0	22	15	37
Region 4	n=	162	152	314	170	161	331	161	155	316	153	173	326	158	157	315
Mean no. of teeth present (mnt/MNT)		19.9	19.8	19.9	27.9	27.9	27.9	27.9	27.8	27.9	30.3	29.8	30.1	20.8	20.8	20.8
Mean dmft and Mean DMFT		4.0	3.5	3.8	1.4	1.6	1.5	1.0	1.6	1.3	3.6	5.1	4.4	12.6	12.9	12.8
Mean no. of Decayed teeth (dt/DT)		4.0	3.4	3.7	1.3	1.5	1.4	0.9	1.3	1.1	1.8	2.7	2.3	1.4	1.6	1.5
Mean no. of Missing teeth (mt/MT)		0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	1.7	2.2	2.0	11.2	11.2	11.2
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.2	0.0	0.1	0.1
SIC Index		10.0	8.4	9.2	4.5	5.1	4.8	3.3	4.7	4.0	8.6	11.3	10.0	26.2	26.8	26.5
No. of subjects edentulous		0	0	0	0	0	0	0	0	0	0	0	0	7	15	22
State Rural	n=	425	409	834	427	423	850	417	417	834	418	427	845	421	409	830
Mean no. of teeth present (mnt/MNT)		20.0	19.9	20.0	27.9	28.0	28.0	28.0	27.9	28.0	31.0	30.6	30.8	21.6	22.6	22.1
Mean dmft and Mean DMFT		1.7	1.6	1.7	1.7	2.3	2.0	1.0	1.1	1.1	2.3	3.5	2.9	11.7	10.9	11.3
Mean no. of Decayed teeth (dt/DT)		1.6	1.5	1.6	1.6	2.3	2.0	1.0	1.1	1.1	1.3	2.0	1.7	1.3	1.5	1.4
Mean no. of Missing teeth (mt/MT)		0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	1.0	1.4	1.2	10.4	9.4	9.9
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0
SIC Index		5.3	5.3	5.3	4.9	6.0	5.5	2.9	3.3	3.1	6.0	8.3	7.2	25.7	24.8	25.3
No. of subjects edentulous		0	1	1	0	0	0	0	0	0	0	2	2	38	36	74
State Urban	n=	210	202	412	210	212	422	210	207	417	205	214	419	204	207	411
Mean no. of teeth present (mnt/MNT)		20.0	19.9	20.0	27.9	27.9	27.9	27.9	27.9	27.9	31.0	30.6	30.8	22.5	23.3	22.9
Mean dmft and Mean DMFT		1.9	1.9	1.9	1.9	2.3	2.1	1.6	1.4	1.5	2.9	3.1	3.0	10.6	10.3	10.5
Mean no. of Decayed teeth (dt/DT)		1.8	1.8	1.8	1.9	2.2	2.1	1.5	1.2	1.4	1.7	1.6	1.7	1.1	1.5	1.3
Mean no. of Missing teeth (mt/MT)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	1.0	1.4	1.2	9.5	8.7	9.1
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1
SIC Index		6.1	6.0	6.1	6.6	7.3	7.0	5.1	4.6	4.9	7.5	8.8	8.2	25.3	25.7	25.5
No. of subjects edentulous		0	0	0	0	0	0	0	0	0	0	0	0	24	24	48
State Total	n=	635	611	1246	637	635	1272	627	624	1251	623	641	1264	625	616	1241
Mean no. of teeth present (mnt/MNT)		20.0	19.9	20.0	27.9	28.0	28.0	27.9	27.9	27.9	31.0	30.6	30.8	22.0	22.8	22.4
Mean dmft and Mean DMFT		1.7	1.7	1.7	1.7	2.3	2.0	1.2	1.3	1.3	2.5	3.4	3.0	11.3	10.7	11.0
Mean no. of Decayed teeth (dt/DT)		1.7	1.6	1.7	1.6	2.3	2.0	1.1	1.2	1.2	1.5	1.9	1.7	1.2	1.5	1.4
Mean no. of Missing teeth (mt/MT)		0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1	1.0	1.4	1.2	10.0	9.2	9.6
Mean no. of Filled teeth (ft/FT)		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
SIC Index		5.6	5.5	5.6	5.5	6.5	6.0	3.7	3.8	3.8	6.6	8.5	7.6	25.5	25.1	25.3
No. of subjects edentulous		0	1	1	0	0	0	0	0	0	0	2	2	62	60	122

Note: In age groups 35-44 yr and 65-74 yr, the 'MT' (Missing Teeth) component includes both missing due to caries and missing due to other reasons. For detailed breakup, please refer to and co-relate with Table No. 6.03. Associated Tables : **6.01 and 6.03.**

missing were due to caries but in 65-74 years, the teeth missing due to reasons other than caries accounted for almost all missing teeth. There were virtually no filled teeth (FT) in the state. The absence of the FT component in a state with so many dental colleges was a bit of a surprise and this component should be re-assessed.

The pattern of distribution of DMFT components was similar in rural and urban areas and there were no marked male female differentials. Differentials between regions were marked. with little urban-rural difference and slightly high in Kodagu District.

The dmft/DMFT value of 1-3 was most prevalent in all the age groups except 65-74 year age group. The pattern of distribution of the DMFT was similar in urban and rural areas and all 4 regions.

The Significant Caries (SiC) Index, which gives the mean of the one third of the subjects with highest dmft/DMFT levels, was applied to all the age groups. It can be seen that the SIC index was consistently high across age groups and was 2 to 3 times higher than the mean dmft/DMFT figures across age groups in the state. It was was highest for the highest age group of 65-74 years (25.3) in the state. The figures were similar in rural and urban areas. Mysore District and Kodagu District were slightly higher than overall figures.

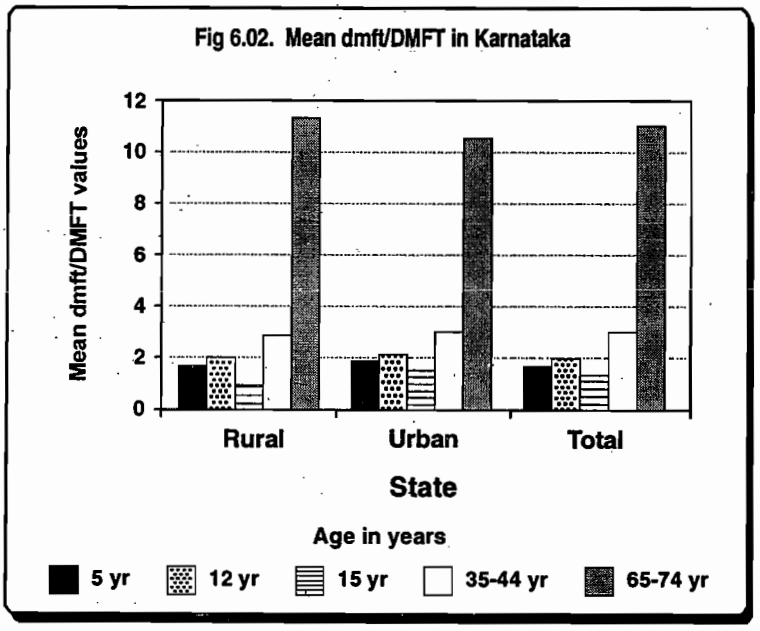


Table 6.03 Mean number of teeth missng due to caries or other reasons by age, sex and geographical area. State : Karnataka

Missing Teeth		12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	157	161	318	159	157	316	161	155	316	158	154	312
Mean no. of teeth missing due to caries		0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.3	0.3	0.6	0.5	0.6
Mean no. of teeth missing due to other reasons		0.0	0.0	0.0	0.0	0.0	0.0	0.5	1.1	0.8	9.7	9.5	9.6
Region 2	n=	157	158	315	156	156	312	157	157	314	157	156	313
Mean no. of teeth missing due to caries		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3	0.3	0.1	0.1	0.1
Mean no. of teeth missing due to other reasons		0.0	0.0	0.0	0.1	0.0	0.1	0.5	0.7	0.6	8.6	6.1	7.4
Region 3	n=	153	155	308	151	156	307	152	156	308	152	149	301
Mean no. of teeth missing due to caries		0.1	0.1	0.1	0.0	0.0	0.0	0.5	0.4	0.5	1.0	1.1	1.1
Mean no. of teeth missing due to other reasons		0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.6	0.6	9.7	8.4	9.1
Region 4		170	161	331	161	155	316	153	173	326	158	157	315
Mean no. of teeth missing due to caries		0.1	0.0	0.1	0.0	0.1	0.1	0.8	0.9	0.9	1.7	1.7	1.7
Mean no. of teeth missing due to other reasons		0.1	0.1	0.1	0.0	0.1	0.1	0.8	1.3	1.1	9.4	9.5	9.5
State Rural	n=	427	423	850	417	417	834	418	427	845	421	409	830
Mean no. of teeth missing due to caries		0.1	0.0	0.1	0.0	0.0	0.0	0.4	0.4	0.4	0.8	0.9	0.9
Mean no. of teeth missing due to other reasons		0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.8	9.5	8.5	9.0
State Urban	n=	210	212	422	210	207	417	205	214	419	204	207	411
Mean no. of teeth missing due to caries		0.0	0.0	0.0	0.0	0.1	0.1	0.3	0.5	0.4	0.6	0.5	0.6
Mean no. of teeth missing due to other reasons		0.0	0.1	0.1	0.1	0.0	0.1	0.7	0.9	0.8	8.9	8.2	8.6
State Total	n=	637	635	1272	627	624	1251	623	641	1264	625	616	1241
Mean no. of teeth missing due to caries		0.0	0.0	0.0	0.0	0.1	0.1	0.4	0.5	0.5	0.8	0.8	0.8
Mean no. of teeth missing due to other reasons		0.0	0.0	0.0	0.0	0.0	0.0	0.6	1.0	0.8	9.3	8.4	8.9

Note: In age groups 35-44 yr and 65-74 yr, the 'M' (Missing) component includes both missing due to caries and missing due to other reasons.
Associated Tables : 6.01 and 6.02.

6.1.2 Root caries

Table 6.04 & Fig. 6.04 present the per cent subjects with root caries and fillings, if any, and the mean number of teeth with root caries and fillings, if any.

Since root caries does not develop in young children, the root caries was recorded in age groups of 35-44 years and 65-74 years.

The prevalence of root caries was 14.2 per cent (in 35-44 years) and 18.2 per cent (65-74 years). However, the mean number of teeth with root caries was less than one tooth in both age groups. The prevalence was much higher in rural areas compared with urban residents. The prevalence of root caries was high in urban than rural areas whereas Mysore District had the highest prevalence of root caries (25.1 per cent). Very few had root fillings (0.3 per cent subjects each in the two age groups surveyed). There were more root fillings in urban (0.7 per cent) than in rural (0.2 per cent) subjects in the 35-44 year age group. In 65-74 years age group in urban areas, no root fillings were recorded although 0.4 per cent subjects in rural area had root fillings.

Fig 6.04. Percent subjects with root caries in Karnataka

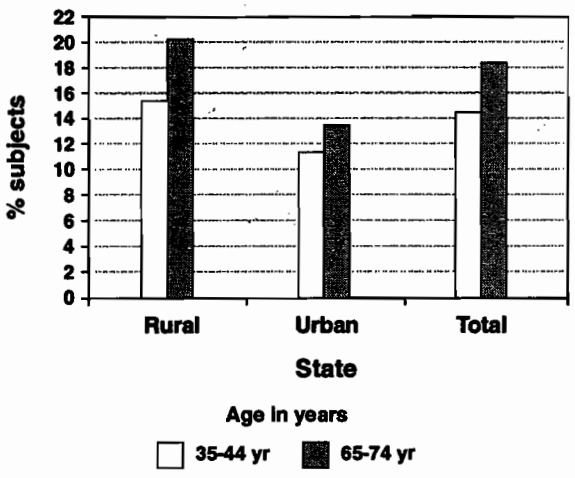


Table 6.04 Percent subjects and mean no. of teeth with root caries and fillings by age, sex and geographical area. State : Karnataka

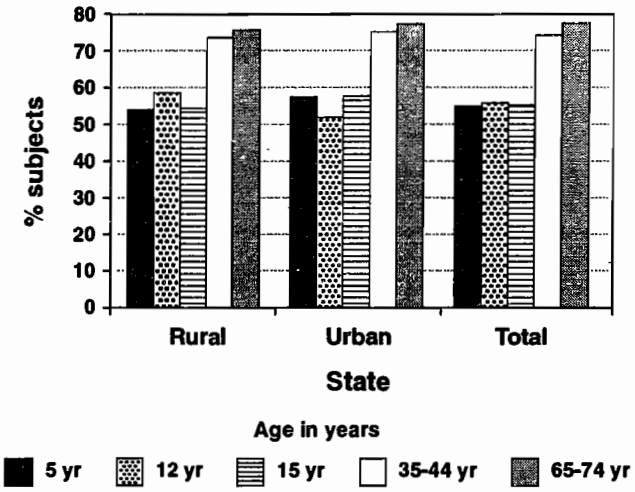
Root Caries		35-44 years			65-74 years		
		M	F	T	M	F	T
Region 1	**n=**	**161**	**155**	***316***	**160**	156	***316***
% Subjects with Root caries		8.5	15.3	***11.9***	15.8	21.6	***18.7***
Mean nos of teeth with Root Caries		0.2	0.3	***0.3***	0.8	0.8	***0.8***
% Subjects with Root fillings		0.5	1.1	***0.8***	0.0	0.0	***0.0***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 2	**n=**	**157**	**157**	***314***	**157**	**157**	***314***
% Subjects with Root caries		9.6	8.1	***8.9***	9.1	10.6	***9.9***
Mean nos of teeth with Root Caries		0.2	0.1	***0.2***	0.2	0.5	***0.4***
% Subjects with Root fillings		0.0	0.0	***0.0***	0.5	0.0	***0.3***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 3	**n=**	**154**	**157**	***311***	**155**	**154**	***309***
% Subjects with Root caries		18.7	30.0	***24.4***	22.7	27.5	***25.1***
Mean nos of teeth with Root Caries		0.5	0.8	***0.7***	1.1	1.1	***1.1***
% Subjects with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 4	**n=**	**157**	**180**	***337***	**160**	**162**	***322***
% Subjects with Root caries		10.2	12.1	***11.2***	19.3	16.1	***17.7***
Mean nos of teeth with Root Caries		0.2	0.3	***0.3***	0.5	0.5	***0.5***
% Subjects with Root fillings		0.0	0.6	***0.3***	0.0	1.3	***0.7***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.1	***0.1***
State Rural	**n=**	**422**	**432**	***854***	**427**	**417**	***844***
% Subjects with Root caries		12.2	19.0	***15.6***	18.4	22.4	***20.4***
Mean nos of teeth with Root Caries		0.2	0.4	***0.3***	0.7	0.8	***0.8***
% Subjects with Root fillings		0.0	0.3	***0.2***	0.2	0.5	***0.4***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Urban	**n=**	**207**	**217**	***424***	**205**	**212**	***417***
% Subjects with Root caries		11.0	11.6	***11.3***	14.1	12.9	***13.5***
Mean nos of teeth with Root Caries		0.3	0.3	***0.3***	0.6	0.5	***0.6***
% Subjects with Root fillings		0.4	0.9	***0.7***	0.0	0.0	***0.0***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Total	**n=**	**629**	**649**	***1278***	**632**	**629**	***1261***
% Subjects with Root caries		11.8	16.6	***14.2***	17.0	19.3	***18.2***
Mean nos of teeth with Root Caries		0.3	0.4	***0.4***	0.7	0.7	***0.7***
% Subjects with Root fillings		0.1	0.4	***0.3***	0.1	0.4	***0.3***
Mean nos of teeth with Root fillings		0.0	0.0	***0.0***	0.0	0.0	***0.0***

6.1.3 Treatment need

Table 6.05 and Fig. 6.05 presents the per cent subjects requiring preventive and treatment care by type of treatment needed and Table 6.06 and Fig. 6.06 presents the mean number of teeth requiring, by type of treatment.

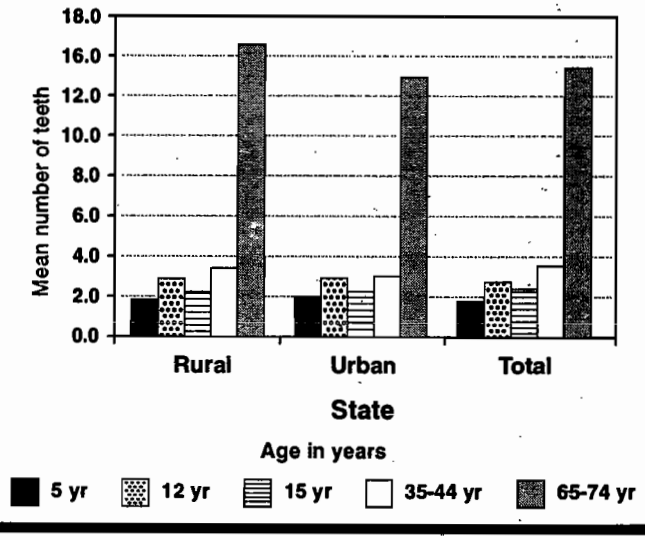
The subjects were clinically assessed for their need for both preventive and treatment care, based on their caries experience and dentition status. Preventive care need included caries arresting care and fissure sealing. Treatment need included the need for one, two or more surface fillings, extractions of teeth, pulp care, crowns and veneers.

Fig 6.05. Percent subjects with treatment need in Karnataka



The 5 year olds had the least treatment need while the need was highest in the 65-74 year age group. The need for filling one or more surfaces was primary need in all the age groups except 65-74 year age group where need for extractions was high. Preventive care and fissure sealants were needed in 10 per cent of 15 years olds and 6 per cent of 12 years old. Pulp-care was needed by 4.0 per cent in 12 years and 4.6 per cent of 15 years age group. There were a significant proportion of subjects in higher age groups 35-44 years and 65-74 years age groups who were indicated for other, but unspecified dental care. There were urban-rural and male-female differences regarding treatment needs. Kodagu District had the highest need ranging from 60 per cent in 5 year old to 92 per cent in 65-74 age group, the type of need followed the overall pattern.

Fig. 6.06. Mean number of teeth with treatment need in Karnataka



The mean number of teeth, which required treatment in the state, was highest in the highest age group of 65-74 years (15.7). The mean number of teeth requiring treatment was lowest in 5 years age group (1.9). The pattern of distribution of treatment need was similar in males and females and urban and rural areas. Kodagu District had a highest treatment need and mean number of teeth needing treatment in 65-74 age group was 18.5.

The type of treatment varied with age. The mean number of teeth needing fillings ranged from 0.7 (65-74 years) to 1.6 (12 years). If need for other but unspecified care was ignored, then the mean number of teeth which needed extraction was highest in 65-74 year age group (5.7).

The mean numbers of teeth needing pulp care, crowns and veneers and preventive care were in the range of 0.1 to 0.3.

Table 6.05 Percent subjects with treatment need by age, sex and geographical area. **State : Karnataka**

Treatment Need		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	163	152	315	157	161	318	160	157	317	161	155	316	160	156	316
Treatment needed		53.7	52.3	53.0	63.9	64.4	64.2	59.8	57.2	58.5	75.2	77.1	76.2	72.8	74.9	73.9
Preventive care & fissure sealant		8.4	8.9	8.7	2.6	5.3	4.0	6.3	6.9	6.6	1.4	0.6	1.0	0.0	0.0	0.0
Filling one or more surfaces		44.3	42.8	43.6	46.2	46.7	46.5	53.3	50.0	51.7	51.4	52.3	51.9	19.4	20.7	20.1
Crown & Veneer		0.0	0.0	0.0	0.7	0.0	0.4	1.5	0.4	1.0	0.7	1.5	1.1	1.1	1.4	1.3
Pulp care		14.4	13.4	13.9	4.6	4.8	4.7	3.8	4.9	4.4	7.9	7.9	7.9	5.9	4.5	5.2
Extraction		11.4	6.0	8.7	22.8	19.6	21.2	3.4	4.2	3.8	23.7	25.7	24.7	34.5	38.4	36.5
Need for other care		1.8	0.4	1.1	5.3	7.3	6.3	3.3	4.8	4.1	28.8	38.5	33.7	60.5	60.3	60.4
Region 2	n=	157	156	313	157	158	315	157	157	314	157	157	314	157	157	314
Treatment needed		58.7	59.9	59.3	49.6	49.9	49.8	53.0	56.8	54.9	70.5	75.0	72.8	78.1	72.2	75.2
Preventive care & fissure sealant		1.4	0.7	1.1	1.6	5.5	3.6	6.0	9.4	7.7	0.5	0.7	0.6	0.5	0.5	0.5
Filling one or more surfaces		55.5	57.4	56.5	41.9	39.7	40.8	43.0	44.5	43.8	56.5	58.9	57.7	33.2	29.9	31.6
Crown & Veneer		1.4	0.0	0.7	0.0	0.0	0.0	0.0	0.7	0.4	2.6	2.5	2.6	1.4	0.5	1.0
Pulp care		2.1	3.7	2.9	2.8	1.4	2.1	4.3	2.4	3.4	5.6	4.1	4.9	2.9	3.8	3.4
Extraction		2.5	3.2	2.9	6.1	4.5	5.3	2.9	2.2	2.6	9.6	10.7	10.2	27.4	30.4	28.9
Need for other care		0.0	0.0	0.0	1.6	2.4	2.0	5.5	5.3	5.4	38.5	43.0	40.8	64.7	57.1	60.9
Region 3	n=	155	152	307	153	155	308	151	156	307	154	157	311	155	154	309
Treatment needed		50.2	44.7	47.5	54.7	57.5	56.1	53.5	57.1	55.3	66.3	74.8	70.6	73.8	73.8	73.8
Preventive care & fissure sealant		0.0	0.9	0.5	4.7	5.9	5.3	12.2	10.2	11.2	0.3	0.4	0.4	0.0	0.0	0.0
Filling one or more surfaces		45.7	39.9	42.8	28.2	26.8	27.5	39.0	40.1	39.6	41.9	44.3	43.1	10.7	12.8	11.8
Crown & Veneer		0.0	0.9	0.5	0.3	0.0	0.2	0.0	0.0	0.0	0.0	1.1	0.6	0.4	0.4	0.4
Pulp care		16.7	11.2	14.0	6.0	4.0	5.0	5.5	4.6	5.1	10.9	9.0	10.0	2.4	1.0	1.7
Extraction		11.9	9.0	10.5	30.4	29.2	29.8	8.1	12.6	10.4	29.7	42.0	35.9	47.9	54.8	51.4
Need for other care		3.0	1.9	2.5	3.5	3.8	3.7	4.1	5.4	4.8	33.7	40.5	37.1	55.6	53.3	54.5
Region 4	n=	166	155	321	170	161	331	163	156	319	157	180	337	160	162	322
Treatment needed		60.1	60.2	60.2	55.3	50.1	52.7	46.0	54.6	50.3	67.5	80.0	73.8	92.7	91.5	92.1
Preventive care & fissure sealant		3.6	2.1	2.9	16.4	16.9	16.7	19.1	23.5	21.3	0.0	1.2	0.6	0.0	0.0	0.0
Filling one or more surfaces		54.7	58.3	56.5	29.3	24.8	27.1	22.9	32.1	27.5	40.5	53.7	47.1	22.8	19.3	21.1
Crown & Veneer		0.0	0.0	0.0	0.0	0.0	0.0	4.0	1.4	2.7	1.4	2.3	1.9	1.2	2.7	2.0
Pulp care		10.2	5.6	7.9	6.1	3.0	4.6	4.0	10.4	7.2	6.8	11.7	9.3	2.7	5.7	4.2
Extraction		9.4	6.6	8.0	16.8	11.0	13.9	5.5	4.2	4.9	22.5	34.3	28.4	62.3	58.0	60.2
Need for other care		1.2	1.1	1.2	3.4	5.1	4.3	6.0	8.1	7.1	44.6	49.2	46.9	79.1	77.8	78.5
State Rural	n=	427	411	838	427	423	850	420	418	838	422	432	854	427	417	844
Treatment needed		54.5	53.0	53.8	59.9	59.4	59.7	53.6	55.0	54.3	70.5	75.7	73.1	76.4	76.6	76.5
Preventive care & fissure sealant		5.7	6.3	6.0	5.5	8.3	6.9	9.7	12.2	11.0	1.0	0.8	0.9	0.0	0.0	0.0
Filling one or more surfaces		47.1	45.6	46.4	41.3	39.9	40.6	42.5	41.2	41.9	45.1	52.6	48.9	21.4	21.1	21.3
Crown & Veneer		0.2	0.2	0.2	0.5	0.0	0.3	1.7	0.6	1.2	1.3	2.0	1.7	1.7	1.8	1.8
Pulp care		12.5	8.8	10.7	4.3	4.1	4.2	4.2	5.6	4.9	8.4	8.8	8.6	5.0	4.5	4.8
Extraction		10.4	6.2	8.3	19.4	16.7	18.1	4.4	5.0	4.7	21.9	27.7	24.8	43.0	46.1	44.6
Need for other care		1.5	0.5	1.0	3.8	4.5	4.2	4.6	4.9	4.8	32.9	38.4	35.7	61.4	59.1	60.3
State Urban	n=	214	204	418	210	212	422	211	208	419	207	217	424	205	212	417
Treatment needed		57.6	58.4	58.0	51.0	51.7	51.4	57.3	59.9	58.6	73.2	77.9	75.6	78.9	74.9	76.9
Preventive care & fissure sealant		1.8	0.0	0.9	2.5	4.3	3.4	6.8	6.9	6.9	0.4	0.4	0.4	0.5	0.5	0.5
Filling one or more surfaces		53.6	56.7	55.2	38.3	36.9	37.6	46.9	50.6	48.8	59.9	55.1	57.5	27.2	25.3	26.3
Crown & Veneer		0.9	0.0	0.5	0.1	0.0	0.1	0.0	0.5	0.3	1.3	1.6	1.5	0.2	0.0	0.1
Pulp care		5.9	8.4	7.2	4.4	1.9	3.2	4.2	3.1	3.7	5.8	4.6	5.2	2.2	3.0	2.6
Extraction		4.6	4.3	4.5	13.5	10.5	12.0	3.6	3.9	3.8	16.2	18.3	17.3	27.0	29.6	28.3
Need for other care		1.0	0.6	0.8	3.2	5.5	4.4	4.3	6.5	5.4	37.7	47.6	42.7	67.8	63.1	65.5
State Total	n=	641	615	1256	637	635	1272	631	626	1257	629	649	1278	632	629	1261
Treatment needed		55.9	55.0	55.5	56.5	57.3	56.9	55.7	57.4	56.6	71.2	76.5	73.9	77.6	76.3	77.0
Preventive care & fissure sealant		4.6	4.3	4.5	4.6	7.4	6.0	9.1	10.8	10.0	0.9	0.7	0.8	0.2	0.2	0.2
Filling one or more surfaces		49.6	49.5	49.6	39.6	39.1	39.4	44.2	44.7	44.5	50.1	53.0	51.6	22.9	22.0	22.5
Crown & Veneer		0.5	0.1	0.3	0.3	0.0	0.2	1.2	0.6	0.9	1.3	1.8	1.6	1.0	1.2	1.1
Pulp care		10.6	8.6	9.6	4.4	3.6	4.0	4.3	4.8	4.6	7.5	7.1	7.3	4.1	3.9	4.0
Extraction		8.7	5.8	7.3	17.6	14.7	16.2	4.1	4.9	4.5	20.2	25.4	22.8	37.8	41.1	39.5
Need for other care		1.4	0.6	1.0	3.5	5.2	4.4	4.7	5.6	5.2	35.3	42.3	38.8	64.0	61.4	62.7

