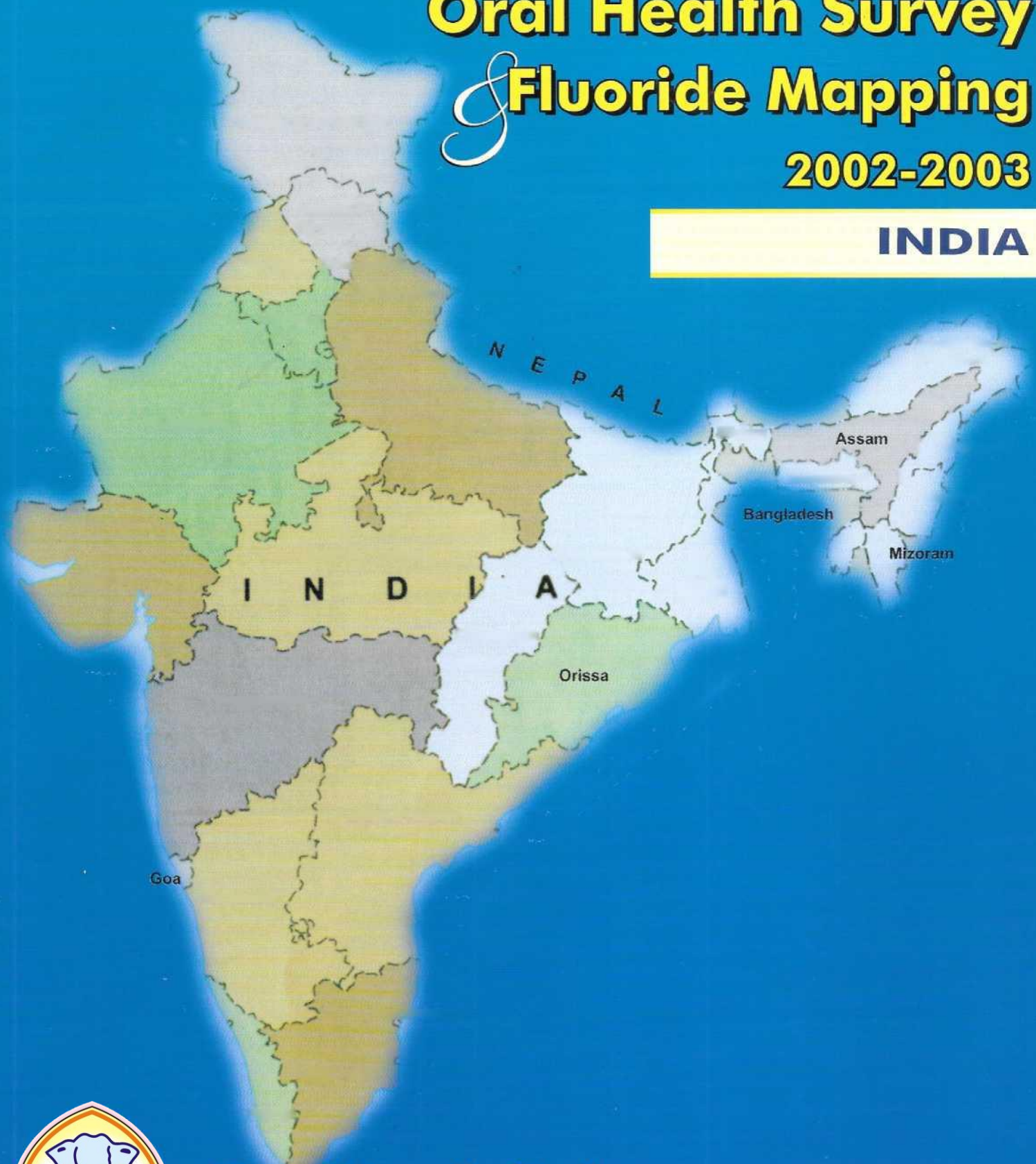
National Oral Health Survey & Fluoride Mapping 2002-2003

INDIA



Dental Council of India
New Delhi
2004

NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

2002-2003

INDIA

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From
Dr. R K Bali
President
Dental Council of India
New Delhi

MESSAGE

I am pleased to present the findings from the data and reports of the first ever National Oral Health Survey (NOHS) of the Dental Council of India.

The National Oral Health Survey was the first ever national level epidemiological survey in the country on the oral health problems. The study, which took three years (2001-2004) to complete, was based on the prevalence patterns of oral disease in the various states and union territories of India. Published by the Dental Council of India in 2004, the study covered 19 states/ union territories. Reports were published for each of these 19 states/UTs. A national report, based on the data from these states/UTs was published to provide the national picture.

The distribution of the reports in the normal printed form would necessarily be limited. It was therefore decided to use the vehicle available through this website to provide national and international access to these reports and help governmental authorities, researchers and international agencies, besides our fellow oral health professionals, to refer to the data as and when convenient to them.

The hosting of the reports by the Association website has added a new dimension to the many useful professional activities of the Association and brings it closer to dental professionals worldwide.

Dr. R.K. BALI
President

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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 emphasize 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.

JULY 2004

Dr. R.K. Bali
Dr. V.B. Mathur
Prof. P.P. Talwar
H.B. Chanana

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)

States & Union Territories

AP	–	Andhra Pradesh
ASM	–	Assam
GUJ	–	Gujarat
HR	–	Haryana
HP	–	Himachal Pradesh
JK	–	Jammu & Kashmir
KAR	–	Karnatka
KER	–	Kerala
MP	–	Madhya Pradesh
MAH	–	Maharashtra
ORI	–	Orissa
PB	–	Punjab
RAJ	–	Rajasthan
TN	–	Tamil Nadu
UP	–	Uttar Pradesh
CH	–	Chandigarh
DEL	–	Delhi
GOA	–	Goa
PY	–	Pondicherry

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Fig. 1 Map showing States & Union Territories covered (coloured) in the Survey

NATIONAL ORAL HEALTH SURVEY
DENTAL COUNCIL OF INDIA

EXECUTIVE SUMMARY

1. GENESIS

Oral health is a very important component of general health. Moreover, dental diseases are easily preventable to a large extent. However, information and awareness about the preventive aspects of oral and dental health are usually not applied in practice and therefore, dental disease, particularly caries and periodontal disease, continues to be rampant in the population. The consequences of poor oral hygiene and a diseased mouth can be disastrous to general health and this is appreciated by the medical profession specially in the context of coronary disease.

The high prevalence of dental diseases, like dental caries, periodontal disease, various forms of malocclusion, and lack of access to the required services leads to significant absenteeism and economic loss, apart from the ill-effects on the health of the person afflicted. In view of the adverse effects of poor oral health, it is important to take preventive measures and create the required services. For this purpose, and other planning and administrative needs, it is necessary to know the prevalence and distribution of oral health problems and understand the dental health practices that people follow. Such information is basic for formulation of oral health policies and appropriate programmes to improve awareness and knowledge of general public about the preventive and promotive aspects of oral health, to create the required services and to train the necessary dental manpower to meet these needs.

The Dental Council of India has been greatly concerned about this gap in knowledge and the resultant lack of appropriate policies and programmes. There has been a long-felt need for an epidemiological study on oral health problems, which would also include a study of the related oral health practices besides mapping fluoride levels in drinking water from various sources in the country. Such a study may help bring about a balance between the oral health needs of the people and the services provided, and help plan and organise need-based services to improve the level of oral health of the people.

Keeping this in view, the Dental Council of India undertook a national-level epidemiological study, "National Oral Health Survey and Fluoride Mapping," to assess the oral health problems of the people and practices they adopt in this regard. The present study is a community-based survey with the objectives to assess (1) awareness and knowledge of people about 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 their drinking water across the country. The survey, initiated in 2002, aimed at knowing the ground situation to 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:

1. Prevalence of oral health problems,
2. Fluoride levels in drinking water,
3. Eating habits affecting oral health,
4. Dental cleaning practices,
5. Awareness and knowledge of people on factors affecting oral health, and
6. Treatment-seeking behaviour of people with regard to their oral health problems.

It must be noted that this survey delved into areas much beyond the usual ambits of oral health surveys, which generally focus on the levels and problems of oral health in the community. This survey, on the other hand, collected data on many more dimensions so as to enable an understanding of the practices that cause oral health problems and the steps people 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 designed and conducted so that state-wise oral health problems and related practices could be determined. This is to help the formulation and implementation of state-wise policies and programmes.

3.1 Sample size

Three considerations were kept in mind while deciding upon the sample size:

- The estimates should be valid at the state level;
- Intra-state regional variations may be captured in oral health problems and practices; and
- It should be possible to complete the survey of the proposed sample within the limited budget available.

In view of these, 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 rural areas and 105 from urban areas. Thus, 105 males and 105 females were examined in each of the five age groups from the rural areas, and 53 males and 53 females in each age group from 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 the Census Commissioner and the 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 almost equal population). In the next stage, 7 households were selected from each CEB. Again, 105 subjects from each age group (5, 12, 15, 35-44 and 65-74) were to be examined, with males making up half the number, and females the other half.

4. STUDY TOOLS

In order to encompass all the objectives 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 behavior. (Table 2.1; Annexures 3,6).

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 the questionnaire related to etiological factors.

Great care was taken to ensure that the quality of the data collection met stringent standards. Besides a state coordinator, supervisors were appointed to move with the teams when they went for data collection. The coordinators, supervisors, of the dental colleges, were given total responsibility for the 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.

Besides, water samples were taken from the selected households for testing fluoride levels, and all such tests on these 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 and data collection. The calibration of examiners and other field staff is crucial to achieve standardised assessment of oral health problems so that individual bias could be minimised. A workshop on report writing was also organised in Mumbai subsequently to standardise the format, content and writing pattern of each state report. This was necessary in the interest of uniformity because some state coordinators shared the responsibility of writing up state reports with the Central Survey Unit located at the DCI headquarters in New Delhi.

7. AREA COVERAGE IN SURVEY

The National Oral Health Survey was able to cover 19 states/ union territories and these coverage details are listed separately in this report. It was originally planned to cover all states/ union territories in India. However, this could not be achieved as some of the state authorities, such as North Eastern States, had expressed their inability to participate due to lack of dental colleges in their states, manpower and other resources. In some of the states which originally expressed interest in participation through their dental colleges, such as Bihar, Chattisgarh, Jharkhand, Uttaranchal, and West Bengal, problems of logistics arose and the Survey could be completed.

8. FINDINGS (ORAL HEALTH KNOWLEDGE AND PRACTICES)

8.1 Characteristics of households surveyed

- 46 percent of respondents in the country, had pucca houses.
- 56 percent of the households in the country, and a similar percentage of households in about 50 per cent of the states/ union territories had a monthly expenditure of Rs. 2500 or below.

- 82 percent of the households in all states, except in Jammu and Kashmir, Kerala, Goa and Pondicherry, belonged to Hindus. 58 percent of the households in most of the states and union territories were from the higher castes.
- 45 percent of households in the country, and the same percentage of households in 12 out of 19 states and union territories surveyed, reported getting piped/ tap water.
- Households were evenly divided by type of staple food i.e. wheat and rice, and by nature of food i.e. vegetarian and non-vegetarian.

8.2 Profile of population across age groups

- There was a high percentage (56 percent) of illiterates in older age groups (35 years and above) in comparison to younger age groups (6 percent) in the country, as well as in most of the states and union territories covered in the survey.
- About 50 percent, more females and more in rural areas, reported not reading newspapers in the country as well as in most of the states and union territories.
- 15-19 percent, more males and more in urban areas, listened to the radio daily in the country and in most of the states and union territories.
- About 50 percent of those aged between 35-44 years and below, aged 5, 12 & 15 years and 37 percent aged between 65-74 years, irrespective of sex, and more in urban areas, had watched TV daily in the country and in most of the states and union territories.
- More younger people than older ones in urban areas, as expected, had gone to the cinema once in three months, in the country as well as in most of the states and union territories covered in the survey. 8.3 Abnormal oral habits across age groups
- Except the occurrence of abnormal habits such as “grinding/gritting teeth,” “sucking or biting fingers/thumbs,” and “biting nails/lips/objects like pencil” in 2, 7 and 5 percent of 5-year-old respondents respectively, the occurrence of each abnormal habit among respondents of other age groups was very low or even zero.

8.3 Abnormal oral habits across age groups

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8.4 Sugar-consumption across age groups

- The percentage of respondents who had not taken sugar during last one day increased from 30 to 50 percent, as the age groups advanced. States and union territories differed greatly in consumption of sugar. There was a comparatively higher percentage of respondents, irrespective of age, who had taken sugar two or more times during the last one day in the states of Haryana, Punjab and Delhi than in other states.

8.5 Oral hygiene practices across age groups

- About two-thirds of respondents who were 5, 12, 15, or 35-44 year olds, and one-third of 65-74 year old respondents in the country, across both sexes and more in urban areas, had used a tooth brush to clean teeth. Some of the states and union territories, nearly three-fourths reported the use of a tooth brush for cleaning teeth.
- About 90 percent, across age groups, sexes, and more in rural areas, cleaned teeth once a day. Only 8-9 percent, irrespective of age, across both sexes and more in urban areas, cleaned their teeth twice a day in the country as well as in most of the states and union territories.
- The respondents across ages were equally divided by the duration of the period before change of tooth brushes. More respondents changed tooth brushes once in 1-3 months in urban areas, while more changed once in 4 or more months in the rural areas of the country. This pattern was true for most states and union territories also.

- About two-thirds of the respondents, across both sexes and more in urban areas, had used tooth paste, while a quarter of them, across all age groups and both sexes, and more in rural areas, reported the use of tooth powder in the country.
- About two thirds of respondents, across all age groups and both sexes, and more in rural areas, had used non-fluoridated tooth paste/powder, while only 20 percent, more in urban areas, reported the use of fluoridated tooth paste in the country.
- Half the respondents in the country, across ages and more in rural areas, always rinsed the mouth after eating.

8.6 Dental problems and treatment aspects across age groups

- More and more respondents across both sexes and more in urban areas reported oral health problems with increase in their age. The occurrence of oral health problems was reported more in Assam than in other states and union territories.
- Nearly three-fourths from each age group of respondents, who had reported dental problems, across both sexes and more in urban areas, had dental decay problems.
- Only a quarter of respondents from each age/age group consulted trained dentists in the country. States and union territories differed greatly in this respect.
- More older than younger respondents across both sexes and more in urban areas had knowledge of dental care facilities in their areas.
- More than 50 percent of respondents across both sexes and more in urban areas reported a less than half hour journey to reach dental care facility in the country as well as in states and union territories.

8.7 Awareness of dental health problems across age groups

- An increasing percentage of respondents reported knowledge of oral health problems, factors responsible for problems and preventive measures for these, with awareness rising with increase in age of respondents in the country as well as in each state and union territory.
- A majority of respondents, irrespective of age, across both sexes and more in rural areas, reported oral health problems such as dental decay, followed by gum disease and foul breath in the country as well as in each state and union territories.
- About two-third of the respondents, irrespective of age, across both sexes and more in urban areas, hold factors such as not brushing regularly and eating sweet items, responsible for oral health problems in the country as well as in each state and union territories.
- About 45 percent of respondents, irrespective of age, across both sexes and more in urban areas, spelt out preventive measure such as cleaning of teeth regularly than other measures in the country as well as in each state and union territories.

8.8 Tobacco smoking and chewing habits across age groups

- About 23-24 percent, more males, across age groups reported smoking tobacco in the country. About 50 percent of states and union territories had more percent of smokers than the national level.
- 40-45 percent, of smokers more males, across age groups were smoking Bidi followed by more males and more in urban areas across age groups had the habit of smoking cigarettes.
- About 76-86 percent of smokers, more females, across places of residence and age groups in the country as well as in states and union territories, reported smoking less than 10 times in a day.
- About 9 percent, more males and more in rural areas, across age groups, reported chewing pan or pan masala with tobacco in the country. The states and union territories differ

greatly in regard to chewing of pan or pan masala. A higher percentage reported chewing pan or pan masala in Orissa than in other states and union territories.

- About 42-52 percent of those chewing pan or pan masala, reported chewing same for the last 5-10 years.
- About 11-13 percent, more males and more in rural areas, across age groups, reported the habit of consuming alcohol: 50 percent or more of these were consuming alcohol occasionally.

9. FINDINGS (ORAL HEALTH ASSESSMENT)

Clinical oral examinations were carried out in the five age groups (consistent with WHO recommendations for a pathfinder methodology) which included children (5, 12 and 15 years) and adults (35-44 and 65-74 years). These examinations were carried out in the field conditions by previously trained and calibrated dental surgeons as described in the section on methodology elsewhere in this report. The WHO Oral Health Assessment Form (1997), suitably modified for each of the age groups, was used. A copy of the assessment form is enclosed in this report in the Annexures.

The clinical oral findings are presented under the following broad heads:

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

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

The clinical findings in more detail, together with associated data tables and graphs or charts are given in Chapter VI. A summary table of the important clinical oral findings, and associated social data on selected oral health practices, is presented at the end of this section for easy reference.

9.1. Dental caries status

9.1.1. Coronal caries

In children aged 5 years (primary teeth), 50 per cent of the subjects had caries, with a mean dmft of 1.9. The 'decayed teeth' (dt) component almost fully contributed to the dmft, with virtually no 'missing' (mt) or 'filled teeth' (ft). A frequency distribution of the range of dmft scores or values by the percentage of subjects in the age group affected showed that in about one half of subjects with caries (25.8 per cent), the average number of teeth affected per individual were 1-3 (dmft=1-3); 22.2 per cent had 4-10 teeth affected (upto one half of the teeth in the mouth); and only 2.1 per cent had more than half of their teeth affected.

The prevalence percentage of subjects with caries experience was 52.5 (12 years); 61.4 (15 years); 79.2 (35-44 years); and 84.7 (65-74 years). The prevalence clearly increased with age.

The distribution of DMFT value of 1-3 teeth was most frequent in children aged 12 and 15 years. The DMFT value of 25-32 teeth was most frequent in older adults (65-74 years).

The mean DMFT values in 12 and 15 year age groups were 1.7 and 2.3 respectively. The DMFT value increased more than twofold to 5.2 in adults (35-44 years) and peaked at 14.6 (65-74 years). The SiC Index was nearly two times or more than the mean dmft/DMFT value in all age groups and approached a maximum of 29.5, in older adults (65-74 years).

There were no marked gender related differentials in the prevalence and pattern of distribution of caries experience by dmft/ DMFT values. There were also no marked rural and urban

differentials but urban residents appeared to have a marginally higher caries experience compared with their rural counterparts across age groups.

In 16 out of the 19 states surveyed, caries was experienced by 80 to 100 per cent of the population in the age group of 65-74 years. Chandigarh recorded the highest percentage of subjects who had experienced caries (99.7) while Kerala had the lowest percentage (71.4) of subjects with caries experience. The mean DMFT was lowest in Kerala (10.5) and the highest in Himachal Pradesh (24.1) in this age group. The mean number of teeth missing due to caries was very high (20.7 and 18.0 respectively) in Himachal Pradesh and Chandigarh while Gujarat reported the highest mean number of teeth missing due to reasons other than caries (17.2).

In conclusion, the prevalence of dental caries was increasingly high in children; the severity and the consequences of dental caries were age-related, increasing with number of years of exposure of the teeth to the causative factors of the disease; and the SiC index was two or more times higher than corresponding DMFT values, indicating a possible, large high-risk sub-group of the population which suffers from the most damaging effects of dental caries. This, coupled with the fact that there was a very high unmet need for treatment (virtually no filled teeth), dictates the need for a review of the situation and a strategic plan for prevention and control of caries.

9.1.2. Root caries

Root caries is an age-related disease and is not normally present in younger age groups, It was recorded in adults (35-44 and 65-74 years).

Root caries affected 3.9 and 5.4 per cent subjects in the country in the age-groups of 35-44 and 65-74 years, respectively. The prevalence of root caries appeared to be higher in rural areas than in urban areas in both age groups.

The mean number of teeth per individual with root caries was low in both age groups (0.2 and 0.4 respectively). There were virtually no subjects or a negligibly small number of subjects with root fillings in the age groups surveyed. The pattern was similar across states.

9.2. Treatment need

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.

In children aged 5 years, the need for treatment existed in nearly one half (49.0 per cent) of the subjects. The majority of these subjects (42.6 per cent) needed fillings in one or more, but largely one, surfaces of their teeth. The other types of treatment need, in order of prevalence, included the need for extraction of teeth (5.5 per cent); preventive care including fissure sealing (4.3 per cent) and pulp care (4.1 per cent).

The treatment need in children aged 12 years was 59.3 per cent and in older adults (65-74 years), it was 80.5 per cent. The mean number of teeth with treatment need was lowest in 5 year olds (2.2). It was 2.9 in 12 and 15 year olds; 6.1 in 35 year olds and highest in the 65-74 year age group (15.4).