Table 6.06 Mean number of teeth with treatment need by age, sex and geographical area. **State : Karnataka**

Treatment Need		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	163	152	315	157	161	318	159	157	316	161	155	316	158	154	312
Treatment needed		1.4	1.4	**1.4**	1.9	2.2	**2.1**	1.6	1.5	**1.6**	2.3	3.3	**2.8**	14.4	13.2	**13.8**
Preventive care/ fissure sealant		0.5	0.4	**0.5**	0.1	0.2	**0.2**	0.3	0.3	**0.3**	0.1	0.0	**0.1**	0.0	0.0	**0.0**
Filling one or more surfaces		0.9	0.9	**0.9**	1.3	1.3	**1.3**	1.2	0.9	**1.1**	1.3	1.4	**1.4**	0.9	0.8	**0.9**
Crown/ Veneer		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Pulp care		0.0	0.1	**0.1**	0.1	0.1	**0.1**	0.0	0.1	**0.1**	0 1	0.1	**0.1**	0.1	0.1	**0.1**
Extraction		0.0	0.0	**0.0**	0.1	0.0	**0.1**	0.0	0.0	**0.0**	0.2	0.4	**0.3**	3.9	2.9	**3.4**
Need for other care		0.0	0.1	**0.1**	0.3	0.6	**0.5**	0.0	0.2	**0.1**	0.7	1.3	**1.0**	9.4	9.4	**9.4**
Region 2	n=	157	156	313	157	158	315	155	154	309	157	157	314	157	156	313
Treatment needed		1.2	1.4	**1.3**	2.8	2.5	**2.7**	1.5	1.5	**1.5**	2.1	2.7	**2.4**	15.2	15.0	**15.1**
Preventive care/ fissure sealant		0.2	0.0	**0.1**	0.1	0.3	**0.2**	0.4	1.0	**0.7**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Filling one or more surfaces		0.8	1.1	**1.0**	1.5	1.6	**1.6**	0.8	0.4	**0.6**	0.8	0.7	**0.8**	0.1	0.2	**0.2**
Crown/ Veneer		0.1	0.0	**0.1**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.1	0.0	**0.1**	0.0	0.1	**0.1**
Pulp care		0.0	0.1	**0.1**	0.4	0.1	**0.3**	0.1	0.0	**0.1**	0.1	0.1	**0.1**	0.1	0.1	**0.1**
Extraction		0.1	0.2	**0.2**	0.8	0.5	**0.7**	0.1	0.0	**0.1**	0.4	0.9	**0.7**	6.5	8.4	**7.5**
Need for other care		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.2	0.0	**0.1**	0.8	0.9	**0.9**	8.5	6.3	**7.4**
Region 3	n=	153	151	304	153	155	308	151	156	307	153	157	310	152	148	300
Treatment needed		1.6	1.7	**1.7**	2.3	2.2	**2.3**	1.1	1.3	**1.2**	3.6	5.2	**4.4**	18.2	16.9	**17.6**
Preventive care/ fissure sealant		0.0	0.0	**0.0**	0.2	0.3	**0.3**	0.6	0.4	**0.5**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Filling one or more surfaces		1.1	1.2	**1.2**	1.1	0.9	**1.0**	0.4	0.4	**0.4**	1.0	1.4	**1.2**	0.2	0.4	**0.3**
Crown/ Veneer		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.1	**0.1**
Pulp care		0.2	0.1	**0.2**	0.3	0.3	**0.3**	0.1	0.1	**0.1**	0.2	0.2	**0.2**	0.0	0.0	**0.0**
Extraction		0.4	0.3	**0.4**	0.4	0.5	**0.5**	0.1	0.3	**0.2**	1.4	2.7	**2.1**	8.1	7.8	**8.0**
Need for other care		0.0	0.0	**0.0**	0.2	0.2	**0.2**	0.0	0.2	**0.1**	0.9	0.8	**0.9**	9.9	8.6	**9.3**
Region 4	n=	164	152	316	170	161	331	161	155	316	157	179	336	158	157	315
Treatment needed		3.8	3.5	**3.7**	2.1	2.2	**2.2**	1.4	1.9	**1.7**	4.1	6.0	**5.1**	19.2	17.8	**18.5**
Preventive care/ fissure sealant		0.1	0.0	**0.1**	0.5	0.4	**0.5**	0.7	0.6	**0.7**	0.0	0.0	**0.0**	0.0	0:0	**0.0**
Filling one or more surfaces		2.9	3.0	**3.0**	0.9	0.8	**0.9**	0.4	0.9	**0.7**	1.5	1.7	**1.6**	1.4	1.0	**1.2**
Crown/ Veneer		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.1	0.0	**0.1**	0.2	0.1	**0.2**	0.0	0.0	**0.0**
Pulp care		0.3	0.2	**0.3**	0.1	0.1	**0.1**	0.1	0.1	**0.1**	0.1	0.1	**0.1**	0.1	0.1	**0.1**
Extraction		0.4	0.2	**0.3**	0.5	0.6	**0.6**	0.1	0.0	**0.1**	0.8	1.8	**1.3**	7.3	5.2	**6.3**
Need for other care		0.1	0.0	**0.1**	0.1	0.3	**0.2**	0.1	0.2	**0.2**	1.7	2.2	**2.0**	10.4	11.5	**11.0**
State Rural	n=	425	409	834	427	423	850	416	415	831	421	432	853	421	408	829
Treatment needed		1.9	1.9	**1.9**	2.8	3.1	**3.0**	1.8	2.3	**2.1**	2.8	4.3	**3.6**	17.1	15.8	**16.5**
Preventive care/ fissure sealant		0.3	0.2	**0.3**	0.3	0.5	**0.4**	0.7	0.8	**0.8**	0.1	0.0	**0.1**	0.0	0.0	**0.0**
Filling one or more surfaces		1.2	1.4	**1.3**	1.5	1.5	**1.5**	0.8	1.0	**0.9**	1.1	1.4	**1.3**	0.8	0.6	**0.7**
Crown/ Veneer		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.1	0.0	**0.1**	0.1	0.0	**0.1**	0.0	0.1	**0.1**
Pulp care		0.1	0.1	**0.1**	0.3	0.1	**0.2**	0.1	0.1	**0.1**	0.1	0.2	**0.2**	0.1	0.1	**0.1**
Extraction		0.2	0.1	**0.2**	0.5	0.6	**0.6**	0.1	0.1	**0.1**	0.6	1.3	**1.0**	6.7	6.1	**6.4**
Need for other care		0.0	0.1	**0.1**	0.2	0.4	**0.3**	0.1	0.2	**0.2**	1.0	1.4	**1.2**	9.5	8.9	**9.2**
State Urban	n=	212	202	414	210	212	422	210	207	417	207	216	423	204	207	411
Treatment needed		2.0	1.9	**2.0**	2.9	2.8	**2.9**	2.5	2.0	**2.3**	2.7	3.3	**3.0**	14.2	14.0	**14.1**
Preventive care/ fissure sealant		0.1	0.0	**0.1**	0.1	0.3	**0.2**	0.5	0.7	**0.6**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Filling one or more surfaces		1.5	1.6	**1.6**	1.7	1.9	**1.8**	1.7	0.9	**1.3**	1.3	1.0	**1.2**	0.5	0.6	**0.6**
Crown/ Veneer		0.1	0.0	**0.1**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Pulp care		0.1	0.2	**0.2**	0.3	0.2	**0.3**	0.1	0.1	**0.1**	0.1	0.1	**0.1**	0.1	0.1	**0.1**
Extraction		0.2	0.2	**0.2**	0.6	0.3	**0.5**	0.1	0.1	**0.1**	0.4	1.0	**0.7**	4.3	4.6	**4.5**
Need for other care		0.0	0.0	**0.0**	0.1	0.1	**0.1**	0.2	0.1	**0.2**	0.9	1.2	**1.1**	9.3	8.7	**9.0**
State Total	n=	637	611	1248	637	635	1272	626	622	1248	628	648	1276	625	615	1240
Treatment needed		1.9	1.9	**1.9**	2.8	3.0	**2.9**	2.1	2.3	**2.2**	2.8	4.1	**3.5**	16.1	15.2	**15.7**
Preventive care/ fissure sealant		0.2	0.2	**0.2**	0.3	0.4	**0.4**	0.6	0.8	**0.7**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Filling one or more surfaces		1.3	1.4	**1.4**	1.5	1.7	**1.6**	1.1	1.0	**1.1**	1.2	1.3	**1.3**	0.7	0.6	**0.7**
Crown/ Veneer		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.1	0.0	**0.1**	0.0	0.1	**0.1**
Pulp care		0.1	0.1	**0.1**	0.3	0.2	**0.3**	0.1	0.1	**0.1**	0.1	0.1	**0.1**	0.1	0.1	**0.1**
Extraction		0.2	0.1	**0.2**	0.5	0.4	**0.5**	0.1	0.1	**0.1**	0.5	1.3	**0.9**	5.9	5.5	**5.7**
Need for other care		0.0	0.1	**0.1**	0.2	0.4	**0.3**	0.1	0.2	**0.2**	0.9	1.4	**1.2**	9.4	8.9	**9.2**

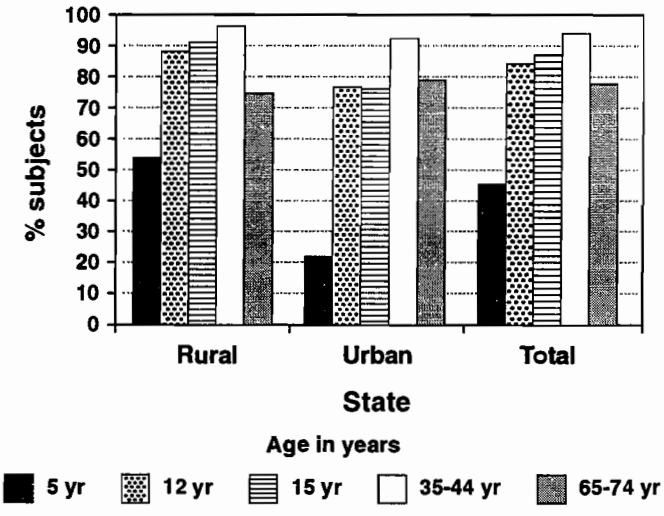
6.2 PERIODONTAL STATUS

6.2.1 Bleeding, calculus and pockets

The periodontal status was assessed using Community Periodontal Index (CPI) with its three indicators of gingival bleeding, calculus and periodontal pockets.

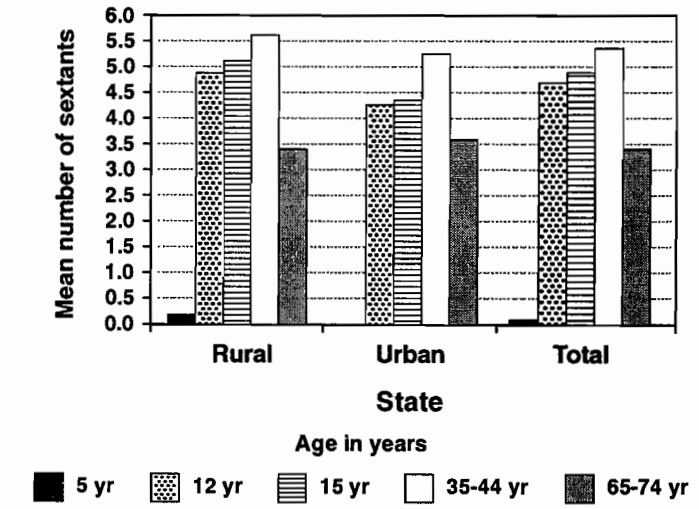
Table 6.07 and Fig. 6.07 present the per cent subjects with their periodontal status (bleeding, calculus and pockets) by level of severity and Table 6.08 and Fig. 6.08 present the mean number of teeth with bleeding, calculus and pockets.

Fig 6.07. Percent subjects with bleeding, calculus & pockets in Karnataka



The prevalence of periodontal disease was highest in 35-44 years age group (about 94.3 per cent) and lowest in 5 years (about 46.5 per cent). Calculus was more than bleeding in subjects aged 15 years and above. The prevalence was more in males. The pattern of periodontal disease was similar in urban and rural areas although more disease was recorded in rural than urban areas.

Fig 6.08. Mean number of sextants with bleeding, calculus and pockets in Karnataka



The mouth is divided into six sextants, three upper and three lower, for the assessment of periodontal status.

The mean number of healthy sextants (i.e., those sextants in the mouth with no bleeding, calculus or pockets) was highest in the lowest age group of 5 years. The mean number of teeth with bleeding (2.4) was highest in 12 years, calculus in 15 years (2.9) and shallow pockets (1.6) in 35-44 years while deep pockets (1.1) and excluded sextants (1.3) were high in 65-74 years age group. It was observed that gingival bleeding was a more prevalent condition in the lower age groups, accumulated calculus became an increasingly high problem as age advanced coupled by shallow deep pockets. Excluded sextants indirectly reflect edentulous ness or teeth indicated for extraction for periodontal reasons. The pattern of disease was similar in male-female and urban rural areas although more disease was recorded in rural than urban areas. Kodagu District had a higher mean number of sextants with periodontal disease (5.1-5.3) while Bangalore District had about 2.5-2.6 in 35-44 year age group.

Table: 6.07 Percent subjects with bleeding, calculus and/ or pockets by age, sex, and geographical area. State : Karnataka

Periodontal Disease		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	20	9	*29*	153	155	*308*	157	156	*313*	161	153	*314*	140	134	*274*
With bleeding,calculus, or pockets		60.2	55.6	*57.9*	88.6	90.4	*89.5*	89.3	88.2	*88.8*	95.3	94.6	*95.0*	90.7	91.4	*91.1*
with bleeding		56.0	55.6	*55.8*	18.0	14.9	*16.5*	12.0	10.3	*11.2*	6.9	3.4	*5.2*	1.9	1.9	*1.9*
with calculus		4.2	0.0	*2.1*	22.1	28.4	*25.3*	24.7	26.6	*25.7*	16.5	19.8	*18.2*	6.9	6.1	*6.5*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	0.7	0.0	*0.4*	11.8	12.0	*11.9*	21.5	24.5	*23.0*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	1.3	2.1	*1.7*	6.7	9.1	*7.9*
with bleeding or higher		56.0	55.6	*55.8*	65.4	60.9	*63.2*	56.4	54.1	*55.3*	27.1	22.5	*24.8*	8.1	12.3	*10.2*
with calculus or higher		4.2	0.0	*2.1*	23.3	29.5	*26.4*	32.3	34.1	*33.2*	46.8	50.3	*48.6*	33.4	28.8	*31.1*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.7	0.0	*0.4*	20.0	19.7	*19.9*	42.4	41.3	*41.9*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	1.3	2.1	*1.7*	6.7	9.1	*7.9*
Region 2	n=	2	5	*7*	156	157	*313*	157	156	*313*	156	157	*313*	126	132	*258*
With bleeding,calculus, or pockets		0.0	0.0	*0.0*	84.1	83.2	*83.7*	87.2	86.6	*86.9*	97.6	91.4	*94.5*	73.3	73.1	*73.2*
with bleeding		0.0	0.0	*0.0*	45.7	44.0	*44.9*	33.2	34.7	*34.0*	3.4	10.5	*7.0*	0.0	1.2	*0.6*
with calculus		0.0	0.0	*0.0*	22.6	27.7	*25.2*	45.0	35.5	*40.3*	51.6	41.8	*46.7*	9.5	15.8	*12.7*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	15.5	15.8	*15.7*	10.1	18.1	*14.1*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	8.7	3.3	*6.0*	39.9	19.9	*29.9*
with bleeding or higher		0.0	0.0	*0.0*	61.5	55.5	*58.5*	42.2	51.1	*46.7*	14.1	20.5	*17.3*	7.8	6.4	*7.1*
with calculus or higher		0.0	0.0	*0.0*	22.6	27.7	*25.2*	45.0	35.5	*40.3*	59.4	50.9	*55.2*	11.9	24.0	*18.0*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	15.5	16.7	*16.1*	13.7	22.8	*18.3*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	8.7	3.3	*6.0*	39.9	19.9	*29.9*
Region 3	n=	1	2	*3*	149	152	*301*	151	156	*307*	152	154	*306*	133	131	*264*
With bleeding,calculus, or pockets		100.0	100.0	*100.0*	86.4	82.7	*84.6*	85.3	86.2	*85.8*	96.3	91.0	*93.7*	58.8	62.8	*60.8*
with bleeding		100.0	39.0	*69.5*	42.5	38.2	*40.4*	23.1	28.7	*25.9*	4.2	6.8	*5.5*	0.0	0.6	*0.3*
with calculus		0.0	0.0	*0.0*	32.9	34.9	*33.9*	50.0	47.9	*49.0*	48.2	46.3	*47.3*	8.7	9.6	*9.2*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	21.6	14.7	*18.2*	17.3	22.9	*20.1*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	3.5	5.4	*4.5*	21.7	16.8	*19.3*
with bleeding or higher		100.0	39.0	*69.5*	53.6	47.9	*50.8*	34.8	37.6	*36.2*	9.2	13.7	*11.5*	2.3	3.8	*3.1*
with calculus or higher		0.0	0.0	*0.0*	32.9	34.9	*33.9*	50.5	48.7	*49.6*	62.1	54.2	*58.2*	15.5	16.1	*15.8*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	21.6	17.7	*19.7*	19.3	26.1	*22.7*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	3.5	5.4	*4.5*	21.7	16.8	*19.3*
Region 4	n=	1	1	*2*	166	155	*321*	161	154	*315*	153	173	*326*	145	142	*287*
With bleeding,calculus, or pockets		0.0	0.0	*0.0*	80.2	76.7	*78.5*	85.5	75.6	*80.6*	94.4	93.1	*93.8*	66.6	66.0	*66.3*
with bleeding		0.0	0.0	*0.0*	40.5	42.5	*41.5*	31.3	26.3	*28.8*	4.2	10.6	*7.4*	1.5	0.0	*0.8*
with calculus		0.0	0.0	*0.0*	32.1	23.5	*27.8*	39.6	34.3	*37.0*	36.4	37.6	*37.0*	5.8	9.8	*7.8*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	13.4	11.0	*12.2*	22.1	20.2	*21.2*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	1.4	2.5	*2.0*	15.7	14.0	*14.9*
with bleeding or higher		0.0	0.0	*0.0*	48.0	53.1	*50.6*	45.3	41.3	*43.3*	18.2	26.2	*22.2*	7.6	3.3	*5.5*
with calculus or higher		0.0	0.0	*0.0*	32.1	23.5	*27.8*	40.2	34.3	*37.3*	60.0	52.8	*56.4*	13.0	25.6	*19.3*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	14.8	11.6	*13.2*	30.3	23.1	*26.7*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	1.4	2.5	*2.0*	15.7	14.0	*14.9*
State Rural	n=	20	13	*33*	419	415	*834*	416	416	*832*	417	423	*840*	364	363	*727*
With bleeding,calculus, or pockets		57.6	48.8	*53.2*	88.2	88.9	*88.6*	94.1	87.5	*90.8*	96.5	95.7	*96.1*	75.5	75.6	*75.6*
with bleeding		57.6	45.5	*51.6*	58.6	57.3	*58.0*	53.1	45.3	*49.2*	14.9	20.7	*17.8*	4.7	6.6	*5.7*
with calculus		0.0	0.0	*0.0*	56.8	58.7	*57.8*	68.8	70.0	*69.4*	68.5	65.7	*67.1*	25.3	26.1	*25.7*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	4.2	4.5	*4.4*	46.2	40.7	*43.5*	45.5	47.8	*46.7*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	13.7	13.6	*13.7*	36.6	31.6	*34.1*
with bleeding or higher		57.6	45.5	*51.6*	58.6	57.3	*58.0*	53.1	45.3	*49.2*	14.9	20.7	*17.8*	4.7	6.6	*5.7*
with calculus or higher		0.0	0.0	*0.0*	29.6	31.7	*30.7*	40.6	42.2	*41.4*	57.7	53.0	*55.4*	21.6	20.7	*21.2*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.4	0.0	*0.2*	20.0	18.2	*19.1*	30.9	33.1	*32.0*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	3.8	3.9	*3.9*	18.4	15.2	*16.8*
State Urban	n=	4	4	*8*	205	204	*409*	210	206	*416*	205	214	*419*	180	176	*356*
With bleeding,calculus, or pockets		36.0	7.4	*21.7*	79.3	75.7	*77.5*	74.8	79.8	*77.3*	94.8	87.6	*91.2*	78.7	79.9	*79.3*
with bleeding		8.8	7.4	*8.1*	59.6	53.7	*56.7*	36.3	54.4	*45.4*	27.8	23.5	*25.7*	12.1	9.6	*10.9*
with calculus		27.2	0.0	*13.6*	40.1	40.1	*40.1*	52.1	45.5	*48.8*	67.3	62.0	*64.7*	28.5	41.5	*35.0*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	6.0	4.2	*5.1*	31.9	28.1	*30.0*	34.8	42.2	*38.5*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	8.9	4.0	*6.5*	38.4	23.2	*30.8*
with bleeding or higher		8.8	7.4	*8.1*	59.6	53.7	*56.7*	36.3	54.4	*45.4*	27.8	23.5	*25.7*	12.1	9.6	*10.9*
with calculus or higher		27.2	0.0	*13.6*	19.7	22.1	*20.9*	38.6	25.4	*32.0*	49.9	48.9	*49.4*	19.5	34.3	*26.9*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	13.6	14.1	*13.9*	25.6	24.2	*24.9*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	3.5	1.2	*2.4*	21.4	11.7	*16.6*
State Total	n=	24	17	*41*	624	619	*1243*	626	622	*1248*	622	637	*1259*	544	539	*1083*
With bleeding,calculus, or pockets		54.7	38.3	*46.5*	84.8	84.5	*84.7*	87.8	85.8	*86.8*	95.8	92.8	*94.3*	77.2	77.2	*77.2*
with bleeding		51.8	35.6	*43.7*	58.1	56.0	*57.1*	47.7	49.3	*48.5*	19.3	21.4	*20.4*	7.5	7.3	*7.4*
with calculus		2.9	0.0	*1.5*	51.0	52.1	*51.6*	63.2	62.1	*62.7*	67.8	63.9	*65.9*	26.4	30.9	*28.7*
with pockets 4-5 mm		NA	NA	*NA*	NA	NA	*NA*	4.7	4.3	*4.5*	42.1	37.5	*39.8*	42.2	46.2	*44.2*
with pockets 6 mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	12.3	10.5	*11.4*	38.0	29.7	*33.9*
with bleeding or higher		51.8	35.6	*43.7*	58.1	56.0	*57.1*	47.7	49.3	*48.5*	19.3	21.4	*20.4*	7.5	7.3	*7.4*
with calculus or higher		2.9	0.0	*1.5*	26.8	28.5	*27.7*	39.9	36.6	*38.3*	54.6	50.9	*52.8*	20.7	25.0	*22.9*
with pockets 4-5 mm or higher		NA	NA	*NA*	NA	NA	*NA*	0.3	0.0	*0.2*	18.3	17.5	*17.9*	29.2	30.5	*29.9*
with pockets 6mm		NA	NA	*NA*	NA	NA	*NA*	0.0	0.0	*0.0*	3.6	3.0	*3.3*	19.9	14.4	*17.2*

Table: 6.08 Mean no. of sextants with bleeding, calculus and pockets by age, sex and geographical area. **State : Karnataka**

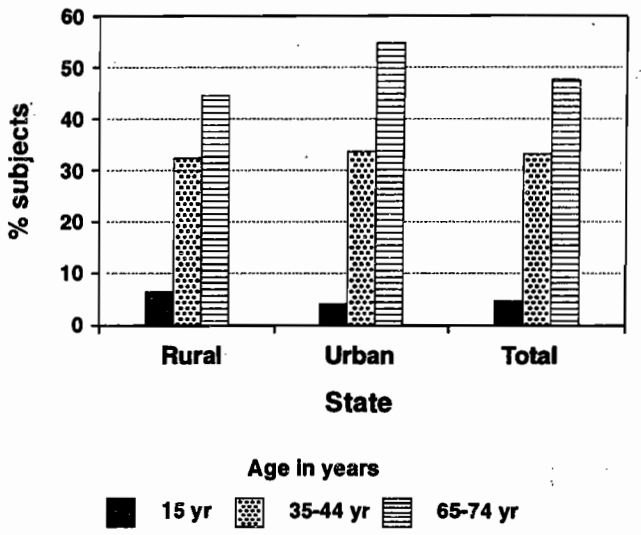
Periodontal Disease		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	163	152	315	157	161	318	160	157	317	161	155	316	160	156	316
Mean no. of healthy sextants		0.4	0.3	0.4	0.9	0.8	0.9	0.9	1.0	1.0	0.4	0.4	0.4	0.4	0.3	0.4
With bleeding, calculus, pockets		0.3	0.1	0.2	4.9	4.9	4.9	5.0	4.9	5.0	5.6	5.5	5.6	3.8	3.8	3.8
with bleeding		0.3	0.1	0.2	2.1	1.9	2.0	1.7	1.7	1.7	0.8	0.7	0.8	0.2	0.2	0.2
with calculus		0.0	0.0	0.0	2.8	3.0	2.9	3.0	3.0	3.0	2.4	2.4	2.4	1.0	0.9	1.0
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.3	0.2	0.3	1.9	1.9	1.9	1.7	1.8	1.8
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.5	0.5	0.5	1.0	0.9	1.0
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	0.4
Not recorded		5.2	5.6	5.4	0.1	0.2	0.2	0.1	0.0	0.1	0.0	0.1	0.1	1.4	1.5	1.5
Region 2	n=	157	156	313	157	158	315	157	157	314	157	157	314	157	157	314
Mean no. of healthy sextants		0.1	0.2	0.2	1.2	1.2	1.2	1.1	1.0	1.1	0.2	0.4	0.3	0.1	0.2	0.2
With bleeding, calculus, pockets		0.0	0.0	0.0	4.8	4.8	4.8	4.9	4.9	4.9	5.6	5.3	5.5	3.3	3.4	3.4
with bleeding		0.0	0.0	0.0	2.9	2.8	2.9	1.9	2.3	2.1	0.5	0.7	0.6	0.1	0.1	0.1
with calculus		0.0	0.0	0.0	1.9	2.0	2.0	3.0	2.6	2.8	3.5	3.1	3.3	0.6	1.1	0.9
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	1.1	1.2	1.2	0.5	1.2	0.9
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.5	0.3	0.4	2.0	1.0	1.5
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.4	1.3	1.4
Not recorded		5.9	5.8	5.9	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.1	1.3	1.2	1.3
Region 3	n=	155	152	307	153	155	308	151	156	307	154	157	311	155	154	309
Mean no. of healthy sextants		0.0	0.0	0.0	1.0	1.3	1.2	1.0	1.0	1.0	0.2	0.4	0.3	0.1	0.0	0.1
With bleeding, calculus, pockets		0.0	0.1	0.1	4.8	4.5	4.7	5.0	5.0	5.0	5.6	5.2	5.4	2.6	3.0	2.8
with bleeding		0.0	0.0	0.0	2.6	2.3	2.5	1.6	1.8	1.7	0.3	0.5	0.4	0.0	0.1	0.1
with calculus		0.0	0.0	0.0	2.2	2.3	2.3	3.4	3.1	3.3	3.4	3.1	3.3	0.6	0.6	0.6
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	1.7	1.2	1.5	1.0	1.4	1.2
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.2	0.4	0.3	1.0	0.9	1.0
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	2.2	2.0	2.1
Not recorded		6.0	5.9	6.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.1	1.1	1.0	1.1
Region 4	n=	166	155	321	170	161	331	163	156	319	157	180	337	160	162	322
Mean no. of healthy sextants		0.0	0.0	0.0	1.4	1.7	1.6	1.3	1.8	1.6	0.4	0.4	0.4	0.1	0.1	0.1
With bleeding, calculus, pockets		0.0	0.0	0.0	4.4	4.0	4.2	4.6	4.1	4.4	5.3	5.1	5.2	3.2	3.1	3.2
with bleeding		0.0	0.0	0.0	2.4	2.4	2.4	2.0	1.8	1.9	0.5	0.9	0.7	0.1	0.0	0.1
with calculus		0.0	0.0	0.0	2.0	1.6	1.8	2.6	2.3	2.5	3.0	2.8	2.9	0.5	0.7	0.6
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	1.6	1.2	1.4	1.5	1.6	1.6
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.2	0.2	0.2	1.0	0.7	0.9
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.2	2.2	2.1	2.2
Not recorded		6.0	6.0	6.0	0.2	0.2	0.2	0.1	0.1	0.1	0.2	0.3	0.3	0.5	0.7	0.6
State Rural	n=	427	411	838	427	423	850	420	418	838	422	432	854	427	417	844
Mean no. of healthy sextants		0.2	0.2	0.2	0.9	1.0	1.0	0.7	1.0	0.9	0.3	0.3	0.3	0.2	0.2	0.2
With bleeding, calculus, pockets		0.2	0.1	0.2	4.9	4.9	4.9	5.2	4.9	5.1	5.6	5.5	5.6	3.3	3.4	3.4
with bleeding		0.2	0.1	0.2	2.4	2.3	2.4	1.9	1.7	1.8	0.4	0.7	0.6	0.1	0.1	0.1
with calculus		0.0	0.0	0.0	2.5	2.6	2.6	3.2	3.2	3.2	3.0	2.7	2.9	0.7	0.7	0.7
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.1	0.1	0.1	1.8	1.6	1.7	1.3	1.6	1.5
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.4	0.5	0.5	1.2	1.0	1.1
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1	1.4	1.4	1.4
Not recorded		5.6	5.8	5.7	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	1.1	1.1	1.1
State Urban	n=	214	204	418	210	212	422	211	208	419	207	217	424	205	212	417
Mean no. of healthy sextants		0.1	0.1	0.1	1.5	1.6	1.6	1.7	1.5	1.6	0.4	0.6	0.5	0.2	0.2	0.2
With bleeding, calculus, pockets		0.0	0.0	0.0	4.4	4.1	4.3	4.3	4.4	4.4	5.4	5.1	5.3	3.6	3.5	3.6
with bleeding		0.0	0.0	0.0	2.6	2.3	2.5	1.6	2.3	2.0	0.9	0.8	0.9	0.2	0.2	0.2
with calculus		0.0	0.0	0.0	1.8	1.8	1.8	2.6	2.0	2.3	2.9	2.9	2.9	0.9	1.3	1.1
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.1	0.1	0.1	1.3	1.2	1.3	1.1	1.3	1.2
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.3	0.1	0.2	1.4	0.7	1.1
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	1.0	0.9	1.0
Not recorded		5.9	5.9	5.9	0.1	0.3	0.2	0.0	0.1	0.1	0.1	0.1	0.1	1.2	1.4	1.3
State Total	n=	641	615	1256	637	635	1272	631	626	1257	629	649	1278	632	629	1261
Mean no. of healthy sextants		0.2	0.2	0.2	1.2	1.2	1.2	1.0	1.1	1.1	0.3	0.4	0.4	0.2	0.2	0.2
With bleeding, calculus, pockets		0.1	0.0	0.1	4.7	4.6	4.7	4.9	4.8	4.9	5.5	5.3	5.4	3.4	3.4	3.4
with bleeding		0.1	0.0	0.1	2.5	2.3	2.4	1.8	1.9	1.9	0.6	0.7	0.7	0.1	0.1	0.1
with calculus		0.0	0.0	0.0	2.3	2.3	2.3	3.0	2.8	2.9	2.9	2.7	2.8	0.7	0.9	0.8
with pockets(4-5 mm)		NA	NA	NA	NA	NA	NA	0.1	0.1	0.1	1.6	1.5	1.6	1.3	1.5	1.4
with pockets (6mm or more)		NA	NA	NA	NA	NA	NA	0.0	0.0	0.0	0.4	0.4	0.4	1.3	0.9	1.1
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.2	1.3	1.2	1.3
Not recorded		5.7	5.8	5.8	0.1	0.2	0.2	0.1	0.0	0.1	0.1	0.1	0.1	1.1	1.2	1.2

6.2.2 Loss of attachment

Tables 6.09 and Fig. 6.09 present the per cent subjects with loss of epithelial attachment by severity, and Table 6.10 and Fig. 6.10 present the mean number of teeth with loss of attachment, by severity, respectively.

The destructive and degenerative nature of the periodontal disease was assessed, in addition to the CPI scores, with the measurement of Loss of Attachment for 15 yr, 35-44 yr and 65-74 yr age groups only. The CPI Probe was used to measure pocket depth.

Fig. 6.09. Percent subjects with Loss of Attachment in Karnataka



Overall, the prevalence proportion of subjects with loss of attachment in one or more sextant was lowest in the 15 years age-group (4.8 per cent); it was much higher in 35-44 years (33 per cent); and highest in the 65-74 years age-group (47.9 per cent) in the state. It was higher in males than in females across age groups. The least severe form of loss of attachment (4-5 mm) was more prevalent than more severe forms in all age groups except in 65-74 years where loss of attachment of 6-8 mm was most prevalent. This was followed by the more severe forms of 6-8 mm and 9-11mm. The loss of attachment of 12 mm or more was 3.4 per cent in 65-74 year old subjects. The pattern of loss of attachment was similar in urban and rural and all the regions where in the prevalence of disease in urban was higher than rural. The prevalence of disease was highest in Bangalore region (75.2 per cent) and lowest in Mysore region.

The mean number of sextants with loss of attachment was expectedly highest in 65-74 years age group (1.3) and lowest in 15 years (0.2). The pattern of loss of attachment was similar in urban and rural and all regions (Table 6.10).

Fig. 6.10. Mean number of sextants with Loss of Attachment in Karnataka

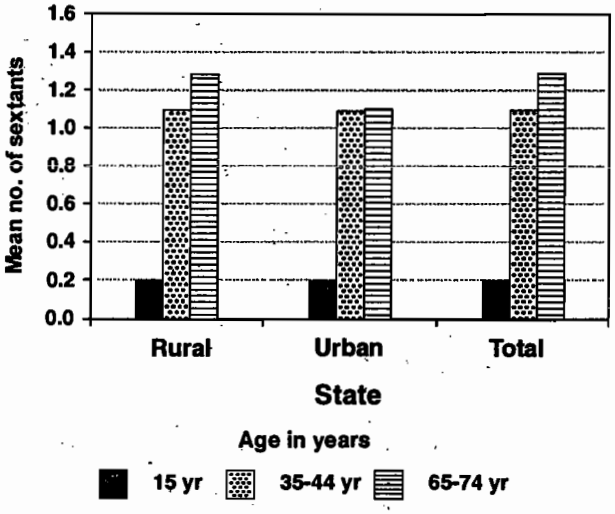


Table 6.09 Percent distribution of subjects with highest scores of loss of attachment by age, sex, and geographical area. State : Karnataka

Loss of Attachment (LOA)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	**n=**	**154**	**154**	***308***	**159**	**152**	***311***	**137**	**135**	***272***
With loss of attachment		0.7	0.6	***0.7***	21.9	23.1	***22.5***	48.8	45.0	***46.9***
with LOA 4-5 mm		0.0	0.6	***0.3***	10.2	10.4	***10.3***	17.5	22.1	***19.8***
with LOA 6-8 mm		0.7	0.0	***0.4***	5.7	9.8	***7.8***	22.2	13.8	***18.0***
with LOA 9-11 mm		0.0	0.0	***0.0***	4.0	2.8	***3.4***	6.8	9.1	***8.0***
with LOA 12 mm or more		0.0	0.0	***0.0***	2.0	0.0	***1.0***	2.3	0.0	***1.2***
Region 2	**n=**	**22**	**24**	***46***	**50**	**57**	***107***	**33**	**38**	***71***
With loss of attachment		67.9	69.2	***68.6***	79.4	70.7	***75.1***	71.8	78.5	***75.2***
with LOA 4-5 mm		36.0	38.5	***37.3***	45.6	42.7	***44.2***	26.1	37.3	***31.7***
with LOA 6-8 mm		19.9	11.5	***15.7***	22.1	18.3	***20.2***	13.1	31.4	***22.3***
with LOA 9-11 mm		12.0	19.2	***15.6***	8.8	9.8	***9.3***	13.1	1.9	***7.5***
with LOA 12 mm or more		0.0	0.0	***0.0***	3.0	0.0	***1.5***	19.5	7.8	***13.7***
Region 3	**n=**	**69**	**75**	***144***	**82**	**84**	***166***	**101**	**96**	***197***
With loss of attachment		18.6	14.7	***16.7***	44.8	38.2	***41.5***	35.8	32.9	***34.4***
with LOA 4-5 mm		12.9	14.7	***13.8***	27.1	26.2	***26.7***	11.3	9.2	***10.3***
with LOA 6-8 mm		4.2	0.0	***2.1***	11.6	9.5	***10.6***	15.1	11.6	***13.4***
with LOA 9-11 mm		1.6	0.0	***0.8***	5.2	2.5	***3.9***	5.7	8.5	***7.1***
with LOA 12 mm or more		0.0	0.0	***0.0***	0.8	0.0	***0.4***	3.8	3.7	***3.8***
Region 4	**n=**	**148**	**124**	***272***	**140**	**149**	***289***	**141**	**140**	***281***
With loss of attachment		0.7	0.0	***0.4***	32.4	20.6	***26.5***	46.2	45.3	***45.8***
with LOA 4-5 mm		0.7	0.0	***0.4***	21.0	13.7	***17.4***	10.2	18.1	***14.2***
with LOA 6-8 mm		0.0	0.0	***0.0***	8.7	6.9	***7.8***	23.2	20.6	***21.9***
with LOA 9-11 mm		0.0	0.0	***0.0***	0.6	0.0	***0.3***	7.5	3.8	***5.7***
with LOA 12 mm or more		0.0	0.0	***0.0***	2.1	0.0	***1.1***	5.3	2.9	***4.1***
State Rural	**n=**	**274**	**266**	***540***	**303**	**307**	***610***	**273**	**265**	***538***
With loss of attachment		6.7	6.0	***6.4***	33.4	31.6	***32.5***	46.5	44.3	***45.4***
with LOA 4-5 mm		3.3	3.6	***3.5***	18.1	16.4	***17.3***	12.0	16.4	***14.2***
with LOA 6-8 mm		2.4	0.9	***1.7***	8.6	12.3	***10.5***	22.3	19.2	***20.8***
with LOA 9-11 mm		1.1	1.5	***1.3***	4.7	2.9	***3.8***	7.0	6.4	***6.7***
with LOA 12 mm or more		0.0	0.0	***0.0***	2.0	0.0	***1.0***	5.2	2.3	***3.8***
State Urban	**n=**	**119**	**111**	***230***	**128**	**135**	***263***	**139**	**144**	***283***
With loss of attachment		3.7	5.4	***4.6***	36.3	30.2	***33.3***	53.9	54.2	***54.1***
with LOA 4-5 mm		3.4	5.4	***4.4***	21.9	20.8	***21.4***	23.6	31.4	***27.5***
with LOA 6-8 mm		0.4	0.0	***0.2***	10.5	5.9	***8.2***	17.0	13.4	***15.2***
with LOA 9-11 mm		0.0	0.0	***0.0***	1.8	3.5	***2.7***	8.8	7.8	***8.3***
with LOA 12 mm or more		0.0	0.0	***0.0***	2.1	0.0	***1.1***	4.5	1.5	***3.0***
State Total	**n=**	**393**	**377**	***770***	**431**	**442**	***873***	**412**	**409**	***821***
With loss of attachment		5.0	4.6	***4.8***	34.4	31.6	***33.0***	48.9	46.9	***47.9***
with LOA 4-5 mm		2.9	3.5	***3.2***	19.3	17.7	***18.5***	15.1	20.6	***17.9***
with LOA 6-8 mm		1.5	0.4	***1.0***	9.1	10.6	***9.9***	21.4	18.0	***19.7***
with LOA 9-11 mm		0.6	0.7	***0.7***	3.9	3.3	***3.6***	7.5	6.5	***7.0***
with LOA 12 mm or more		0.0	0.0	***0.0***	2.2	0.0	***1.1***	4.9	1.8	***3.4***

Table 6.10 Mean no. of sextants with loss of attachment by age, sex, and geographical area. **State : Karnataka**

Loss of Attachment (LOA)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	n=	160	157	317	161	155	316	160	156	316
With no loss of attachment (0-3 mm)		5.8	5.8	5.8	5.1	5.1	5.1	3.0	3.1	3.1
With loss of attachment		0.0	0.0	0.0	0.7	0.7	0.7	1.3	1.2	1.3
with loss of attachment 4-5 mm		0.0	0.0	0.0	0.4	0.4	0.4	0.7	0.8	0.8
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.2	0.2	0.2	0.4	0.3	0.4
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Excluded sextants		0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.4	0.4
Not recorded		0.2	0.1	0.2	0.1	0.1	0.1	1.3	1.3	1.3
Region 2	n=	157	157	314	157	157	314	157	157	314
With no loss of attachment (0-3 mm)		0.3	0.3	0.3	0.5	0.6	0.6	0.1	0.2	0.2
With loss of attachment		0.4	0.4	0.4	1.5	1.6	1.6	0.9	1.1	1.0
with loss of attachment 4-5 mm		0.2	0.2	0.2	0.9	1.0	1.0	0.4	0.6	0.5
with loss of attachment 6-8 mm		0.1	0.1	0.1	0.4	0.4	0.4	0.1	0.4	0.3
with loss of attachment 9-11 mm		0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.0	0.1
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.1	0.0	0.1	0.3	0.1	0.2
Excluded sextants		0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.2	0.2
Not recorded		5.3	5.3	5.3	4.1	3.7	3.9	4.7	4.5	4.6
Region 3	n=	151	156	307	154	157	311	155	154	309
With no loss of attachment (0-3 mm)		2.4	2.7	2.6	2.1	2.1	2.1	0.7	0.8	0.8
With loss of attachment		0.5	0.4	0.5	1.1	1.2	1.2	1.2	1.1	1.2
with loss of attachment 4-5 mm		0.4	0.4	0.4	0.7	0.9	0.8	0.3	0.4	0.4
with loss of attachment 6-8 mm		0.1	0.0	0.1	0.3	0.3	0.3	0.5	0.4	0.5
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.3	0.3
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.1
Excluded sextants		0.0	0.0	0.0	0.1	0.2	0.2	1.7	1.6	1.7
Not recorded		3.1	2.9	3.0	2.7	2.5	2.6	2.4	2.5	2.5
Region 4	n=	163	156	319	157	180	337	160	162	322
With no loss of attachment (0-3 mm)		5.4	4.7	5.1	4.1	3.9	4.0	1.3	1.5	1.4
With loss of attachment		0.0	0.0	0.0	1.1	0.7	0.9	1.9	1.7	1.8
with loss of attachment 4-5 mm		0.0	0.0	0.0	0.8	0.5	0.7	0.5	0.8	0.7
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.2	0.2	0.2	0.9	0.7	0.8
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.1	0.2
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.1	0.2
Excluded sextants		0.0	0.0	0.0	0.1	0.2	0.2	2.1	2.0	2.1
Not recorded		0.6	1.3	1.0	0.8	1.1	1.0	0.7	0.8	0.8
State Rural	n=	420	418	838	422	432	854	427	417	844
With no loss of attachment (0-3 mm)		4.0	4.0	4.0	3.5	3.4	3.5	1.6	1.7	1.7
With loss of attachment		0.2	0.2	0.2	1.1	1.0	1.1	1.3	1.2	1.3
with loss of attachment 4-5 mm		0.1	0.1	0.1	0.7	0.7	0.7	0.5	0.6	0.6
with loss of attachment 6-8 mm		0.1	0.0	0.1	0.2	0.3	0.3	0.5	0.5	0.5
with loss of attachment 9-11 mm		0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2
Excluded sextants		0.0	0.0	0.0	0.1	0.1	0.1	1.0	1.0	1.0
Not recorded		1.7	1.8	1.8	1.4	1.5	1.5	2.1	2.1	2.1
State Urban	n=	211	208	419	207	217	424	205	212	417
With no loss of attachment (0-3 mm)		3.0	2.8	2.9	2.6	2.8	2.7	1.3	1.5	1.4
With loss of attachment		0.1	0.2	0.2	1.1	1.0	1.1	1.4	1.4	1.4
with loss of attachment 4-5 mm		0.1	0.2	0.2	0.7	0.7	0.7	0.6	0.9	0.8
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.3	0.2	0.3	0.4	0.3	0.4
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.2	0.2
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.1
Excluded sextants		0.0	0.0	0.0	0.0	0.1	0.1	0.5	0.5	0.5
Not recorded		2.9	3.0	3.0	2.3	2.0	2.2	2.7	2.6	2.7
State Total	n=	631	626	1257	629	649	1278	632	629	1261
With no loss of attachment (0-3 mm)		3.7	3.7	3.7	3.2	3.2	3.2	1.6	1.7	1.7
With loss of attachment		0.2	0.2	0.2	1.1	1.1	1.1	1.3	1.3	1.3
with loss of attachment 4-5 mm		0.1	0.1	0.1	0.7	0.7	0.7	0.5	0.7	0.6
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.2	0.3	0.3	0.5	0.4	0.5
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.2
with loss of attachment 12 mm or more		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2
Excluded sextants		0.0	0.0	0.0	0.0	0.1	0.1	0.9	0.8	0.9
Not recorded		2.1	2.2	2.2	1.6	1.6	1.6	2.2	2.2	2.2

6.3 MALOCCLUSION STATUS

Table 6.11 and Fig. 6.11 present the malocclusion status of subjects measured by DAI scores.

The Dental Aesthetics Index (DAI) as recommended by WHO, was used to analyze the severity of malocclusion in the surveyed population. The age groups 5 years, 12 years, 15 years and 35-44 years have been included in this report.

The proportion of subjects with malocclusion increased with the age of subjects surveyed. Malocclusion was virtually absent in 5 year olds who had only primary teeth. In 12 year old subjects, 19.4 per cent reported with malocclusion. This figure increased to 26.2 per cent in subjects aged 35-44 years but was slightly lower (18.5 per cent) in subjects aged 15 years.

There were no marked gender based differentials. More rural subjects had malocclusion than urban subjects. Bangalore region reported the least malocclusion in the state in 12 and 15 year age groups.

'Definite' malocclusion, or the least severe form of malocclusion, was most prevalent across age groups, followed by the 'severe' and 'very severe' forms.

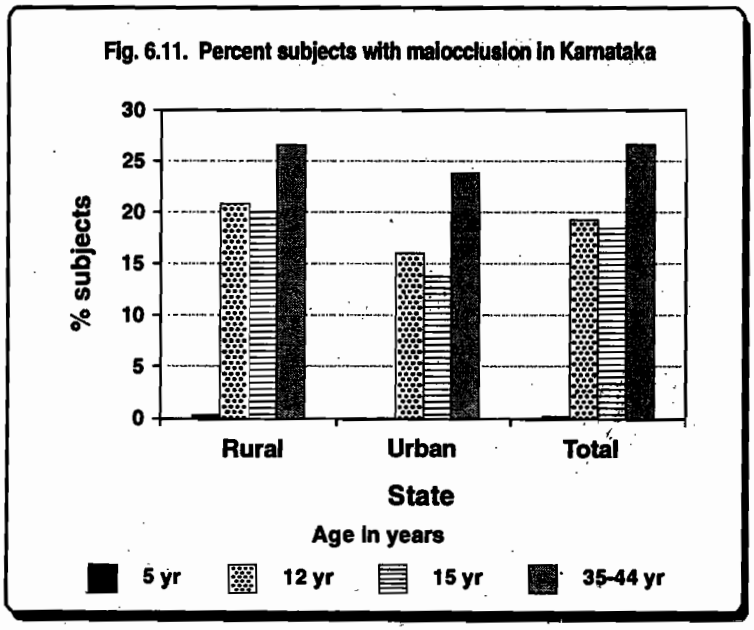


Table 6.11 Percent subjects with malocclusion by age, sex and geographical areas. **State : Karnataka**

Malocclusion (DAI Score)		5 years			12 years			15 years			35-44 years		
		M	F	T	M	F	T	M	F	T	M	F	T
Region 1	**n=**	**163**	**152**	***315***	**157**	**161**	***318***	**160**	**157**	***317***	**161**	**155**	***316***
None (<25)		100	100	***100.0***	79.8	81.1	***80.5***	81.1	86.8	***84.0***	73	79.6	***76.3***
Malocclusion present		0.0	0.0	***0.0***	20.2	18.9	***19.6***	18.9	13.2	***16.1***	27.0	20.4	***23.7***
Definite (26 -30)		0.0	0.0	***0.0***	15.6	11.9	***13.8***	11.2	5.9	***8.6***	13	7.1	***10.0***
Severe (31 - 15)		0.0	0.0	***0.0***	1.9	3.2	***2.6***	4.4	4.6	***4.5***	7.6	5.9	***6.8***
V Severe (36 or more)		0.0	0.0	***0.0***	2.7	3.9	***3.3***	3.3	2.7	***3.0***	6.5	7.4	***7.0***
Region 2	**n=**	**157**	**156**	***313***	**157**	**158**	***315***	**157**	**157**	***314***	**157**	**157**	***314***
None (<25)		100	100	***100.0***	88.5	83.9	***86.2***	82	91.9	***87.0***	76	71.8	***74.0***
Malocclusion present		0.0	0.0	***0.0***	11.5	16.1	***13.8***	18.0	8.1	***13.1***	23.9	28.2	***26.1***
Definite (26 -30)		0.0	0.0	***0.0***	8.1	12.3	***10.2***	11.8	6.7	***9.3***	12	9.5	***10.7***
Severe (31 - 15)		0.0	0.0	***0.0***	1.9	3.3	***2.6***	3.8	0.9	***2.4***	1.4	3.8	***2.6***
V Severe (36 or more)		0.0	0.0	***0.0***	1.4	0.5	***1.0***	2.4	0.5	***1.5***	11	14.8	***12.7***
Region 3	**n=**	**155**	**152**	***307***	**153**	**155**	***308***	**151**	**156**	***307***	**154**	**157**	***311***
None (<25)		100	97.7	***98.9***	72.6	80.8	***76.7***	65.4	79	***72.2***	70	78.6	***74.5***
Malocclusion present		0.0	2.3	***1.2***	27.4	19.2	***23.3***	34.6	21.0	***27.8***	29.7	21.4	***25.6***
Definite (26 -30)		0.0	0.0	***0.0***	13.8	13.1	***13.5***	28.2	13.3	***20.8***	16	8.4	***12.4***
Severe (31 - 15)		0.0	0.0	***0.0***	9.9	3.1	***6.5***	4.5	5.5	***5.0***	4.6	3.6	***4.1***
V Severe (36 or more)		0.0	2.3	***1.2***	3.0	2.9	***3.0***	2.0	2.2	***2.1***	8.8	9.4	***9.1***
Region 4	**n=**	**166**	**155**	***321***	**170**	**161**	***331***	**163**	**156**	***319***	**157**	**180**	***337***
None (<25)		100	98.8	***99.4***	73.5	79.5	***76.5***	74.8	80.7	***77.8***	76	67.3	***71.5***
Malocclusion present		0.0	1.2	***0.6***	26.5	20.5	***23.5***	25.2	19.3	***22.3***	24.3	32.7	***28.5***
Definite (26 -30)		0.0	0.0	***0.0***	16.3	13	***14.7***	17.2	14.4	***15.8***	12	12	***11.8***
Severe (31 - 15)		0.0	0.5	***0.3***	5.4	3.4	***4.4***	4.2	1.6	***2.9***	8.1	5.6	***6.9***
V Severe (36 or more)		0.0	0.7	***0.4***	4.8	4.1	***4.5***	3.8	3.3	***3.6***	4.6	15.1	***9.9***
State Rural	**n=**	**427**	**411**	***838***	**427**	**423**	***850***	**420**	**418**	***838***	**422**	**432**	***854***
None (<25)		100	99.3	***99.7***	77.8	80.3	***79.1***	75.3	84.6	***80.0***	72	74.8	***73.4***
Malocclusion present		0.0	0.7	***0.4***	22.2	19.7	***21.0***	24.7	15.4	***20.1***	28.0	25.2	***26.6***
Definite (26 -30)		0.0	0.0	***0.0***	14.7	13.2	***14.0***	17.1	8.8	***13.0***	13	9.1	***11.3***
Severe (31 - 15)		0.0	0.0	***0.0***	3.9	3.4	***3.7***	4.2	3.5	***3.9***	6.5	4.9	***5.7***
V Severe (36 or more)		0.0	0.7	***0.4***	3.6	3.0	***3.3***	3.5	3.1	***3.3***	8.2	11.1	***9.7***
State Urban	**n=**	**214**	**204**	***418***	**210**	**212**	***422***	**211**	**208**	***419***	**207**	**217**	***424***
None (<25)		100	99.7	***99.9***	84.3	83.8	***84.1***	83.2	88.6	***85.9***	78	73.7	***75.9***
Malocclusion present		0.0	0.3	***0.1***	15.7	16.2	***16.0***	16.8	11.4	***14.1***	21.9	26.3	***24.1***
Definite (26 -30)		0.0	0.0	***0.0***	11.0	10.8	***10.9***	10.4	8.8	***9.6***	12	9.0	***10.4***
Severe (31 - 15)		0.0	0.3	***0.2***	3.3	3.0	***3.2***	4.3	2.3	***3.3***	3.8	5.0	***4.4***
V Severe (36 or more)		0.0	0.0	***0.0***	1.5	2.4	***2.0***	2.1	0.3	***1.2***	6.3	12.3	***9.3***
State Total	**n=**	**641**	**615**	***1256***	**637**	**635**	***1272***	**631**	**626**	***1257***	**629**	**649**	***1278***
None (<25)		100	99.4	***99.7***	79.4	81.9	***80.7***	77.7	85.4	***81.6***	74	73.3	***73.8***
Malocclusion present		0.0	0.6	***0.3***	20.6	18.1	***19.4***	22.3	14.6	***18.5***	25.7	26.7	***26.2***
Definite (26 -30)		0.0	0.0	***0.0***	13.9	12.2	***13.1***	14.9	9.3	***12.1***	12	9.3	***10.9***
Severe (31 - 15)		0.0	0.1	***0.1***	3.6	3.1	***3.4***	4.2	3.0	***3.6***	5.6	5.2	***5.4***
V Severe (36 or more)		0.0	0.5	***0.3***	3.0	2.8	***2.9***	3.2	2.2	***2.7***	7.8	12.2	***10.0***

Note: 'No malocclusion (<25)' includes minor malocclusion.