Differentials were not clearly marked, but there appeared to be a marginally higher treatment need in rural residents and in male subjects across age groups.

In conclusion, the treatment need was high across age-groups and increased with age in the surveyed population. The predominant treatment need, by type of need, was that of fillings (one or more surfaces), followed by extractions and pulp care.

9.3. Periodontal status

9.3.1. 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.

Overall, the prevalence of periodontal disease increased as 12 year or higher age groups were surveyed. In children aged 12 years, the prevalence was 55.4 per cent and it peaked at 89.2 per cent in the 35-44 year age group. The prevalence was lower in 65-74 year age-group (79.4 per cent), possibly due to the presence of a high number of fully and partially edentulous subjects in that age group. Calculus was more prevalent than bleeding across age groups. Periodontal pockets, both shallow (4-5 mm) and deep (6 mm) were markedly more prevalent in older adults (65-74 years).

The mean number of sextants with periodontal disease in individuals increased with age from 15 to 65-74 years. However, the highest number of mean sextants with periodontal disease was recorded in the 35-44 year age group (4.5). While no marked gender based differentials were observed, there appeared to be a marginally higher prevalence of periodontal disease in rural areas across age groups.

In states, periodontal disease prevalence was generally high across age groups and states and appeared even higher in the majority of states in adults aged 35-44 years (ranging from about 70 to 100 per cent). The pattern of distribution of the components of periodontal disease (bleeding, calculus and pockets) was similar in the states.

9.3.2. Loss of attachment

The destructive and degenerative nature of the periodontal disease was assessed, in addition to the CPI scores, with the measurement of loss of periodontal attachment in subjects aged 15, 35-44 and 65-74 years. The WHO CPI Probe was used to measure pocket depth.

Loss of attachment was prevalent in subjects aged 35-44 (42.2 per cent) and 65-74 years (60.6 per cent). The least severe form of loss of attachment (4-5 mm depth) was most prevalent in both age groups. The majority had a loss of attachment not exceeding 6-8 mm.

The mean number of sextants with loss of attachment in individuals was no more than 1.6 and that too in the highest age group of 65-74 years. Again, the highest mean number of sextants with loss of attachment showed the least severe form of the disease.

While gender based differentials were not marked, a higher percentage of rural population compared with urban population, was affected. The pattern of distribution of loss of attachment by depth was similar in both rural and urban residents.

In the states, in subjects aged 35-44 years, 7 out of 19 states surveyed had loss of attachment in more than 40 per cent of the subjects with a peak at 70 per cent in the state of Madhya Pradesh. In 65-74 years, this number increased to 16 out of 19 states with the peak at 80 per cent in Madhya Pradesh.

In conclusion, therefore, the prevalence of periodontal disease marked by bleeding, calculus, periodontal pockets and loss of attachment, was high in the country and in states. However, the prevalence of deep pockets in adults (35-44 and 65-74 years) was relatively low. Although the prevalence of disease was high across age groups, it was marked by bleeding and calculus in children and younger adults (35-44 years) while pockets and loss of attachment were more prevalent in adults, particularly in the 65-74 years' age-group in the country and in states.

9.4. Malocclusion status

The Dental Aesthetic Index (DAI), recommended by the WHO, was used to assess the prevalence and severity of malocclusion in the surveyed population.

The children aged 5 (primary dentition), 12 and 15-years (mixed and permanent dentition), are the most important population sub-groups for estimating the prevalence of malocclusion since it

is at this age that the clinical diagnosis of the type and extent of malocclusion is best made and active treatment recommended which can lead to successful outcomes.

The percentage of subjects with malocclusion was 1.6, 23.6 and 23.9 in children aged 5, 12 and 15 years respectively. The majority of those affected had 'definite' malocclusion, followed by those with 'severe' form of malocclusion.

In adults aged 35-44 years, 42 per cent subjects in the country had malocclusion. The majority (18.4 per cent) had 'definite' malocclusion followed by 14.1 per cent, who had 'very severe' malocclusion.

Although the differentials were only marginal, more males rather than more female children appeared to be affected while the situation was the opposite in adults. Rural and urban differentials were detected: in 15 and 35-44 year age-groups, rural residents were affected more than their urban counterparts. In the 12-year age-group, the opposite was true.

9.5. Oral cancer & oral mucosal conditions

Oral cancer is one of the most important public health problems in the country because of its associated mortality and high, sometimes unaffordable treatment cost. But the pre-cancerous lesions which include leukoplakia and lichen planus, are equally important as public health problems mainly because of their association with the widely prevalent tobacco use in the country and their potential to lead to oral cancer. Moreover, most cancers begin as pre-cancerous lesions in the mouth and are reversible. Other oral mucosal conditions which were recorded under this section include ANUG, ulceration, abscess, and candidiasis.

Overall, the prevalence of oral mucosal lesions was low in the country with a minimum of 0.2 per cent (5 years) and a maximum of 10 per cent (65-74 years) subjects affected.

The prevalence was slightly higher in 15 and 35-44 year old subjects. It was highest in older adults (65-74 years), as would be expected, for both oral cancer (0.4 per cent) and leukoplakia (3.1 per cent). Lichen planus was observed in 0.4 per cent (35-44 years) and 0.5 per cent subjects (65-74 years). Ulceration, abscess, and candidiasis, in that order, were the other notable but much less prevalent conditions across age groups.

In adults (35-44 and 65-74 years), males appeared to be more affected than females. In all age groups, there appeared to be a higher prevalence amongst rural rather than urban residents.

The most favoured sites in the mouth for the occurrence of oral cancers, were hard and soft palate, vermillion border, commissures and buccal mucosa, in that order. The most favoured site in the mouth for the precancerous lesions such as leukoplakia and lichen planus was the buccal mucosa. Buccal mucosa was also the most favoured site for ulcerations and abscesses.

9.6. Dental fluorosis status

Dental Fluorosis results from drinking water drawn from ground water sources containing a high fluoride content (usually more than 2.0 ppm) over the period when teeth are in the process of development or mineralization. It manifests wth change in enamel translucency (occasional white flecks or spots, paper white areas to frank white opacity of enamel) or more severe forms (marked wear and brown stains to marked hypoplasia of enamel with disfiguring of tooth form). The criteria for recording severity are described in Dean's Index as 'questionable', 'very mild', 'mild', 'moderate' and 'severe'. The Dean's index has been used in this study to record fluorosis status. From a public health perspective, the 'severe' and 'moderate' forms of fluorosis are of prime concern.

The amount of water consumed and age when it is consumed are important factors which influence flurosis. Fluorosis most frequently affects premolars and second molars. Since these teeth would have erupted at 12 and 15 years of age, these age groups assume the greatest importance in the assessemnt of fluorosis status in the country. However, data is presented for all age groups in the present study.

In young children (5 years) with only primary teeth, the prevalence of fluorosis in the country was 5.8 per cent. However, it was 2.7 per cent, if the 'questionable' cases were excluded. No 'severe' form of fluorosis, and only a negligible proportion (0.2 per cent) of 'moderate' fluorosis was reportedly observed. The remaining subjects (2.5 per cent) had 'very mild or mild' fluorosis.

There were no marked gender related differentials. The rural areas accounted for all of the 'moderate' fluorosis (0.2 per cent). In the states, fluorosis was negligible or virtually absent in primary teeth in children aged 5 years in many of the states surveyed. The majority of the states surveyed had a very low prevalence. The 'moderate' and 'severe' form of fluorosis, was even rarer in many of the states.

In children aged 12 and 15 years, the prevalence was 12.1 and 11.8 per cent respectively. But if 'questionable' fluorosis was excluded, the prevalence was 7.2 per cent in each age group. 'Moderate' and 'severe' form of fluorosis together affected a negligible 1.2 and 1.3 per cent children respectively in 12 and 15 year age groups.

Three states, viz. Haryana, UP and Andhra Pradesh, in that order, had a prevalence of 'severe' fluorosis in children aged 12 years, which was higher than the national average

The prevalence of fluorosis in adults (35-44 and 65-74 years) was 9.3 and 5.2 per cent respectively. It was lower (4.2 and 2.4 per cent respectively) with the exclusion of 'questionable' fluorosis. The pattern of distribution of fluorosis by level of severity remained similar to other age groups.

There were no marked gender related differentials but fluorosis was marginally more in rural areas than in urban areas.

In conclusion, the findings suggest that overall, fluorosis in the country has a very low prevalence. In fact, the 'moderate' and 'severe' form of fluorosis is present in less than one per cent of the population in all the age groups. Even 'very mild' or 'mild' form of fluorosis does not appear in more than 6 per cent of the population in 12 and 15 year age-groups and is even lower in adults. These findings appear consistent with other studies in the country. Literature exists which reports endemic fluorosis in some pockets in some states in the country. However, such pockets are rare, localized and small and limited to some states.

9.7. Other lesions

9.7.1 Extra oral lesions

The extra oral lesions had a very low prevalence in the country with only 1.1 per cent subjects being affected in children aged 5 years and a maximum of 2.7 per cent being affected in the highest age group of 65-74 years.

Since the prevalence of the lesions was very small, no clear gender related differentials, or rural and urban differentials were palpable.

Three states which showed strikingly higher prevalence of these lesions when compared to other states, were Chandigarh, Himachal Pradesh and Punjab, in that order.

The majority of those affected had ulceration, sores, erosions or fissures. These were located most commonly on commissures and vermillion border followed by head, neck and limbs. The other lesions which were even rarer, were enlarged lymph nodes of the head or neck and abnormalities of the upper and lower lips.

9.7.2. T M joint symptoms and signs

Overall, in the country, TM Joint symptoms and signs were negligibly low or virtually absent in children aged 12 and 15 years. In adults (35-44 and 65-74 years), the prevalence was 0.2 and 0.4 per cent, respectively for symptoms present. For signs present, the corresponding figures were 0.5 and 1 per cent. Clicking, tenderness, and reduced jaw mobility, in that order of prevalence, were present.

There were no marked gender related differentials. A very slight but discernible predilection was detected for urban residents in adults (35-44 and 65-74 years).

While a generally low prevalence of TM Joint symptoms and signs was reported in states, there were three states, viz. Chandigarh, Himachal Pradesh, and Punjab, in that order, which reported relatively high percentage prevalence figures in the age groups of 35-44 and 65-74 years.

9.7.3. Enamel defects (Opacities, hypoplasia)

Structural enamel defects in teeth were recorded in terms of opacities and hypoplasias, types of opacities and combinations of both. The children aged 5 years were excluded from this examination.

Overall, the prevalence of enamel defects in the country was very low in all age groups. The highest prevalence was 22.3 per cent in 12 year olds and 23.2 per cent in 15 year olds.

The prevalence, by type of enamel defects, was demarcated opacity, diffuse opacity and enamel hypoplasia, in that order, across age groups. Not more than one tooth per person was affected in the subjects at 15 years of age.

Gender related differentials across age groups were not marked but rural residents in all age groups had a slightly higher prevalence of enamel defects.

The three states which seemed to have the highest prevalence of enamel defects across age-groups were Punjab, Gujarat and Uttar Pradesh, in that order.

9.7.4. Prosthetic status (Upper and lower dental arches)

The prosthetic status was recorded for subjects aged 15 years and above. The information was collected to assess the extent to which subjects were wearing dental prostheses including bridge, partial dentures and full dentures.

As expected, there were virtually no subjects aged 15 years who wore any prostheses.

In 35-44 year age-group, there was a small but discernible proportion of subjects who reportedly had some prostheses present in the mouth. This percentage was 2.7 and 3.3 respectively for upper and lower dental arches, indicating slightly higher prevalence of subjects with prostheses in the lower arch. The picture was similar for subjects aged 65-74 years, with 10.5 per cent having prostheses in the upper arch and 11.5 per cent having prostheses in the lower arch.

Overall, there were 6.7 per cent subjects (65-74 years) who were wearing full mouth removable dentures, more in urban than in rural areas, in the country.

There was a difference in the pattern of the type of prostheses present between age groups. In the age group of 35-44 years, as expected, the most prevalent prostheses present was the partial denture followed by bridge (one or more units). Full dentures were virtually absent. In the case of older adults (65-74 years), the most prevalent prostheses present was the full mouth removable denture, as expected, followed by partial dentures and bridge (one or more units). The picture was similar for both upper and lower dental arches.

There were no clearly marked male and female or rural and urban differentials in the country.

In states, the prevalence pattern, by type of prostheses present, generally reflected the national pattern. The state with the highest prevalence percentage for full mouth removable dentures was Chandigarh.

9.7.5. Prosthetic need (upper and lower dental arches)

The prosthetic need refers to the unmet need for replacement of lost or missing teeth. Prostheses needed may include partial or full removable dentures and fixed prostheses (one- or multi-unit prostheses and a combination of the two) including bridges.

The need for dental prostheses was high in the 35-44 year age-group (24.5 and 29.0 per cent respectively in upper and lower dental arches) and highest in the 65-74 year age-group (64.2 and 65.1 per cent respectively in upper and lower dental arches).

There were 29.3 per cent subjects in the age-group of 65-74 years who needed full mouth removable dentures.

There were no marked gender based differentials in the overall prostheses need or pattern of need by type of prostheses. However, in the rural residents, the prostheses need and the need by type of prostheses was markedly higher than urban residents, except in the case of full mouth removable dentures, where no differentials existed. One possible reason for the rural and urban differentials could be the higher dentist: population ratio in urban settings and consequent easier access, availability of facilities and affordability for both basic and more complex services which urban residents enjoy. The fact that the need for full mouth removable dentures was similar in both rural and urban areas clearly shows that this is considered a basic dental service which is commonly available in both settings.

The three states which seemed to have the highest prostheses need in 35-44 and 65-74 year age groups were Jammu & Kashmir, Himachal Pradesh and Maharashtra, in that order. The state with the lowest prevalence of prostheses need was Goa.

9.8. Community need for immediate care and referrals

The life threatening conditions were recorded in only 0.1 to 0.3 per cent of the surveyed population in the age groups studied. A review of the states revealed that these figures rarely exceeded 0.5 per cent in any state and many states reported no subjects with life threatening conditions. Pain or infection was recorded in 3.1 to 3.5 per cent of the subjects in the age groups of 5, 12 and 15 years. In the higher age groups of 35-44 and 65-74 years, 5 to 5.3 per cent subjects had pain or infection. There were wide variations in per cent subjects being affected amongst states. Referrals were common and appeared to have been made in almost all cases with life threatening or painful or infected conditions.

Overall, although the differentials were not pronounced, there appeared to be more males than females and more rural residents compared with urban residents who had these conditions and were referred.

Table 1. Summary of findings of important oral health conditions and practices by age in India.

	Findings	***Age in years***				
		5	**12**	**15**	**35-44**	**65-74**
1.	Oral health conditions					
1.1	Mean number of teeth present in mouth	19.9	27.1	27.9	30.0	19.1
1.2	Dental Caries					
	% Prevalence	50.0	52.5	61.4	79.2	84.7
	Mean DMFT	1.9	1.7	2.3	5.2	14.6
	SiC Index	5.3	4.5	5.4	10.6	29.5
1.3	Periodontal disease					
	Bleeding, calculus or pockets					
	% Prevalence	NA	NA	66.2	89.2	79.4
	Mean no of Sextants affected	NA	NA	2.8	4.5	2.9
1.4	Loss of attachment					
	% Prevalence	NA	NA	7.7	42.2	60.6
	Mean no of Sextants affected	NA	NA	0.2	1.4	1.6
1.5	Malocclusion (%)	0.6	23.6	23.9	42.0	NA
1.6	Dental Fluorosis (%)	5.8	12.1	11.8	9.3	5.2
1.7	Oral mucosal conditions (%)	0.9	1.4	2.4	7.3	10.0
1.8	Oral Cancer (%)	0.2	0.2	0.3	0.3	0.4
1.9	Edentulousness (%)	NA	NA	NA	0.8	29.3
2	Oral Health Practices					
2.1	Sugar Intake in last 24 hours					
	Once	22.5	23.9	27.2	27.4	25.5
	Two & more times	47.0	42.8	38.7	30.6	24.8
2.2	Clean teeth with					
	Tooth Brush	60.9	66.7	67.9	60.4	33.0
	Fingers	27.7	21.8	20.7	23.3	33.6
2.3	Rinsing mouth					
	Always	39.3	47.5	53.0	60.6	64.7
	Sometimes	35.2	36.4	35.3	30.5	27.0
2.4	Tobacco smoking	NA	NA	NA	22.8	23.7
2.5	Frequency of tobacco smoking					
	Less than 10 times	NA	NA	NA	85.0	76.2
	10 or more times	NA	NA	NA	14.4	23.4

10. FACTORS AFFECTING ORAL HEALTH

A correlation was established between selected clinical findings and findings on the subjects' socio-economic and cultural backgrounds and their oral health related practices from the questionnaire administered.

Health of an individual is affected by a wide variety of factors which may include hereditary, congenital, environmental and behavioural factors. It is the environmental and behavioural factors that are most important in maintaining and promoting oral health of the people.

The present survey has studied the association of the various factors which are implicated in the causation and progression of oral diseases. It would be indicative of the type of changes in behavioural practices that are required to improve oral health of the population. The data was collected on the oral health status (clinical findings) and on the oral health practices individuals follow to maintain oral health (oral health knowledge and practices).

The following are the key findings from the study of relationships of oral health related behavioural practices with the clinical oral health status of people :

The practice of cleaning teeth and the regularity with which this was done by individuals was associated with the prevalence of periodontal disease: cleaning teeth regularly was negative related with prevalence of periodontal disease, especially the component of bleeding. Further, the effectiveness of cleaning increased with the use of cleaning aids. The best results were achieved with the use of tooth brush, and datum (chew-sticks). The use of finger was least effective and should be discouraged.

Dental caries is a sugars-dependent disease. A strong correlation existed between the consumption of sugar and its frequency and the prevalence of dental caries.

The use of tobacco in its various forms (tobacco-smoking and tobacco chewing) affects oral health. In the present study, there was a strong association between the prevalence of oral mucosal conditions, especially leukoplakia and tobacco-smoking. Strangely, malignant turours did not appear to be associated with smoking, perhaps because only a very small number of cases of malignant tumours could be disgnosed in the sample (covering ages 12, 15, 34-44 and 65-74 years)

The consumption of tobacco in the three forms (smoking cigarettes, cigars, bidis; chewing pan with tobacco; and chewing pan masala with tobacco) has detrimental effects on oral health. Their relative position with regard to the risk is difficult to assess in this study because of overlap of the three types of users. A special study is needed to assess their comparative risks.

The frequency of tobacco-smoking is positively associated with the prevalence of oral health diseases, in particular periodontal disease.

CHAPTER I

INTRODUCTION

1.1 BACKGROUND OF THE COUNTRY

1.1.1 BASIC DEMOGRAPHIC FEATURES OF INDIA

India crossed the one billion population mark in 2001. According to the Census of India, India had a population of 548 million in 1971, 683 million in 1981, and 846 million in 1991. The exponential growth rate was virtually constant between 1961-71 and 1971-81 (2.22 and 2.20 percent, respectively), but it declined to 2.14 in 1981-91 and 1.93 in 1991-2001. The sex ratio of the Indian population has been unfavourable to females since the beginning of this century and has declined in every decade except 1971-81. The sex ratios were 930, 934, 927, and 931 females' per 1,000 males in 1971, 1981, 1991 and 2001, respectively. Population density increased from 177 persons per km2 in 1971 to 216 in 1981 and 267 in 1991, indicating increasing population pressure on the land. As per the 1991 census, 37 percent of the population is in the childhood ages (014years), 7 percent is in the age group 60 and over, and 55 percent is in the working age group 15-59, which indicates a high dependency burden. The process of urbanization has been rather slow in India. The percentage of the total population living in urban areas increased from 20 percent in 1971 to 23 percent in 1981 and 26 percent in 1991. During the decade 1981-91 the growth rate of the rural population was 2 percent per annum, while that of the urban population was 3.65 percent per annum. One fifth of India's population lives in Class I cities and class II towns that have populations of 50,000 and above. One-fourth of India's population lives in villages that have fewer than 1000 residents. As per the 1991 Census, 16 percent of India's population belongs to scheduled castes and 8 percent belongs to scheduled tribes (Central Statistical Organisation, 1999; Ministry of Health and Family Welfare, 1998a).