6.4 ORAL CANCER AND ORAL MUCOSAL LESIONS

Table 6.12 and Fig. 6.12 present the proportion of subjects with oral cancer and other oral mucosal lesions and table 6.13 presents the number of locations in the mouth of affected subjects.

The prevalence of oral mucosal lesions did not appear to be age linked in the state (fig 6.12). the overall prevalence was low but the relatively constant appearance of oral cancers in every age group causes concern.

Oral mucosal conditions were prevalent in 0.5 per cent (12 year); 0.9 per cent (15 years); 0.6 per cent (35-44 years); and 0.7 per cent (65-74 years) subjects. Oral cancers were recorded in 0.4 per cent, 0.9 per cent, 0.3 per cent and 0.7 per cent subjects aged 12,15, 35-44 years and 65-74 years respectively. Pre-cancerous conditions in the form of leukoplakia was present in all age groups except 35-44 year old subjects. In other conditions, ANUG was recorded in all age groups examined although the prevalence ranged from 0.1 to 0.2 per cent. Rural subjects appeared to have a higher prevalence of oral mucosal conditions compared with their urban counterparts. No marked gender based differentials were detected. A more detailed survey for these conditions should be undertaken in the state to establish the precise prevalence and pattern of distribution of these conditions.

There were a total of 9 occurrences (more in females) of oral cancers in the state which were located in the mouth on the vermillion border, buccal mucosa, commissures and tongue, in that order.

Leukoplakia occurred in 71 males and 78 females and was located mainly on buccal mucosa and vermillion border. Ulceration occurred in 40 males and 32 females and was mainly located on vermillion border and lips. ANUG, which occurred on 2 males and 2 females, was expectedly located mainly on gingiva.

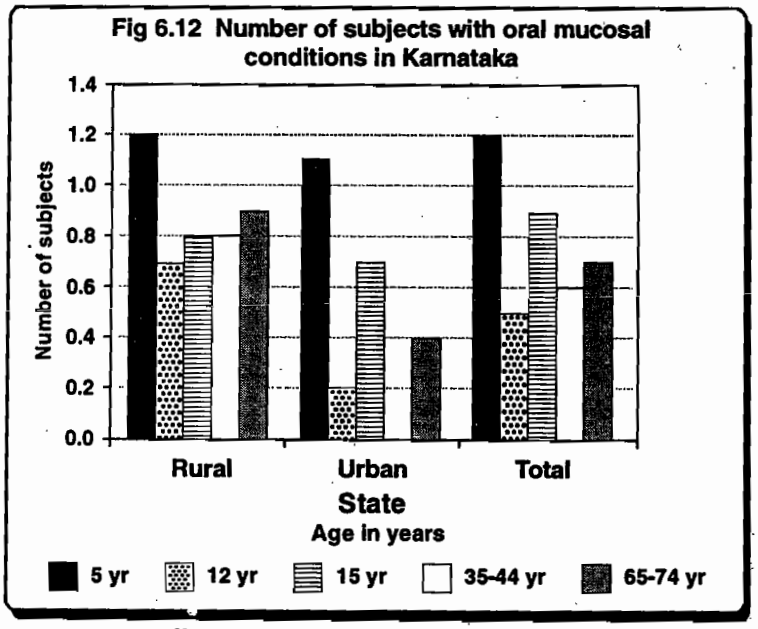


Table 6.12 Per cent of subjects with oral mucosal lesions and type of lesions by age, sex and geographical area. State : Karnataka

Oral Mucosal Lesions		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	162	151	313	157	161	318	159	157	316	161	155	316	160	155	315
Oral mucosal lesions present		1.8	1.9	1.9	0.7	0.0	0.4	0.0	1.9	1.0	0.7	1.4	1.1	1.2	0.0	0.6
Oral Cancer		1.8	1.9	1.9	0.0	0.0	0.0	0.0	1.9	1.0	0.7	0.0	0.4	1.2	0.0	0.6
Leukoplakia		0.7	1.2	1.0	0.0	0.0	0.0	0.0	1.2	0.6	0.0	0.0	0.0	0.5	0.0	0.3
Lichen planus		0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ulceration		0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.4	0.0	0.0	0.0
ANUG		0.7	0.0	0.4	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	0.7	0.0	0.4
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 2	n=	157	156	313	157	158	315	157	156	313	156	157	313	157	156	313
Oral mucosal lesions present		0.0	0.0	0.0	0.0	0.5	0.3	0.0	1.4	0.7	0.0	0.0	0.0	0.9	0.5	0.7
Oral Cancer		0.0	0.0	0.0	0.0	0.5	0.3	0.0	1.4	0.7	0.0	0.0	0.0	0.9	0.5	0.7
Leukoplakia		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.0	0.0	0.5	0.5	0.5
Lichen planus		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ulceration		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANUG		0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.3
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 3	n=	152	151	303	151	151	302	151	156	307	153	155	308	152	149	301
Oral mucosal lesions present		1.5	0.8	1.2	0.8	0.8	0.8	0.0	0.0	0.0	0.7	0.0	0.4	1.2	0.0	0.6
Oral Cancer		1.5	0.8	1.2	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.6
Leukoplakia		0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lichen planus		0.8	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.6
Ulceration		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANUG		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 4	n=	162	151	313	169	160	329	160	154	314	153	171	324	156	153	309
Oral mucosal lesions present		1.2	1.4	1.3	1.1	0.7	0.9	0.7	1.4	1.1	0.0	0.6	0.3	0.0	2.1	1.1
Oral Cancer		1.2	1.4	1.3	1.1	0.7	0.9	0.7	1.4	1.1	0.0	0.6	0.3	0.0	2.1	1.1
Leukoplakia		1.2	1.4	1.3	0.0	0.7	0.4	0.7	1.4	1.1	0.0	0.0	0.0	0.0	0.7	0.4
Lichen planus		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ulceration		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.7
ANUG		0.0	0.0	0.0	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Rural	n=	422	407	829	425	419	844	418	416	834	418	426	844	421	407	828
Oral mucosal lesions present		1.3	1.0	1.2	0.7	0.6	0.7	0.2	1.4	0.8	0.5	1.0	0.8	0.9	0.9	0.9
Oral Cancer		1.3	1.0	1.2	0.4	0.6	0.5	0.2	1.4	0.8	0.4	0.2	0.3	0.9	0.9	0.9
Leukoplakia		0.7	0.6	0.7	0.1	0.4	0.3	0.2	1.0	0.6	0.0	0.0	0.0	0.2	0.4	0.3
Lichen planus		0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
Ulceration		0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.4	0.2
ANUG		0.4	0.0	0.2	0.2	0.2	0.2	0.0	0.4	0.2	0.0	0.2	0.1	0.6	0.0	0.3
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Urban	n=	211	202	413	209	211	420	209	207	416	205	212	417	204	206	410
Oral mucosal lesions present		0.9	1.2	1.1	0.3	0.0	0.2	0.0	1.4	0.7	0.0	0.0	0.0	0.8	0.0	0.4
Oral Cancer		0.9	1.2	1.1	0.3	0.0	0.2	0.0	1.4	0.7	0.0	0.0	0.0	0.8	0.0	0.4
Leukoplakia		0.3	1.2	0.8	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.0	0.0	0.6	0.0	0.3
Lichen planus		0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Ulceration		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
ANUG		0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total	n=	633	609	1242	634	630	1264	627	623	1250	623	638	1261	625	613	1238
Oral mucosal lesions present		1.2	1.1	1.2	0.6	0.4	0.5	0.2	1.5	0.9	0.4	0.7	0.6	0.8	0.6	0.7
Oral Cancer		1.2	1.1	1.2	0.4	0.4	0.4	0.2	1.5	0.9	0.3	0.2	0.3	0.8	0.6	0.7
Leukoplakia		0.6	0.8	0.7	0.1	0.3	0.2	0.2	1.2	0.7	0.0	0.0	0.0	0.3	0.3	0.3
Lichen planus		0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
Ulceration		0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.3	0.2
ANUG		0.3	0.0	0.2	0.2	0.1	0.2	0.0	0.3	0.2	0.0	0.2	0.1	0.4	0.0	0.2
Candidiasis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abscess		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Any other condition		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 6.13 Distibution of subjects with oral mucosal conditions by location of conditions in the mouth. State : Karnataka

Location	Oral Mucosal Condition																	
	Oral Cancer		Leuko-plakia		Lichen Planus		Ulceration		ANUG		Candi-diasis		Abscess		Others		Total over Locations	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
State Rural																		
Vermilion Border	2	3	8	6	0	1	12	8	1	0	0	0	5	1	7	5	35	24
Commissures	1	0	5	5	3	0	4	1	0	0	0	0	0	0	3	4	16	10
Lips	0	0	6	2	0	0	6	6	0	0	0	0	0	0	3	0	15	8
Sulci	0	0	0	3	0	0	1	1	0	0	0	0	0	2	1	0	2	6
Buccal mucosa	0	2	32	45	9	8	3	4	0	0	0	2	0	1	49	36	93	98
Floor of mouth	0	0	4	2	0	1	0	0	0	0	0	0	0	0	2	0	6	3
Tongue	0	1	2	2	1	1	0	3	0	0	0	2	0	0	5	12	8	21
Hard/Soft palate	0	0	5	4	1	0	0	0	0	0	0	0	0	1	9	0	15	5
Alv ridges/ Gingiva	0	0	0	0	0	0	2	0	1	1	0	0	1	1	5	6	9	8
Rural Total	**3**	**6**	**62**	**69**	**14**	**11**	**28**	**23**	**2**	**1**	**0**	**4**	**6**	**6**	**84**	**63**	**199**	**183**
State Urban																		
Vermilion Border	0	0	3	1	0	0	3	1	0	0	1	0	1	0	2	0	10	2
Commissures	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Lips	0	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	4	0
Sulci	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	2
Buccal mucosa	0	0	5	8	8	5	2	3	0	0	0	0	0	0	6	4	21	20
Floor of mouth	0	0	0	0	0	0	1	2	0	0	0	0	0	0	0	0	1	2
Tongue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2	2	2
Hard/Soft palate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	2	3	2
Alv ridges/ Gingiva	0	0	0	0	0	0	2	2	0	1	1	0	1	1	0	0	4	4
Urban Total	**0**	**0**	**9**	**9**	**8**	**6**	**12**	**9**	**0**	**1**	**2**	**0**	**2**	**1**	**13**	**9**	**46**	**35**
State Total																		
Vermilion Border	2	3	11	7	0	1	15	9	1	0	1	0	6	1	9	5	45	26
Commissures	1	0	6	5	3	0	4	1	0	0	0	0	0	0	3	5	17	11
Lips	0	0	6	2	0	0	10	6	0	0	0	0	0	0	3	0	19	8
Sulci	0	0	0	3	0	1	1	2	0	0	0	0	0	2	1	0	2	8
Buccal mucosa	0	2	37	53	17	13	5	7	0	0	0	2	0	1	55	40	114	118
Floor of mouth	0	0	4	2	0	1	1	2	0	0	0	0	0	0	2	0	7	5
Tongue	0	1	2	2	1	1	0	3	0	0	0	2	0	0	7	14	10	23
Hard/Soft palate	0	0	5	4	1	0	0	0	0	0	0	0	0	1	12	2	18	7
Alv ridges/ Gingiva	0	0	0	0	0	0	4	2	1	2	1	0	2	2	5	6	13	12
State Total	**3**	**6**	**71**	**78**	**22**	**17**	**40**	**32**	**2**	**2**	**2**	**4**	**8**	**7**	**97**	**72**	**245**	**218**

6.5 DENTAL FLUOROSIS STATUS

Table 6.14 and Fig. 6.14 present the per cent subjects with dental fluorosis by level of severity.

The prevalence of fluorosis ranged from 2.3 per cent (5 year old subjects) to a maximum of 13.1 per cent (12 years subjects). While the prevalence was lower in higher age groups, it was 11 per cent in 15 year old subjects. The majority of those affected had 'very mild to mild' fluorosis followed by a smaller proportion of those with 'moderate' fluorosis across age groups.

There were no marked gender based differentials and there appeared to be a higher prevalence of fluorosis in the urban areas rather than in rural areas. This would need further detailed analysis since the expected water supply in the majority of subjects living in urban areas would be piped water supply. The lowest prevalence of fluorosis was seen in Kodagu region while Dharwar showed the highest prevalence.

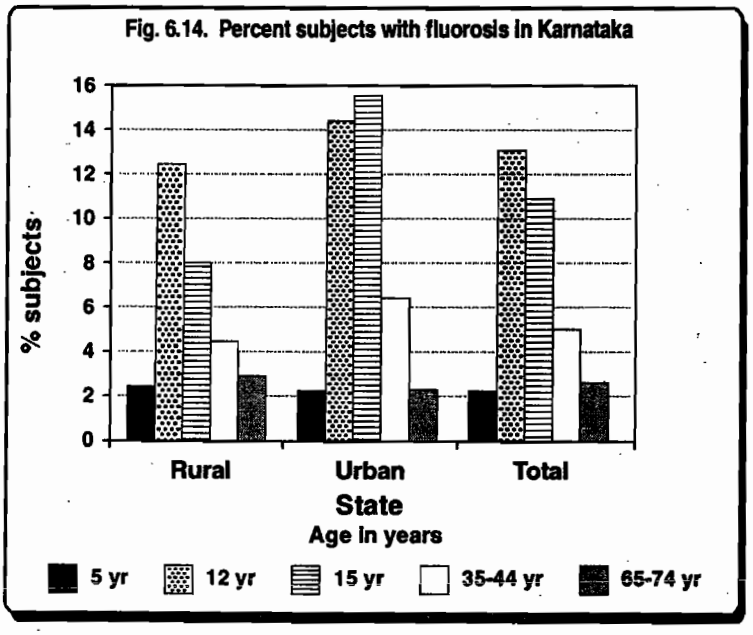


Table 6.14 Percent distribution of subjects with severity of dental fluorosis by age, sex and geographical area. State : Karnataka

Dental Fluorosis		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	**n=**	**146**	**139**	***285***	**157**	**160**	***317***	**159**	**157**	***316***	**161**	**150**	***311***	**141**	**134**	***275***
With Fluorosis		3.5	6.5	***5.0***	9.5	19.3	***14.4***	12.0	6.2	***9.1***	4.3	7.9	***6.1***	4.9	5.3	***5.1***
Questionable		2.9	3.8	***3.4***	3.0	8.2	***5.6***	5.8	2.5	***4.2***	0.0	1.3	***0.7***	2.3	0.8	***1.6***
V Mild & Mild		0.6	2.7	***1.7***	4.5	8.5	***6.5***	4.9	1.7	***3.3***	4.3	4.6	***4.5***	2.6	3.0	***2.8***
Moderate		0.0	0.0	***0.0***	1.4	2.7	***2.1***	1.3	2.0	***1.7***	0.0	2.0	***1.0***	0.0	1.4	***0.7***
Severe		0.0	0.0	***0.0***	0.7	0.0	***0.4***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 2	**n=**	**155**	**152**	***307***	**156**	**158**	***314***	**154**	**155**	***309***	**154**	**154**	***308***	**127**	**126**	***253***
With Fluorosis		1.5	1.0	***1.3***	23.2	23.7	***23.5***	24.7	17.0	***20.9***	9.3	7.8	***8.6***	1.2	1.2	***1.2***
Questionable		0.0	0.0	***0.0***	1.9	2.9	***2.4***	1.9	2.9	***2.4***	0.0	1.0	***0.5***	0.0	0.0	***0.0***
V Mild & Mild		1.5	0.0	***0.8***	15.5	15.6	***15.6***	18.9	8.7	***13.8***	8.8	3.9	***6.4***	0.0	1.2	***0.6***
Moderate		0.0	1.0	***0.5***	5.8	5.2	***5.5***	3.9	5.4	***4.7***	0.5	2.9	***1.7***	0.0	0.0	***0.0***
Severe		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	1.2	0.0	***0.6***
Region 3	**n=**	**150**	**150**	***300***	**151**	**152**	***303***	**150**	**154**	***304***	**152**	**154**	***306***	**107**	**109**	***216***
With Fluorosis		0.0	1.5	***0.8***	8.0	5.3	***6.7***	5.0	7.8	***6.4***	2.2	4.2	***3.2***	2.1	2.1	***2.1***
Questionable		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.8	0.0	***0.4***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
V Mild & Mild		0.0	1.5	***0.8***	7.5	3.8	***5.7***	3.0	6.1	***4.6***	1.5	2.0	***1.8***	2.1	1.0	***1.6***
Moderate		0.0	0.0	***0.0***	0.5	1.5	***1.0***	1.2	1.2	***1.2***	0.7	2.2	***1.5***	0.0	1.0	***0.5***
Severe		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.5	***0.3***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 4	**n=**	**160**	**147**	***307***	**167**	**157**	***324***	**158**	**153**	***311***	**152**	**167**	***319***	**133**	**127**	***260***
With Fluorosis		0.0	0.0	***0.0***	0.6	2.6	***1.6***	1.9	2.1	***2.0***	1.3	0.0	***0.7***	0.0	0.9	***0.5***
Questionable		0.0	0.0	***0.0***	0.0	1.4	***0.7***	1.9	0.7	***1.3***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
V Mild & Mild		0.0	0.0	***0.0***	0.0	0.7	***0.4***	0.0	0.7	***0.4***	0.6	0.0	***0.3***	0.0	0.9	***0.5***
Moderate		0.0	0.0	***0.0***	0.0	0.5	***0.3***	0.0	0.7	***0.4***	0.7	0.0	***0.4***	0.0	0.0	***0.0***
Severe		0.0	0.0	***0.0***	0.6	0.0	***0.3***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Rural	**n=**	**414**	**394**	***808***	**424**	**416**	***840***	**416**	**413**	***829***	**415**	**418**	***833***	**348**	**332**	***680***
With Fluorosis		1.8	2.8	***2.3***	10.7	14.4	***12.6***	9.9	6.1	***8.0***	4.5	4.7	***4.6***	2.2	3.5	***2.9***
Questionable		1.6	2.1	***1.9***	1.2	4.3	***2.8***	3.3	1.0	***2.2***	0.0	0.4	***0.2***	1.4	0.5	***1.0***
V Mild & Mild		0.2	0.7	***0.5***	6.6	7.6	***7.1***	5.2	3.3	***4.3***	3.9	2.7	***3.3***	0.8	2.4	***1.6***
Moderate		0.0	0.0	***0.0***	2.4	2.5	***2.5***	1.3	1.8	***1.6***	0.6	1.6	***1.1***	0.0	0.7	***0.4***
Severe		0.0	0.0	***0.0***	0.6	0.0	***0.3***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Urban	**n=**	**197**	**194**	***391***	**207**	**211**	***418***	**205**	**206**	***411***	**204**	**207**	***411***	**160**	**164**	***324***
With Fluorosis		1.5	2.7	***2.1***	12.2	17.0	***14.6***	17.8	13.5	***15.7***	5.4	7.3	***6.4***	3.2	1.5	***2.4***
Questionable		0.0	0.0	***0.0***	2.6	3.9	***3.3***	3.1	3.6	***3.4***	0.0	1.4	***0.7***	0.0	0.0	***0.0***
V Mild & Mild		1.5	1.9	***1.7***	7.7	9.6	***8.7***	12.1	5.4	***8.8***	5.4	3.6	***4.5***	2.2	0.7	***1.5***
Moderate		0.0	0.8	***0.4***	1.8	3.5	***2.7***	2.6	4.2	***3.4***	0.0	2.2	***1.1***	0.0	0.7	***0.4***
Severe		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.2	***0.1***	0.0	0.0	***0.0***	1.0	0.0	***0.5***
State Total	**n=**	**611**	**588**	***1199***	**631**	**627**	***1258***	**621**	**619**	***1240***	**619**	**625**	***1244***	**508**	**496**	***1004***
With Fluorosis		1.7	2.9	***2.3***	10.9	15.2	***13.1***	13.0	9.0	***11.0***	4.6	5.7	***5.2***	2.6	2.8	***2.7***
Questionable		1.1	1.5	***1.3***	1.6	4.3	***3.0***	3.5	2.1	***2.8***	0.0	0.8	***0.4***	1.0	0.3	***0.7***
V Mild & Mild		0.6	1.1	***0.9***	6.9	7.9	***7.4***	7.6	3.8	***5.7***	4.2	2.9	***3.6***	1.2	1.8	***1.5***
Moderate		0.0	0 4	***0.2***	2.0	3.0	***2.5***	1.9	3.0	***2.5***	0.4	1.9	***1.2***	0.0	0.7	***0.4***
Severe		0.0	0.0	***0.0***	0.4	0.0	***0.2***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.4	0.0	***0.2***

6.6 OTHER LESIONS

6.6.1 Extra oral lesions

Table 6.15 and Fig. 6.15 present the per cent subjects with extra oral lesions.

The prevalence of extra-oral lesions was very low (less than 1 per cent) in the state except in 5 year old subjects where the figure was 1.2 per cent. Almost all of the lesions were ulcerations, sores, and erosions, fissures located in head, neck and limbs region.

No major gender based or rural/ urban differentials were observed. The pattern of distribution by type of extra oral lesions was similar in urban and rural areas and in all regions.

Fig. 6.15. Percent subjects with extra oral lesions in Karnataka

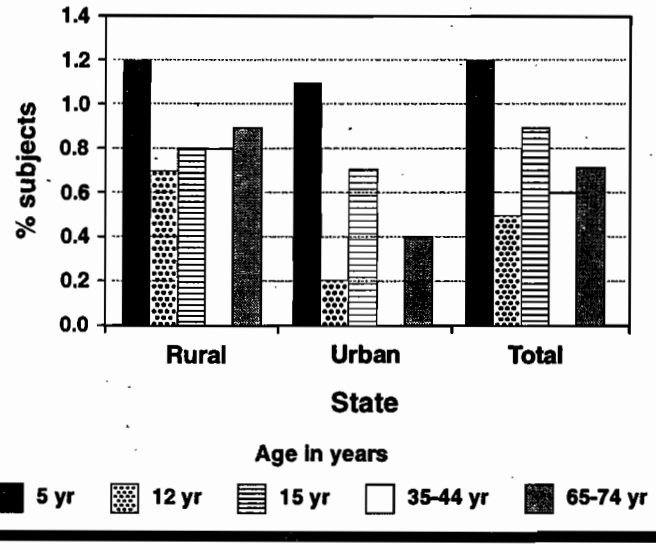


Table 6.15 Percent distribution of subjects with extra oral lesions by age, sex and geographical area. **State : Karnataka**

Extra Oral Lesions		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	162	151	313	157	161	318	159	157	316	161	155	316	160	155	315
With extra oral lesions		1.8	1.9	1.9	0.7	0.0	0.4	0.0	1.9	1.0	0.7	1.4	1.1	1.2	0.0	0.6
Ulceration,sores,erosions,fissures		1.8	1.9	1.9	0.0	0.0	0.0	0.0	1.9	1.0	0.7	0.0	0.4	1.2	0.0	0.6
head, neck, limbs		0.7	1.2	1.0	0.0	0.0	0.0	0.0	1.2	0.6	0.0	0.0	0.0	0.5	0.0	0.3
nose, cheeks, chin		0.5	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
commissures		0.0	0.7	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.4	0.0	0.0	0.0
vermilion border		0.7	0.0	0.4	0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	0.7	0.0	0.4
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 2	n=	157	156	313	157	158	315	157	156	313	156	157	313	157	156	313
With extra oral lesions		0.0	0.0	0.0	0.0	0.5	0.3	0.0	1.4	0.7	0.0	0.0	0.0	0.9	0.5	0.7
Ulceration,sores,erosions,fissures		0.0	0.0	0.0	0.0	0.5	0.3	0.0	1.4	0.7	0.0	0.0	0.0	0.9	0.5	0.7
head, neck, limbs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.0	0.0	0.5	0.5	0.5
nose, cheeks, chin		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
commissures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
vermilion border		0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.3
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 3	n=	152	151	303	151	151	302	151	156	307	153	155	308	152	149	301
With extra oral lesions		1.5	0.8	1.2	0.8	0.8	0.8	0.0	0.0	0.0	0.7	0.0	0.4	1.2	0.0	0.6
Ulceration,sores,erosions,fissures		1.5	0.8	1.2	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.6
head, neck, limbs		0.8	0.8	0.8	0.8	0.8	0.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nose, cheeks, chin		0.8	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.6
commissures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
vermilion border		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 4	n=	162	151	313	169	160	329	160	154	314	153	171	324	156	153	309
With extra oral lesions		1.2	1.4	1.3	1.1	0.7	0.9	0.7	1.4	1.1	0.0	0.6	0.3	0.0	2.1	1.1
Ulceration,sores,erosions,fissures		1.2	1.4	1.3	1.1	0.7	0.9	0.7	1.4	1.1	0.0	0.6	0.3	0.0	2.1	1.1
head, neck, limbs		1.2	1.4	1.3	0.0	0.7	0.4	0.7	1.4	1.1	0.0	0.0	0.0	0.0	0.7	0.4
nose, cheeks, chin		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
commissures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.7
vermilion border		0.0	0.0	0.0	1.1	0.0	0.6	0.0	0.0	0.0	0.0	0.6	0.3	0.0	0.0	0.0
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Rural	n=	422	407	829	425	419	844	418	416	834	418	426	844	421	407	828
With extra oral lesions		1.3	1.0	1.2	0.7	0.6	0.7	0.2	1.4	0.8	0.5	1.0	0.8	0.9	0.9	0.9
Ulceration,sores,erosions,fissures		1.3	1.0	1.2	0.4	0.6	0.5	0.2	1.4	0.8	0.4	0.2	0.3	0.9	0.9	0.9
head, neck, limbs		0.7	0.6	0.7	0.1	0.4	0.3	0.2	1.0	0.6	0.0	0.0	0.0	0.2	0.4	0.3
nose, cheeks, chin		0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1
commissures		0.0	0.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.4	0.2
vermilion border		0.4	0.0	0.2	0.2	0.2	0.2	0.0	0.4	0.2	0.0	0.2	0.1	0.6	0.0	0.3
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Urban	n=	211	202	413	209	211	420	209	207	416	205	212	417	204	206	410
With extra oral lesions		0.9	1.2	1.1	0.3	0.0	0.2	0.0	1.4	0.7	0.0	0.0	0.0	0.8	0.0	0.4
Ulceration,sores,erosions,fissures		0.9	1.2	1.1	0.3	0.0	0.2	0.0	1.4	0.7	0.0	0.0	0.0	0.8	0.0	0.4
head, neck, limbs		0.3	1.2	0.8	0.0	0.0	0.0	0.0	1.4	0.7	0.0	0.0	0.0	0.6	0.0	0.3
nose, cheeks, chin		0.6	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
commissures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
vermilion border		0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total	n=	633	609	1242	634	630	1264	627	623	1250	623	638	1261	625	613	1238
With extra oral lesions		1.2	1.1	1.2	0.6	0.4	0.5	0.2	1.5	0.9	0.4	0.7	0.6	0.8	0.6	0.7
Ulceration,sores,erosions,fissures		1.2	1.1	1.2	0.4	0.4	0.4	0.2	1.5	0.9	0.3	0.2	0.3	0.8	0.6	0.7
head, neck, limbs		0.6	0.8	0.7	0.1	0.3	0.2	0.2	1.2	0.7	0.0	0.0	0.0	0.3	0.3	0.3
nose, cheeks, chin		0.3	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1
commissures		0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.3	0.2
vermilion border		0.3	0.0	0.2	0.2	0.1	0.2	0.0	0.3	0.2	0.0	0.2	0.1	0.4	0.0	0.2
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

6.6.2 TM joint symptoms and signs

Table 6.16 and Fig. 6.16 present per cent subjects with TM Joint symptoms and signs.

The TM Joint symptoms and signs showed a wide range of prevalence across age groups in the state. The symptoms ranged from 0.3 per cent in 5-year-olds to a maximum of 3.0 per cent in subjects aged 65-74 years. Similarly, signs were recorded in 0.2 per cent subjects aged 5 years to a maximum of 6.8 per cent in subjects aged 65-74 years. Clicking, tenderness and reduced jaw mobility, in that order, were the signs present.

Males were generally more affected than females. Rural subjects were affected more than their rural counterparts.

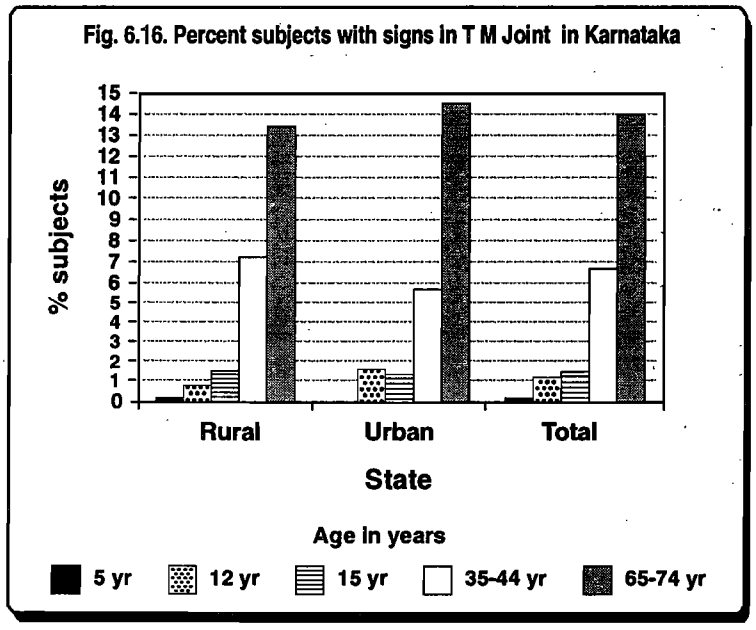


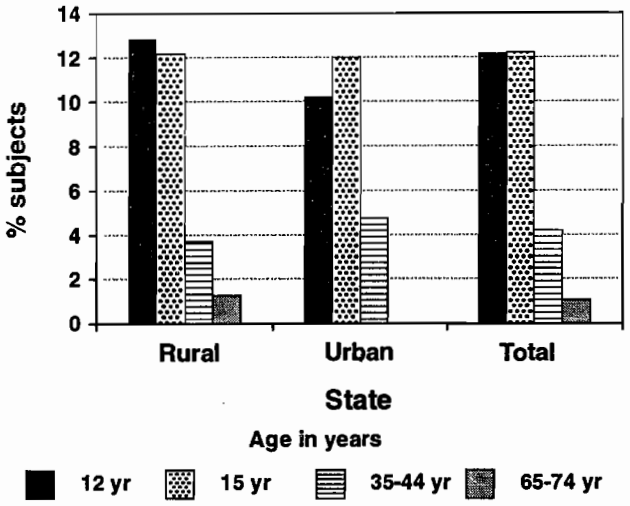
Table 6.16 Percent subjects with symptoms and signs in the tempromandibular joints by age, sex and geographical area State : Karnataka

T M Joints Assessment		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	162	152	314	157	161	318	158	157	315	161	155	316	160	155	315
Symptoms present		0.7	0.0	0.4	1.2	0.7	1.0	3.8	1.2	2.5	6.5	3.4	5.0	11.4	7.9	9.7
Signs present		0.7	0.0	0.4	2.5	3.0	2.8	4.5	1.2	2.9	8.8	3.4	6.1	17.3	11.5	14.4
Clicking		0.7	0.0	0.4	2.5	2.3	2.4	4.5	1.2	2.9	8.8	3.4	6.1	16.1	10.3	13.2
Tenderness		0.7	0.0	0.4	0.0	0.7	0.4	2.0	0.0	1.0	5.8	2.1	4.0	12.3	6.6	9.5
Reduced jaw mobility		0.7	0.0	0.4	0.0	0.0	0.0	2.0	0.0	1.0	5.3	2.1	3.7	10.5	5.5	8.0
Region 2	n=	157	156	313	157	158	315	157	155	312	156	157	313	157	156	313
Symptoms present		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	1.4	1.2	0.5	0.5	0.5
Signs present		0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.0	5.3	4.8	5.1	12.0	15.6	13.8
Clicking		0.0	0.0	0.0	0.0	0.0	0.0	1.9	0.0	1.0	4.4	4.8	4.6	11.5	15.6	13.6
Tenderness		0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.3	0.5	1.4	1.0	0.5	0.5	0.5
Reduced jaw mobility		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0	0.5	0.0	1.0	0.5
Region 3	n=	152	151	303	151	152	303	151	156	307	153	155	308	152	149	301
Symptoms present		0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.7	0.4	1.2	0.5	0.9	2.7	1.8	2.3
Signs present		0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.7	0.4	9.4	6.3	7.9	10.7	13.0	11.9
Clicking		0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.7	0.4	8.1	6.3	7.2	10.7	13.0	11.9
Tenderness		0.0	0.0	0.0	0.0	0.5	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.8	1.5	1.2
Reduced jaw mobility		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.6	0.0	0.0	0.0
Region 4	n=	162	151	313	170	160	330	160	154	314	153	172	325	156	155	311
Symptoms present		0.0	0.7	0.4	0.0	0.7	0.4	0.0	0.0	0.0	2.8	2.5	2.7	3.4	3.5	3.5
Signs present		0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	9.9	7.9	8.9	13.3	14.8	14.1
Clicking		0.0	0.0	0.0	0.0	0.7	0.4	0.0	0.0	0.0	9.9	7.3	8.6	10.5	13.4	12.0
Tenderness		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.6	0.7	2.7	3.5	3.1
Reduced jaw mobility		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.4
State Rural	n=	422	408	830	426	420	846	417	415	832	418	426	844	421	409	830
Symptoms present		0.4	0.2	0.3	0.4	0.6	0.5	1.5	0.5	1.0	4.9	3.0	4.0	6.7	5.0	5.9
Signs present		0.4	0.0	0.2	0.8	1.0	0.9	2.4	0.5	1.5	8.7	5.7	7.2	13.8	13.0	13.4
Clicking		0.4	0.0	0.2	0.8	0.6	0.7	2.4	0.5	1.5	8.1	5.5	6.8	12.4	12.1	12.3
Tenderness		0.4	0.0	0.2	0.0	0.4	0.2	1.4	0.0	0.7	3.5	1.6	2.6	7.3	4.8	6.1
Reduced jaw mobility		0.4	0.0	0.2	0.0	0.0	0.0	1.2	0.0	0.6	3.6	1.1	2.4	5.7	3.4	4.6
State Urban	n=	211	202	413	209	211	420	209	207	416	205	213	418	204	206	410
Symptoms present		0.0	0.0	0.0	0.6	0.2	0.4	1.2	0.6	0.9	0.8	1.0	0.9	3.2	2.2	2.7
Signs present		0.0	0.0	0.0	1.2	1.9	1.6	2.0	0.6	1.3	6.9	4.3	5.6	14.5	14.7	14.6
Clicking		0.0	0.0	0.0	1.2	1.9	1.6	2.0	0.6	1.3	6.8	4.3	5.6	13.9	14.0	14.0
Tenderness		0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.0	0.0	0.6	0.8	0.7	1.8	1.2	1.5
Reduced jaw mobility		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.6	0.8	0.7
State Total	n=	633	610	1243	635	631	1266	626	622	1248	623	639	1262	625	615	1240
Symptoms present		0.3	0.2	0.3	0.4	0.5	0.5	1.4	0.6	1.0	3.6	2.4	3.0	5.6	4.2	4.9
Signs present		0.3	0.0	0.2	0.9	1.2	1.1	2.2	0.6	1.4	8.3	5.2	6.8	14.5	13.5	14.0
Clicking		0.3	0.0	0.2	0.9	1.0	1.0	2.2	0.6	1.4	8.0	5.0	6.5	13.3	12.8	13.1
Tenderness		0.3	0.0	0.2	0.0	0.3	0.2	0.9	0.0	0.5	2.6	1.4	2.0	5.7	3.7	4.7
Reduced jaw mobility		0.3	0.0	0.2	0.0	0.0	0.0	0.8	0.0	0.4	2.5	0.8	1.7	4.3	2.8	3.6

6.6.3 Enamel defects (opacities, hypoplasia)

Table 6.17 and Fig. 6.17 present the per cent subjects with enamel defects by type of defect and Table 6.18 and Fig. 6.18 presents the means number of teeth affected with enamel defects by type.

Fig. 6.17. Percent subjects with enamel defects in Karnataka



Structural enamel defects of teeth were recorded in terms of opacities and hypoplasias, types of opacities and combination of both. The lower age group for 5 years was excluded from examination.

Overall, the prevalence of enamel defects including opacities and hypoplasias in the state ranged from 1.2 per cent in 65-74 years to 12.4 per cent in 15 years. Demarcated opacity, diffuse opacity and hypoplasia appeared in that order of prevalence.

There were 10 index teeth in the mouth used for assessing the mean number of teeth with enamel defects per individual. The mean number of teeth affected were less than one tooth across age groups.

Fig. 6.18. Mean number of teeth with enamel defects in Karnataka

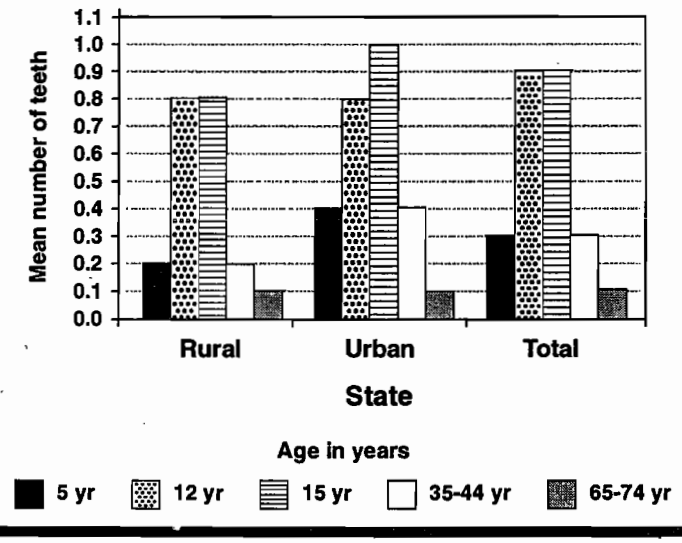


Table 6.17 Percent distribution of subjects with enamel defects (opacities/ hypoplasia) by age, sex & geographical area. State : Karnataka

Enamel Opacities/Hypoplasia		12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	**157**	**161**	***318***	**159**	**157**	***316***	**161**	**153**	***314***	**141**	**136**	***277***
With enamel defects		12.1	24.8	***18.5***	17.0	17.9	***17.5***	4.8	9.6	***7.2***	4.1	0.8	***2.5***
with demarcated opacity		6.8	11.4	***9.1***	9.1	7.5	***8.3***	1.2	4.9	***3.1***	2.8	0.0	***1.4***
with diffuse opacity		5.3	6.9	***6.1***	5.2	7.7	***6.5***	2.3	5.3	***3.8***	1.4	0.0	***0.7***
with hypoplasia		1.4	1.7	***1.6***	2.7	0.7	***1.7***	0.7	0.0	***0.4***	0.0	0.0	***0.0***
with other defects		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.7	0.0	***0.4***	0.0	0.0	***0.0***
with combinations of opacities and hypoplasia		1.4	4.6	***3.0***	2.0	4.1	***3.1***	0.0	0.7	***0.4***	0.0	0.0	***0.0***
with all three conditions		0.7	2.0	***1.4***	0.0	1.4	***0.7***	0.7	0.0	***0.4***	0.0	0.8	***0.4***
Region 2	n=	**150**	**154**	***304***	**151**	**151**	***302***	**152**	**151**	***303***	**118**	**114**	***232***
With enamel defects		4.5	8.3	***6.4***	13.9	7.0	***10.5***	0.5	2.5	***1.5***	0.0	0.0	***0.0***
with demarcated opacity		0.5	3.9	***2.2***	6.4	2.0	***4.2***	0.0	0.5	***0.3***	0.0	0.0	***0.0***
with diffuse opacity		3.5	2.9	***3.2***	6.5	4.0	***5.3***	0.5	2.0	***1.3***	0.0	0.0	***0.0***
with hypoplasia		0.5	1.5	***1.0***	1.0	1.0	***1.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
with other defects		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
with combinations of opacities and hypoplasia		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
with all three conditions		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 3	n=	**150**	**153**	***303***	**149**	**155**	***304***	**152**	**152**	***304***	**100**	**102**	***202***
With enamel defects		13.0	12.4	***12.7***	9.1	8.0	***8.6***	4.7	2.0	***3.4***	1.1	1.1	***1.1***
with demarcated opacity		7.0	8.7	***7.9***	2.3	1.2	***1.8***	0.0	1.5	***0.8***	0.0	0.0	***0.0***
with diffuse opacity		2.5	2.4	***2.5***	4.8	3.4	***4.1***	1.5	0.5	***1.0***	0.0	0.0	***0.0***
with hypoplasia		4.3	1.2	***2.8***	2.0	2.9	***2.5***	2.7	0.0	***1.4***	0.0	0.0	***0.0***
with other defects		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	1.1	***0.6***
with combinations of opacities and hypoplasia		0.5	0.0	***0.3***	0.0	0.5	***0.3***	0.5	0.0	***0.3***	0.0	0.0	***0.0***
with all three conditions		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	1.1	0.0	***0.6***
Region 4	n=	**169**	**159**	***328***	**160**	**152**	***312***	**151**	**166**	***317***	**121**	**117**	***238***
With enamel defects		6.0	8.1	***7.1***	5.6	8.7	***7.2***	2.7	3.1	***2.9***	0.0	0.0	***0.0***
with demarcated opacity		2.9	4.7	***3.8***	4.3	3.9	***4.1***	2.1	2.4	***2.3***	0.0	0.0	***0.0***
with diffuse opacity		2.4	2.0	***2.2***	0.7	2.7	***1.7***	0.6	0.0	***0.3***	0.0	0.0	***0.0***
with hypoplasia		0.6	0.7	***0.7***	1.3	2.1	***1.7***	0.0	0.6	***0.3***	0.0	0.0	***0.0***
with other defects		0.0	0.7	***0.4***	0.0	0.0	***0.0***	0.0	0.6	***0.3***	0.0	0.0	***0.0***
with combinations of opacities and hypoplasia		0.0	0.7	***0.4***	0.7	0.7	***0.7***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
with all three conditions		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Rural	n=	**420**	**418**	***838***	**415**	**412**	***827***	**411**	**414**	***825***	**321**	**312**	***633***
With enamel defects		9.5	16.1	***12.8***	12.2	12.3	***12.3***	3.1	4.5	***3.8***	1.6	0.7	***1.2***
with demarcated opacity		4.3	7.0	***5.7***	5.5	4.2	***4.9***	1.0	2.3	***1.7***	1.0	0.0	***0.5***
with diffuse opacity		4.2	4.8	***4.5***	4.3	4.8	***4.6***	0.9	2.4	***1.7***	0.5	0.0	***0.3***
with hypoplasia		1.9	1.0	***1.5***	2.7	2.1	***2.4***	0.8	0.2	***0.5***	0.0	0.0	***0.0***
with other defects		0.0	0.2	***0.1***	0.0	0.0	***0.0***	0.4	0.2	***0.3***	0.0	0.2	***0.1***
with combinations of opacities and hypoplasia		0.8	2.9	***1.9***	1.4	2.6	***2.0***	0.0	0.4	***0.2***	0.0	0.0	***0.0***
with all three conditions		0.4	1.2	***0.8***	0.0	0.8	***0.4***	0.4	0.0	***0.2***	0.2	0.5	***0.4***
State Urban	n=	**206**	**209**	***415***	**204**	**203**	***407***	**205**	**208**	***413***	**159**	**157**	***316***
With enamel defects		7.3	13.1	***10.2***	13.6	10.4	***12.0***	3.1	6.3	***4.7***	2.2	0.0	***1.1***
with demarcated opacity		4.1	8.5	***6.3***	8.3	4.7	***6.5***	0.6	3.3	***2.0***	1.5	0.0	***0.8***
with diffuse opacity		3.0	3.0	***3.0***	5.1	5.4	***5.3***	2.1	3.0	***2.6***	0.7	0.0	***0.4***
with hypoplasia		0.2	2.2	***1.2***	0.2	0.0	***0.1***	0.2	0.0	***0.1***	0.0	0.0	***0.0***
with other defects		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
with combinations of opacities and hypoplasia		0.2	0.0	***0.1***	0.0	0.2	***0.1***	0.2	0.0	***0.1***	0.0	0.0	***0.0***
with all three conditions		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Total	n=	**626**	**627**	***1253***	**619**	**615**	***1234***	**616**	**622**	***1238***	**480**	**469**	***949***
With enamel defects		8.9	15.4	***12.2***	12.8	11.9	***12.4***	3.1	5.2	***4.2***	1.8	0.5	***1.2***
with demarcated opacity		4.2	7.7	***6.0***	6.2	4.4	***5.3***	0.9	2.6	***1.8***	1.1	0.0	***0.6***
with diffuse opacity		3.9	4.2	***4.1***	4.9	5.2	***5.1***	1.2	2.7	***2.0***	0.6	0.0	***0.3***
with hypoplasia		1.4	1.4	***1.4***	1.9	1.4	***1.7***	0.7	0.2	***0.5***	0.0	0.0	***0.0***
with other defects		0.0	0.2	***0.1***	0.0	0.0	***0.0***	0.3	0.2	***0.3***	0.0	0.1	***0.1***
with combinations of opacities and hypoplasia		0.6	2.1	***1.4***	1.0	1.9	***1.5***	0.0	0.3	***0.2***	0.0	0.0	***0.0***
with all three conditions		0.3	0.8	***0.6***	0.0	0.6	***0.3***	0.3	0.0	***0.2***	0.1	0.4	***0.3***

Table 6.18 Mean number of teeth with enamel defects (opacities/ hypoplasia) by age, sex & geographical area. State : Karnataka

Enamel opacities/Hypoplasia		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	163	152	315	157	161	318	160	157	317	161	155	316	160	156	316
Mean no. of teeth with enamel defects		0.4	0.6	0.5	0.9	2.0	1.5	1.3	1.5	1.4	0.3	0.7	0.5	0.4	0.1	0.3
with demarcated opacity		0.4	0.4	0.4	0.4	0.9	0.7	0.7	0.6	0.7	0.1	0.2	0.2	0.2	0.0	0.1
with diffuse opacity		0.0	0.1	0.1	0.3	0.6	0.5	0.4	0.6	0.5	0.2	0.4	0.3	0.1	0.0	0.1
with hypoplasia		0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.1	0.3	0.2	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.1
Region 2	n=	157	156	313	157	158	315	157	157	314	157	157	314	157	157	314
Mean no. of teeth with enamel defects		0.2	0.1	0.2	0.3	0.6	0.5	1.2	0.6	0.9	0.0	0.2	0.1	0.0	0.0	0.0
with demarcated opacity		0.1	0.1	0.1	0.0	0.2	0.1	0.5	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
with diffuse opacity		0.0	0.0	0.0	0.3	0.3	0.3	0.6	0.4	0.5	0.0	0.2	0.1	0.0	0.0	0.0
with hypoplasia		0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 3	n=	155	152	307	153	155	308	151	156	307	154	157	311	155	154	309
Mean no. of teeth with enamel defects		0.1	0.1	0.1	0.6	0.6	0.6	0.5	0.5	0.5	0.2	0.0	0.1	0.0	0.0	0.0
with demarcated opacity		0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with diffuse opacity		0.0	0.0	0.0	0.1	0.2	0.2	0.4	0.3	0.4	0.1	0.0	0.1	0.0	0.0	0.0
with hypoplasia		0.1	0.0	0.1	0.2	0.1	0.2	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Region 4	n=	166	155	321	170	161	331	163	156	319	157	180	337	160	162	322
Mean no. of teeth with enamel defects		0.2	0.1	0.2	0.2	0.3	0.3	0.2	0.2	0.2	0.0	0.1	0.1	0.0	0.0	0.0
with demarcated opacity		0.0	0.1	0.1	0.1	0.3	0.2	0.2	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0
with diffuse opacity		0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with hypoplasia		0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Rural	n=	427	411	838	427	423	850	420	418	838	422	432	854	427	417	844
Mean no. of teeth with enamel defects		0.2	0.2	0.2	0.5	1.1	0.8	0.8	0.8	0.8	0.1	0.2	0.2	0.1	0.0	0.1
with demarcated opacity		0.2	0.1	0.2	0.2	0.4	0.3	0.3	0.2	0.3	0.0	0.1	0.1	0.1	0.0	0.1
with diffuse opacity		0.0	0.0	0.0	0.2	0.4	0.3	0.3	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.0
with hypoplasia		0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.0	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Urban	n=	214	204	418	210	212	422	211	208	419	207	217	424	205	212	417
Mean no. of teeth with enamel defects		0.3	0.4	0.4	0.6	1.0	0.8	1.1	0.9	1.0	0.2	0.5	0.4	0.2	0.0	0.1
with demarcated opacity		0.2	0.3	0.3	0.3	0.6	0.5	0.7	0.4	0.6	0.0	0.2	0.1	0.1	0.0	0.1
with diffuse opacity		0.0	0.0	0.0	0.2	0.2	0.2	0.5	0.4	0.5	0.1	0.3	0.2	0.1	0.0	0.1
with hypoplasia		0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total	n=	641	615	1256	637	635	1272	631	626	1257	629	649	1278	632	629	1261
Mean no. of teeth with enamel defects		0.2	0.3	0.3	0.6	1.1	0.9	0.9	0.8	0.9	0.2	0.3	0.3	0.1	0.0	0.1
with demarcated opacity		0.2	0.2	0.2	0.2	0.5	0.4	0.4	0.3	0.4	0.0	0.1	0.1	0.1	0.0	0.1
with diffuse opacity		0.0	0.0	0.0	0.2	0.3	0.3	0.4	0.4	0.4	0.1	0.2	0.2	0.0	0.0	0.0
with hypoplasia		0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with other defects		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with combinations of opacities and hypoplasia		0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with all three conditions		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

6.6.4 Prosthetic Status

The prosthetic status was recorded for subjects 15 years and above. The information was collected to assess the extend to which the subjects were wearing dental prostheses including bridge, partial denture and full dentures. The data was recorded separately for upper arch (maxillary teeth) and the lower arch (mandibular teeth)

6.6.4.1 Prosthetic status (upper and lower arch)

Table 6.19 and 6.20 and Fig. 6.19 and 6.20 present the per cent subjects with prosthetic status of the upper and lower dental arches by type of prosthesis. Table 6.21 presents the per cent subjects with full mouth removable denture.