1.1.2 ECONOMIC DEVELOPMENT

India's gross national product in the year 1999-2000 was Rs. 17.5 trillion at current prices. India's national income (NNP at factor cost) was five times as high in 1992-93 (Rs.2.0 trillion) as in 195051 Rs. 0.4 trillion) at constant (1980-81) prices. From 1993-94 to 1998-99, the NNP increased by an additional 38 percent, reaching Rs. 9.5 trillion at 1993-94 prices. Between 1950-51 and 199293, however, per capita income only doubled and it increased further by only 27 percent between 1993-94 and 1998-99. In 1998-99, India's percent capita income was Rs. 14,682 at current prices. The growth rate of national income at constant prices increased from 3.6 percent per annum during the first plan (1951-56) to 6.6 percent percent annum during the eighth plan (1992-97). The corresponding increase in the growth rate of per capita income was from 1.8 percent to 4.6 percent per annum (Ministry of Finance, 2000). Between 1950-51 and 1998-99, gross domestic savings and gross domestic capital formation as a percentage of the gross domestic product (GDP) increased from around 10 percent to 22 percent.

Agricultural production increased nearly fourfold from 1950-51 to 1998-99. The century ended with the country's output of food grains crossing 200 million tones, a fourfold increase since 195051, mainly due to the success of the green revolution since the 1970s. Although the area under cultivation with food grains has remained virtually constant since 1970-71, the yield has increased by 65 percent. India had to import food grains for some time after independence, but now it has emerged as a marginal exporter of food grains (Ministry of Finance, 2000). Agricultural contributes nearly one-fourth of the GDP (Reserve Bank of India, 1999) and provides a livelihood to about two-thirds of all workers in the country (Central Statistical Organisation, 1999). Although the percentage of land cultivated with food crops that is irrigated increased from 24 percent in 197071 to 41 percent in 1996-97, the performance of Indian agriculture still largely depends on monsoon rains. In spite of a fourfold increase in food production since the early fifties, daily percent capita net availability of cereals and pulses has increased by only 18 percent, from 395 grams to 467 grams per day (Ministry of Finance, 2000).

At the time of independence, India had a weak industrial base. Since 1948, within the framework of planned development of the economy, India has adopted the concept of a mixed economy for overall industrial development. The industrial policy resolution of 1948 demarcated the scope for development of industries in the private sector and also provided for reservation of some areas for exclusive development in the public sector. In subsequent industrial policy statements, the government adopted a variety of measures to modify licensing policies and regulate the private sector. Since 1980, however, the government has taken several steps towards liberalization of industrial policy (Since 1986). With the introduction of the New Industrial Policy, 1991, a substantial program of structural reforms for liberalization and globalization has been undertaken to accelerate the process of making Indian industry internationally competitive.

1.1.3 PERFORMANCE OF SOCIAL SECTORS AND DEMOGRAPHIC CHANGE

The approach to the Ninth Five-Year Plan adopted by the National Development Council has accorded priority to social sector development. The goal is growth with social justice and equity. As per the latest Human Development Report (United Nations Development Program, 2000), India's rank among countries in terms of GDP per capita is 121, while in terms of the human development index India ranks somewhat lower (128). In contrast, China's rank in terms of the human development index (99) is not only much above India's rank, but China ranks slightly higher than India in terms of GDP per capita (106). Some indicators of the performance of social sectors in India underscore the need for giving high priority to key sectors like education, health, and poverty eradication; these areas are also crucial for accelerating the demographic transition in India.

As per the estimates of the Planning Commission, the percentage of the population living below the poverty line declined form 55 percent in 1973-74 to 36 percent in 1993-94 (Central Statistical Organisation, 1999). The literacy rate in India increased from 18 percent in 1951 to 52 percent in 1991. The literacy rate for adults in India (62 percent) is much lower than the rate in China (83 percent); in the Philippines and Thailand, the adult literacy rate is as high as 95 percent. In India, gross enrolment as a percentage of the total population for the age group 6-11 years increased from 43 percent in 1950-51 to 90 percent in 1997-98, while for ages 11-14 the corresponding increase was from 13 percent to 59 percent (Central Statistical Organisation, 1999).

During the half century since India adopted the family planning programme as its official programme, India has seen the following improvements in its demographic situation (Ministry of Health and Family Welfare, 2000).

A reduction of the crude birth rate form 40.8 births per 1,000 population in 1951 to 26.4 in 1998. A halving of the infant mortality rate from 146 percent 1,000 live births in 1951 to 72 percent 1,000 live births in 1998. A quadrupling of the couple protection rate from 10 percent in 1971 to 44 percent in 1999. A reduction of the crude death rate from 25 deaths per 1,000 population in 1951 to 9 in 1998. The addition of 25 years to life expectancy from 37 years to 62 years. A reduction in the total fertility rate from 6.0 in 1951 to 3.3 in 1997.

However, achievements in these areas have been less evident in India than in most other countries in Asia. India's maternal mortality ration (estimated at 408 maternal deaths per 1,00,000 live births in 1997) is several times as high as the MMR of 115 in China or 30 in Sri Lanka (Ministry of Health and Family Welfare, 2000). India's infant mortality rate is much higher than that of China (31). Indonesia (46), and Thailand (22). Life expectancy at birth in India (62 years) is much lower than that of China, the Republic of Korea, and Malaysia (all above 70 years), India's total fertility rate (3.3) is much higher than that of countries like China (1.8), Sri Lanka (2.1), and Thailand (1.9). Although India' crude death rate is fairly low (9), it is still somewhat higher than the crude death rate in countries like China, Vietnam, and Sri Lanka (6). Similarly, India's crude birth rate is much higher than the birth rate of China (15), Thailand (16), and Sri Lanka (18) (Population Reference Bureau, 2000).

India's population, which already exceeds one billion, is expected to reach1.26 billion by March 2016 (Ministry of Health and Family Welfare, 2000). With the objective of stabilizing the population at a level consistent with the requirements of the national economy for improving the quality of life, several measures have been adopted recently to make the family welfare programme more broad based.

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 percent of children and 95-100 percent adult population suffer from periodontal disease at a point in time. About 35 percent of children suffer from misaligned teeth and jaws affecting their proper functioning. These children lose their school time, and suffer from pain of dental origin. This not only affects their routine life activities but also causes a good deal of discomfort to their parents in several ways. These dental problems are initially painless but become chronic and self-destructive later, thus leading to gradual tooth loss. The dental caries has a crippling effect on the functional components of oral cavity that leads to malnutrition because of incapacity to chew any coarse food available to them. Unfortunately, this is still not considered a public health problem and thus no action is taken to correct it. In other words, there is need to make people aware of preventive and curative aspects of oral health so that quality of life of people could be improved.

The oral diseases also have an adverse effect on the vital organs of the body. The pus oozing pockets in advanced periodontal disease in adults act as a focus of infection for other vital organs of body like kidney, heart, lungs, brain etc. Limited information available from the micro level studies suggests that 35-40 percent of 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, now, has been recognized and thus all efforts should be afoot to improve oral health of the people.

Several adverse effects of poor oral health necessitate preventive, curative and educational services/activities. It requires an understanding of people's knowledge and awareness, attitudes towards oral health and their oral health practices besides the magnitude of the problems and corrective and treatment-seeking measures people adopt. This information is basic for the formulation of policy, developing strategic measures and meeting appropriate manpower needs, and creating programmes for improvement of 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 the 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 in India. These services range from rudimentary & 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 the existing services on the oral health of the people. The vacuum of an effective monitoring and evaluation system is being felt; the dental professionals are very keen to fill this gap between the emerging needs and the existing services. A strong need exists to understand the oral health care practices and treatment-seeking behaviours of people and to assess the existing oral health care services. An appropriate and relevant oral health policy for the country should address the local problems in the broad context of the overall 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, tooth paste or any other source. This will help to bring out area specific policies to meet fluoride needs of the people.

In summary, two types of studies are needed. One, on the incidence/ prevalence of oral health problems, and the knowledge and behavioural practices of people for prevention as well as treatment of oral health problems. Second, the existing facilities and infrastructure need to be assessed for their cost effectiveness and utilization patterns. Such studies and their analysis will ultimately help in bringing about a balance between the needs and the services to meet these 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 the oral health issues of the country, and, on the other, been raising its concern for the poor oral health situation in the country with the Government. The idea is to work at both the stakeholders for improving oral health in the country. It has been making recommendations and suggesting ways and means to bring about improvement in the overall oral health situation in the country.

1.4 NATIONAL ORAL HEALTH SURVEY

As indicated above, there is need to conduct two types of studies on oral health to bring about a balance between the oral health needs of the people and services to meet those needs. The first is a community survey to assess (i) knowledge of the people on appropriate dental health promoting behaviors including treatment seeking behaviors, and (ii) the oral health status of the population concerned. The second is the survey and assessment of available dental care services. The Dental Council of India undertook a community survey, National Oral Health Survey, to assess the dental problems and practices related to oral health in 2002. This report presents the result of this survey where a representative sample of community members in all the states have been contacted to assess their dental service needs and understand their knowledge and behavior in regard to practices affecting oral health. Priority and need for such a survey was recommended as early as 1991 in the National Workshop on "Exploring New Frontiers in Dental Public Health: Planning for the Future" organized by the Dental Council of India under the Presidentship of Dr. R.K. Bali. This Workshop had highlighted the lack of data and a framework for planning the oral health manpower and services in our country and recommended a nation-wide oral health survey to assess 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

This proposal was submitted to Ministry of Health & Family Welfare, Govt. of India for (i) seeking their formal approval, and (ii) grant of financial assistance and necessary logistic support. After several meetings between the President of the Dental Council of India and officials of the Ministry of Health & Family Welfare, Govt. of India, the importance and need of the national survey was recognized but the Government, in view of its other, move pressing commitments, could not provide financial assistance. However, the Ministry of Health & 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, approached the Colgate India/ International for funding this Survey and after a series of meetings in Delhi, Mumbai and the USA, the management of the Company, recognizing the need for such a survey, 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 this large survey itself and thus decided to carry it out by collaborating with the 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 in survey methodology. (Annexure-1) They formed the Central Survey Team for the National Oral Health Survey & Fluoride Mapping located in the office of the Dental Council of India in New Delhi. It was decided that the Central Survey Team will 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 then, later on, for its report writing. This model was thought to be the best for involvement of the dental colleges to ensure their sense of ownership of the survey and their commitment. The colleges participated enthusiastically and generated, shared and pooled local level resources to supplement the grant for the survey. The President of the Dental Council of India sent a copy of the proposal/ protocol of the National Oral Health Survey to these colleges; they were requested for their support and participation. As expected, almost all resource persons and Deans/ Principals of Dental Colleges readily agreed with his request and expressed willingness to participate in this national endeavor.

The Dental Council of India 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 this oral health survey could provide scientific estimates of the prevalence of various oral health problems and knowledge and behavioural practices of people. The members of the committee are listed in the appropriate section in the annexure in this report. (Annexure-2)

1.5 SCOPE OF THE SURVEY

This survey recognized the fact that India is a vast country with great diversity in eating habits and behavioural practices which could affect the oral health of 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 the state-wise policies and programmes on oral health activities and services to improve oral health of the people of each state.

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

The scope of data collection was enlarged in the sense that it would collect data not only on 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.

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

Prevalence of important oral health problems Fluoride mapping Dental cleaning practices Awareness and knowledge of people on the factors affecting oral health, and their related dietary and dental cleaning practices Treatment seeking behaviour of people for their oral health problems. It also explores 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 people in India. It was done by collecting enough information for formulation of national oral health policy and for implementation of oral health programs in each state. All its dimensions of preventive, promotive and curative oral health care were 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 treatment seeking behaviour of people for their oral health problems. It was presumed that the data collected would lead to development of programs 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 the dental programs could be assessed in the future years.

1.7 CHAPTERIZATION PLAN

The report for each state 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
7. Factors Affecting Oral Health of people
8. Summary, Conclusions and Recommendations

CHAPTER II

METHODOLOGY AND DATA COLLECTION

2.1 BASIC CONSIDERATIONS IN DESIGNING THE SURVEY

The following considerations were taken into account to design the survey:

1. The estimates of oral health problems and related practices need to be made at state level.
2. The study should be able to capture intra-state regional variations in oral health problems. That is, 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 the states should be able to formulate state-wise oral health policies and programmes. It means that information should be collected on

   • Levels of oral health problems
   • Etiological factors which affect oral health
   • Behavioural practices in regard to dental cleaning practices
   • Awareness of dental problems and practices followed to seek treatment, and
   • Fluoride mapping and issues related to fluoride in tooth paste/ powder

4. Available financial resources (limited) should be able to carry the survey in all the states of the country 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:

- The estimates should be valid at state level, and
- Intra-state regional variations in the oral health problems and related practices may be captured.

The World Health Organisation (WHO) has recommended a sample of 300-600 dental examinations of people of ages 5, 12, 15, 35-44 and 65-74 from a homogeneous region of a state. Hence, this sample size was kept in mind while deciding on 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 of households would give 315 respondents/examinees of each of the five ages 5, 12, 15, 35-44 and 65-74. In case this number of respondents (315 in each of the five ages) was not available from 315 households selected, then more households were covered to get these numbers of examinees/ respondents. It may be pointed out that though this is a lower limit of the sample size recommended by WHO, this study had to settle for this sample size because of the financial constraints under which this study was undertaken.

It may be restated that the sample size of 315 households or more was taken from each homogeneous region within a state. Therefore, there was much larger sample size at the state level; it depended on the number of homogeneous regions in which the state has been divided. For instance, if the state has five homogeneous regions, then the total sample size of the households for the state would be 5x315=1575 or more households to cover 1575 respondents/ examinees of each of the five ages. In all, 7875 oral examinations were to be done in the above example.

In order to give representation to urban population, which formed a small proportion of the total population in most of the regions in India/state, urban sample was over-sampled so as to get estimates with a reasonable margin of sampling error of the parameters under study. It was

decided that two-thirds of the sample would come from rural areas and one-third from urban. Thus 210 households were selected from rural areas and 105 from the urban. 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 give a sample of 315 individuals from the ages 5, 12, 15, 35-44 and 65-74, yet instructions were given to the field teams that 315 respondents/ examinees from each age were to be covered from each region even if larger number of households needed to be visited and interviewed/ examined.

It was also decided to have 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 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 ages with equal number of males and females.

2.2.2 SELECTION OF SAMPLE

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

2.2.2.1 RURAL SAMPLE

In order to get a sample of rural households in a stratum (region), three-stage sampling method was adopted. At the first stage, one district was selected from the group of districts in that particular region; the second stage was selection of 15 villages from the selected district and the third stage was selection of 14 households from the villages selected in the second stage. The selection of the district was done randomly. For the selection of villages, all the villages in the selected district were arranged in an array by size of the village to get cumulative total of village population. This cumulative total array was divided into three sections, each having equal population size. Five villages with probability proportional to the population size (pps) of the village were selected from each of three sections. Thus 15 villages were selected in the second stage. 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 with seven or more household from each part) to get a sample of 14 respondents/ examinees from each of the five ages – 5, 12, 15, 35-44 and 65-74, half of them were to be males. Thus a sample of 210 or more households from rural areas of the district/ region was selected to interview 14 members from each of the five ages 5,12,15,35-44 & 65-74. Half of them were to be males/females in each age.

2.2.2.2 URBAN SAMPLE

As regards the urban sample, again, three stage sampling design was adopted to select urban households from the selected districts. 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 the list of CEBs in the 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 7 or more households to get seven members of each of the five ages 5,

12, 15, 35-44 and 65-74. Half of them were to be males in each age. 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 were 28, 665 or more to cover 28,665 respondents/ examinees in each of the five ages 5, 12, 15, 35-44 and 65-74. Half of them were to be males. The total number of examinations to be done were 1, 43, 325. The actual coverage comes to a minimum of 19845 households and 92,225 examinations were done. Their state-wise, rural/urban distribution is shown in Table- 2.1. It may be noted that sample size shown, both on the basis of design and actual coverage, is for minimum number of households. They were 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: Oral Health Assessment Questionnaire (WHO, 1997)) for recording the result of the examination of oral health of the individuals and Individual Questionnaire (Especially developed by DCI for this survey) for collecting information on etiologic factors related to oral health awareness, knowledge and practice of individuals on factors affecting oral health and their treatment seeking behaviour. These questionnaires were pre-tested and finalized by the Central Survey Unit in Delhi with the help of consultant. A copy each of the tools used is annexed in this report at Annexure-6.

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

State/UT (Region)	Coverage as per design				Coverage as per design			
	No of Regions	No of Households		Total	No of Regions	No of Households		Total
		Rural	Urban			Rural	Urban	
Andhra Pradesh	6	1260	630	1890	6	1260	630	1890
Assam	3	630	315	945	2	420	210	630
Gujarat	7	1470	735	2205	7	1470	735	2205
Haryana	3	630	315	945	3	630	315	945
Himachal Pradesh	2	420	210	630	2	420	210	630
Karnataka	4	840	420	1260	4	840	420	1260
Kerala	3	630	315	945	3	630	315	945
MP	8	1680	840	2520	4	840	420	1260
Maharashtra	6	1260	630	1890	5	1050	525	1575
Orissa	5	1050	525	1575	5	1050	525	1575
Punjab	3	630	315	945	3	630	315	945
Rajasthan	5	1050	525	1575	3	630	315	945
Tamil Nadu	7	1470	735	2205	7	1470	735	2205
Uttar Pradesh	6	1260	630	1890	2	420	210	630
jammu & Kashmir	3	630	315	945	3	630	315	945
Chandigarh	1	105	210	315	1	105	210	315
Delhi	1	105	210	315	1	105	210	315
Goa	1	105	210	315	1	105	210	315
Pondicherry	1	105	210	315	1	105	210	315
Total	**75**	**15330**	**8295**	**23625**	**63**	**12810**	**7035**	**19845**

Note: State of Bihar, Jharkhand, Chattisgarh and Uttaranchal were planned but not covered. Names of regions and selected districts are listed in Annexures.

2.3.1 ORAL HEALTH ASSESSMENT FORM

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

2.3.2 QUESTIONNAIRE ON ORAL HEALTH KNOWLEDGE AND PRACTICES

As indicated above, this survey did not limit itself to mere oral health assessment because the goal of this survey 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 people.

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

1. Socio-economic and demographic characteristics of 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 the individuals of different ages and sex were to be examined/ interviewed (for oral health problems), it was necessary that dentists should be involved in the data collection teams. Therefore, it was decided that dental colleges, particularly Departments of Community Dentistry of the dental colleges should be involved in the data collection work. It was also hoped that their involvement would help reduce cost of the survey as not only their manpower but also their infrastructure and equipments could be deployed in the survey work. This was based on the assumption that they were willing to cooperate with the task of national survey, the Dental Council of India had taken up, as well as their own professional interest in this long over-due activity for the dental profession. Keeping this in mind, the technical group formed for this survey identified dental colleges and individuals with such an interest in each state whose involvement could be helpful in quality data collection work. The President, Dental Council of India, wrote to these identified individuals and dental colleges to seek their interest in this national effort. The response was very positive and almost all the invitees were very enthusiastic about their involvement. A list of the participating dental colleges is annexed (Annexure-4).

The first stage in this data collection work was to set up a Central Survey Unit at the Dental Council Office in Delhi to coordinate all the activities related to this survey in each state. Because of the limited resources, a small nucleus was set up in the office of DCI. This nucleus consisted of an experienced and senior public health dental surgeon whose services were requisitioned on deputation from the Municipal Corporation of Delhi, 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 the minimum cost. It was decided to send two field teams together in one vehicle to cover one village in a day. Based on the pre-test and the experience of WHO Assessment Form, it was found that two field teams, each of two dentists and one worker of social science background could complete the field work in one village where 14 or more households were to be covered for interview/ examination of 14 individuals from each of the five age groups in one day. A team of two dentists were to examine mouth of the respondent and complete the WHO Assessment Form – one was to examine the mouth and the other was to record the observations. They were to interchange their roles in order to reduce the fatigue factor. The social science – background worker, the third member of the field

team, was to complete the questionnaire related to awareness and practices of the respondents related to dental health.