The overall proportion of subjects wearing one or the other type of more increased with age. The proportion of subjects wearing prosthesis ranged from about 1.6 per cent (upper) and 1.0 per cent (lower) in 15 year age-group; it was about 3.3 per cent (upper) and 1.9 per cent (lower), more in upper, in 35-44 years; and about 8.1 per cent and 7.1 per cent in 65-74 years (slightly more in upper arch). In the two lower age groups, it was the bridge (one or more unit) followed by partial dentures that were prevalent. In the highest age group of 65-74 years, full removable denture followed by partial denture, were most prevalent.

Except in 65-74 years, females had more prostheses than males. The prostheses were worn more in urban than rural areas. This may be because of greater access and affordability in urban areas where dental facilities abound.

The overall percentage of subjects aged 65-74 years who were wearing full mouth removable dentures was 2.2 in the state (Table 6.21). The corresponding figure for 35-44 years old subjects was only 0.1. There were no subjects in Bangalore region with full mouth dentures.

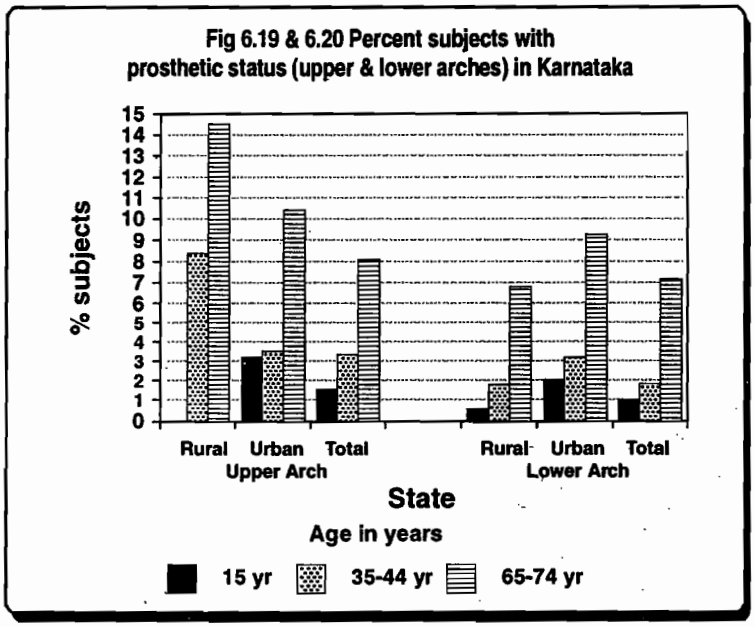


Table 6.19 Percent distribution of subjects with their prosthetic status (upper arch) by age, sex, and geographical area. State : Karnataka

Prosthetic Status (Upper)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	n=	160	157	317	161	155	316	160	156	316
With Prosthesis present		0.0	0.3	**0.2**	2.6	3.7	**3.2**	11.8	8.1	**10.0**
Bridge or more than one bridge		0.0	0.3	**0.2**	0.3	1.1	**0.7**	0.9	0.3	**0.6**
Partial denture		0.0	0.0	**0.0**	2.0	1.8	**1.9**	5.5	4.2	**4.9**
Both bridge and partial denture		0.0	0.0	**0.0**	0.3	0.0	**0.2**	0.3	0.3	**0.3**
Full removable denture		0.0	0.0	**0.0**	0.0	0.8	**0.4**	5.0	3.3	**4.2**
Region 2	n=	157	157	314	157	157	314	157	157	314
With Prosthesis present		2.6	3.1	**2.9**	1.4	2.1	**1.8**	4.5	5.2	**4.9**
Bridge or more than one bridge		2.6	3.1	**2.9**	1.2	1.8	**1.5**	1.7	0.7	**1.2**
Partial denture		0.0	0.0	**0.0**	0.2	0.2	**0.2**	0.0	0.0	**0.0**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Full removable denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	2.8	4.5	**3.7**
Region 3	n=	151	156	307	154	157	311	155	154	309
With Prosthesis present		4.5	4.3	**4.4**	3.3	5.1	**4.2**	9.5	8.5	**9.0**
Bridge or more than one bridge		4.5	4.3	**4.4**	2.0	2.5	**2.3**	1.8	2.3	**2.1**
Partial denture		0.0	0.0	**0.0**	1.3	1.6	**1.5**	2.1	1.6	**1.9**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Full removable denture		0.0	0.0	**0.0**	0.0	0.9	**0.5**	5.6	4.6	**5.1**
Region 4	n=	163	156	319	157	180	337	160	162	322
With Prosthesis present		0.0	0.0	**0.0**	4.6	12.0	**8.3**	15.5	13.7	**14.6**
Bridge or more than one bridge		0.0	0.0	**0.0**	1.9	2.7	**2.3**	1.2	1.2	**1.2**
Partial denture		0.0	0.0	**0.0**	2.7	7.7	**5.2**	8.2	5.1	**6.7**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.5	**0.3**	1.3	1.3	**1.3**
Full removable denture		0.0	0.0	**0.0**	0.0	1.1	**0.6**	4.8	6.1	**5.5**
State Rural	n=	420	418	838	422	432	854	427	417	844
With Prosthesis present		0.0	0.0	**0.0**	4.6	12.0	**8.3**	15.5	13.7	**14.6**
Bridge or more than one bridge		0.0	0.0	**0.0**	1.9	2.7	**2.3**	1.2	1.2	**1.2**
Partial denture		0.0	0.0	**0.0**	2.7	7.7	**5.2**	8.2	5.1	**6.7**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.5	**0.3**	1.3	1.3	**1.3**
Full removable denture		0.0	0.0	**0.0**	0.0	1.1	**0.6**	4.8	6.1	**5.5**
State Urban	n=	211	208	419	207	217	424	205	212	417
With Prosthesis present		2.4	3.9	**3.2**	1.9	5.1	**3.5**	13.0	7.7	**10.4**
Bridge or more than one bridge		2.4	3.9	**3.2**	0.8	2.2	**1.5**	2.7	0.7	**1.7**
Partial denture		0.0	0.0	**0.0**	0.8	1.6	**1.2**	4.7	3.6	**4.2**
Both bridge and partial denture		0.0	0.0	**0.0**	0.3	0.2	**0.3**	0.3	0.3	**0.3**
Full removable denture		0.0	0.0	**0.0**	0.0	1.2	**0.6**	5.3	3.1	**4.2**
State Total	n=	631	626	1257	629	649	1278	632	629	1261
With Prosthesis present		1.4	1.8	**1.6**	2.4	4.2	**3.3**	8.9	7.2	**8.1**
Bridge or more than one bridge		1.4	1.8	**1.6**	0.9	1.6	**1.3**	1.2	0.7	**1.0**
Partial denture		0.0	0.0	**0.0**	1.4	2.0	**1.7**	3.4	2.5	**3.0**
Both bridge and partial denture		0.0	0.0	**0.0**	0.1	0.0	**0.1**	0.3	0.3	**0.3**
Full removable denture		0.0	0.0	**0.0**	0.0	0.5	**0.3**	4.0	3.7	**3.9**

Note: For information on the status and need for full mouth removable dentures, please refer to Tables 6.21 and 6.24 respectively.

Table 6.20 Percent distribution of subjects with their prosthetic status (lower arch) by age, sex, and geographical area. State : Karnataka

Prosthetic Status (Lower)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	*n=*	**160**	**157**	**317**	**161**	**155**	**316**	**160**	**156**	**316**
With Prosthesis present		0.0	0.3	**0.2**	0.9	2.5	**1.7**	9.3	6.8	**8.1**
Bridge or more than one bridge		0.0	0.3	**0.2**	0.0	0.8	**0.4**	0.3	0.7	**0.5**
Partial denture		0.0	0.0	**0.0**	0.9	0.6	**0.8**	3.7	3.0	**3.4**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.3	0.0	**0.2**
Full removable denture		0.0	0.0	**0.0**	0.0	1.1	**0.6**	5.0	3.2	**4.1**
Region 2	*n=*	**157**	**157**	**314**	**157**	**157**	**314**	**157**	**157**	**314**
With Prosthesis present		1.9	1.2	**1.6**	1.2	0.9	**1.1**	4.0	4.7	**4.4**
Bridge or more than one bridge		1.9	1.2	**1.6**	0.9	0.7	**0.8**	0.7	0.2	**0.5**
Partial denture		0.0	0.0	**0.0**	0.2	0.2	**0.2**	0.5	0.0	**0.3**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Full removable denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	2.8	4.5	**3.7**
Region 3	*n=*	**151**	**156**	**307**	**154**	**157**	**311**	**155**	**154**	**309**
With Prosthesis present		3.4	2.2	**2.8**	2.5	2.5	**2.5**	7.7	7.3	**7.5**
Bridge or more than one bridge		3.4	2.2	**2.8**	1.8	1.7	**1.8**	1.2	1.6	**1.4**
Partial denture		0.0	0.0	**0.0**	0.7	0.6	**0.7**	0.8	1.1	**1.0**
Both bridge and partial denture		0.0	0.0	**0.0**	0.0	0.0	**0.0**	0.0	0.0	**0.0**
Full removable denture		0.0	0.0	**0.0**	0.0	0.2	**0.1**	5.6	4.6	**5.1**
Region 4	*n=*	**163**	**156**	**319**	**157**	**180**	**337**	**160**	**162**	**322**
With Prosthesis present		1.2	0.0	**0.6**	2.8	9.0	**5.9**	17.4	13.7	**15.6**
Bridge or more than one bridge		0.0	0.0	**0.0**	0.0	1.2	**0.6**	1.0	1.2	**1.1**
Partial denture		1.2	0.0	**0.6**	1.6	6.3	**4.0**	9.0	6.3	**7.7**
Both bridge and partial denture		0.0	0.0	**0.0**	1.2	1.1	**1.2**	2.0	1.3	**1.7**
Full removable denture		0.0	0.0	**0.0**	0.0	0.5	**0.3**	5.3	4.9	**5.1**
State Rural	*n=*	**420**	**418**	**838**	**422**	**432**	**854**	**427**	**417**	**844**
With Prosthesis present		1.0	0.1	**0.6**	1.2	2.1	**1.7**	6.4	7.3	**6.9**
Bridge or more than one bridge		0.9	0.1	**0.5**	0.8	0.8	**0.8**	0.2	0.7	**0.5**
Partial denture		0.1	0.0	**0.1**	0.3	1.0	**0.7**	2.0	1.8	**1.9**
Both bridge and partial denture		0.0	0.0	**0.0**	0.1	0.1	**0.1**	0.4	0.3	**0.4**
Full removable denture		0.0	0.0	**0.0**	0.0	0.2	**0.1**	3.8	4.5	**4.2**
State Urban	*n=*	**211**	**208**	**419**	**207**	**217**	**424**	**205**	**212**	**417**
With Prosthesis present		1.7	2.2	**2.0**	1.9	4.2	**3.1**	12.0	6.6	**9.3**
Bridge or more than one bridge		1.5	2.2	**1.9**	0.2	1.2	**0.7**	1.5	0.6	**1.1**
Partial denture		0.2	0.0	**0.1**	1.5	1.6	**1.6**	4.6	2.7	**3.7**
Both bridge and partial denture		0.0	0.0	**0.0**	0.2	0.2	**0.2**	0.3	0.0	**0.2**
Full removable denture		0.0	0.0	**0.0**	0.0	1.2	**0.6**	5.5	3.2	**4.4**
State Total	*n=*	**631**	**626**	**1257**	**629**	**649**	**1278**	**632**	**629**	**1261**
With Prosthesis present		1.2	0.8	**1.0**	1.3	2.5	**1.9**	7.8	6.4	**7.1**
Bridge or more than one bridge		1.1	0.8	**1.0**	0.5	0.8	**0.7**	0.6	0.7	**0.7**
Partial denture		0.1	0.0	**0.1**	0.6	1.1	**0.9**	2.8	2.1	**2.5**
Both bridge and partial denture		0.0	0.0	**0.0**	0.1	0.1	**0.1**	0.4	0.2	**0.3**
Full removable denture		0.0	0.0	**0.0**	0.0	0.5	**0.3**	4.0	3.5	**3.8**

Note: For information on the status and need for full mouth removable dentures, please refer to Tables 6.21 and 6.24 respectively.

Table 6.21 Percent subjects with full mouth removable denture (upper and lower arch) by age, sex and geographical area. State : Karnataka

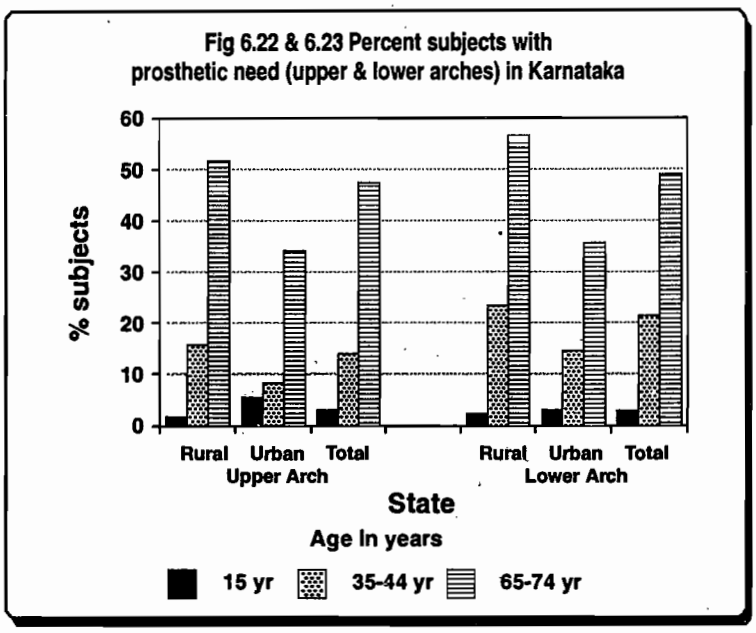
Prosthetic status (Full mouth removal dentures)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	n=	**158**	**155**	***313***	**160**	**155**	***315***	**159**	**155**	***314***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.0	***0.0***	2.4	0.0	***1.2***
Region 2	n=	**16**	**16**	***32***	**15**	**17**	***32***	**11**	**12**	***23***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Region 3	n=	**83**	**91**	***174***	**75**	**79**	***154***	**76**	**73**	***149***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.0	***0.0***	1.4	1.4	***1.4***
Region 4	n=	**161**	**155**	***316***	**157**	**179**	***336***	**156**	**160**	***316***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.5	***0.3***	4.2	4.9	***4.6***
State Rural	n=	**291**	**287**	***578***	**295**	**303**	***598***	**292**	**281**	***573***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.0	***0.0***	2.0	1.7	***1.9***
State Urban	n=	**127**	**130**	***257***	**112**	**127**	***239***	**110**	**119**	***229***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.6	***0.3***	5.0	1.8	***3.4***
State Total	n=	**418**	**417**	***835***	**407**	**430**	***837***	**402**	**400**	***802***
% subjects with full mouth removable dentures		0.0	0.0	***0.0***	0.0	0.1	***0.1***	2.7	1.7	***2.2***

6.6.5 Prosthetic need

The prosthetic need refers to the unmet need for replacement of lost or missing teeth. Prostheses may include partial or full removable dentures and fixed prostheses including bridges. The data on prosthetic needs (upper and lower arches) should be correlated with the section on Prosthetic Status.

6.6.5.1 Prosthetic need (upper and lower arch)

Table 6.22 and 6.23 and Fig. 6.22 and 6.23 present the per cent subjects with prosthetic status of the upper and lower dental arches by type of prosthesis. Table 6.24 presents the per cent subjects with full mouth removable denture.



There was a higher need for prostheses as the age advanced (Fig 6.22, 6.23). It was about 3.2 per cent in 15 years; 17.4 per cent in 35-44 years; and 48.7 per cent in 65-74 year-age-group, on average, taking upper and lower arches. The need for prostheses was marginally lower in upper rather than in the lower dental arch. There was more need in females than males. Need for one unit of prosthesis was predominant in 15 years, multiunit prosthesis in 35-44 years age group and full prosthesis in 65-74 years age group. Similar pattern was found in urban and rural areas except for 35-44 years where multiunit prosthesis was highly needed in rural while one unit was needed in urban areas. The need for prosthesis was more in rural than urban areas.

Among regions, the need for prostheses was lowest in Bangalore region. The need for one unit prosthesis was predominant in all the regions except Dharwad District where there was a need for multiunit prosthesis in addition to one unit prosthesis in 15 years age group.

Multiunit prosthesis was most needed in Bangalore District an Kodagu District , one unit prosthesis in Dharwad District while Mysore District had a need for one unit and multiunit prosthesis in 35-44 year age group.

Overall, the need for full mouth removable denture in the state was 32.5 per cent and 1.4 per cent in subjects aged 65-74 years and 35-44 years respectively. The need for full mouth denture was the least (9.1 per cent) in Bangalore region.

Table 6.22 Percent distribution of subjects with their prosthetic need status (upper arch) by age, sex, and geographical area. State : Karnataka

Prosthetic Need (Upper)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	**n=**	**160**	**157**	***317***	**161**	**155**	***316***	**160**	**156**	***316***
With Prosthetic need		0.0	1.2	***0.6***	12.1	12.2	***12.2***	68.9	63.4	***66.2***
Need for one unit prosthesis		0.0	0.7	***0.4***	7.6	6.2	***6.9***	8.6	6.9	***7.8***
Need for multi unit prosthesis		0.0	0.6	***0.3***	3.8	3.3	***3.6***	16.6	19.7	***18.2***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	0.7	1.9	***1.3***	12.3	14.3	***13.3***
Need for full prosthesis		0.0	0.0	***0.0***	0.0	0.7	***0.4***	31.5	22.5	***27.0***
Region 2	**n=**	**157**	**157**	***314***	**157**	**157**	***314***	**157**	**157**	***314***
With Prosthetic need		4.7	6.7	***5.7***	3.8	4.3	***4.1***	4.3	5.3	***4.8***
Need for one unit prosthesis		3.8	5.3	***4.6***	0.9	2.4	***1.7***	3.8	4.4	***4.1***
Need for multi unit prosthesis		1.0	1.4	***1.2***	2.4	1.4	***1.9***	0.0	0.0	***0.0***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	0.5	0.5	***0.5***	0.0	0.0	***0.0***
Need for full prosthesis		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.5	1.0	***0.8***
Region 3	**n=**	**151**	**156**	***307***	**154**	**157**	***311***	**155**	**154**	***309***
With Prosthetic need		8.9	6.8	***7.9***	11.8	20.5	***16.2***	38.3	32.1	***35.2***
Need for one unit prosthesis		7.9	5.6	***6.8***	5.1	6.5	***5.8***	7.5	6.6	***7.1***
Need for multi unit prosthesis		1.0	1.2	***1.1***	4.4	9.9	***7.2***	5.1	5.7	***5.4***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	1.5	1.2	***1.4***	2.2	1.5	***1.9***
Need for full prosthesis		0.0	0.0	***0.0***	0.7	2.9	***1.8***	23.5	18.3	***20.9***
Region 4	**n=**	**163**	**156**	***319***	**157**	**180**	***337***	**160**	**162**	***322***
With Prosthetic need		3.2	3.1	***3.2***	25.8	27.6	***26.7***	78.0	71.5	***74.8***
Need for one unit prosthesis		2.5	2.5	***2.5***	7.8	7.4	***7.6***	7.7	8.2	***8.0***
Need for multi unit prosthesis		0.0	0.7	***0.4***	12.2	11.8	***12.0***	15.7	14.0	***14.9***
Need for combination of one and/or MUP		0.7	0.0	***0.4***	4.5	5.0	***4.8***	9.2	7.5	***8.4***
Need for full prosthesis		0.0	0.0	***0.0***	1.4	3.5	***2.5***	45.4	41.7	***43.6***
State Rural	**n=**	**420**	**418**	***838***	**422**	**432**	***854***	**427**	**417**	***844***
With Prosthetic need		2.5	2.3	***2.4***	15.8	17.9	***16.9***	56.2	49.2	***52.7***
Need for one unit prosthesis		2.3	1.7	***2.0***	6.5	5.6	***6.1***	6.9	6.2	***6.6***
Need for multi unit prosthesis		0.0	0.6	***0.3***	6.8	7.9	***7.4***	9.0	11.5	***10.3***
Need for combination of one and/or MUP		0.2	0.0	***0.1***	1.9	2.4	***2.2***	8.4	7.6	***8.0***
Need for full prosthesis		0.0	0.0	***0.0***	0.6	2.0	***1.3***	31.9	24.0	***28.0***
State Urban	**n=**	**211**	**208**	***419***	**207**	**217**	***424***	**205**	**212**	***417***
With Prosthetic need		4.4	7.1	***5.8***	6.2	8.3	***7.3***	33.2	35.5	***34.4***
Need for one unit prosthesis		3.2	5.6	***4.4***	3.3	5.2	***4.3***	6.9	6.9	***6.9***
Need for multi unit prosthesis		1.2	1.6	***1.4***	2.2	1.1	***1.7***	12.5	10.2	***11.4***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	0.7	1.7	***1.2***	3.8	6.2	***5.0***
Need for full prosthesis		0.0	0.0	***0.0***	0.0	0.3	***0.2***	10.0	12.2	***11.1***
State Total	**n=**	**631**	**626**	***1257***	**629**	**649**	***1278***	**632**	**629**	***1261***
With Prosthetic need		3.1	4.0	***3.6***	12.7	15.0	***13.9***	50.0	45.7	***47.9***
Need for one unit prosthesis		2.6	3.1	***2.9***	5.5	5.4	***5.5***	6.9	6.6	***6.8***
Need for multi unit prosthesis		0.4	0.9	***0.7***	5.3	5.9	***5.6***	10.0	11.2	***10.6***
Need for combination of one and/or MUP		0.2	0.0	***0.1***	1.5	2.1	***1.8***	7.1	7.2	***7.2***
Need for full prosthesis		0.0	0.0	***0.0***	0.4	1.5	***1.0***	26.0	20.8	***23.4***

Note: For information on status and need for full mouth removable dentures, please refer to Tables 6.21 and 6.24 respectively.

Table 6.23 Percent distribution of subjects with their prosthetic need status (lower arch) by age, sex, and geographical area. State : Karnataka

Prosthetic Need (Lower)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	**n=**	**160**	**157**	***317***	**161**	**155**	***316***	**160**	156	***316***
With Prosthetic need		1.8	2.2	***2.0***	23.1	29.5	***26.3***	67.7	68.5	***68.1***
Need for one unit prosthesis		0.4	1.4	***0.9***	10.9	10.0	***10.5***	5.8	7.4	***6.6***
Need for multi unit prosthesis		1.4	0.8	***1.1***	8.2	11.2	***9.7***	13.9	14.2	***14.1***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	3.3	6.3	***4.8***	11.5	13.0	***12.3***
Need for full prosthesis		0.0	0.0	***0.0***	0.7	2.0	***1.4***	36.5	33.9	***35.2***
Region 2	**n=**	**157**	**157**	***314***	**157**	**157**	***314***	**157**	**157**	***314***
With Prosthetic need		2.2	1.2	***1.7***	3.7	2.8	***3.3***	15.0	20.1	***17.6***
Need for one unit prosthesis		1.4	0.7	***1.1***	1.6	1.4	***1.5***	1.9	3.8	***2.9***
Need for multi unit prosthesis		0.7	0.5	***0.6***	1.9	1.2	***1.6***	8.8	10.2	***9.5***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	0.2	0.2	***0.2***	0.5	0.9	***0.7***
Need for full prosthesis		0.0	0.0	***0.0***	0.0	0.0	***0.0***	3.8	5.2	***4.5***
Region 3	**n=**	**151**	**156**	***307***	**154**	**157**	***311***	**155**	**154**	***309***
With Prosthetic need		7.5	7.3	***7.4***	24.2	35.3	***29.8***	49.1	52.8	***51.0***
Need for one unit prosthesis		4.8	4.1	***4.5***	10.9	9.5	***10.2***	3.2	4.2	***3.7***
Need for multi unit prosthesis		2.6	3.2	***2.9***	10.1	18.2	***14.2***	7.7	9.9	***8.8***
Need for combination of one and/or MUP		0.0	0.0	***0.0***	1.7	4.9	***3.3***	5.2	7.3	***6.3***
Need for full prosthesis		0.0	0.0	***0.0***	1.4	2.7	***2.1***	33.0	31.4	***32.2***
Region 4	**n=**	**163**	**156**	***319***	**157**	**180**	***337***	**160**	**162**	***322***
With Prosthetic need		3.5	2.3	***2.9***	34.5	35.5	***35.0***	79.3	70.5	***74.9***
Need for one unit prosthesis		1.8	2.3	***2.1***	9.8	9.0	***9.4***	6.0	5.3	***5.7***
Need for multi unit prosthesis		0.5	0.0	***0.3***	17.4	13.8	***15.6***	16.4	14.2	***15.3***
Need for combination of one and/or MUP		1.2	0.0	***0.6***	5.9	7.5	***6.7***	12.2	8.0	***10.1***
Need for full prosthesis		0.0	0.0	***0.0***	1.4	5.2	***3.3***	44.8	43.1	***44.0***
State Rural	**n=**	**420**	**418**	***838***	**422**	**432**	***854***	**427**	**417**	***844***
With Prosthetic need		2.9	2.0	***2.5***	21.2	25.7	***23.5***	57.8	55.8	***56.8***
Need for one unit prosthesis		1.5	1.1	***1.3***	8.9	7.8	***8.4***	4.6	5.4	***5.0***
Need for multi unit prosthesis		1.2	0.9	***1.1***	8.9	11.1	***10.0***	12.8	13.5	***13.2***
Need for combination of one and/or MUP		0.1	0.0	***0.1***	2.3	4.7	***3.5***	7.9	7.9	***7.9***
Need for full prosthesis		0.0	0.0	***0.0***	1.0	2.1	***1.6***	32.4	29.0	***30.7***
State Urban	**n=**	**211**	**208**	***419***	**207**	**217**	***424***	**205**	**212**	***417***
With Prosthetic need		2.9	3.7	***3.3***	12.7	17.2	***15.0***	31.4	40.6	***36.0***
Need for one unit prosthesis		1.5	2.8	***2.2***	5.5	5.9	***5.7***	3.3	5.7	***4.5***
Need for multi unit prosthesis		1.2	0.9	***1.1***	4.9	6.2	***5.6***	9.4	10.1	***9.8***
Need for combination of one and/or MUP		0.2	0.0	***0.1***	2.4	3.6	***3.0***	5.2	7.0	***6.1***
Need for full prosthesis		0.0	0.0	***0.0***	0.0	1.5	***0.8***	13.6	17.8	***15.7***
State Total	**n=**	**631**	**626**	***1257***	**629**	**649**	***1278***	**632**	**629**	***1261***
With Prosthetic need		3.0	2.6	***2.8***	18.5	23.2	***20.9***	48.6	50.1	***49.4***
Need for one unit prosthesis		1.6	1.6	***1.6***	7.9	7.2	***7.6***	4.1	5.5	***4.8***
Need for multi unit prosthesis		1.3	1.0	***1.2***	7.6	9.7	***8.7***	11.0	11.5	***11.3***
Need for combination of one and/or MUP		0.1	0.0	***0.1***	2.3	4.4	***3.4***	7.1	7.6	***7.4***
Need for full prosthesis		0.0	0.0	***0.0***	0.7	1.9	***1.3***	26.6	25.5	***26.1***

Note: For information on status and need for full mouth removable dentures, please refer to Tables 6.21 and 6.24 respectively.