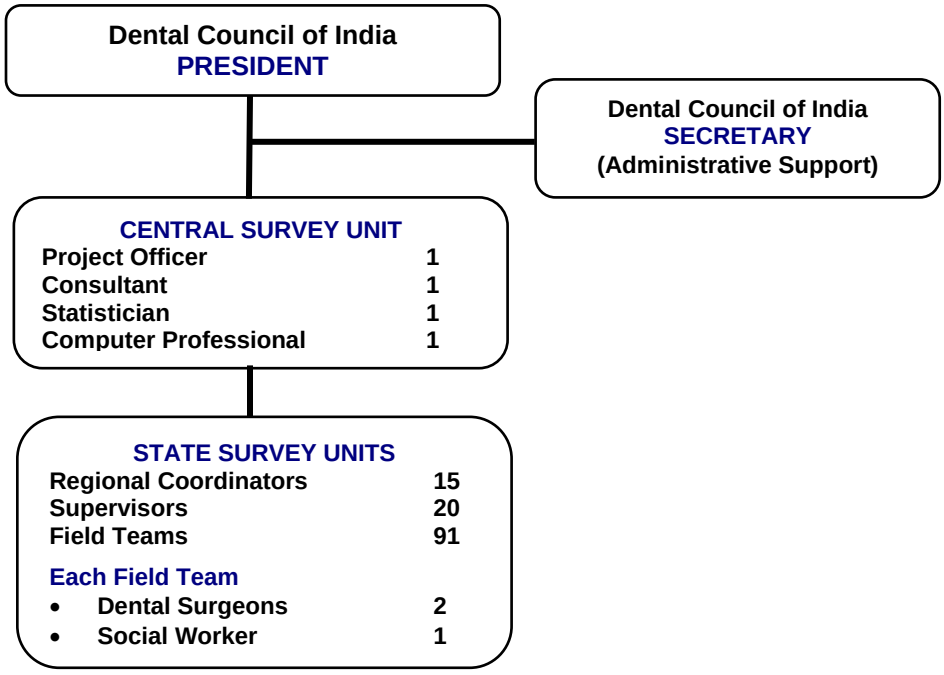
The quality of data was given utmost consideration. It was decided that supervisors would continuously move with the field teams to guide the data collection work. They were to help the team not only to select the households (as per the study design) whose members were to be interviewed/examined but will scrutinize the filled in forms before sending them to the state headquarter. Therefore, keeping in view the constraints of funds, it was decided that number of supervisors would be in the ratio of one supervisor for four field teams so that they can 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 a team involved in the survey in each state. Three types of persons were needed from each state, a Coordinator, a Supervisor and dentists to form field teams. The former was to coordinate all survey activities at state level and was to liaise with the Central Survey Unit. The latter was to supervise and guide the fieldwork activities of the state field teams (each consisting of two dentists and one with social science background), working under the overall direction of the state Coordinator. The Coordinators were all very senior, experienced persons with research bent of mind – the principals, deans or professors of the departments of Community Dentistry of the dental colleges. (Annexure-5). The Technical Committee of the survey identified them. These Coordinators were asked to identify senior dental surgeons from the dental colleges as their field team supervisors in the ratio of one supervisor for four teams.

These Coordinators and Supervisors were to identify field teams for the fieldwork. The number of field teams was to be equal to the number of homogeneous zones/ regions in the state so that field work in a district could be completed in two-month period by one team. Again, two dentists/dental surgeon/ interns for each team were to be taken from the dental colleges in the state. This was not only to reduce cost of salaries of these dentists but was meant to give them field experience in examination of the mouth under the guidance of supervisors.

A flowchart depicting the organisations structure used for the conduct of the Survey is as under:-

Organisational Structure of the National Oral Health Survey & Fluoride Mapping Project



2.5 CALIBRATION AND TRAINING

Before start of the work at state level, it was necessary that standardization should be done in the examination and recording of the dental problems. The examiners should have common standards for identifying the dental problems. The Dental Council of India collaborated with the Manipal Academy of Higher Education (MAHE) to organize a three-day training cum calibration Workshop at Manipal, Karnataka during March 2002. All the State Coordinators and their identified Supervisors were invited to this workshop. They were explained the sampling design, various study tools and the field logistics of data collection. They were taken to the field to practice selection of the sample households and fill the questionnaire related to the practices that affect the oral health. They were also taken to the dental chairs of the dental college of Manipal to examine mouths of the patients to decide the dental problems patients had. A good deal of discussion was held along with the Coordinators and the Supervisors to ensure that every body had a common and uniform understanding of the dental problems to record in the form. This exercise was continued till it was felt that every body (Coordinators and Supervisors) had a uniform understanding on how to measure dental problems. This calibration workshop helped in standardization of measurement of the dental problems, which was necessary to ensure comparability of data from state to state. This training of the Coordinators and Supervisors was the first stage; they had to train their field teams who were, actually, to collect data in the field.

2.6 CLINICAL ASSESSMENT AND CONSIDERATIONS

The information on the questions on behavioural practices was asked directly to the respondents and their answers recorded on the prescribed proforma. In the case of clinical assessment of oral health status, there was need for common and uniform understanding of recording criteria amongst field teams. Therefore, special efforts were made to standardize 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 as 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 the clinical data (column no. 32 to column no.180) were filled up by the teams in the field while conducting the survey for each individual.

The main instruments and utilities which formed a part of the field kit bag 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 sterilizing solution was used in field conditions for the instruments although the sets of instruments 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 placed aligned with the back of 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 the oral and dental tissues in the mouth. The examiner stood behind and on side of the subject while examining the subject. The combination of natural and torchlight was used to provide consistency of lighting during examinations of different subjects and provide sufficient light for clear visibility in the mouth. 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 Manipal training workshop to adopt this method. The teams in all states were trained to use this method to ensure that the approach and results were uniform and widely comparable.)

Clinical oral examinations were carried out by previously trained and calibrated dental surgeons who worked in pairs in the field while surveying subjects. The dental surgeons working in the field were normally interns, junior residents or other dental surgeons drawn from regional dental colleges carefully chosen for the task 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 of examination clearly. The other member was the Recorder, who again called out or repeated the scores loudly and clearly for the examiner to hear and either confirm or correct, as necessary, and then enter it in the appropriate place in the paper proforma for each subject examined. In order to avoid monotony and fatigue, the roles of the examiner and recorder were interchanged from time to time; they did not exchange their role during the course of any one examination.

The teams used instruments and utilities as mentioned above for the detection of caries, periodontal disease and most other conditions. Sufficient numbers of instruments were carried everyday by field teams after proper sterilization so that work was not interrupted due to the need to re-sterilize instruments.

The data was collected by the field teams led by their supervisors and scrutinized by the State Coordinators who forwarded the filled up forms to the Central Project Cell in the office of the Dental Council of India in New Delhi. In Delhi, the clinical data forms were scrutinized again by the central project team before sending them for analysis and preparation of tables.

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

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

Extra Oral Lesions; TMJ Assessment; Enamel Opacities and Hypoplasia; Prosthetic Status & 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 = 1 to 3 dmft = 4 to 5 dmft = 6 to 10 dmft = 11 to 15 dmft = 16 to 20.	DMFT = 0 DMFT = 1 to 3 DMFT = 4 to 7 DMFT = 8 to 14 DMFT = 15 to 21 DMFT = 22 to 28.	DMFT = 0 DMFT = 1 to 3 DMFT = 4 to 8 DMFT = 9 to 16 DMFT = 17 to 24 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 is 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 teeth decayed, missing or filled. Further, the dentition has been divided into 4 equal parts (quarters) on the basis of the number of teeth (maximum being 20 for primary teeth and 28 or 32 for permanent teeth). Each quarter represents 25% of the teeth normally present. 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 four quarters or 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 has been presented based on the Dental Aesthetic Index (DAI) scores for the age groups 12 yr, 15 yr and 35-44 yr which were computed as per the WHO's instructions and are presented in the report.

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, the analysis of the drinking water samples from various states were directly sent 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 analysis procedure was based on the Ion Chromatographic separation in Anion Exchange mode and Suppressed Conductivity detection. The basic separation is performed by anion exchange mechanism of water samples on high efficiency Ionpac AG 11RC and IonPac AS 11RC connected in series and elution (process of extracting one material from another by washing 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 filtered through a 0.45 u Nylon membrane. The effluent was collected into a clean dry conical glass tube. This was used for the fluoride estimation. The actual water sample was loaded into the mobile phase container in the equipment where the container is connected to a pump and made to run on the system. After about 20 minutes of stabilization period, the actual concentration of Fluoride ion in the water is analysed.

The following modules were used to assemble the Fluoride analyzer:

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- Mis 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 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 filled in forms before the team returned from the area of data

collection. It was his/her responsibility to scrutinize the forms if they could not be checked in the field. This scrutiny was necessary before they were submitted to the state Coordinator for onward transmission to the Central Survey Unit. The Coordinator was also responsible to scrutinize the forms, fully in the initial stages and then on sample basis before sending them to the Central Survey Unit in Delhi.

The Central Survey Unit at DCI was particularly careful in scrutiny of the forms from each state. First two batches of forms of each survey team from each state were thoroughly scrutinized to determine gaps in the form of blanks, wrong recording and inconsistencies. The Coordinators were immediately contacted by telephone to point out the data problems. The same concerns were reinforced by sending a Fax. After such reporting, the next batch received was also scrutinized carefully to ensure that deficiencies pointed out earlier have been taken care of in the next batch of forms filled. After initial total scrutiny, the data were scrutinized on a sample basis to ensure that there was no slackness in efforts later – the fatigue factor should not reduce quality of data.

2.9 DATA ANALYSIS

In the absence of any resources for data analysis at the Dental Council of India, the total job of data entry, validity checks and production of desired tables (as per analysis plan) was contracted out to TNS MODE, an organization with a good deal of research experience in studies related to health. All efforts were made to monitor quality of this work at this stage. The Central Survey Unit had worked out the type of tables needed, the level (Zone or Region/ State/ Country) for which such analysis was needed. The necessary weights were also worked out to ensure that the estimates were valid for the level to which they relate. These blank tables were given to the agency (TNS MODE) to fill in the data in different cells. In order to ensure that the values given in each cell of the table were right, the software package developed by TNS MODE was tested in a limited number of schedules by manually checking the results.

2.10 REPORT WRITING

The Central Survey Unit, Delhi prepared two reports, for Delhi and Assam as model reports after detailed discussions on the report format and the format of tables. 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, for which they had collected data. The idea was to conduct a Report Writing Workshop to orient them with the chapterization plan, data tables of their own states and share with them style of writing adopted in the model reports (Delhi and Assam). This was felt necessary to make sure that all state reports were written in uniform style/pattern. For other states, it was decided that the Central Survey Unit, Delhi would write reports and send 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 for all the reports. These chapters were also given to the states Coordinators who were involved in the Report Writing Workshop.

Dr. S. G. Damle, Dean, Nair Hospital Dental, 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 the Coordinators of the States: Andhra Pradesh, Goa, Haryana, Himachal Pradesh, Karnataka, Kerala, Maharashtra, Pondicherry, Punjab and Tamil Nadu.. They were given two reports (model), a set of tables for their own state and even a CD containing raw data for their own state. They were told that their state report should adopt the format shown in the model reports; they can 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 SURVEYED POPULATION

3.1 CHARACTERISTICS OF HOUSEHOLDS

This chapter presents the socio-economic profile of households in the National Oral Health Survey (NOHS) for the whole of India as well as for the nineteen states and union territories, covered in the survey.

The information on types of households presented in Table 3.1 reveals that 46 percent of the households in the country had pucca houses, with a greater percentage falling in the urban segment. Another 39 percent and 15 percent respectively reported owning semi pucca and kuccha houses, with more percent age of these falling in the rural areas.

As regards inter-state variation in types of households, 50-63 percent of households in Andhra Pradesh, Gujarat, Haryana, Punjab, Rajasthan, Uttar Pradesh, and Pondicherry had pucca houses, while 6080 percent of households in Assam, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Orissa and Tamil Nadu had semi-pucca and kuccha houses. Delhi and Chandigarh were exceptions, with about 90 percent households reported having pucca houses.

Monthly expenditure was taken as proxy of household income. The analysis of information on monthly expenditure of households shows that 56 percent of households, with a greater percentage of this falling in the rural areas, had monthly expenditures of Rs. 2500 and below. Another 32 percent and 12 percent of households in the country, with a greater percentage of this falling in the urban areas, reported spending Rs 2501-5500 and Rs. 5501 or above per month respectively.

States differ greatly in terms of monthly household expenditure. A higher percentage of households, higher than the national level, in Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Tamil Nadu, Uttar Pradesh, and Pondicherry reported monthly household expenditures of Rs 2500 and below, while a greater percentage of households than national level, had monthly expenditures of Rs. 2501 to 5500 in the remaining states and union territories.

About 82 percent of households, with more percent of these falling in the rural segment, were of Hindus, with another 11 percent, more in urban areas were of Muslim ones. The rest, equally divided by religion and places of residence, were of Sikhs or Christians.

As regards distribution of households by religion in the states and union territories, nearly 82-85 percent of these, except in the states of Jammu and Kashmir, Kerala, Punjab and Goa, belonged to Hindus. There were comparatively more Muslim households in Jammu and Kashmir, more Sikh households in Punjab, and more Christian households in Goa.

As regards caste composition, 58 percent of households, with a larger percent of this in urban areas, were of other than SC, ST & OBC castes, while one quarter of households, with more of these in rural areas, belonged to backward castes. The remaining 9 percent and 6 percent of households in the country, with the greater percent in rural areas, were of the scheduled castes and scheduled tribes respectively.

Table 3.1. Percent distribution of households by socio-economic characteristics in India 9urban, rural), States and Union Territories																							
House hold Characterstics	**Rural**	**Urban**	**Total**	**AP**	**ASM**	**GUJ**	**HR**	**HP**	**JK**	**KAR**	**KER**	**MP**	**MAH**	**ORI**	**PB**	**RAJ**	**TN**	**UP**	**CHA**	**DEL**	**GOA**	**PY**
Type of household	20373	9790	30163	3239	905	2721	1247	839	1214	2787	1426	1282	2244	2350	1259	1327	3423	765	454	423	1033	1225
Kuccha	20.0	5.7	15.0	14.2	33.6	3.4	7.2	3.3	11.8	8.7	3.7	41.5	24.1	49.4	2.9	11.8	20.4	8.5	0.6	1.0	5.4	22.0
Semi Pucca	45.0	26.2	38.6	32.2	37.2	35.1	42.6	71.3	44.0	52.1	65.3	33.8	36.7	30.1	34.0	24.6	51.2	35.0	6.8	8.6	76.0	28.0
Pucca	35.0	68.2	46.4	53.6	29.1	61.5	50.2	25.4	44.3	39.2	31.0	24.7	39.2	20.5	63.1	63.6	28.4	56.5	92.6	90.4	18.6	49.9
Monthly expenditure (in Rs.)																						
<= 2500	68.1	33.4	56.1	55.6	15.2	31.7	40.1	21.4	13.2	68.3	64.1	57.6	62.1	82.1	3.6	43.1	73.2	72.0	10.9	7.0	30.3	60.9
2501-5500	25.9	45.6	32.5	35.4	55.0	33.9	42.8	74.6	68.4	27.9	31.2	35.4	31.0	15.1	40.6	46.7	21.8	25.2	4.2	40.2	62.9	31.5
5501-10000	4.6	17.6	9.3	7.4	29.3	20.2	12.2	3.4	17.0	3.3	4.1	6.0	5.1	2.0	46.4	8.9	3.9	1.8	36.3	46.3	6.2	6.3
10000+	1.4	3.4	2.1	1.6	0.5	14.2	4.9	0.6	1.4	0.5	0.6	1.0	1.8	0.7	9.3	1.4	1.1	1.1	48.7	6.5	0.6	1.4
Religon																						
Hindus	83.7	79.6	82.4	80.2	90.4	91.9	77.8	98.4	35.8	87.8	45.1	89.6	90.0	94.8	44.4	92.2	91.8	77.2	78.2	87.7	45.4	88.6
Muslims	9.5	13.5	10.8	9.1	9.1	7.4	1.5	0.1	56.3	10.0	46.7	7.3	5.8	4.4	2.7	7.2	4.0	21.3	2.4	3.5	2.2	3.6
Sikhs	2.7	2.3	2.5	0.4	0.1	0.2	18.4	0.3	4.2	0.0	0.6	0.5	0.1	0.1	51.3	0.1	0.3	1.0	17.0	8.4	0.5	0.2
Christians	3.1	2.8	2.9	9.4	0.4	0.2	0.2	0.4	0.4	1.3	7.4	1.9	0.8	0.3	0.5	0.4	3.6	0.0	1.1	0.3	51.8	7.6
Caste																						
Scheduled Caste	10.8	8.4	9.8	14.7	22.4	15.8	22.7	7.0	6.4	7.0	5.1	22.6	10.8	12.3	3.7	15.7	6.7	2.7	0.9	7.2	10.8	9.6
Scheduled Tribe	7.9	3.0	6.3	9.2	8.6	4.0	4.3	15.3	4.6	3.3	5.1	3.5	5.4	22.8	0.9	8.9	2.0	0.3	0.0	1.0	1.8	2.6
Other backward Classes	28.3	20.4	25.7	27.0	14.6	12.3	14.9	7.7	2.9	9.4	59.1	37.6	34.1	27.8	4.0	33.6	47.0	20.0	0.1	16.8	81.2	78.2
Others	53.2	68.1	58.2	49.1	54.3	67.9	58.2	70.0	86.1	80.3	30.7	36.3	49.7	37.1	91.4	41.9	44.4	77.0	99.0	74.9	6.2	9.6
Sources of drinking water																						
Pipe/ tap	27.1	78.1	45.2	61.2	21.1	59.7	65.9	81.3	50.1	30.4	8.5	27.3	55.9	9.5	45.5	32.8	51.3	24.5	100.0	97.7	69.9	97.7
Tubewell/handpump	52.1	14.1	38.9	29.7	50.7	23.7	29.5	3.2	40.0	55.8	6.1	39.7	26.5	48.7	53.1	40.1	34.2	75.5	0.0	1.4	0.5	2.0
Others	20.7	7.8	16.0	9.2	28.1	16.7	4.6	15.5	9.9	13.7	85.4	33.0	17.6	41.7	1.4	27.1	14.5	0.0	0.0	0.9	29.6	0.3
Staple food																						
Wheat	46.8	57.3	51.5	2.8	2.7	79.3	96.8	43.2	20.5	7.4	1.2	93.0	55.9	0.7	98.6	95.6	2.0	99.3	99.9	97.2	0.3	2.3
Rice	44.7	40.7	43.0	97.1	97.3	3.7	3.0	45.4	78.4	69.0	98.6	3.6	6.7	99.2	1.3	1.0	97.2	0.7	0.1	2.8	99.6	97.6
Nature of food																						
Vegetarian	60.1	57.2	59.3	34.3	3.1	94.8	92.8	46.1	20.1	57.7	5.0	72.0	59.7	96.4	68.7	84.7	28.5	84.2	32.1	91.0	13.0	6.4
Non vegetarian	39.9	42.8	40.7	65.7	96.9	5.2	7.2	53.9	79.9	42.3	95.0	28.0	40.3	3.6	31.3	15.3	71.5	15.8	67.9	9.0	87.0	93.6

About 60 percent or more of households in the states and union territories of Chandigarh, Delhi Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Punjab and Uttar Pradesh belonged to other than SC, ST & Backward castes. In the remaining states and union territories, 30-50 percent of households except in Goa and Pondicherry were from the other backward castes.

About 22 percent of the households in Assam, Haryana and Madhya Pradesh belonged to the scheduled castes. Scheduled castes were also concentrated in Andhra Pradesh, Goa, Gujarat, Madhya Pradesh, and Orissa where 10-15 percent of the households belonged to them. There were more tribal households in Orissa than in other states, with 23 percent of scheduled tribes households, compared to about 10 percent or less in remaining states.

The source of water is an important determinant of health status. The analysis of information in this regard show that 45 percent of households in the country, with a larger percentage of this falling in urban areas, were getting piped/tap water for drinking. Another 39 percent, with a larger percentage of this in rural areas, were drawing drinking water from tube wells/hand pumps. The remaining, about 16 percent, with rural areas accounting for the larger percentages, were getting water for drinking from other sources. As can be seen from this, there are large urban-rural differences in the sources of drinking water, with more than three-fourths of urban households getting piped/tap water.

The analysis of information on sources of drinking water in the states and union territories shows that about 60-70 percent of households in seven states (Assam, Karnataka, Kerala, Madhya Pradesh, Orissa, Punjab, Rajasthan and Uttar Pradesh) did not get piped/tap water for drinking, and were mostly dependent on tube wells/hand pumps for drinking water.

3.1.1 Staple food

52 percent, with urban areas making up the greater percentage, and another 43 percent, largely rural, reported wheat and rice their staple food respectively. The state-wise distribution on the lines of their inhabitants' staple food was on accepted lines. 80 percent or more of Chandigarh, Delhi, Gujarat, Haryana, Madhya Pradesh, Punjab and Uttar Pradesh reported wheat as their staple food, while rice was the staple food of 70 percent or more in Andhra Pradesh, Assam, Goa, Jammu and Kashmir, Karnataka, Kerala, Orissa and Tamil Nadu.

3.1.2 Nature of food

Figures for vegetarians and non vegetarian across the country were 59 percent and 41 percent respectively, across both sexes and places of residence.

About 50 percent or more were vegetarian in Delhi, Gujarat, Haryana, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Punjab and Rajasthan, while 50 percent or more were non-vegetarian in Andhra Pradesh, Assam, Chandigarh, Goa, Himachal Pradesh, Jammu and Kashmir, Kerala, Pondicherry and Tamil Nadu.

Table 3.2.2. Percent distribution of 12 year olds by Educational level in India(rural, urban, male, female), States and Union Territories.

Educational Level	R	U	M	F	T	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 Yrs																								
Education Level	**12741**	**6238**	**9702**	**9277**	**18979**	**1762**	**617**	**2178**	**956**	**629**	**941**	**1272**	**785**	**1124**	**1588**	**1641**	**1004**	**761**	**1840**	**630**	**316**	**350**	**267**	**318**
Illiterate	7.6	2.7	4.9	7.3	6.0	4.4	1.3	2.7	4.1	0.0	3.4	1.4	0.1	12.4	1.8	16.7	0.7	11.9	7.6	6.4	0.0	1.0	0.0	0.8
Upto Middle	90.5	94.9	93.5	90.4	92.0	91.2	92.8	97.3	93.6	99.7	95.4	96.8	94.7	86.7	94.5	79.8	98.6	87.6	87.2	93.0	99.8	99.0	97.6	98.0
High School and above	1.9	2.4	1.6	2.3	2.0	4.5	6.0	0.1	2.4	0.3	1.2	1.9	5.3	1.1	3.7	3.6	0.8	0.6	5.3	0.7	0.2	0.1	2.4	1.2

Table 3.2.3. Percent distribution of 15 year olds by Educational level in India(rural, urban, male, female), States and Union Territories.

Educational Level	R	U	M	F	T	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs																								
Education Level	**12575**	**6231**	**9736**	**9070**	**18806**	**1795**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1643**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Illiterate	8.8	2.5	5.3	8.2	6.7	5.7	1.3	2.0	6.1	0.0	7.3	4.2	0.3	10.9	2.7	16.8	1.3	12.2	6.8	7.5	0.0	1.1	0.4	0.2
Upto Middle	51.7	45.0	51.0	48.9	49.9	32.2	52.3	52.0	62.6	1.6	38.9	36.4	15.5	65.8	44.5	32.0	29.6	76.6	56.3	52.7	1.2	68.2	54.8	40.1
High School and above	39.6	52.5	43.7	42.9	43.4	62.1	46.5	46.0	31.5	98.5	53.9	59.5	84.3	23.4	52.8	51.3	69.2	11.3	36.9	39.9	98.8	30.7	44.8	59.8
Newspaper reading habits																								
Daily	14.6	38.8	24.0	21.3	22.7	15.2	19.1	21.3	8.9	1.9	5.5	37.4	64.2	23.8	23.4	7.4	18.9	30.5	17.3	21.2	52.0	42.4	18.6	15.7
Sometimes	30.7	34.0	33.7	29.5	31.7	27.8	21.4	52.7	33.5	26.1	33.4	25.0	30.5	39.4	34.8	9.2	62.0	35.2	21.2	28.6	32.4	30.8	52.6	26.7
Not at all	54.8	27.2	42.3	49.2	45.6	57.0	59.6	26.1	57.6	72.1	61.3	37.7	5.3	36.9	41.9	83.4	19.3	34.4	61.6	50.2	15.6	26.9	29.0	57.7
Radio listening habits																								
Daily	15.5	26.8	19.9	18.4	19.2	5.4	12.1	13.3	8.0	3.6	53.4	43.3	33.4	32.5	15.8	3.8	11.7	20.3	30.3	16.6	7.9	17.2	15.6	7.9
Sometimes	37.7	38.5	39.1	36.6	37.8	20.4	25.1	50.2	35.9	38.1	33.9	26.6	57.8	43.5	30.0	29.3	55.7	46.8	31.2	43.2	39.0	26.0	35.6	41.0
Not at all	46.8	34.6	41.1	45.1	43.0	74.3	62.8	36.5	56.2	58.5	12.8	30.1	8.8	24.0	54.3	67.0	32.8	33.0	38.5	40.3	53.2	56.9	48.8	51.2
TV watching habits																								
Daily	42.4	73.8	53.2	52.6	52.9	71.9	28.4	44.9	47.7	20.0	62.1	61.1	46.1	50.5	60.3	23.8	78.0	42.0	72.8	49.0	86.1	90.9	76.1	86.6
Sometimes	27.8	17.1	25.6	22.6	24.1	8.7	10.9	41.2	25.5	18.2	19.5	15.8	29.1	30.3	22.2	9.9	18.4	26.0	14.9	34.1	9.7	3.1	21.1	5.7
Not at all	29.8	9.1	21.3	24.9	23.0	19.5	60.8	13.9	26.9	61.9	18.5	23.2	24.9	19.3	17.6	66.4	3.6	32.0	12.3	16.9	4.3	6.1	2.8	7.8
Cinema watching habits																								
Once in 3 months	15.0	30.8	22.3	16.7	19.5	41.2	6.8	17.3	7.6	0.0	1.0	21.9	12.5	20.8	8.5	1.5	7.4	9.3	22.9	36.6	36.3	10.2	3.9	4.8
Less often	29.6	35.8	33.8	30.2	32.0	37.5	22.5	49.1	25.5	5.4	2.2	25.6	32.5	42.8	25.5	9.9	20.6	37.5	34.9	33.3	50.0	20.0	1.0	49.0
Not at all	55.4	33.4	44.0	53.1	48.5	21.4	70.7	33.7	66.9	94.7	96.9	52.5	55.0	36.4	66.0	88.6	72.1	53.2	42.3	30.2	13.9	69.9	95.2	46.3

CHARACTERISTICS OF HOUSEHOLDS

To sum up, the characteristics of households are as follows.

46 percent of respondents across the country had pucca houses.

56 percent of households in the country and the same percentage of households in about half of the states and union territories had monthly expenditures of Rs. 2500 or below.

82 percent of households in the states, except Jammu and Kashmir, Kerala, Goa and Pondicherry, belonged to Hindus.

58 percent of households in most of the states and union territories were of the higher castes.

45 percent of households in the country, and the same percentage of the households in 12 out of 19 states and union territories reportedly getting piped/ tap water for drinking.

Households were evenly divided by type of staple food i.e. wheat and rice, and by nature of food i.e. vegetarian and non-vegetarian.

3.2 PROFILE OF POPULATION

The respondents belonging to ages/age groups 12, 15, 35-44 & 65-74 years were asked about their educational levels and their exposure to media. The findings that emerged are discussed here.

3.2.1 12 YEAR OLDS

3.2.1.1 EDUCATION LEVEL

6 percent of respondents of this age group, more percent of females and in rural areas, were illiterate. Another 92 percent, across both sexes and more of them in urban than rural, had education up to middle-school level. In terms of state-wise distribution, there was a higher percentage of illiterates than at the national level in Maharashtra (12), Orissa (17.7),Rajasthan (11.9), Tamil Nadu (8) and Uttar Pradesh (6), while the percent of illiterates were less or even nil in the remaining states/union territories. 90 percent or more, like for the country as a whole, had had education up to the middle-school level in each of the states/union territories. (See Table – 3.2.2)

3.2.2 15 YEAR OLDS

3.2.2.1 EDUCATION LEVEL

Like the previous age group, there were about 7 percent illiterates in this age group across the country, with large percentage of females and in rural areas. Another 50 percent, across both sexes, with more percentage in rural areas had education up to the middle-school level. The remaining 43 percent, across both sexes and with more percentage in urban areas, were high school and above.

As regards the states, there was a larger percentage of illiterates, above the national level, in Jammu and Kashmir, Maharashtra, Orissa, Rajasthan and Uttar Pradesh, and few or even no illiterates in the remaining states and union territories. 50 percent or more in Assam, Gujarat, Haryana, Maharashtra, Rajasthan, Tamil Nadu and Uttar Pradesh and Delhi, Goa had had education up to the middle-school level, while 50 percent or more in Andhra Pradesh, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Orissa, Rajasthan, Punjab, Chandigarh and Pondicherry had been to high school or further. (See Table 3.2.3)

3.2.2.2 EXPOSURE TO MEDIA

About 46 percent, with a larger percentage of females and from rural areas, did not read the newspaper at all. Another 23 percent and 32 percent, across both sexes and with a larger percentage from urban component, reported reading the newspaper daily and sometimes (less frequently) respectively. This shows that while this media seems to be popular across both sexes, it is also more popular among urban population than in the rural areas of the country. The interstate variation in newspaper reading seems to be dependent on the level of illiteracy. The states which have a greater percentage of illiteracy have a comparatively smaller percentage reading newspaper.

As against the 22.7 percent reading newspaper everyday in the whole country, there was a higher percentage of those reading newspapers daily within states such as Karnataka (37), Kerala (64), Madhya Pradesh (23), Maharashtra (24), Chandigarh (52) and Delhi (42). In the remaining states and union territories, about three-fourths of the respondents were either reading newspapers sometimes or not at all.

About 43 percent, more females and in rural areas, did not listen to the radio at all. Only 19 percent across both sexes, with the larger percentage in urban, listened to the radio daily. The rest, across both sexes and places of residence listened to radio sometimes.

As compared to the whole of the country, radio listening seems to be comparatively more popular in the states of Jammu and Kashmir, Karnataka, Kerala, Maharashtra, and Tamil Nadu where a third or a little more of the respondents reported listening to the radio daily, while about 10 percent or below of respondents listened to the radio daily in the remaining states/union territories.

About 53 percent in the country, across sexes, with urban regions accounting for the larger percentage, reported watching TV daily, while another 24 percent, with the larger percentage being made up by females and those from rural areas, watched TV sometimes, and the remaining 23 percent, largely male and rural, did not watch TV at all.

The states/union territories differ most in exposure to television. The penetration of television was relatively high in Andhra Pradesh, Punjab, Tamil Nadu, Chandigarh, Delhi, Goa and Pondicherry where about three-fourths of the respondents watched TV daily. While 45-60 percent watched TV daily in Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra and Uttar Pradesh, only 20-25 percent reportedly watched TV in the remaining states/ UTs.

It is surprising to find that about two-thirds of the respondents did not watch TV at all in Assam and Orissa.

Only 20 percent, with the larger percentage of this being males and urban, had been to the cinema once in three months. Another 48 percent, with the larger percentage of this being females and rural, did not watch movies at all. The remaining one-third of respondents, with the larger part of this being males and urban, had watched movies less often.

As compared to the national figures given above, about one-third of the respondents in Andhra Pradesh, Uttar Pradesh and Chandigarh, about 20 percent in Karnataka, Maharashtra and Punjab, and less than 20 percent in the remaining states/union territories had been to the cinema once in three months. This might be due to the lack of cinema houses or their inaccessibility, and also due to the introduction of television in a big way recently.

Table 3.2.4. Percent distribution of 35-44 year olds by Educational level in India(rural, urban, male, female), States and Union Territories.

Educational Level	R	U	M	F	T	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs																								
Education Level	**13748**	**6742**	**10553**	**9937**	**20490**	**1853**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1854**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Illiterate	30.4	11.3	17.6	30.3	23.8	34.2	10.0	10.9	26.6	3.6	56.3	31.5	3.8	31.1	18.7	33.1	4.3	40.2	22.0	20.3	0.6	11.0	37.3	15.9
Upto Middle	40.6	30.6	35.1	39.6	37.3	31.1	40.4	52.9	40.1	48.0	21.1	28.1	41.4	38.3	37.3	46.0	22.4	36.7	41.7	37.6	12.6	25.3	34.4	38.9
High School and above	29.0	58.1	47.3	30.2	38.8	34.8	49.6	36.3	33.4	48.5	22.7	40.5	54.9	30.6	44.1	21.0	73.4	23.2	36.3	42.2	87.0	63.7	28.3	45.4
Newspaper reading habits																								
Daily	17.0	46.4	32.3	21.6	27.0	22.2	21.8	28.1	19.0	9.2	5.2	36.2	61.1	24.8	28.3	9.9	27.5	35.3	29.7	23.2	75.5	51.5	27.8	27.6
Sometimes	23.1	26.2	25.5	22.4	23.9	15.2	22.7	43.9	29.4	30.6	14.1	14.5	28.9	32.8	28.0	8.8	53.1	17.9	19.9	21.7	12.6	23.1	22.6	21.4
Not at all	59.9	27.5	42.2	55.9	49.0	62.7	55.6	28.1	51.7	60.2	80.8	49.5	10.0	42.5	43.7	81.4	19.5	46.8	50.5	55.1	11.9	25.5	49.7	51.1
Radio listening habits																								
Daily	15.6	28.1	22.9	16.4	19.8	6.8	16.4	11.9	9.8	4.3	47.8	37.4	38.7	32.4	16.2	4.7	12.6	27.3	30.3	17.2	6.7	17.9	19.0	13.1
Sometimes	37.0	37.7	38.6	35.2	36.9	23.2	25.1	50.3	38.3	73.7	37.8	25.8	50.5	41.2	30.9	32.4	55.9	26.6	34.0	43.4	52.3	27.0	29.0	33.3
Not at all	47.5	34.2	38.5	48.4	43.3	70.0	58.6	37.9	51.9	22.0	14.5	36.9	10.9	26.4	53.0	62.9	31.6	46.2	35.8	39.5	41.1	55.2	52.0	53.7
TV watching habits																								
Daily	38.1	72.3	50.3	49.3	49.9	66.5	28.1	37.5	40.7	21.3	53.1	49.0	48.1	45.4	59.4	24.4	77.0	41.4	62.8	47.8	85.8	89.1	53.0	81.5
Sometimes	26.5	19.2	24.9	22.8	23.9	12.1	12.7	44.4	30.5	26.2	22.4	16.7	29.5	30.0	21.4	9.4	19.6	18.3	22.1	31.0	8.8	5.5	16.1	7.1
Not at all	35.4	8.5	24.8	27.9	26.4	21.5	59.3	18.2	28.8	52.6	24.5	34.4	22.5	24.7	19.3	66.3	3.5	40.4	15.2	21.3	5.5	5.4	31.0	11.5
Cinema watching habits																								
Once in 3 months	9.9	23.2	16.5	11.3	14.0	26.9	6.1	8.0	3.0	1.0	0.8	14.8	9.3	13.4	7.5	1.1	4.9	10.8	17.2	26.9	27.0	9.5	2.5	2.9
Less often	27.7	39.2	34.2	28.9	31.5	39.7	23.7	50.5	24.4	4.2	2.2	20.9	30.6	44.1	26.2	13.1	23.5	25.6	34.9	33.6	58.3	21.2	1.2	44.7
Not at all	62.4	37.7	49.4	59.8	54.5	33.5	70.2	41.5	72.7	95.0	97.1	64.4	60.1	42.6	66.4	85.9	71.7	63.7	48.0	39.5	14.8	69.4	96.3	52.6

3.2.3 35-44 YEAR OLDS

3.2.3.1 EDUCATIONAL LEVEL

About 24 percent of the respondents of this age group, with the larger percentage of this being female and rural, were illiterate. Another 37 percent, with the larger percentage of this again being female and rural, had education up to middle-school. The remaining 39 percent, more of male and urban, had been either to high school or beyond.

While the national figures for illiteracy are 24 percent, a larger percentage of this age group than the national level was illiterate in Andhra Pradesh, Haryana, Jammu and Kashmir, Karnataka, Maharashtra, Orissa, Rajasthan and Goa. But the percentage was highest in Jammu and Kashmir (56.3 percent) and higher than that for any other states covered in the survey. More people had gone to high school or beyond than the national average (39) in Assam, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Punjab, Uttar Pradesh, Chandigarh, Delhi and Pondicherry. (See Table 3.2.4)

3.2.3.2 EXPOSURE TO MEDIA

Approximately half the respondents, with the larger section of this being female and rural, did not read the newspaper at all. Another 27 percent, with the larger percentage of this being male and urban, reported reading newspaper daily. The remaining 24 percent, more males and more in urban areas, reported reading the newspaper sometimes in the country. Great inter-state variations came to light with regard to the habit of reading newspapers. More than half the respondents in the eleven states such as Andhra Pradesh, Assam, Himachal Pradesh, Jammu and Kashmir, Orissa, Haryana, Karnataka, Rajasthan, Tamil Nadu, Uttar Pradesh, Goa and Pondicherry did not have the habit of reading the newspaper at all, while the corresponding figure for the remaining states was 10 to 25 percent.

About 43 percent, with the female and rural components making up the major percentage, who did not listen to radio at all. Only 20 percent, with the male and urban components making up the major percentage, reported listening to the radio daily. Another 37 percent, with the major percentage of males, across places of residence listened to the radio sometimes. This shows that across the country, this media was not very popular among this group of respondents. As regards the respondents habits of listening to the radio in various states, 50 percent or more respondents in Andhra Pradesh, Assam, Haryana, Madhya Pradesh, Orissa, Delhi, Goa and Pondicherry, and 50 percent or below in the remaining states did not listen to radio at all. About 30 to 48 percent in Jammu and Kashmir, Karnataka, Kerala, Maharashtra and Tamil Nadu, and less than 20 percent of respondents in the remaining states and union territories listened to radio daily.

About half of the respondents across both sexes, more in urban, reported watching TV daily. The rest of respondents in the country, across both sexes, with a larger rural percentage, had watched TV sometimes or not at all. The states differ most in exposure to television. About two-thirds of respondents in Andhra Pradesh, Punjab, Madhya Pradesh, Tamil Nadu, Chandigarh, Delhi and Pondicherry, 40-50 percent in Gujarat, Haryana, Jammu and Kashmir, Karnataka, Kerala, Maharashtra, Rajasthan, Uttar Pradesh and Goa, and nearly 20-25 percent in Assam, Himachal Pradesh and Orissa, reported watched TV daily. Only 14 percent of respondents, with the major percentage being of males and in urban, had been to the cinema once in three months. Another one-third, with the major percentage being males and in urban, had been to the cinema less often. The remaining 54 percent of respondents in the country, with females and those from rural areas making up the larger percentage, did not go to the cinema at all. This might be either due to there being no cinema halls in the rural areas, or their being located at inaccessible places.

One-quarter of the respondents in Andhra Pradesh, Uttar Pradesh and Chandigarh had been to the cinema once in three months, whereas about 10 percent or less had been to the cinema once in three months in the remaining states and union territories. This shows that this media is not popular with people in these states. This might be either because of economic constraints or due to the inaccessibility of cinema houses or because of the introduction of television in a big way.

Table 3.2.5. Percent distribution of 65-74 year olds by Educational level in India(rural, urban, male, female), States and Union Territories.

Educational Level	R	U	M	F	T	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
65-74 Yrs																								
Education Level	**12676**	**6144**	**9699**	**9121**	**18820**	**1804**	**618**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1487**	**997**	**697**	**###**	**629**	**314**	**347**	**268**	**318**
Illiterate	64.6	39.9	46.8	66.3	56.3	67.0	47.2	38.4	69.7	59.4	87.2	57.7	23.0	60.1	60.8	68.2	40.8	62.5	50.6	58.3	15.1	39.1	73.8	55.5
Upto Middle	27.7	39.0	35.5	27.5	31.6	22.0	36.2	51.8	20.3	24.8	8.7	20.8	61.7	25.2	28.0	26.4	44.0	29.3	37.9	32.8	3.0	34.3	22.0	31.8
High School and above	7.6	21.0	17.7	6.2	12.1	11.1	16.7	9.9	10.2	15.9	4.2	21.5	15.3	14.8	11.3	5.5	15.3	8.3	11.7	9.0	82.0	26.7	4.3	12.7
Newspaper reading habits																								
Daily	9.6	30.0	22.9	10.2	16.7	12.4	12.2	18.2	9.7	3.1	3.6	22.5	36.4	20.2	21.1	7.4	14.1	24.0	17.7	10.0	65.6	38.4	6.3	13.7
Sometimes	12.9	18.9	17.3	12.6	15.0	7.3	14.7	30.5	10.0	11.0	4.9	8.2	23.8	19.1	17.6	5.4	25.4	16.2	14.8	11.2	16.5	18.3	7.8	7.1
Not at all	77.4	51.0	59.8	77.2	68.4	80.4	73.2	51.3	80.4	86.0	91.5	69.4	39.9	60.8	61.3	87.4	60.5	59.9	67.6	78.9	18.0	43.3	86.0	79.3
Radio listening habits																								
Daily	10.9	22.9	17.7	12.4	15.1	6.6	10.9	10.7	7.6	5.4	42.0	28.9	31.5	31.7	14.3	4.5	11.3	17.4	24.4	6.2	8.5	15.4	7.8	7.0
Sometimes	30.7	32.8	33.4	29.1	31.4	19.9	16.7	42.6	22.9	60.0	33.6	20.4	41.3	30.6	27.3	28.7	56.2	28.2	27.3	35.8	56.7	23.3	21.4	23.0
Not at all	58.3	44.3	48.9	58.5	53.6	73.7	72.5	46.7	69.6	34.6	24.5	50.8	27.2	37.8	58.5	66.9	32.6	54.5	48.4	58.1	35.0	61.4	70.8	70.1
TV watching habits																								
Daily	26.6	54.9	37.9	35.1	36.5	49.7	20.8	24.3	23.1	14.9	43.2	37.1	34.8	38.3	52.7	24.2	66.6	25.5	52.2	20.2	79.9	77.0	20.1	60.9
Sometimes	26.4	24.4	26.3	24.8	25.6	20.1	9.5	41.7	25.1	20.3	24.0	15.5	21.0	26.7	19.3	9.0	26.5	19.9	19.8	38.3	12.1	12.3	18.7	10.1
Not at all	47.1	20.7	35.9	40.0	37.9	30.3	69.8	34.1	51.8	64.9	32.9	47.5	44.2	35.1	28.1	66.9	7.0	54.6	28.1	41.6	8.1	10.7	61.3	29.1
Cinema watching habits																								
Once in 3 months	3.1	10.4	5.9	5.0	5.5	10.4	3.0	2.3	2.2	0.0	0.6	6.7	4.4	7.5	4.4	0.9	1.6	4.3	11.3	4.8	10.0	7.8	2.8	1.1
Less often	13.8	22.8	19.2	14.4	16.9	21.2	8.9	24.5	7.9	2.9	0.4	12.0	9.6	20.6	15.8	6.8	6.7	16.4	21.6	17.5	51.8	8.3	0.0	9.8
Not at all	83.0	66.8	74.9	80.6	77.7	68.5	88.2	73.4	90.0	97.2	99.0	81.5	86.0	72.0	79.9	92.4	91.7	79.4	67.2	77.7	38.3	84.0	97.3	89.1

3.2.4 65-74 YEAR OLDS

3.2.4.1 EDUCATIONAL LEVEL

There were more illiterate elderly people, and this might be due to the late start of educational programmes in the country, particularly in rural areas. As high as 56 percent of respondents of this age group across the country, with the major percentage of female and in rural, reported illiterate. Another 32 percent and 12 percent, with the major percentage of male and in urban, had education up to middle-school and high-school or beyond respectively.