Table 6.24. Percent subjects with need for full mouth removable denture (upper and lower arch) by age, sex and geographical area. State : Karnataka

Prosthetic need for full denture (upper & lower arch)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
Region 1	n=	158	155	*313*	159	154	*313*	159	154	*313*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.7	*0.4*	29.0	22.1	*25.6*
Region 2	n=	16	16	*32*	15	17	*32*	11	12	*23*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	7.1	11.0	*9.1*
Region 3	n=	83	91	*174*	74	79	*153*	75	72	*147*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	1.4	5.4	*3.4*	43.4	34.0	*38.7*
Region 4	n=	161	154	*315*	157	178	*335*	156	159	*315*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	1.4	3.5	*2.5*	44.6	41.2	*42.9*
State Rural	n=	291	286	*577*	294	302	*596*	291	279	*570*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.7	2.6	*1.7*	39.9	31.7	*35.8*
State Urban	n=	127	130	*257*	111	126	*237*	110	118	*228*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.6	*0.3*	19.2	21.7	*20.5*
State Total	n=	418	416	*834*	405	428	*833*	401	397	*798*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.6	2.2	*1.4*	35.8	29.2	*32.5*

6.6.6 Community need for immediate care and referrals

Table 6.25 presents the per cent subjects with of threatening conditions, pain or infection, other conditions, and referrals made.

Overall, life threatening conditions were very rare ranging from a mere 0.3 per cent in 12 and 15 year olds to a maximum of 1.2 per cent in 65-74 year old subjects. There were no life threatening conditions in 5 year olds.

Pain or infection ranged from 0.2 – 1.2 per cent , maximum recorded in 65-74 years (1.2 per cent). Other conditions were recorded in 0.3 per cent to 1 per cent subjects across age groups.

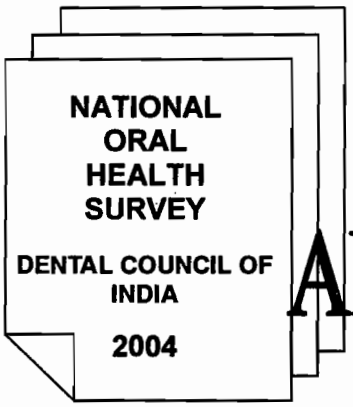
No marked male female and rural and urban differentials were detected except that life threatening conditions were reported only from the rural areas.

Referrals were done for almost all conditions recorded.

Table 6.25 Percent distribution of subjects with life threatening and painful conditions requiring immediate care and referral by age, sex and geographical area.

State : Karnataka

Need For Care & Referral		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
Region 1	n=	162	151	*313*	157	161	*318*	159	157	*316*	161	155	*316*	153	148	*301*
Life threatening condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.7	*0.4*	0.0	0.0	*0.0*	0.0	0.7	*0.4*
Pain or infection		0.0	0.0	*0.0*	0.6	0.0	*0.3*	0.0	0.0	*0.0*	0.7	0.6	*0.7*	1.4	0.7	*1.1*
Other condition		0.5	0.7	*0.6*	0.7	0.0	*0.4*	0.7	0.0	*0.4*	1.8	0.6	*1.2*	3.0	1.3	*2.2*
Referral		0.0	0.0	*0.0*	0.7	0.0	*0.4*	0.7	0.0	*0.4*	1.2	0.6	*0.9*	1.7	0.7	*1.2*
Region 2	n=	155	154	*309*	157	158	*315*	157	156	*313*	157	157	*314*	154	154	*308*
Life threatening condition		0.0	0.0	*0.0*	0.5	0.0	*0.3*	0.0	0.0	*0.0*	0.0	0.5	*0.3*	0.0	1.0	*0.5*
Pain or infection		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.5	*0.3*	0.0	1.0	*0.5*
Other condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.0	0.0	*0.5*	0.0	1.0	*0.5*
Referral		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.0	1.0	*1.0*	0.0	2.5	*1.3*
Region 3		148	149	*297*	150	152	*302*	151	155	*306*	150	154	*304*	151	146	*297*
Life threatening condition		0.0	0.0	*0.0*	0.8	0.0	*0.4*	0.0	0.0	*0.0*	0.8	0.0	*0.4*	0.0	0.0	*0.0*
Pain or infection		0.5	0.0	*0.3*	1.0	0.0	*0.5*	0.0	1.2	*0.6*	3.0	3.2	*3.1*	1.5	1.6	*1.6*
Other condition		0.0	0.0	*0.0*	0.8	0.0	*0.4*	0.0	0.0	*0.0*	0.8	0.0	*0.4*	0.8	0.0	*0.4*
Referral		0.0	0.0	*0.0*	1.0	0.0	*0.5*	0.0	1.2	*0.6*	3.0	3.1	*3.1*	0.8	1.6	*1.2*
Region 4		161	151	*312*	169	160	*329*	160	152	*312*	153	174	*327*	157	152	*309*
Life threatening condition		0.0	0.0	*0.0*	0.5	0.0	*0.3*	0.0	0.0	*0.0*	0.0	1.2	*0.6*	2.7	0.7	*1.7*
Pain or infection		0.7	0.0	*0.4*	0.0	0.0	*0.0*	0.0	0.7	*0.4*	0.7	0.6	*0.7*	0.7	2.5	*1.6*
Other condition		0.7	0.0	*0.4*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.6	*0.3*	0.7	0.0	*0.4*
Referral		1.3	0.0	*0.7*	0.0	0.0	*0.0*	0.0	0.7	*0.4*	0.0	1.2	*0.6*	2.7	2.5	*2.6*
State Rural		419	406	*825*	425	421	*846*	418	414	*832*	415	426	*841*	420	405	*825*
Life threatening condition		0.0	0.0	*0.0*	0.3	0.0	*0.2*	0.0	0.4	*0.2*	0.1	0.6	*0.4*	0.9	1.1	*1.0*
Pain or infection		0.2	0.0	*0.1*	0.0	0.0	*0.0*	0.0	0.4	*0.2*	1.2	0.8	*1.0*	1.3	1.1	*1.2*
Other condition		0.2	0.4	*0.3*	0.5	0.0	*0.3*	0.4	0.0	*0.2*	0.5	0.2	*0.4*	0.7	0.4	*0.6*
Referral		0.4	0.0	*0.2*	0.4	0.0	*0.2*	0.4	0.4	*0.4*	1.0	1.3	*1.2*	1.0	1.4	*1.2*
State Urban		207	199	*406*	208	210	*418*	209	206	*415*	206	214	*420*	195	195	*390*
Life threatening condition		0.0	0.0	*0*	0.3	0.0	*0.3*	0.0	0.0	*0*	0.0	0.0	*0*	0.0	0.0	*0*
Pain or infection		0.2	0.0	*0.1*	1.0	0.0	*0.5*	0.0	0.2	*0.1*	0.0	1.0	*0.5*	0.0	1.6	*0.8*
Other condition		0.6	0.0	*0.3*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	2.0	0.6	*1.3*	2.5	1.5	*2.0*
Referral		0.0	0.0	*0.0*	0.4	0.0	*0.2*	0.0	0.2	*0.1*	1.4	1.0	*1.2*	1.9	2.4	*2.2*
State Total		626	605	*1231*	633	631	*1264*	627	620	*1247*	621	640	*1261*	615	600	*1215*
Life threatening condition		0.0	0.0	*0*	0.3	0.0	*0.3*	0.0	0.3	*0.3*	0.1	0.4	*0.5*	0.6	0.6	*1.2*
Pain or infection		0.2	0.0	*0.1*	0.3	0.0	*0.2*	0.0	0.3	*0.2*	0.9	0.8	*0.9*	0.9	1.4	*1.2*
Other condition		0.3	0.3	*0.3*	0.4	0.0	*0.2*	0.3	0.0	*0.2*	1.1	0.3	*0.7*	1.2	0.8	*1.0*
Referral		0.3	0.0	*0.2*	0.4	0.0	*0.2*	0.3	0.3	*0.3*	1.2	1.1	*1.2*	1.3	1.9	*1.6*



ANNEXURES

DENTAL COUNCIL OF INDIA

EXECUTIVE COMMITTEE

Dr. R K Bali
President
New Delhi

Dr. C. Bhasker Rao,
Vice President,
Dharwad.

Dr. Anil Kohli
New Delhi

Dr. Ravindra Ratolikar,
Hyderabad

Dr. S. G. Damle
Mumbai

Dr. B. H. Sripathi Rao
Mangalore.

Dr. J. R. Sabharwal
New Delhi

Dr. S. P. Agarwal,
New Delhi

OUTGOING MEMBERS

Dr. Mahesh Verma, New Delhi.

Dr. V. Surindra Shetty, Mangalore.

Dr. B. Suresh Chandra, Mangalore.

SUPPORT STAFF

Mr. A. L. Miglani, Secretary (Retd.)

Mr. S.S. Arora, Secretary I/c.

Mr. C.L. Bhatia

Mr. K. V. Abraham

Mr. P. K. De

Mr. Shiv Kumar

Mr. Praveen Kumar

Mr. S. S. Kanyal

Mr. Puneet Bansal

Mr. Anil Kumar

NOHS SECRETARIAT

Mrs. Sarita Verma

ANNEXURE - 1

CENTRAL SURVEY TEAM

Dr. R. K. Bali

Dr. V. B. Mathur

Prof. P. P. Talwar

Mr. H. B. Chanana

ANNEXURE - 2

TECHNICAL WORKING GROUP

Dr. R. K. Bali, President, DCI

Dr. V.B. Mathur

Dr. Shankar Aradhya

Dr. K.V.V. Prasad

Dr. M.B. Aswathnarayana

Prof. P.P. Talwar

Dr. Amrit Tiwari

LIST OF STATES, REGIONS WITHIN STATES AND SELECTED DISTRICTS

ANNEXURE - 3

Sr. No	State	Regions	Region Code	Selected Districts
1	Andhra Pradesh	North Coastal Andhra	01	Vishakapatnam
		South Coastal Andhra	02	Guntur
		Nellore	03	Nellore
		Rayalseema	04	Chittoor
		S Telangana	05	Ranga Reddy
		N Telangana	06	Khammam
2	Assam	N Eastern Hills	01	Karbi Anglong
		Lower Brahamputra	02	Kamrup
		Upper Brahamputra	03	Jorhat
3	Gujarat	S Hills	01	Bulsar
		S Gujarat	02	Surat
		M Gujarat	03	Baroda
		N Gujarat	04	Ahmedabad
		N W Arid	05	Kutch
		N Saurashtra	06	Jamnagar
		Saurashtra	07	Junagarh
4	Haryana	Foot Hills of Shivalik	01	Yamunanagar
		Plains	02	Rohtak
		Arid	03	Sirsa
5	Himachal Pradesh		01	Simla
			02	Kinnaur
6	Punjab	N Punjab	01	Roppas (Ropar)
		C Punjab	02	Patiala
		S Punjab	03	Sangrur
7	Chandigarh	Chandigarh	01	Chandigarh
8	Delhi	Delhi	01	Delhi
9	Karnataka	N Dry Region	01	Dharwad
		Central Region	02	Bangalore
		S Region	03	Mysore
		Hills & Coastal Region	04	Kodagu
10	Kerala	Coastal Midland	01	Malappuram
		Midlands	02	Kottayam
		Hills	03	Wayanad
11	Madhya Pradesh	Bundelkhand	01	Chattarpur
		Chattisgarh Hills	02	Mandla
		Keymor.. Plateau & Satapura Hills	03	Jabalpur

Sr. No	State	Regions	Region Code	Selected Districts
		Vindhya Plateau	04	Bhopal
		Satpura Plateau	05	Chindwara
		Central Narmada Valley	06	Hoshangabad
		Gird	07	Guna
		Malwa & Nimar (?) Plateau	08	Indore
12	Maharashtra	E Vidharba	01	Bhandara
		W Hills & Plains	02	Nasik
		Scarcity Region	03	Ahmednagar
		C Plateau	04	Amrawati
		C Vidharba	05	Wardha
		Konkan	06	Thane
13	Goa	Goa	01	Goa
14	Orissa	Inland	01	Dhankonal
		N Plateau Hills	02	Keonjar
		S W Hills	03	Koraput
		Coastal	04	Cuttack
		Ganjan	05	Ganjam
15	Rajasthan	N Arid	01	Ganganagar
		S Plains	02	Udaipur
		E Plains	03	Jaipur
		S Plateau	04	Jhalawar
		W Arid	05	Sikar
16	Tamil Nadu	N Region	01	Salem
		C Region	02	Coimbatore
		NE Coastal	03	Chennai
		Delta	04	Thanjavur
		SE Coastal	05	Tirunevalli
		S Region	06	Kanyakumari
		Hills Region	07	Nilgiri
17	U P	N E Plains	01	Gonda
		E Plains	02	Ballia
		C Plains	03	Sitapur
		N W Plains	04	Ghaziabad
		S W Plains	05	Aligarh
		Bundelkhand	06	Banda
18	J & K	Ladhakh	01	Ladakh
		Kashmir Valley	02	Srinagar
		Jammu	03	Jammu
19	Pondicherry	Pondicherry	01	Pondicherry

ANNEXURE - 4

LIST OF PARTICIPATING DENTAL COLLEGES

1.	Regional Dental College, Guwahati, (Assam)
2.	Govt. Dental College & Hospital, Ahmedabad (Gujarat)
3.	Dental College & Hospital, Delhi
4.	B.R.S. Dental College & Hospital Panchkula (Haryana)
5.	Dental College, Rohtak (Haryana)
6.	H.P. Govt. Dental College, Shimla (H.P.)
7.	College of Dental Surgery, Kasturba Medical College, Mangalore (Karnataka)
8.	Govt. Dental College, Bangalore
9.	Bharati Vidyapeeth Dental College & Hospital, Pune
10.	Dental Wing, S.C.B. Medical College, Cuttak (Orissa)
11.	Mahatma Gandhi Dental College & Hospital, Pondicherry.
12.	Dental College & Hospital, Lucknow
13.	Govt Dental College, Indore (M.P)
14.	Principal, Sri Sai College of Dental Surgery, Vikarabad – 501 101 (R.R. Dist. – A.P.)
15.	Govt. Dental College, Srinagar (J&K)
16.	Pacific Dental College, Udaipur, Rajasthan

ANNEXURE - 5

REGIONAL COORDINATORS

S. No.	State	Regional Coordinator
1.	Andhra Pradesh	Dr. A. Jayakumar, Principal Sri Sai College of Dental Surgery, Vikarabad
2.	Assam	Dr. Rubi Kataki Deptt. of Conservative Dentistry, Regional Dental College, Guwahati
3.	Delhi	Dr. Mahesh Verma, Principal, Dental College & Hospital, Maulana Azad Medical College,New Delhi
4.	Gujarat	Dr. Jayesh K. Parikh Govt. Dental College & Hospital, Ahmedabad.
5.	Himachal Pradesh, Punjab, Haryana, Chandigarh	Dr. N.C. Rao H.P. Govt. Dental College & Hospital, Shimla Deptt. of Community Dentistry,
6.	Jammu & Kashmir	Dr. Tara Singh Govt. Dental College, Srinagar.
7.	Karnataka	Dr. S.S. Hiremath Deptt. Of Community Dentistry, Govt. Dental College, Bangalore.
8.	Kerala	Dr. K. Nanda Kumar, Dental College, Medical Campus, Trivandrum
9.	Madhya Pradesh	Dr. S.V. Dhodapkar, Professor & Head of the Deptt. of Periodontics, College of Dentistry, Indore.
10.	Maharashtra, Goa	Dr. S.G. Damle, Dean, Nair Hospital Dental College, Mumbai.
11.	Orissa	Dr. Ashok K. Mahapatra Deptt. of Community Dentistry, S.C.B. Medical College, Cuttack.
12.	Tamil Nadu, Pondicherry	Dr. M.B. Aswathnarayanan, Deptt. of Community Dentistry, Govt. Dental College & Hospital, Chennai.
13.	Rajasthan	Dr. G. V. N. Ramesh, Principal, Pacific Dental College, Udaipur

NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

ANNEXURE - 6

TEAM MEMBERS (KARNATAKA)

S. No.	Name	Designation
1.	Dr. S.S. Hiremath	Regional Coordinator
2.	Dr. Soben Peter	Supervisor
3.	Dr. K.V.V Prasad	Supervisor
4.	Dr. Deepak Negi	Team Member
5.	Dr. Ganesh Shenoy .P	Team Member
6.	Dr. Pramila .M	Team Member
7.	Dr. Arun Kumar .A	Team Member
8.	Dr. Rekha .R	Team Member
9.	Dr. Manjunath P. Puranik	Team Member
10.	Dr. Naganandini	Team Member
11.	Dr. Shanthi .M	Team Member
12.	Dr. Vanishree	Team Member
13.	Dr. Pradeep Tangade	Team Member
14.	Dr. Jaiprakash	Team Member
15.	Dr. Manjunath .R	Team Member
16.	Dr. Archana Krishnamurthy	Team Member
17.	Dr. Sadanand .L.D.	Team Member
18.	Dr. Rajesh	Team Member
19.	Dr. Girish Shavi	Team Member
20.	Dr. Pushpanjali	Assistant
21.	Dr. Shoba	Assistant
22.	Dr. Veeresh	Assistant
23.	Dr. Naveen	Assistant
24.	Dr. Chandrashekar	Assistant
25.	Dr. Nalini	Assistant
26.	Dr. Vinutha	Assistant
27.	Dr. Priya	Assistant
28.	Dr. Fathima Anjum	Assistant
29.	Dr. Chandru T.P	Assistant
30.	Dr. Krupa Shankar	Assistant

ANNEXURE - 7

DENTAL COUNCIL OF INDIA, NEW DELHI
भारतीय दंत चिकित्सा परिषद, नई दिल्ली
NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING 2002
राष्ट्रीय मुख स्वास्थय सर्वेक्षण तथा फ्लोराइड मैपिंग 2002

(A NATIONAL EPIDEMIOLOGICAL STUDY OF ORAL HEALTH PROBLEMS AND FLUORIDE ESTIMATION IN WATER SAMPLES)
(मुख स्वास्थय समस्याओं सम्बन्धी महामारी विज्ञान का राष्ट्रीय अध्ययन तथा जल–नमूनों में फ्लोराइड एस्टीमेशन)

DATE / तिथि | | | | | 0 | 2 | (DAY) (MONTH) (YEAR)

FORM NO. फार्म संख्या | 1 | 0 | (1-2)

STATE / राज्य | | | (6-7)

TEAM NO. दल संख्या (टीम) | | | | (3-5)

ZONE / क्षेत्र (ज़ोन) | | | (8-9)

DISTRICT / जिला | | (10)

NAME OF VILLAGE / URBAN BLOCK _____ (11-12)
गांव/शहरी ब्लाक का नाम

VILLAGE CODE **R / U /** आर/यू **R = 1 U = 2** | 1 | 2 | (13)
R U

SERIAL NO. OF HOUSEHOLD VISITED | | | | (14-16)
सर्वेक्षण किये गये (सर्वेक्षित) घरों की क्रम संख्या

NAME OF HEAD OF HOUSEHOLD Mr. / Mrs. _____
घर के मुखिया का नाम

NAME OF SPOUSE _____
पत्नी का नाम

ADDRESS OF THE HOUSEHOLD _____
घर का पता

_____

NAME OF INTERVIEWER _____
साक्षात्कार कर्ता का नाम **(NAME) /** नाम **(SIGN) /** हस्ताक्षर

FIELD CHECKED BY _____
क्षेत्र जांचकर्ता **(NAME) /** नाम **(SIGN) /** हस्ताक्षर **(SUPERVISOR) /** (सुपरवाइजर)

SCRUTINISED BY _____
जांचकर्ता **(NAME) /** नाम **(SIGN) /** हस्ताक्षर **(SUPERVISOR) /** (सुपरवाइजर)

CHECKED BY _____
जांचकर्ता **(NAME) /** नाम **(SIGN) /** हस्ताक्षर **(COORDINATOR) /** (संयोजक)

FORM NO. फार्म संख्या | 1 | 1 |

A. SOCIO-ECONOMIC & DEMOGRAPHIC CHARACTERISTICS OF THE FAMILY
अ. परिवार की सामाजिक–आर्थिक विशिष्टताएं

S. No./ क्रम सं.	Question / प्रश्न	Code / कोड	
1.	**Name of Respondent and his/her relationship with Head of HH** उत्तरदाता का नाम तथा घर के मुखिया से उसका सम्बन्ध	*(Head of Household)* **Self/** स्वयं ..... 1 **FATHER/** पिता ..... 2 **MOTHER/** माता ..... 3 **BROTHER/** भाई ..... 4 **OTHER/** अन्यं 5	
2.	**Age of Respondent (in completed years)** उत्तरदाता की आयु (पूर्ण वर्षों में)	☐☐ **Yrs./** वर्ष	(17-18)
3.	**Sex of the Respondent** उत्तरदाता का लिंग	**M=1/** पु. ☐ **M=2/** स्त्री ☐	(19)
4.	**Religion of the Household** धर्म *(Tick One)/* (एक पर चिन्ह लगायें)	**Hindu/** हिन्दू ..... 1 **Muslim/** मुस्लिम ..... 2 **Sikh/** सिख ..... 3 **Christian/** ईसाई ..... 4 **Others/** अन्यं 5	(20)
5.	**Caste of the Household** जाति *(Tick One)/* (एक पर चिन्ह लगायें)	**SC/** अनु. जाति ..... 1 **ST/** आदिम जाति ..... 2 **OBC/** अन्य पिछड़ा वर्ग ..... 3 **Others/** अन्यं 4	(21)
6.	**What is the highest educational level completed by the Head of the HH?** मुखिया का शिक्षा स्तर	**Illiterate** अशिक्षित ..... 1 **Primary** प्राइमरी ..... 2 **Middle** मिडिल ..... 3 **High School** हाईस्कूल ..... 4 **Graduate** स्नातक ..... 5 **Professional** व्यवसायिक 6	(22)
7.	**How much is the TOTAL Monthly Expenditure of the Household?** घर का कुल मासिक व्यय कितना है?	**TOTAL Rs.** कुल रु. ☐☐☐☐☐	(23-27)
8.	**Type of House (Observe & record)** मकान किस प्रकार का है? (देखें व लिखें)	**Kuccha/** कच्चा ..... 1 **Semi-Pucca/** आधा–पक्का ..... 2 **Pucca/** पक्का 3	(28)

S. No./ क्रम सं.	Question / प्रश्न	Code / कोड	
9.	***Total No. of members in the family (probe and record the number)*** परिवार में कुल सदस्यों की संख्या (जांच करें व लिखें)	***M*** / पु. ***F*** / स्त्री	(29-30)
10.	***No. of persons 5 years old*** पांच वर्ष की आयु के व्यक्तियों की संख्या	***M*** / पु. ***F*** / स्त्री	(31-32)
11.	***No. of persons 12 years old*** बारह वर्ष की आयु के व्यक्तियों की संख्या	***M*** / पु. ***F*** / स्त्री	(33-34)
12.	***No. of persons 15 years old*** पन्द्रह वर्ष की आयु के व्यक्तियों की संख्या	***M*** / पु. ***F*** / स्त्री	(35-36)
13.	***No. of persons 35-44 years old*** 35–44 वर्ष की आयु के व्यक्तियों की संख्या	***M*** / पु. ***F*** / स्त्री	(37-38)
14.	***No. of persons 65-74 years old*** 65–74 वर्ष की आयु के व्यक्तियों की संख्या	***M*** / पु. ***F*** / स्त्री	(39-40)

B. FOOD HABITS / खाद्य सम्बन्धी आदतें

S. No./ क्रम सं.	Question / प्रश्न	Code / कोड	
15.	***What is your staple (main) food in the Household?*** आपका मुख्य अन्न क्या है? *(Tick One)/* (एक पर चिन्ह लगायें)	***Wheat*** / गेंहू ..... ***1*** ***Rice*** / चावल ..... ***2*** ***Maize*** / मक्का ..... ***3*** ***Jowar*** / ज्वार ..... ***4*** ***Bajra*** / बाजरा ..... ***5*** ***Others*** / अन्य ***6***	(41)
16.	***What is your main source of drinking water? (Take a sample of water In the given jar if the source of water is different from the one where earlier sample was collected)*** आपका पीने के पानी का मुख्य स्रोत क्या है? (पूर्व घर में एकत्रित नमूने से यदि यहाँ का स्रोत भिन्न है तो जार में पानी का नमूना लें) *(Tick One)/* (एक पर चिन्ह लगायें)	***Pipe/Tap*** / पाईप/टोटी ..... ***1*** ***Tubewell/Handpump*** / ट्यूबवैल ..... ***2*** ***Draw Well*** / हैंड पम्प ..... ***3*** ***Pond*** / कूआं ..... ***4*** ***River*** / नदी ..... ***5*** ***Others*** / अन्य ***6***	(42)
17.	***Identification of the drinking water source as marked on jar or bottle in which sample collected from this HH source or one before (if source is same)*** पानी के नमूने की संख्या?	☐	(43)
18.	***Is your family predominantly Veg./Non-Veg.*** क्या आपका परिवार मुख्य रूप से शाकाहारी/सामिश्र है? *(Tick One)/* (एक पर चिन्ह लगायें)	***Veg.*** / शाकाहारी ..... ***1*** ***Non-Veg.*** / सामिश्र ***2***	(44)