The states/union territories differ greatly in their educational level. Two-thirds or more of respondents in states such as Andhra Pradesh, Haryana, Himachal Pradesh, J&K, Maharashtra, Goa and Karnataka, Madhya Pradesh, Maharashtra, Rajasthan, Goa and Pondicherry were illiterate, while 40-50 percent, except 15 percent in Chandigarh, were illiterate in the remaining states/union territories. (See Table 3.2.5)

3.2.4.2 EXPOSURE TO MEDIA

Since more from this group reported illiterate, as expected exposure to media was low for this age group across the country. Only 17 percent, more males and in urban areas accounting for the larger percentage, reported reading the newspaper daily. 68 percent, with females and rural areas accounting for the larger percentage, did not read newspaper at all.

About 20-22 percent in Gujarat, Karnataka, Madhya Pradesh and Maharashtra, Rajasthan and 36 percent in Kerala and Delhi; 66 percent in Chandigarh; and 10 percent or below in the remaining states reported reading the newspaper daily. More than 50 percent in all states except Chandigarh did not read newspaper at all.

About 54 percent, with females and rural areas accounting for the larger percentage, did not listen to the radio at all. About 15 percent & 31 percent, with males and urban areas accounting for the larger percentage, reported listening to radio daily and sometimes respectively.

About 30-40 percent of the respondents in Jammu and Kashmir, Karnataka, Kerala, and Maharashtra, as compared to 6-15 percent in the remaining states/union territories, reported listening to the radio daily.

About 38 percent, with females and rural areas accounting for the larger percentage, did not watch TV at all. A similar percentage of respondents, across both sexes with the larger percentage in urban, reported watching TV daily. The remaining 26 percent, across both sexes and places of residence, watched TV sometimes.

As regards inter-state variation in exposure to this media, more than two-thirds in the union territories and Punjab, 45-50 percent in Andhra Pradesh, Jammu and Kashmir, Madhya Pradesh and Tamil Nadu reported watching TV daily, while 25 percent or fewer in the remaining states watched TV daily. This may lead to the conclusion that the penetration of this media was comparatively greater than that of the print media.

Cinema-going does not seem to figure at all with this group of respondents. About three-quarters of the respondents, with males and in rural areas accounting for the larger percentage, did not go to the cinema at all. Only 6 percent of respondents in the country, across both sexes, with a major percentage being made up by urban respondents, had been to the cinema once in three months.

Except about 10 percent in Andhra Pradesh, Tamil Nadu and Chandigarh, a negligible percentage of respondents in the remaining states/union territories had watched cinema once in three months.

PROFILE OF POPULATION ACROSS AGE GROUPS (SUMMING UP)

There was a high percentage (56 percent) of illiterates in older age groups (35 or more years old) in comparison to younger (6 percent) age groups, with these figures holding good for the country as well as for most of the states and union territories covered in the survey.

About 50 percent, with females and rural respondents making up the larger share, reported not reading the newspaper, was this situation for the country as a whole as well for most of the states and union territories.

About 15-19 percent, with males and urban respondents making up the larger percentage, listened to the radio daily in the country and in most of the states and union territories.

About 50 percent of the (35-44)-year-olds or younger, and 37 percent of the (65-74) age group, irrespective of sex and with the larger share being urban, watched TV daily, This situation was true for both the country and most of the states and union territories.

More younger respondents than older ones in urban areas, as expected, had been to the cinema once in three months in the country as well as in most of the states and union territories covered in the survey.

CHAPTER IV

MAPPING OF FLUORIDE LEVELS

4.1 INTRODUCTION

As stated in the section on objectives (Chapter II), 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 water samples from the households they visited for collection of information related to oral health practices and the current situation of the oral health. This chapter presents results of the analysis of the fluoride levels from those water samples.

Water samples could not be collected and analysed for analysis of fluoride content in the state of Rajasthan. Therefore, Rajasthan has not been included in this analysis.

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 will carry along with them a set of sterilized plastic bottles supplied to them when they go to the field. These bottles were ordered from a manufacturer in Hyderabad specially for this purpose and had the following characteristics:

   (1) Its capacity was 500 ml as per recommendations of the Medlab, Mumbai, India where the water samples were to be analyzed for fluoride levels. (This lab, now has agreed that a sample of even 200 ml would have been enough).This quantity of water was decided to take account of the possible spillage of water during transportation.

   (2) The quality of plastic for bottles was so decided that they could stand the pressure of transportation from Hyderabad to each state where survey was conducted, travel with the field teams and then dispatched to Mumbai for analysis.

   (3) It was sterilized to ensure that collected water did not get contaminated from any source, and

   (4) The bottles had two corks to make sure that spillage of water was minimum and the Medlab got quantity of water sufficient to analyze its fluoride levels.

2. Every field team was instructed to collect water samples from the first household they visited every day. Water sample was collected from the next household only if the source of drinking water of the household was different from the previous household from where water sample was collected. In other words, water samples were collected from all the sampled households that had different sources of drinking water in the area of coverage. If the source of drinking water in the household was the same as collected previously then water sample was not collected. It means that water samples were collected from a representative sample of households of the villages/urban blocks and one knew number of household in the sampled area who were using water of the specific ppm level. 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 and the results give distribution of household with different levels of ppm.

3. All water sample bottles had identification particulars of the household including its state, zone and serial number of the household, which were numbered within each zone.

4. Since a specified number of households were covered from each zone, the field teams were instructed to number the households in each zone serially, starting from 1 to the last number in a zone. Thus, every household covered had a unique serial number within

a zone. The water sample bottles had this number recorded; thus, each water sample was uniquely matched with the household so that the water sample could be linked to the household from where other information on oral health was collected.

5. The collected water samples were transported to Medlar Laboratories, Mumbai, India for analysis.

This collection of water sample and its linking with the household was done for two purposes. The first was that the collected household drinking water samples represent the situation of rural and urban households of the zone and ultimately of the state (by giving proper weights to the rural and urban areas of the zone/state). This analysis would help to map the fluoride levels in different areas of the state and the country as the sampled areas and households were a representative sample of the total areas. The other purpose was to try to relate the fluoride levels of drinking water, oral health related dental practices and the actual status of the oral health of the households and individuals.

4.3 ANALYSIS OF WATER SAMPLES

Since analysis of water samples for its fluoride levels requires special equipment, the President, Dental Council of India, Dr. R. K. Bali contacted the Colgate-India for help in the analysis. They have been supportive to the total effort of the Dental Council of India in the conduct of the National Oral Health Survey including the funding they provided. They agreed to the request of the Dental Council of India for the analysis of the water samples for fluoride levels and identified Medlab, Mumbai for such analysis.

The methodology they adopted in analysis of 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 India (rural, urban) and states are shown in Table 4.1.

Table 4.1 Percent distribution of drinking water samples by levels of fluoride (ppm) in India, (rural, urban) states and union territories

Levels of fluoride (ppm)	INDIA			STATES AND UNION TERRITORIES																
	R	U	T	AP	ASM	GUJ	HR	HP	J&K	KAR	KER	MP	MAH	ORI	TN	U P	CH	DEL	GO	PY
0.0 –0.5	36.2	35.4	36.1	33.9	88.5	16.7	70.6	72.6	23.7	2.4	65.7	62.1	32.7	76.4	32.2	11.2	100.0	80.1	75.1	97.4
0.51 – 1.00	24.4	27.3	24.5	38.6	10.3	19.6	10.1	21.0	24.8	28.6	3.1	27.9	21.9	9.5	25.0	33.4	0.0	19.5	2.7	1.9
1.01 – 1.50	14.1	7.7	12.7	12.3	0.3	14.5	0.0	0.5	21.7	15.7	4.0	6.7	6.0	1.2	17.3	16.9	0.0	0.0	11.2	0.0
1.51 – 2.00	13.3	13.2	13.3	4.7	0.8	15.1	7.8	3.3	17.3	27.4	24.0	1.4	24.1	1.9	21.5	17.1	0.0	0.0	3.0	0.8
2.01 – 4.00	11.5	16.2	12.9	10.4	0.0	33.7	11.6	2.6	12.6	25.9	3.3	1.9	15.3	10.9	4.1	20.3	0.0	0.4	8.0	0.0
4.01+	0.5	0.3	0.4	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0

Click and See ABBREVIATIONS & ACRONYMS in regard to states.

About 27 percent of the households in India use water with fluoride levels of 1.5 or more ppm; this percentage is slightly higher in urban areas (30%).

The state and union territories covered in the survey differ greatly in levels of ppm in their drinking water. There were few households in Delhi, Pondicherry & none in Chandigarh had used drinking water with fluoride levels of 1.5 or more ppm. While (40-50) percent of households in Gujarat, Karnataka, Maharashtra and Uttar Pradesh and one quarter of households in Jammu & Kashmir, Kerala, Tamil Nadu & Haryana had used drinking water with fluoride levels of 1.5 or more ppm. About 10 & below percent of households in remaining states & union territories had used drinking water with fluoride levels of 1.5 & more ppm.

Fig. 4.1 Drinking water levels of fluoride in India

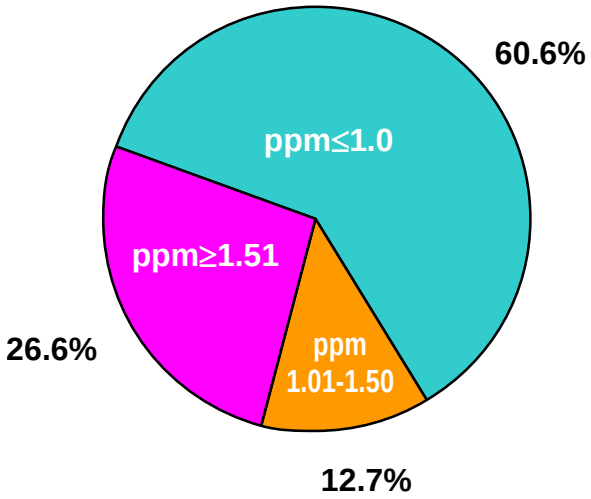


Fig. 4.2 Drinking water levels of Fluoride (ppm) in the States, India

CHAPTER V

FOOD HABITS AND ORAL HEALTH PRACTICES

A series of questions on food habits and other habits/practices to identify oral health risk practices and to plan appropriate educational activities to improve the oral health of the people were put to respondents belonging to different ages/age groups. The present chapter analyses the information collected.

5.1 ABNORMAL ORAL HABITS

Five questions on abnormal habits such as “breathing from mouth,” habit of “sucking or biting fingers/thumbs,” “thrusting tongue on teeth,” “biting nails, lips or object like pencils,” and “grinding and gritting teeth,” were put to each respondent (in the case of 5-year-olds, from her/ his caregiver).

The responses obtained from 5, 12, 15, 35-44 and 65-74 year olds, sorted by sex and place of residence, are presented in Table 5.1.

5.1.1 5 year olds

About 12 percent of respondents of this age, across both sexes, with the larger share being rural, reported the habit of “grinding/gritting teeth.” This was followed by another 7 percent and 5 percent, across both sexes and places of residence, reporting the habits of “sucking or biting fingers/thumbs” and “biting nails/lips/object like pencil” respectively. The occurrence of each of the other habits surveyed in this group of respondents was low across the country.

Comparatively larger numbers reported the habit of “grinding/gritting teeth,” followed by other abnormal habits such as “sucking or biting fingers/thumbs” and “biting nails/lips/object like pencil” than any other abnormal habits, which were either low or nil, in each of the states/union territories.

5.1.2 12 year olds

The occurrence of each abnormal habit in respondents of this age was comparatively lower than that in 5-year-old respondents. There were comparatively more across both sexes and more in rural with the habit of “grinding/gritting teeth” and “biting nails/lips/object like pencil” than other habits over the country.

The states greatly differ in abnormal habits. There were more with the habit of “grinding/gritting teeth,” followed by “biting nails/lips/object like pencil” than other abnormal habits in each of the states/union territories. It is surprising to find that comparatively more had each of these abnormal habits in the states of Gujarat, Himachal Pradesh and Madhya Pradesh and Rajasthan than in the other states/union territories.

Table 5.1. Percent respondents by age, habits affecting oral health in India (rural, urban, males, females), States and Union Territories.

Habits affecting oral health	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
Age 5 years	12709	6228	10060	8877	18937	1866	617	2173	954	630	944	1255	842	1154	1549	1452	1001	805	1808	630	315	362	266	314
Breathing from mouth	2.60	2.60	2.80	2.20	2.50	3.10	0.10	2.40	9.50	0.70	3.30	3.90	8.30	2.50	2.30	0.20	4.30	0.50	3.30	0.50	0.00	6.30	0.00	1.00
Sucking or biting fingers/thumb	6.60	6.90	6.60	6.70	6.60	12.60	0.10	11.40	9.30	5.80	2.40	8.30	5.10	5.50	3.80	2.20	9.00	6.70	13.50	0.20	16.40	11.00	10.00	8.00
Thrusting tongue on teeth	2.00	2.10	2.10	1.90	2.00	3.20	0.00	3.30	2.70	3.80	1.50	4.30	0.80	3.30	1.40	0.30	4.60	0.60	2.80	0.20	0.10	1.20	0.40	3.20
Biting nails/lips/objects like pencil	4.70	5.10	4.80	4.80	4.80	9.40	0.20	6.80	6.60	20.10	6.40	4.80	2.90	5.60	4.60	0.90	7.30	6.10	7.20	0.30	2.80	5.70	1.70	5.50
Grinding / gritting teeth	14.90	9.10	12.90	12.50	12.70	8.30	4.20	18.50	14.30	13.10	5.80	6.00	1.80	19.00	9.30	41.00	4.10	26.30	18.70	40.40	1.10	2.60	16.70	2.20
Age 12 Yrs	12673	6267	9686	9254	18940	1855	617	2178	956	629	941	1272	784	1124	1588	1509	1004	762	1840	630	316	350	267	318
Breathing from mouth	3.40	4.20	3.50	3.60	3.60	1.80	0.00	2.00	5.00	3.00	2.90	3.70	4.60	3.10	1.70	0.50	4.60	0.30	2.20	9.50	0.00	3.00	1.20	1.00
Sucking or biting fingers/thumb	3.70	4.00	3.60	3.80	3.70	3.00	0.00	8.90	1.90	12.00	1.80	2.30	0.70	9.80	1.70	0.80	8.80	0.10	3.20	3.10	5.80	3.60	4.20	8.20
Thrusting tongue on teeth	2.70	2.00	2.30	2.60	2.50	1.50	0.00	2.50	2.30	11.30	2.10	2.50	0.30	8.00	1.60	0.40	2.80	0.80	1.10	2.50	0.90	0.40	4.30	0.50
Biting nails/lips/objects like pencil	5.40	5.00	5.40	5.30	5.40	8.60	0.00	10.30	4.70	32.10	2.90	2.80	2.50	10.40	3.00	1.30	7.70	3.70	4.70	2.90	5.60	9.30	2.30	2.20
Grinding / gritting teeth	7.30	4.30	6.20	6.50	6.30	6.50	0.30	11.00	5.10	17.60	3.80	3.60	2.90	16.80	8.10	6.60	2.10	18.30	9.10	13.60	1.30	4.10	3.50	2.60
Age 15 Yrs	12467	6231	9678	9020	18698	1842	618	2178	959	629	940	1256	789	1155	1473	1488	1004	705	1801	631	314	334	268	314
Breathing from mouth	3.40	3.60	3.30	3.60	3.40	0.60	0.00	1.00	5.80	0.70	2.80	2.20	1.50	4.60	1.00	0.50	2.70	0.30	1.90	10.60	0.00	0.50	0.40	0.90
Sucking or biting fingers/thumb	1.90	2.70	2.10	2.20	2.20	0.80	0.00	6.00	0.70	4.50	1.80	1.80	0.40	8.10	0.30	0.00	1.30	0.10	1.70	1.50	0.00	0.90	1.50	8.20
Thrusting tongue on teeth	1.90	1.40	1.70	1.70	1.70	0.80	0.00	1.60	1.90	4.20	1.40	1.70	0.30	8.90	0.80	0.20	0.60	0.10	0.70	1.60	1.00	0.40	3.30	1.40
Biting nails/lips/objects like pencil	3.50	3.80	3.60	3.70	3.60	4.10	0.00	8.10	4.10	21.10	1.60	2.60	1.00	9.50	1.40	0.30	4.70	1.60	3.10	2.20	6.00	6.90	0.40	2.30
Grinding / gritting teeth	4.00	3.10	4.00	3.30	3.70	6.90	0.30	3.30	2.20	9.70	1.90	3.70	1.80	18.40	5.70	3.30	1.80	6.00	6.50	5.10	1.30	1.40	0.40	0.90
Age 35-44 Yrs	13631	6750	10453	9928	20381	1917	638	2383	981	628	957	1278	991	1252	1639	1682	1026	1182	1907	628	315	387	272	318
Breathing from mouth	3.60	3.50	3.50	3.50	3.60	3.10	0.00	1.00	6.50	0.00	1.60	2.00	0.10	2.50	1.80	0.30	1.10	0.60	2.00	11.10	0.00	1.50	0.40	1.60
Sucking or biting fingers/thumb	1.60	1.60	1.70	1.40	1.60	0.20	0.00	3.60	2.00	0.70	0.20	0.30	0.00	5.30	0.40	0.00	0.20	0.30	0.40	1.60	0.00	0.00	0.00	1.10
Thrusting tongue on teeth	0.90	1.00	1.10	0.70	0.90	0.30	0.30	1.30	1.50	1.00	0.20	1.30	0.00	6.20	0.20	0.10	0.00	0.10	0.10	0.50	0.00	0.00	0.40	0.00
Biting nails/lips/objects like pencil	2.00	2.50	2.40	2.10	2.30	0.60	0.00	6.50	2.90	5.70	0.20	1.10	0.00	6.20	2.00	0.00	0.90	0.50	1.00	1.50	2.20	1.50	0.00	0.20
Grinding / gritting teeth	4.40	3.80	4.20	4.20	4.20	9.00	0.80	6.10	3.10	10.40	0.50	3.60	1.10	18.10	8.70	3.10	4.10	5.60	5.90	2.20	2.30	3.30	0.00	1.30
Age 65-74 Yrs	12626	6148	9663	9111	18774	1847	617	2190	948	630	956	1260	799	1158	1566	1400	997	697	1834	629	314	346	268	318
Breathing from mouth	3.70	3.50	3.80	3.20	3.50	4.30	0.00	0.40	5.30	0.00	1.30	2.70	0.10	1.90	1.30	0.30	1.50	0.60	1.80	10.80	0.00	0.90	0.00	0.60
Sucking or biting fingers/thumb	0.60	1.00	0.80	0.70	0.80	0.20	0.00	1.70	0.90	0.00	0.20	0.20	0.00	3.00	0.20	0.00	0.10	0.10	0.60	0.50	0.00	0.00	0.00	0.20
Thrusting tongue on teeth	0.60	0.70	0.70	0.50	0.60	0.10	0.00	0.60	1.40	0.30	0.20	0.80	0.00	3.80	0.10	0.10	0.10	0.00	0.10	0.50	0.80	0.00	0.00	0.00
Biting nails/lips/objects like pencil	0.60	1.10	0.90	0.70	0.80	0.50	0.00	1.40	1.40	1.00	0.00	0.50	0.00	3.20	0.60	0.10	0.30	0.00	0.30	0.30	0.10	0.50	0.00	0.00
Grinding / gritting teeth	3.20	2.70	3.10	2.80	2.90	8.00	0.90	3.40	2.90	9.40	0.60	4.50	1.50	14.10	6.70	3.20	3.40	6.10	6.40	1.50	2.40	2.50	0.40	1.20

5.1.3 15 year olds and 35-44 year olds

A comparatively smaller percentage of 15-year-olds and (35-44)-year-olds than 5- and 12-year-old respondents reported having these abnormal habits. This shows that there was decrease in the occurrence of each abnormal habit with increase in the age of respondents in the country.