FORM NO. फार्म संख्या | 1 | 2 |

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		Interviewee's Age / साक्षात्कार देने वाले की आयु					
					5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
A. अ.	**Socio-demographic cherecteristics of the individual** व्यक्ति की सामाजिक विशिष्टताएं									
19.	Name of Individual (Interviewee) / साक्षात्कार देने वाले व्यक्ति का नाम									
20.	Name of Respondent and his/her relationship with Individual (Interviewee)/ उत्तरदाता का व्यक्ति से संबंध	Self / स्वयं ..... 1 FATHER/ पिता ..... 2 MOTHER/ माता ..... 3 BROTHER/ भाई ..... 4 OTHER/ अन्य 5				N.A.	N.A.	N.A.	N.A.	(45-49)
21.	Age of Individual (Interviewee) (in completed years) / साक्षात्कार देने वाले की आयु (पूर्ण वर्षों में)				5 Yrs.	12 Yrs.	15 Yrs.			(50-59)
22.	Sex / लिंग	M=1 F=2 पुरुष–1 स्त्री–2			M = 1 F = 2	M = 1 F = 2	M = 1 F = 2	M = 1 F = 2	M = 1 F = 2	(60-64)
23.	What is the level of Education attained by you? / आप की शिक्षा का स्तर क्या है? (Tick One)/ (एक पर चिन्ह लगायें)	Illiterate / अशिक्षित ..... 1 Primary / प्राइमरी ..... 2 Middle / मिडिल स्कूल ..... 3 High School / हाई स्कूल ..... 4 Graduate / स्नातक ..... 5 Professional / व्यवसायिक 6			NOT TO BE ASKED	(MENTION CODE 1-6 AS APPLICABLE AGAINST EACH AGE GROUP)				(65-69)

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
24.	Your occupation or Profession ? / आपका रोजगार या व्यवसाय?	Farmer ..... 1 कृषक Agriculture Labour ..... 2 कृषि श्रमिक Business ..... 3 व्यापार Professional ..... 4 व्यवसाय White Collar Worker ..... 5 व्हाईट–कालर कार्य Skilled Worker ..... 6 सीखा हुआ कर्मचारी Unskilled Worker ..... 7 बिना सीखा हुआ कर्मचारी Other (Specify) ..... 8 अन्य			ASKED	ASKED				(70-74)
25.	How often do you read a Newspaper? / आप समाचार–पत्र कब पढ़ते है?	Daily ..... 1 प्रतिदिन Sometime ..... 2 कभी–कभी Not at all ..... 3 कभी नहीं			BE	BE				(75-79)
26.	How often do you listen to Radio? / आप रेडियो कब सुनते हैं?	Daily ..... 1 प्रतिदिन Sometime ..... 2 कभी–कभी Not at all ..... 3 कभी नहीं			TO	TO				(80-84)
27.	How often do you watch to TV? / आप टी वी कब देखते हैं?	Daily ..... 1 प्रतिदिन Sometime ..... 2 कभी–कभी Not at all ..... 3 कभी नहीं			NOT	NOT				(85-89)
28.	How often do you watch Cinema in a Hall? / आप सिनेमा हाल में कब देखते हैं? (Tick One)	Once in 3 months ..... 1 3 माह में एक बार Less often ..... 2 बहुत कम Not at all ..... 3 कभी नहीं								(90-94)

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	

B. Abnormal Oral Habits

ब. मुख सम्बन्धी असामान्य आदतें

29.	***Does the interviewee generally breathe by nose or mouth ? /*** आप साधारणतया नाक से सांस लेते हैं या मुँह से?	***Nose/*** नाक	***1***							(95-99)
		Mouth/ मुँह	***2***							
		Can't Say/ कह नहीं सकता	***3***							
30.	***Did/does the interviewee have a habit of sucking or biting his/her fingers or Thumb?*** क्या आपको अपनी उँगली चूसने या दांतों से दबाने की आदत हैं या थी? (देखें और लिखें)	***No/*** नहीं	***1***							(100-104)
		Yes/ हां	***2***							
		Can't Say/ कह नहीं सकता	***3***							
31.	***Did/does the interviewee have a habit of thrusting his/her tongue on his/her teeth? (Observe & Record) /*** क्या आपको अपनी जीभ द..तों पर दबाने की आदत है या थी? (देखें और लिखें)	***No/*** नहीं	***1***							(105-109)
		Yes/ हां	***2***							
		Can't Say/ कह नहीं सकता	***3***							
32.	***Did/does the interviewee have a habit of bitting nails, lips or objects like a pencil*** क्या साक्षात्कार देने वाले को नाखून, होंठ या पेन्सिल जैसी चीजें चबाने की आदत है या थी?	***No/*** नहीं	***1***							(110-114)
		Yes/ हां	***2***							
		Can't Say/ कह नहीं सकता	***3***							
33.	***Did/does the interviewee have a habit of gritting or grinding his/her teeth consciously, unconsciously, during sleep or moments of stress? /*** क्या आपको जाने–अनजाने सोते समय या किसी दबाव के समय अपने दांत रगड़ने की आदत है या थी?	***No Habit/*** आदत नहीं	***1***							(115-119)
		In Sleep/ नींद में	***2***							
		In Stress/ दबाव में	***3***							
		Can't Say/ कह नहीं सकता	***4***							

C. Eating Habits

स. खान–पान की आदतें

34.	***How many times between today & yesterday have you taken anything sweet? (Help to recall number of times sweet taken during last 24 hrs.) /*** आपने कल और आज के बीच कितनी बार मीठा खाया? (पिछले 24 घंटों के दौरान कितनी बार मीठा खाया, याद दिलाने में सहायता करें)	***1 times/*** एक बार	***1***							(120-124)
		2 times/ 2 बार	***2***							
		3 times/ 3 बार	***3***							
		4 times/ 4 बार	***4***							
		5 times/ 5 बार	***5***							
		> 5 times/ 6 बार	***6***							
		Not taken/ नहीं खाई	***7***							

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
35.	When were these sweet eaten ? / मीठा कब–कब खाया गया?	During Meals ..... भोजन के समय	1							(125-129)
		In Between Meals ..... भोजन के समय के बीच	2							
		During & In Between Meals ..... भोजन के समय व बीच में	3							
		N.A. / लागू नहीं होता	4							

D. Oral Hygiene Practices
द. मुख की सफाई

36.	How do you generally clean your teeth?/ सामान्यतः आप अपने दांत कैसे साफ करते हैं?	Finger/ उंगली से	1	If Code chosen either 3 or 4, go to Q. 42.						(130-134)
		Brush/ ब्रुश से	2							
		Datun/ दातुन	3							
		Others (Specify) ..... अन्य	4							
37.	How often do you clean your teeth in a day ? / दिन में आप कितनी बार दांत साफ करते हैं?	Once/ दिन में एक बार	1							(135-139)
		Twice/ दिन में दो बार	2							
		After every meal ..... प्रति भोजन के बाद	3							
		Don't clean every day ..... प्रतिदिन साफ नहीं करते	4							
38.	What are your timings of cleaning teeth ? / दांत साफ करने का समय क्या है?	Morning only/ केवल प्रातःकाल	1							(140-144)
		Night only (before going to bed) ..... केवल रात में सोने से पहले	2							
		Morning & Night ..... प्रातःकाल व रात	3							
		After meals ..... भोजन के बाद	4							
		Others (Specify) ..... अन्य	5							
39.	What material do you generally use to clean teeth ? / सामान्यतः आप अपने दांत किस चीज से साफ करते हैं?	Toothpaste ..... टूथपेस्ट	1	If Code chosen 3, go to Q. 41						(145-149)
		Toothpowder ..... टूथपाउडर	2							
		Others (Specify) ..... अन्य	3							

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
40.	***Check tooth paste/powder used and record whether it is fluoridated or non-fluoridated?*** प्रयुक्त किये गए टूथ पेस्ट/पाउडर को चैक करें व लिखें वह फ्लोराइड–युक्त है या फ्लोराइड रहित?	***Fluoridated*** ..... ***1*** फ्लोराइड–युक्त ***Non-Fluoridated*** ..... ***2*** फ्लोराइड–रहित ***Can't Say*** ..... ***3*** कह नहीं सकता ***None*** ***4***								(150-154)
41.	***(Ask only if code in Q. 36 was 2.)*** ***How often do you change your toothbrush?*** आप अपना टूथ ब्रश कितने समय बाद बदलते हैं?	***1-3 months/*** 1–3 माह ..... ***1*** ***4-6 months/*** 4–6 माह ..... ***2*** ***6 + months/*** ..... ***3*** 6 से अधिक ***NA (Not using/ Brush)*** ***4***								(155-159)
42.	***How often you rinse your mouth with water after eating? /*** क्या भोजन करने के बाद आप पानी से कुल्ला करते हैं।	***Never*** ..... ***1*** कभी नहीं ***Sometimes*** ..... ***2*** कभी–कभी ***Always*** ..... ***3*** सर्वदा								(160-164)
43.	***Do you use any other oral hygiene aids?*** क्या आप मुँह साफ करने के लिए किसी अन्य साधन का इस्तेमाल करते हैं? ***(Tick as many as reported)*** **(जितना बताएं सब लिखें)**	***Dental Floss*** ..... ***1*** डेन्टल फ्लॉश ***Interdental Brush*** ..... ***2*** इन्टरडेन्टल ब्रुश ***Toothpicks*** ..... ***3*** टूथ पिक्स ***Fluoride Mouthrinse*** ..... ***4*** फ्लोराइड माउथरिन्स ***Other*** ..... ***5*** ***Mouthwash/Rinse (Specify)*** अन्य माउथवाश/रिन्स लिखें ***None/*** कोई नहीं ***6***								(165-184)

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
E.	**Pattern of Practices for Dental Treatment**									
द.	दंत–चिकित्सा के तरीके									
44.	***Have you suffered from any mouth or teeth problems in the last one year?/*** क्या पिछले एक वर्ष में आपको मुख या दांत सम्बन्धी कोई बीमारी हुई है?	***No/*** नहीं ***Yes*** / हां ***Can't Say/*** कह नहीं सकता	***1*** ***2*** ***3***	**If No. Go to Q. 47**						(185-189)
45.	***What were or was the problem?*** यदि हां, तो समस्या क्या थी या है? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***Dental decay*** दंत–क्षय ***Gum disease*** मसूड़ों की बीमारी ***Foul breath*** दुर्गन्धित सांस ***Bleeding gums*** मसूड़ों से खून बहना ***Trauma*** ट्रोमा (चोट) ***Abscess*** एबसेस (फोड़ा) ***Crooked teeth*** टेढ़े–मेढ़े दांत ***Ulcer*** अल्सर ***Others (Specify)*** अन्य (लिखें)	***1*** ***2*** ***3*** ***4*** ***5*** ***6*** ***7*** ***8*** ***9***							(190-209)
46.	***Who was or were consulted?*** आपने किससे राय ली? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***None/*** कोई नहीं ***Friend/Neighbour*** मित्र / पड़ोसी ***Relative/*** रिश्तेदार ***Med. Practitioner*** मेडिकल प्रेक्टिश्नर ***Pharmacist/ Chemist*** फारमासिस्ट / कैमिस्ट ***Untrained Dentist*** अनट्रेण्ड डेन्टिस्ट ***Trained Dentist*** टेण्ड डेन्टिस्ट ***Others (Specify)*** अन्य	***1*** ***2*** ***3*** ***4*** ***5*** ***6*** ***7*** ***8***							(210-229)

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
47.	***Are you suffering or have you ever suffered from one or more of the following :*** क्या आपको कभी निम्न बीमारियाँ थीं या हैं? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***None/*** कोई नहीं ***Hypertension*** हाईपरटेन्शन ***Diabetes*** डाईबिटीज़ ***Epilepsy*** एपिलेप्सी ***Jaundice*** जोन्डिस ***Asthma*** अस्थमा ***Others (Specify)*** अन्य ***Can't Say/*** कह नहीं सकता	***1*** ***2*** ***3*** ***4*** ***5*** ***6*** ***7*** ***8***							(230-249)
48.	***What is or are the availability of dental treatment facilities in your area? /*** आपके क्षेत्र में दंत–चिकित्सा सम्बन्धी क्या सुविधाएं उपलब्ध हैं? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***None/*** कोई नहीं ***Govt. Hosp./ Dispensary*** सरकारी हस्पताल / डिस्पेन्सरी ***Private Hospitals*** निजी हस्पताल ***Private Practitioner*** प्राइवेट प्रेक्टिशनर ***Don't Know*** नहीं जानते	***1*** ***2*** ***3*** ***4*** ***5***							(250-269)
49.	***How accessible are the Oral health facilities with available transport?*** उपलब्ध परिवहन द्वारा मुख–स्वास्थ्य सुविधाओं तक पहुंच का समय।	***Less than ½ hour*** आधा घण्टा से कम ***½ to 1 hour*** आधा से 1 घण्टा ***> 1 hour*** 1 घण्टा से अधिक ***Can't Say*** कह नहीं सकता	***1*** ***2*** ***3*** ***4***							(270-274)

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
F.	**Awareness and Knowledge of Dental Health Problems** एफ. दंत–स्वास्थ्य समस्याओं की जानकारी व जागरूकता									
50.	***What, in your opinion, are the common problems associated with mouth and teeth? /*** आपकी राय में मुख व दांतों से सम्बन्धित सामान्य समस्याएँ क्या हैं? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***Tooth Decay*** ..... 1 दंत–क्षय ***Gum Disease*** ..... 2 मसूड़ों की बीमारी ***Bad Smell*** ..... 3 दुर्गन्ध ***Crooked teeth*** ..... 4 टेढ़े–मेढ़े दांत ***Mouth Ulcers*** ..... 5 मुख का अल्सर ***Stained teeth*** ..... 6 गन्दे दांत ***Others (Specify)*** ..... 7 अन्य ***Don't Know*** ..... 8 नहीं जानता			ASKED					(275-294)
51.	***What, in your opinion, are the major factors which cause dental problems?/*** आपकी राय में, किन मुख्य कारणों से दांतों की समस्याएँ पैदा होती हैं? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***Eating sweets icecreams/chocolates*** मिठाई / आइसक्रीम / चाकलेट खाना ..... 1 ***Not brushing regularly*** नियमित रूप से ब्रुश न करना ..... 2 ***Not rinsing*** पानी से मुख साफ न करना ..... 3 ***Consuming Tobacco products/*** तम्बाकू उत्पाद खाना ..... 4 ***Others (Specify)*** अन्य ..... 5 ***Don't Know*** नहीं जानता 6			NOT TO BE					(295-314)

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
52.	***How can you prevent dental problems?/*** आप किस प्रकार दांतों की बीमारियों को रोक सकते हैं? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***Not consuming tobacco products /*** तम्बाकू उत्पादों का इस्तेमाल न करके	1	ASKED						(315-334)
		Regular cleaning of teeth with brush ब्रुश द्वारा दांतों की नियमित सफाई	2							
		Visiting dentist regularly दंत–चिकित्सक द्वारा नियमित जांच	3							
		Using Fluoride Toothpaste फ्लोराइड टूथ–पेस्ट का इस्तेमाल	4							
		Avoiding sweets icecreams/chocolates मिठाई, आइसक्रीम व चाकलेट छोड़कर	5							
		Others (Specify) अन्य तरीके	6							
		Don't Know नहीं जानता	7							

G. Tobacco Smoking and Chewing Habits
जी. तम्बाकू चबाने व पीने की आदतें

53.	***Do you smoke? /*** क्या आप धूम्रपान करते हैं?	***No/*** नहीं	1	**In case NO go to Q. 61**	NOT ASKED					(335-339)
		Yes/ हां	2							
54.	***What do you smoke? /*** आप कौन सा धूम्रपान करते हैं? ***(Tick as many as reported)*** (जितना बताएं सब लिखें)	***Chillum/*** चिलम	1							(340-359)
		Hookah/ हुक्का	2							
		Cigars/ सिगार	3							
		Cigarettes/ सिगरेट	4							
		Bidis/ बिड़ी	5							
		Others (Specify)/ अन्य	6							

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
55.	***Whether it is with or without Filter?*** क्या यह फिल्टर सहित हैं या फिल्टर रहित?	***With Filter/*** फिल्टर युक्त ***Without Filter/*** फिल्टर रहित ***Don't Know/*** नहीं जानता	1 2 3		D					(360-364)
56.	***How many times a day do you normally Smoke? /*** एक दिन में सामान्यतः कितनी बार धूम्रपान करते हैं?	***< 5 times/*** पांच बार तक ***5-10 times/*** पांच से दस बार ***10-20 times/*** दस से बीस बार ***> 20 times/*** बीस से अधिक	1 2 3 4		E K					(365-369)
57.	***Did you or do you chew pan with tobacco? /*** क्या आप पान तम्बाकू के साथ चबाते हैं या चबाते थे?	***No/*** नहीं ***Yes/*** हाँ ***Don't Know/*** पता नहीं	1 2 3	**If No, Go to Q. 61**	S A					(370-374)
58.	***Did you or do you chew pan-masala with tobacco? /*** क्या आप पान–मसाला तम्बाकू के साथ चबाते हैं या चबाते थे?	***No/*** नहीं ***Yes/*** हाँ ***Don't Know/*** पता नहीं	1 2 3		E					(375-379)
59	***How long have you been in the habit of chewing pan or pan masala with tobacco? /*** आप कब से पान या पान–मसाला तम्बाकू के साथ चबाते रहें हैं? (एक पर टिक लगायें)	***< 5 Yrs./*** 5 साल से ***5-10 Yrs./*** 5–10 साल से ***> 10 Yrs./*** 10 साल से अधिक	1 2 3		B					(380-384)
60.	***How often do you chew tobacco in a day? /*** एक दिन में आप तम्बाकू कितनी बार चबाते हैं? (एक पर टिक लगायें)	***< 5 times/*** 5 बार ***5-10 times/*** 5–10 बार ***> 10 times/*** 10 से अधिक	1 2 3		O T					(385-389)
61.	***Did you or do you take Alcohol? /*** क्या आप अल्कोहल (शराब) लेते थे या लेते हैं? (एक पर टिक लगायें)	***No/*** नहीं ***Yes/*** हाँ	1 2	**If No, End the interview here**	N O T					(390-394)
62.	***How often do you take Alcohol/*** आप अल्कोहल (शराब) कितनी बार लेते हैं या लेते थे? (एक पर टिक लगायें)	***Daily/*** प्रतिदिन ***3 times a week/*** सप्ताह में 3 बार ***Occasionally/*** कभी–कभी ***< 3 times a week/*** सप्ताह में 3 बार से अधिक	1 2 3 4		N					(395-399)

DENTAL COUNCIL OF INDIA, NEW DELHI

NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

(A NATIONAL EPIDEMIOLOGICAL STUDY OF ORAL HEALTH PROBLEMS AND FLUORIDE ESTIMATION IN WATER SAMPLES)

DATE | | | | | 0 | 4 | (DAY) (MONTH) (YEAR)

FORM NO. | 2 | 0 | (1-2)

STATE | | | (6-7)

ZONE | | | (8-9)

TEAM NO. | | | | (3-5)

DISTRICT | | (10)

NAME OF VILLAGE / URBAN BLOCK _____ | | (11-12)

CODE

RURAL / URBAN | 1 (R) | 2 (U) | (13)

SERIAL NO. OF HOUSEHOLD VISITED | | | | (14-16)

NAME OF HEAD OF HOUSEHOLD Mr. / Mrs. _____

NAME OF SPOUSE _____

ADDRESS OF THE HOUSEHOLD _____

_____

EXAMINER _____ (NAME) (SIGN)

RECORDER _____ (NAME) (SIGN)

NAME OF INTERVIEWER _____ (NAME) (SIGN)

FIELD CHECKED BY _____ (NAME) (SIGN)

SCRUTINISED BY _____ (NAME) (SIGN)

CHECKED BY _____ (NAME) (SIGN)

WHO ORAL HEALTH ASSESSMENT FORM (1997)

GENERAL INFORMATION

Name .....

Date of birth (17) Year Month (20)

Age in years (21) (22)

Sex (M = 1, F = 2) (23)

Ethnic group (24)

Occupation (25)

Geographical location (26) (27)

Location type : (28)

1 = Urban
2 = Periurban
3 = Rural

OTHER DATA (specify and provide codes)

..... (29)

..... (30)

CONTRAINDICATION TO EXAMINATION

Reason..... (31)

..... 0 = No 1 = yes

CLINICAL ASSESSMENT

(32)

EXTRA-ORAL EXAMINATION

0 = Normal extra-oral appearance
1 = Ulceration, sores, erosions, fissures (head, neck, limbs)
2 = Ulceration, sores, erosions, fissures (nose, checks, chin)
3 = Ulceration, sores, erosions, fissures (commissures)
4 = Ulceration, sores, erosions, fissures (vermilion border)
5 = Cancrum oris
6 = Abnormalities of upper and lower lips
7 = Enlarged lymph nodes (head, neck)
8 = Other swellings of face and jaws

TEMPOROMANDIBULAR JOINT ASSESSSMENT

SYMPTOMS
0 = NO
1 = Yes
9 = Not recorded

(33)

SIGNS
0 = No
1 = Yes
9 = Not recorded

Clicking (34)
Tenderness (on palpation) (35)
Reduced jaw mobility (< 30 mm opening) (36)

ORAL MUCOSA

CONDITION

0 = No abnormal condition
1 = Malignant turmour (oral cancer)
2 = Leukoplakia
3 = Lichen Planus
4 = Ulceration (aphthous, herpetic, traumatic)
5 = Acute necrotizing gingivitis
6 = Candidiasis
7 = Abscess
8 = Other condition (specify if possible).....
9 = Not recorded

(37) (40)
(38) (41)
(39) (42)

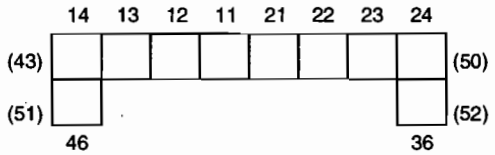
LOCATION

0 = Vermilion border
1 = Commissures
2 = Lips
3 = Sulci
4 = Buccal Mucosa
5 = Floor of mouth
6 = Tongue
7 = Hard and / or soft palate
8 = Alveolar ridges / gingiva
9 = Not recorded

ENAMEL OPACITIES/HYPOPLASIA

Permanent teeth

0 = Normal
1 = Demarcated opacity
2 = Diffuse opacity
3 = Hypoplasia
4 = Other defects
5 = Demarcated and diffuse opacities
6 = Demarcated opacity and hypoplasia
7 = Diffuse opacity and hypoplasia
8 = All three conditions
9 = Not recorded



LOSS OF ATTACHMENT*

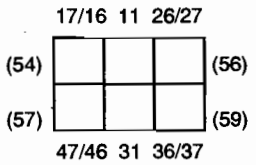
0 = Normal
1 = Questionable
2 = Very mild
3 = Mild
4 = Moderate
5 = Severe
8 = Excluded
9 = Not recorded

(53)

COMMUNITY PERIODONTAL INDEX (CPI)

0 = Healthy
1 = Bleeding
2 = Calculus
3 = Pocket 4-5 mm (black band on probe) partially visible)
4* = Pocket 6 mm or more (black band on probe not visible)
X = Excluded sextant
9 = Not recorded

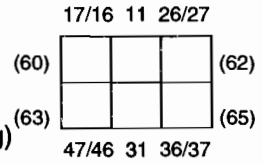
*Not recorded under 15 years of age



LOSS OF ATTACHMENT*

0 = Healthy
1 = 4-5 mm (cementoenamel junction (CEJ) within black band)
2 = 6-8 mm (CEJ between upper limit of black band and 8.5 mm ring)
3 = 9-11 mm (CEJ between 8.5 mm and 11.5 mm rings)
4 = 12 mm or more (CEJ beyond 11.5 mm ring)
X = Excluded sextant
9 = Not recorded

*Not recorded under 15 years of age



DENTITION STATUS AND TREATMENT NEED

Identification Number

		55	54	53	52	51	61	62	63	64	65						
		18	17	16	15	14	13	12	11	21	22	23	24	25	26	27	28
Crown	(66)																(81)
Root	(82)																(97)
Treatment	(98)																(113)

		85	84	83	82	81	71	72	73	74	75						
		48	47	46	45	44	43	42	41	31	32	33	34	35	36	37	38
Crown	(114)																(129)
Root	(130)																(145)
Treatment	(146)																(161)

Primary teeth Crown	Permanent teeh Crown/Root		STATUS
A	0	0	Sound
B	1	1	Decayed
C	2	2	Filled, with decay
D	3	3	Filled, no decay
E	4	-	Missing, as a result of caries
-	5	-	Missing, any other reason
F	6	-	Fissure sealant
G	7	7	Bridge abutment special crown or veneer/implant
-	8	8	Unerupted tooth, (Crown) / unexposed root
T	T	-	Trauma (fracture)
-	9	9	Not recorded

TREATMENT

0 = None
P = Preventive, caries arresting care
F = Fissure sealant
1 = One surface filling
2 = Two or more surface fillings
3 = Crown for any reason
4 = Veneer or laminate
5 = Pulp care and restoration
6 = Extraction
7 = Need for other care (specify).....
8 = Need for other care (specify).....
9 = Not recorded

PROSTHETIC STATUS

Upper Lower (162) [ ][ ] (163)

0 = No Prosthesis
1 = Bridge
2 = More than one bridge
3 = Partial denture
4 = Both bridge (s) and partial denture (s)
5 = Full removable denture
9 = Not recorded

PROSTHETIC NEED

Upper Lower (164) [ ][ ] (165)

0 = No Prosthesis needed
1 = Need for one-unit prosthesis
2 = Need for multi-unit prosthesis
3 = Need for a combination of one- and/or multi-unit prostheses
4 = Need for full prosthesis (replacement of all teeth)
9 = Not recorded

DENTOFACIAL ANOMALIES

DENTITION

☐ (166) ☐ (167) Missing incisor, canine and premolar teeth-maxillary and mandibular - enter number of teeth

SPACE

☐ (168)
Crowding in the incisal segments.
0 = No crowding
1 = One segment crowding
2 = Two segments crowding

☐ (169)
Spacing in the incisal segments:
0 = No spacing
1 = One segment spaced
2 = Two segments spaced

☐ (170)
Diastema in mm

☐ (171)
Largest anterior maxillary irregulaity in mm

☐ (172)
Largest anterior mandibular irregularity in mm

OCCLUSION

☐ (173)
Anterior maxillary overjet in mm

☐ (174)
Anterior mandibular overjet in mm

☐ (175)
Vertical anterior openbite in mm

☐ (176)
Antero-posterior molar relation :
0 = Normal
1 = Half cusp
2 = Full cusp

NEED FOR IMMEDIATE CARE AND REFERRAL

Life-threatening condition ☐ (177)
Pain or infection ☐ (178)
Other condition (specify)..... ☐ (179)

0 = Absent
1 = Present
2 = Not recorded

Referral
0 = No
1 = Yes
9 = Not recorded

☐ (180)

NOTES