As regards the states/union territories, except for the occurrence to some extent of the habits of "grinding/gritting teeth" and "biting nails/lips/object like pencil" in certain states such as Andhra Pradesh, Gujarat, Himachal Pradesh, Madhya Pradesh, Maharashtra and Rajasthan, the occurrence of each of the other abnormal habits was very low in the other states/union territories.

5.1.4 65-74 year olds

The occurrence of each of abnormal habit, except the habit of "breathing from mouth" (3.5 percent) and grinding/gritting teeth (2.9 percent), was very low in the country. There was no uniformity in the prevalence of abnormal habits in the states. The prevalence rates of abnormal habit such as grinding/ gritting teeth and breathing from the mouth were comparatively higher than national level in certain states, while the prevalence rates of other than these abnormalities were below the national level or even zero.

ABNORMAL ORAL HABITS ACROSS AGE GROUPS (SUMMING UP)

Except the occurrence of abnormal habits such as "grinding/gritting teeth," "sucking or biting fingers/thumbs," and "biting nails/lips/object like pencil" in 2, 7 and 5 percent of 5-year-old respondents respectively, the occurrence of each of these abnormal habits in respondents of other age groups was very low or even nil.

5.2 EATING HABITS

Since sweet-eating habits affect oral health, the respondents belonging to ages/age groups 5, 12, 15, (35-44) and (65-74), of both sexes and across all places of residence from each state/union territory, were asked how many times they had taken sugar during the last 24 hours. The analysis of responses obtained are presented in Table 5.2 and discussed below.

5.2.1 5 year olds

About 30 percent of the respondents in the country, across both sexes and with rural ones making the larger percent, had not taken sugar in the last 24 hours. Another 22 percent, across both sexes, with a higher percentage in urban, had taken sugar one time during the last 24 hours. The remaining 48 percent, across both sexes, with a greater percent in urban areas, reported taking sugar two or more times in the last one day.

Table 5.2. Percent distribution of respondents by age, and pattern of sugar intake in India (rural, urban, males, females), States and Union Territories.

Pattern of sugar intake in last one day	INDIA					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
Age 5 Yrs																								
	12716	6226	10063	8879	18942	1870	617	2173	954	630	944	1255	842	1154	1549	1453	1001	805	1808	630	315	362	266	314
Not taken	34.3	23.7	30.9	30.3	30.6	38.1	81.0	22.5	5.6	4.8	13.9	45.9	15.7	30.1	35.9	79.1	0.0	33.8	29.9	23.0	0.0	0.8	32.5	39.9
Taken one time	21.8	24.7	21.8	23.3	22.5	26.0	15.0	34.7	9.3	17.9	22.0	29.9	15.2	39.3	23.9	14.5	10.4	27.6	17.8	19.1	0.4	8.8	30.3	18.4
Taken two times	27.4	30.4	29.4	27.8	28.7	28.9	3.5	25.7	36.4	53.2	27.6	17.7	33.6	16.3	22.5	4.7	57.5	17.8	32.2	40.7	44.0	52.1	30.9	16.2
Taken 2+ times	16.5	21.2	18.1	18.5	18.3	7.1	0.6	17.2	48.7	24.3	36.6	6.6	35.6	14.5	17.8	1.7	32.2	20.9	20.1	17.3	55.7	38.4	6.4	25.6
Age 12 Yrs																								
	12677	6266	9687	9256	18943	1859	617	2178	956	629	941	1272	784	1124	1588	1508	1004	762	1840	630	316	350	267	318
Not taken	37.4	25.6	32.8	33.7	33.3	50.6	81.6	24.4	3.8	8.2	20.1	49.3	18.2	30.5	39.1	78.1	0.1	39.2	29.5	23.1	0.0	1.7	40.8	61.8
Taken one time	22.7	26.9	23.8	24.1	23.9	26.4	13.6	36.6	10.5	14.2	25.0	30.2	16.1	30.3	25.1	15.5	8.1	22.8	18.6	28.7	0.6	10.6	27.2	14.4
Taken two times	26.7	30.9	28.8	27.6	28.2	19.8	4.5	28.1	41.2	39.8	32.4	15.3	38.5	22.7	21.4	5.1	57.3	23.2	38.0	34.1	49.6	53.3	23.1	13.0
Taken 2+ times	13.3	16.6	14.6	14.7	14.6	3.4	0.4	10.9	44.7	37.9	22.6	5.3	27.3	16.6	14.4	1.5	34.6	15.0	14.0	14.1	49.8	34.5	9.1	10.9
Age 15 Yrs																								
	12472	6231	9676	9027	18703	1843	618	2178	959	629	940	1256	789	1155	1473	1492	1004	705	1801	631	314	334	268	314
Not taken	38.1	26.9	34.5	33.8	34.1	55.7	82.6	26.5	4.7	20.6	40.7	50.0	25.1	37.3	48.2	73.9	0.8	29.3	30.4	18.6	0.0	1.0	41.8	76.1
Taken one time	25.9	30.3	26.8	27.6	27.2	26.6	13.3	43.2	11.6	11.9	25.3	29.6	17.2	31.3	24.3	18.8	6.3	40.3	19.9	31.5	1.2	11.7	28.5	11.6
Taken two times	23.9	29.1	25.7	25.7	25.7	14.7	3.9	25.8	43.7	42.9	22.7	15.3	38.6	15.8	16.4	5.9	59.6	21.4	37.4	33.4	50.5	52.4	22.1	8.0
Taken 2+ times	12.1	13.6	13.0	12.9	13.0	3.1	0.4	4.5	40.1	24.7	11.4	5.3	19.3	15.7	11.2	1.4	33.5	9.1	12.4	16.6	48.3	35.0	7.6	4.4
Age 35-44 Yrs																								
	13631	6752	10457	9926	20383	1919	638	2383	981	628	957	1278	991	1252	1639	1682	1026	1182	1907	628	315	387	272	318
Not taken	45.4	35.4	42.0	41.9	41.9	68.6	87.4	32.5	8.5	65.4	93.5	58.5	36.8	44.7	60.4	61.9	16.5	39.3	37.9	18.2	3.2	2.4	65.5	88.1
Taken one time	26.3	30.7	28.0	26.8	27.4	24.9	10.3	51.9	10.3	13.0	3.9	27.1	23.5	36.1	21.6	31.1	8.2	39.8	18.5	29.6	7.9	5.8	18.4	7.2
Taken two times	19.5	24.7	21.4	21.2	21.3	5.9	1.7	14.0	39.0	15.4	0.9	10.5	32.8	12.8	13.0	5.3	39.0	17.5	35.9	38.5	59.4	53.5	14.8	4.3
Taken 2+ times	8.9	9.3	8.6	10.2	9.3	0.7	0.6	1.7	42.3	6.3	1.7	3.9	7.0	6.4	5.0	1.8	36.4	3.4	7.7	13.8	29.7	38.4	1.5	0.5
Age 65-74 Yrs																								
	12626	6148	9661	9113	18774	1850	617	2190	948	630	956	1260	799	1158	1566	1397	997	697	1834	629	314	346	268	318
Not taken	52.4	45.3	49.5	50.1	49.7	75.6	89.6	39.6	9.7	85.1	97.2	65.8	54.5	48.5	63.4	70.5	42.5	45.0	40.0	26.3	61.1	1.8	77.7	92.3
Taken one time	24.1	29.6	26.2	24.8	25.5	20.3	9.6	48.6	10.8	6.8	1.9	23.3	17.4	33.7	19.3	23.4	10.8	43.9	19.2	32.4	17.5	7.0	12.0	6.1
Taken two times	15.6	17.7	16.2	17.1	16.7	3.1	0.2	10.7	40.3	4.8	0.1	7.9	24.3	10.9	13.1	4.9	19.8	8.7	34.7	28.0	16.9	53.0	10.0	1.0
Taken 2+ times	7.9	7.4	8.1	8.0	8.1	1.0	0.6	1.2	39.3	3.4	0.9	3.1	3.9	7.0	4.3	1.3	27.0	2.4	6.3	13.3	4.5	38.3	0.3	0.9

About 20 percent in the states of Assam and Orissa, and 50-100 percent in the remaining states and union territories had taken sugar one or more times during the last one day. There were comparatively more in Haryana, Jammu and Kashmir, Kerala, Punjab, Chandigarh and Delhi than in other states, who had taken sugar more than two times in the last one day.

5.2.2 12 year olds

About one-third of the respondents in the country, across both sexes, with the larger percent in rural areas, did not take sugar in the last one day. Another 24 percent and 29 percent, across both sexes, with the larger percent in urban areas, had taken sugar one time and two times respectively, while about 15 percent across both sexes, with the larger percent in urban areas, reported having taken sugar two and more times in the last one day.

As regards states and union territories, about 20-22 percent in Assam and Orissa, and 50-100 percent of respondents in the remaining states/union territories had taken sugar one and more times in the last one day. A comparatively larger percentage of respondents had taken sugar more than two times in Haryana, Himachal Pradesh, Punjab, Chandigarh and Delhi than in the other states and union territories.

5.2.3 15 year olds

About 35 percent of respondents in the country, across both sexes, with the higher percent in rural areas, had not taken sugar during the last one day. Another 52 percent, across both sexes, with the urban ones reporting larger percentage, had taken sugar one to two times during the last one day. The remaining 13 percent, across both sexes and places of residence reported having taken sugar more than two times during the last one day.

Except Orissa and Pondicherry (24-26 percent), and Assam (17 percent), 45 to 100 percent in the remaining states and union territories had taken sugar one and more times during the last one day. Like in the previous age groups there was a comparatively larger percentage of respondents in Haryana, Punjab, Chandigarh and Delhi than in the remaining states and union territories who had taken sugar two and more times during the last one day.

5.2.4 35-44 year olds

There is to be found increase in the percentage of respondents across the country who had not taken sugar during the last one day with increase in their ages. 42 percent of respondents of this age group, across both sexes, and more in rural areas, had not taken sugar during the last one day. Another 27 percent and 21 percent, across both sexes and more in urban areas, had taken sugar one and two times during the last one day respectively, while 9 percent, across both sexes and places of residence, had taken sugar more than two times during the last one day.

There were comparatively more non-takers of sugar during the last one day in each of the states and union territories in the present age group than in the previous age group of respondents.

13 percent in Assam, 7 percent in Jammu and Kashmir, 30-35 percent in Himachal Pradesh and Goa, 40-65 percent in Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Orissa, Rajasthan and Tamil Nadu, and 82-98 percent in Haryana, Punjab, Uttar Pradesh, Chandigarh and Delhi had taken sugar one and more times during the last one day. Like in the previous age groups, there were a comparatively higher percentage of respondents in Haryana, Punjab, Chandigarh and Delhi than in other states that had taken sugar two and more times during the last one day.

5.2.5 65-74 year olds

Half the respondents in the country, across both sexes, with higher percent in rural areas, had not taken sugar during the last one day. Another 26 percent, across both sexes, with more among urban, had taken sugar one time during the last one day, while about 25 percent, across both sexes and places of residence, had taken sugar two and more times during the last one day.

Only 3 percent in Jammu and Kashmir, 8 percent in Pondicherry, 10 percent in Assam, 15 percent in Himachal Pradesh, and 25-98 percent in the remaining states and union territories had taken sugar one and more times during the last one day.

There were a comparatively larger percentage of respondents in the states of Haryana, Punjab and Delhi than in the other states who had taken sugar two and more times during the last one day.

EATING HABITS ACROSS AGE GROUPS

The percentage of respondents who had not taken sugar during the last one day increased from 30 to 50 percent with increase in the age of respondents. States and union territories differ greatly in consumption of sugar. There were a comparatively higher percentage of respondents, irrespective of age, who had taken sugar two and more times during the last one day in Haryana, Punjab and Delhi than in other states.

Table 5.3.1 Per cent respondents 5 year olds by Oral Hygiene Practice in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 year olds																								
Clean teeth with	**12716**	**6235**	**10067**	**8884**	**18951**	**1865**	**617**	**2173**	**954**	**630**	**944**	**1255**	**842**	**1154**	**1549**	**1470**	**1001**	**805**	**1808**	**630**	**315**	**359**	**266**	**314**
finger	35.0	13.2	26.9	28.5	27.7	24.6	26.1	9.2	9.4	1.9	14.5	38.7	12.8	30.8	47.9	12.9	3.7	23.7	28.3	37.3	0.6	9.1	15.8	6.7
brush	50.4	81.4	60.8	61.0	60.9	70.3	72.4	72.9	59.6	86.4	44.9	60.9	87.3	48.6	46.8	51.5	94.7	39.6	61.4	58.9	99.4	90.4	83.1	91.9
datun	11.0	2.0	8.9	7.2	8.1	4.8	1.2	12.9	5.3	11.8	4.8	0.5	0.0	19.8	0.4	35.4	0.8	19.5	9.9	3.5	0.0	0.0	1.2	1.5
others	3.6	3.3	3.3	3.4	3.4	0.5	0.5	5.0	25.7	0.0	35.9	0.0	0.0	1.0	5.0	0.3	0.9	17.2	0.5	0.5	0.0	0.5	0.0	0.0
Frequency of cleaning teeth	**10592**	**5748**	**8641**	**7699**	**16340**	**1731**	**611**	**1809**	**707**	**591**	**566**	**1248**	**841**	**892**	**1455**	**863**	**987**	**518**	**1673**	**605**	**315**	**354**	**263**	**311**
Once a day	91.4	88.6	90.3	90.6	90.4	98.5	74.6	93.0	86.9	96.8	81.8	93.6	65.8	88.5	97.3	100.7	96.3	87.5	96.7	90.6	41.7	82.6	97.8	99.9
Twice a day	4.2	9.2	6.3	5.7	6.0	1.0	25.5	2.1	5.4	3.2	2.8	5.9	33.0	9.8	2.5	1.3	3.5	3.9	3.2	5.2	56.2	16.5	1.8	0.2
After every meal	0.2	0.2	0.2	0.1	0.1	0.0	0.0	0.1	0.5	0.0	0.3	0.1	1.4	1.0	0.1	0.2	0.0	0.0	0.0	0.0	2.2	0.1	0.0	0.0
Material used for cleaning teeth																								
Tooth paste	56.5	83.0	65.6	66.3	66.0	66.5	66.9	68.2	91.0	96.1	89.7	56.9	84.8	57.4	47.4	64.6	99.0	74.6	63.4	61.7	98.8	94.6	92.7	82.9
Tooth powder	33.0	13.9	26.9	25.5	26.2	27.8	14.8	28.0	3.8	4.0	5.0	28.8	7.8	38.7	36.9	16.3	1.1	17.5	32.3	32.6	1.2	5.0	1.2	13.3
Type of toothpaste / powder	**9583**	**5575**	**8008**	**7150**	**15158**	**1613**	**531**	**1747**	**683**	**590**	**547**	**1095**	**756**	**854**	**1254**	**654**	**987**	**478**	**1582**	**570**	**315**	**351**	**248**	**303**
Flouridated	13.7	24.5	18.1	18.7	18.3	13.8	10.6	11.6	46.1	61.4	15.4	27.9	11.4	15.9	18.8	35.8	51.0	4.5	36.8	2.0	99.4	28.7	17.6	17.1
Non flouridated	63.7	56.9	60.9	60.1	60.5	75.7	57.5	44.2	36.8	36.1	76.0	50.4	84.9	41.9	55.0	40.8	47.9	44.6	20.8	91.0	0.6	69.7	82.4	81.0
Change of toothbrush once in	**7428**	**5101**	**6628**	**5901**	**12529**	**1254**	**501**	**1632**	**643**	**579**	**468**	**819**	**712**	**548**	**726**	**653**	**955**	**329**	**1207**	**369**	**312**	**316**	**223**	**283**
1-3 months	26.0	37.0	32.3	31.1	31.8	42.8	22.9	6.9	25.3	55.4	67.7	43.3	49.6	43.4	41.6	44.2	22.9	16.0	65.4	1.1	41.9	62.7	93.4	53.5
4-6 months	30.0	30.5	29.7	30.7	30.2	31.8	59.5	17.3	36.1	33.9	25.0	34.9	43.2	33.0	28.1	40.7	57.9	22.3	26.4	19.7	55.4	28.6	5.3	34.2
6 + months	42.0	31.8	36.3	36.8	36.5	23.8	17.7	75.0	35.1	10.5	7.4	20.0	6.5	21.0	28.5	15.7	19.1	59.4	7.3	78.0	2.7	12.1	1.4	12.4
Rinse mouth after eating	**12716**	**6235**	**10067**	**8884**	**18951**	**1865**	**617**	**2173**	**954**	**630**	**944**	**1255**	**842**	**1154**	**1549**	**1470**	**1001**	**805**	**1808**	**630**	**315**	**359**	**266**	**314**
Sometimes	35.0	34.8	34.7	35.8	35.2	22.4	34.4	43.3	49.3	16.8	51.5	40.4	11.6	43.7	30.5	2.8	45.5	32.7	39.7	38.5	40.1	30.5	5.7	47.7
Always	40.0	38.9	39.9	38.7	39.3	39.9	61.4	7.8	29.2	8.6	13.6	24.9	87.7	19.1	33.5	94.0	10.7	57.0	35.3	51.4	0.0	45.9	94.0	18.7

5.3 ORAL HEALTH PRACTICES

A series of questions were asked on oral hygiene practices, covering aspects such as how teeth are cleaned, what material is used to clean it, whether it is fluoridated, how often teeth are cleaned and whether and how often the mouth is rinsed after eating. The responses that were obtained from the respondents, of the ages/age groups 5, 12, 15, (35-44) and (65-74) years old, sorted by their sex and places of residence from the various states and union territories surveyed, are presented in Tables 5.3.1 to 5.3.5 and discussed as below.

5.3.1 5 YEAR OLDS

About 61 percent of this age in the country, across both sexes and more in urban areas, had used toothbrush to clean teeth. As regards this in the state and union territories, 70 percent and more in Andhra Pradesh, Assam, Gujarat, Himachal Pradesh, Kerala, Punjab, Chandigarh, Delhi, Goa and Pondicherry, and 40-60 percent in the remaining states, had used toothbrush to clean teeth.

As regards frequency of cleaning teeth, about 90 percent across both sexes, with rural respondents making the larger percentage reported cleaning teeth once a day. Only 6 percent, with urban respondents making the larger share, cleaned teeth twice a day in the country. In the states and union territories, three-fourths and more in all, except 42 percent in Chandigarh, cleaned teeth once a day. But 56 percent in Chandigarh cleaned their teeth twice a day.

The respondents were equally divided across both sexes in regard to periodicity in change of toothbrushes. More urban respondents changed toothbrushes once in 1-3 months while more rural respondents changed toothbrushes once after 6 months of use.

65-92 percent in Jammu and Kashmir, Tamil Nadu, Delhi and Goa, 40-60 percent in Andhra Pradesh, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Chandigarh and Pondicherry, and 20-25 percent in the remaining states had changed tooth brushes once in 13 months, while 75 percent in Gujarat, 59 percent in Rajasthan and 78 percent in Uttar Pradesh changed tooth brushes once after six months of use.

As regards the material used for cleaning teeth, 66 percent, across both sexes, with urban respondents making the larger percentage, used toothpaste, while 28 percent across both sexes, with more rural respondents, had used tooth powder in the country.

18 percent, across both sexes, with more urban respondents, had used fluoridated tooth paste/ powder, while another 61 percent, across both sexes, with rural respondents reporting larger percentage, reported the use of non-fluoridated tooth paste/powder in the country.

In all, the use of toothpaste, tooth powder, fluoridated and non-fluoridated, in the states and union territories were similar to that in the country.

As regards rinsing the mouth after eating, a measure to prevent oral health problems, 39 percent in the country, across both sexes and places of residence, always rinsed mouth after eating. The percentage of respondents who rinsed the mouth after eating was lower than the national level in 12 out of 19 states and union territories.

Table 5.3.2 Per cent respondents 12 year olds by Oral Hygiene Practice in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 Yrs																								
Clean teeth with	**12678**	**6275**	**9695**	**9258**	**18953**	**1855**	**617**	**2178**	**956**	**629**	**941**	**1272**	**784**	**1124**	**1588**	**1523**	**1004**	**762**	**1840**	**630**	**316**	**349**	**267**	**318**
finger	27.6	10.7	21.9	21.7	21.8	16.3	23.3	3.0	5.8	0.3	2.9	33.7	12.5	25.6	45.0	1.9	2.5	19.4	25.5	28.0	0.7	5.6	14.1	5.8
brush	57.1	85.5	66.6	67.0	66.7	76.3	74.7	75.7	71.1	87.9	75.9	65.5	87.5	54.7	52.5	51.1	95.6	48.7	63.4	67.7	99.4	93.9	84.8	92.5
datun	13.5	2.3	9.9	9.4	9.6	7.3	1.5	21.1	12.8	11.8	19.1	0.6	0.0	19.1	0.5	46.3	1.2	20.5	10.2	4.2	0.0	0.5	0.4	0.5
others	2.0	1.4	1.6	2.0	1.7	0.3	0.6	0.3	10.5	0.0	2.2	0.3	0.1	0.8	2.0	0.8	0.7	11.5	0.9	0.2	0.0	0.1	0.8	1.4
Frequency of cleaning teeth	**10493**	**5889**	**8387**	**7995**	**16382**	**1665**	**609**	**1748**	**781**	**589**	**781**	**1258**	**783**	**872**	**1536**	**706**	**987**	**532**	**1697**	**603**	**316**	**346**	**264**	**309**
Once a day	93.0	89.0	92.1	90.9	91.6	98.3	74.4	97.4	87.2	95.7	88.6	91.9	57.7	86.4	97.0	99.0	95.4	88.4	96.2	92.5	38.2	80.4	96.3	98.7
Twice a day	4.9	10.1	6.5	7.1	6.8	1.1	25.6	2.6	6.5	4.0	4.3	8.1	40.5	11.8	2.8	1.7	4.4	4.9	3.8	5.1	59.1	18.7	3.3	1.3
After every meal	0.2	0.2	0.1	0.3	0.2	0.2	0.0	0.1	0.2	0.4	0.0	0.1	1.9	1.4	0.1	0.0	0.0	0.0	0.0	0.0	2.7	0.1	0.4	0.0
Material used for cleaning teeth																								
Tooth paste	59.2	83.1	68.1	67.8	68.0	70.6	65.5	71.6	91.3	96.7	94.5	58.2	82.7	56.6	48.3	75.0	98.7	73.0	63.8	64.7	98.7	94.0	88.8	77.0
Tooth powder	31.8	14.6	25.3	25.8	25.6	25.7	15.7	28.1	3.5	3.3	5.1	26.7	10.5	39.9	36.4	20.0	1.4	20.0	32.2	30.3	1.0	5.6	2.2	21.9
Type of toothpaste / powder	**9706**	**5780**	**7923**	**7563**	**15486**	**1592**	**527**	**1736**	**756**	**588**	**779**	**1100**	**715**	**840**	**1328**	**663**	**987**	**496**	**1603**	**572**	**315**	**343**	**241**	**305**
Flouridated	14.4	25.0	19.0	19.3	19.2	11.8	11.8	12.5	45.5	62.0	13.0	29.6	13.7	17.4	19.6	32.8	51.0	9.8	38.5	1.8	99.3	28.0	18.8	12.5
Non flouridated	64.7	57.2	60.8	61.3	61.0	77.8	59.2	46.2	40.3	35.2	85.7	48.9	80.9	42.5	54.3	43.4	47.8	51.8	20.0	91.4	0.7	70.3	81.3	85.1
Change of toothbrush once in	**8083**	**5416**	**6918**	**6581**	**13499**	**1367**	**508**	**1682**	**741**	**586**	**757**	**889**	**675**	**596**	**825**	**679**	**963**	**395**	**1269**	**424**	**313**	**319**	**228**	**283**
1-3 months	22.6	35.0	29.3	28.4	28.9	34.5	20.4	6.1	24.3	30.3	72.7	43.8	37.7	37.2	39.5	43.2	22.2	8.0	62.5	0.5	43.3	62.5	91.5	59.4
4-6 months	29.8	31.7	30.8	30.1	30.5	41.4	59.2	18.2	35.2	53.7	21.3	34.3	52.3	36.6	27.8	41.3	58.5	23.5	28.2	16.6	54.3	27.8	6.8	30.1
6 + months	45.6	32.3	38.1	39.8	39.0	23.0	20.1	75.0	38.6	16.1	6.1	19.4	8.9	23.6	31.0	15.1	19.1	63.4	7.9	81.8	2.5	11.7	1.4	10.4
Rinse mouth after eating	**12678**	**6275**	**9695**	**9258**	**18953**	**1855**	**617**	**2178**	**956**	**629**	**941**	**1272**	**784**	**1124**	**1588**	**1523**	**1004**	**762**	**1840**	**630**	**316**	**349**	**267**	**318**
Sometimes	35.8	36.5	36.8	35.9	36.4	30.7	33.4	52.6	48.7	24.4	40.2	48.2	7.2	43.1	35.2	3.1	70.5	31.0	44.8	25.3	55.6	37.1	0.4	25.2
Always	49.0	45.8	47.1	47.9	47.5	42.8	63.7	9.8	37.4	14.1	52.1	30.1	92.2	26.0	35.6	93.9	18.3	65.5	39.0	73.4	0.5	51.6	99.6	42.0

5.3.2 12 YEAR OLDS

67 percent of respondents of this age in the country, across both sexes, more in urban areas, reported the use of toothbrush to clean teeth.

As regards practices of cleaning teeth in states and union territories, three-fourths and more in Andhra Pradesh, Assam, Gujarat, Haryana, Himachal Pradesh, Jammu and Kashmir, Karnataka, Kerala, Punjab, Chandigarh, Delhi, Goa and Pondicherry while 50-65 percent in the remaining states had used tooth brush to clean teeth.

About 92 percent in the country across both sexes, and more in rural areas, cleaned teeth once a day, while only 7 percent, across both sexes, and more in urban areas, clean teeth twice a day.

As regards states and union territories, 80 to 99 percent in each of the states and union territory, except 38 percent in Chandigarh, cleaned teeth once a day. There were comparatively more percentage of respondents in Assam, Kerala, Chandigarh and Delhi than in other states and union territories who cleaned teeth twice a day.

The respondents were equally distributed with regard to periodicity in change of toothbrushes. About 29 percent of respondents, across both sexes and more in urban areas, changed tooth brush once in 1-3 months. An equal percentage, across both sexes and places of residence, changed toothbrushes once in 4-6 months. The remaining 39 percent, across both sexes and more in rural, had changed toothbrushes after six months of use in the country.

The states and union territories differ greatly in regard to periodicity in change of toothbrushes. 60 percentage and more of respondents in Jammu and Kashmir, Tamil Nadu, Delhi, Goa and Pondicherry reported change of tooth brushes once in 1-3 month, while 50 percent and above in Assam, Himachal Pradesh, Kerala, Punjab and Chandigarh had changed brushes once in 4-6 months. And 75 percent in Gujarat and Uttar Pradesh, and about 20 percent and below in the remaining states/union territories had changed toothbrushes once after 6 months of use.

About 68 percent of respondents, across both sexes and more in urban areas, reported the use of toothpaste, while another 26 percent, across both sexes and more in rural areas, had used tooth powder for cleaning teeth.

Approximately 65 percent and more in all states, except about 50 to 60 percent in Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, and Uttar Pradesh, had used toothpaste.

62 percent in the country, across both sexes and more in rural, reported the use of non-fluoridated tooth paste/tooth powder, while only 20 percent, across both sexes and more in urban, had used fluoridated tooth paste/tooth powder.

The states/union territories differ greatly in the use of non-fluoridated and fluoridated tooth paste/powder. 70-90 percent in Andhra Pradesh, Jammu and Kashmir, Kerala, Uttar Pradesh, Delhi, Goa and Pondicherry, 50-60 percent in Assam and Maharashtra, Rajasthan and 30-45 percent in Gujarat, Haryana, Karnataka, Madhya Pradesh, Orissa, Punjab, Himachal Pradesh, Tamil Nadu and Chandigarh had used non-fluoridated tooth paste/powder, while10-30 percent in Andhra Pradesh, Assam, Gujarat, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Uttar Pradesh, Delhi, Goa and Pondicherry, and 40 to 70 percent in the remaining states/union territories reported the use of fluoridated tooth paste/powder.

As regards rinsing of mouth after eating, a measure to prevent oral health problems, 48 percent in the country, across both sexes and more in rural, rinsed mouth always after eating. Another 36 percent, across both sexes and place of residence, had rinsed mouth sometimes after eating.

There were more who always rinsed the mouth after eating in Andhra Pradesh, Assam, Jammu and Kashmir, Kerala, Maharashtra, Orissa, Rajasthan, Uttar Pradesh, Delhi, Goa and Pondicherry, while more rinsed the mouth sometimes in the remaining states/union territories.

Table 5.3.3 Per cent respondents 15 year olds by Oral Hygiene Practice in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs																								
Clean teeth with	**12468**	**6240**	**9686**	**9022**	**18708**	**1836**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1505**	**1004**	**705**	**1801**	**631**	**314**	**333**	**268**	**314**
finger	25.4	11.5	20.7	20.8	20.7	15.3	23.6	3.2	5.2	1.0	2.4	27.0	12.2	24.0	44.4	1.8	2.3	19.3	21.7	25.9	0.9	4.4	6.9	3.3
brush	59.6	84.2	67.7	68.1	67.9	76.0	75.1	75.7	74.7	87.3	77.1	72.0	87.9	56.0	52.4	50.4	95.7	54.9	65.0	69.8	99.1	94.7	93.1	95.7
datun	13.8	3.2	10.2	10.0	10.1	8.5	0.8	21.0	15.4	11.8	19.8	0.9	0.0	19.5	0.6	46.9	1.3	21.1	11.9	4.2	0.1	0.9	0.0	1.1
others	1.3	1.0	1.4	1.1	1.3	0.3	0.6	0.2	4.8	0.0	0.9	0.2	0.0	0.8	2.7	1.0	0.9	4.8	1.4	0.2	0.0	0.1	0.0	0.0
Frequency of cleaning teeth	**10360**	**5841**	**8351**	**7850**	**16201**	**1630**	**612**	**1755**	**805**	**589**	**794**	**1240**	**789**	**897**	**1418**	**697**	**986**	**534**	**1631**	**604**	**313**	**329**	**268**	**310**
Once a day	92.3	88.0	91.1	90.3	90.7	98.4	72.7	97.0	84.3	94.7	90.3	89.1	58.3	83.8	96.7	99.4	96.3	91.9	95.6	90.8	39.9	76.6	93.2	98.2
Twice a day	5.6	11.5	7.1	8.5	7.7	1.4	27.1	3.0	9.1	5.0	4.3	10.9	41.0	13.9	3.3	1.8	3.4	4.2	4.1	6.4	57.6	23.3	6.8	1.9
After every meal	0.1	0.2	0.1	0.2	0.1	0.0	0.3	0.1	0.5	0.4	0.0	0.1	0.8	1.7	0.0	0.0	0.1	0.0	0.3	0.0	2.6	0.1	0.0	0.0
Material used for cleaning teeth																								
Tooth paste	60.8	83.3	68.9	68.8	68.9	71.8	66.2	70.9	92.0	97.8	94.8	62.8	84.6	55.7	48.7	73.5	99.0	77.0	67.1	65.7	98.4	93.2	92.7	79.9
Tooth powder	30.8	14.2	25.1	24.7	24.8	24.3	14.5	28.8	2.9	2.3	4.4	24.7	8.7	40.6	35.8	21.5	1.1	18.5	28.8	29.3	1.2	6.4	3.4	19.6
Type of toothpaste / powder	**9643**	**5728**	**7941**	**7430**	**15371**	**1558**	**527**	**1742**	**776**	**589**	**790**	**1109**	**720**	**864**	**1220**	**655**	**986**	**511**	**1549**	**573**	**312**	**326**	**258**	**306**
Flouridated	14.6	24.5	18.7	19.3	19.0	12.1	11.4	11.8	45.3	62.7	13.4	28.9	13.1	16.5	20.0	34.0	50.8	7.4	40.2	2.3	99.8	28.1	19.4	16.2
Non flouridated	66.3	57.5	62.0	62.2	62.1	77.5	61.6	54.3	41.1	35.2	85.9	50.6	82.0	43.3	56.9	43.9	48.5	47.1	20.2	93.0	0.2	70.7	80.7	82.4
Change of toothbrush once in	**8228**	**5352**	**7011**	**6569**	**13580**	**1356**	**512**	**1687**	**769**	**580**	**770**	**943**	**686**	**617**	**751**	**668**	**965**	**402**	**1272**	**438**	**311**	**312**	**250**	**291**
1-3 months	24.1	34.5	29.4	29.1	29.2	34.1	23.0	7.2	27.3	35.9	72.2	46.3	35.0	35.5	41.1	44.3	23.1	13.7	63.2	0.8	42.7	57.3	90.5	59.6
4-6 months	29.7	32.2	31.2	30.0	30.6	39.9	58.5	16.4	35.1	45.9	21.8	36.2	54.1	35.7	28.7	41.0	57.9	25.5	27.7	17.0	53.6	31.0	5.8	27.4
6 + months	44.0	32.6	37.9	39.1	38.5	24.8	18.6	75.6	35.3	18.3	6.1	15.6	10.2	25.7	29.0	14.6	18.8	55.3	8.2	81.2	3.8	11.8	3.9	13.1
Rinse mouth after eating	**12468**	**6240**	**9686**	**9022**	**18708**	**1836**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1505**	**1004**	**705**	**1801**	**631**	**314**	**333**	**268**	**314**
Sometimes	34.5	35.6	36.2	34.4	35.3	31.9	34.8	59.3	42.5	26.4	29.9	46.0	7.7	50.6	40.1	2.0	44.0	20.3	42.7	25.1	78.2	30.2	0.8	19.3
Always	54.9	51.2	51.9	54.3	53.0	47.4	62.6	16.8	49.6	22.5	66.7	37.5	91.6	33.0	37.4	95.0	49.8	77.1	45.0	74.3	1.8	62.1	99.2	53.4

5.3.3 15 YEAR OLDS

About 68 percent in the country, across both sexes and more in urban, reported the use of toothbrush to clean teeth.

Three-fourths of respondents in all states, except 52-65 percent in the states of Madhya Pradesh, Maharashtra, Orissa and Rajasthan had used toothbrush to clean teeth.

About 91 percent, across both sexes and more in rural, cleaned teeth once a day, while another 8 percent, across both sexes and more in urban, had cleaned teeth twice a day.

As regards periodicity of change of tooth brushes, 30 percent, across both sexes and more in urban, changed tooth brushes once in 1-3 months, while another 31 percent, across both sexes and places of residence, changed tooth brushes once in 4-6 months. The remaining 39 percent of respondents, across both sexes and more in rural, had changed toothbrushes once after six months of use. This shows that there were more, irrespective of sex, changing tooth brush late in rural than in urban areas of the country.

States and union territories differ greatly in change of toothbrushes. The analysis of data on change of tooth brushes in states and union territories reveals that 60 percent and above in Jammu and Kashmir, Tamil Nadu, Goa and Pondicherry changed tooth brushes once in 1-3 months. While 5060 percent in Assam, Kerala, Punjab, Chandigarh changed tooth brushes once in 4-6 months, whereas 76 percent in Gujarat and 81 percent in Uttar Pradesh had changed tooth brushes once after six months of use.

As regards material used for cleaning teeth, 68 percent, across both sexes and more in urban areas reported the use of toothpaste. Another 25 percent in the country, across both sexes and more in rural, used tooth powder for cleaning teeth.

About three-fourths in the majority of states and union territories reported the use of toothpaste for cleaning teeth.

62 percent, across both sexes and more in rural, had used non-fluoridated tooth paste/powder for cleaning teeth. Another 19 percent, across both sexes and more in urban, reported the use of fluoridated paste/powder in the country.

60 and more percent in Andhra Pradesh, Assam, Jammu and Kashmir, Kerala, Uttar Pradesh, Delhi, Goa and Pondicherry, and 40-60 percent in the remaining states except Chandigarh, had used non-fluoridated tooth paste/powder. Cent percent in Chandigarh, 63 percent in Himachal Pradesh, 45 percent in Haryana and 10-20 percent in the remaining states had used fluoridated tooth paste/powder.

About 53 percent in the country, across both sexes and more in rural, reported rinsing mouth always after eating, while about 35 percent, across both sexes and places of residence, rinsed mouth sometimes after eating.

50 percent and more in Assam, Haryana, Jammu and Kashmir, Kerala, Orissa, Punjab, Rajasthan, Uttar Pradesh, Delhi, Goa and Pondicherry and 30-50 percent in the remaining states rinsed mouth always after eating.

Table 5.3.4 Per cent respondents 35-44 year olds by Oral Hygiene Practice in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs																								
Clean teeth with	13635	6762	10469	9928	20397	1921	638	2383	981	628	957	1278	991	1252	1639	1694	1026	1182	1907	628	315	387	272	318
finger	27.8	14.7	23.2	23.3	23.3	14.3	23.8	3.9	5.7	0.3	2.4	35.1	12.9	23.2	55.7	2.4	3.7	21.9	26.0	28.3	0.9	6.0	23.5	7.0
brush	49.8	80.8	60.1	60.6	60.4	66.9	74.5	70.7	67.9	78.2	48.2	63.3	87.1	54.7	42.2	39.7	89.1	52.1	60.4	57.9	99.1	92.8	76.2	89.2
datun	19.7	3.7	15.0	13.4	14.3	18.5	1.2	24.6	21.7	20.3	46.0	1.0	0.0	21.2	0.6	57.4	5.6	22.8	11.5	10.1	0.1	0.9	0.0	3.1
others	2.7	0.9	1.7	2.6	2.1	0.4	0.6	0.9	4.8	1.3	3.4	0.8	0.1	1.0	1.7	0.6	1.6	3.3	2.3	3.8	0.0	0.4	0.4	0.8
Frequency of cleaning teeth	**10379**	**6151**	**8402**	**8128**	**16530**	**1549**	**630**	**1747**	**764**	**512**	**581**	**1254**	**989**	**954**	**1597**	**610**	**953**	**865**	**1729**	**541**	**314**	**376**	**271**	**294**
Once a day	91.1	85.3	89.6	88.3	89.0	97.2	72.9	95.3	81.3	91.2	88.2	89.3	52.9	77.7	94.9	97.3	94.7	87.2	93.9	91.0	33.2	78.3	83.7	95.8
Twice a day	6.8	14.2	8.9	10.3	9.6	2.1	26.9	4.6	11.0	8.9	3.4	10.4	44.6	20.0	4.6	3.7	4.8	9.2	5.7	7.2	63.9	21.3	15.9	3.6
After every meal	0.4	0.3	0.3	0.4	0.3	0.0	0.3	0.2	1.0	0.0	0.4	0.4	2.5	0.7	0.5	0.2	0.3	0.2	0.4	0.0	3.0	0.4	0.4	0.7
Material used for cleaning teeth																								
Tooth paste	56.2	81.2	65.7	65.8	65.8	73.8	64.7	71.5	90.9	97.2	93.1	58.7	82.0	54.3	39.3	74.3	98.2	69.4	64.0	62.7	98.0	92.6	77.0	80.5
Tooth powder	30.5	15.2	24.8	25.0	24.9	20.9	16.1	28.1	4.6	2.9	6.7	21.6	9.2	40.6	32.4	18.7	1.9	19.7	30.7	31.2	1.6	7.1	2.0	17.3
Type of toothpaste / powder	**9196**	**6005**	**7741**	**7460**	**15201**	**1460**	**544**	**1729**	**738**	**512**	**579**	**1053**	**872**	**906**	**1193**	**558**	**953**	**777**	**1635**	**507**	**313**	**373**	**217**	**282**
Flouridated	15.1	24.4	19.4	19.6	19.5	13.0	11.8	14.8	46.6	64.2	13.9	30.3	11.9	17.1	18.7	35.2	50.1	8.4	40.0	2.0	99.7	27.0	21.0	11.7
Non flouridated	64.9	58.6	62.0	61.5	61.7	76.1	59.5	54.7	40.1	33.4	83.7	50.7	84.0	43.0	52.3	43.6	49.1	58.9	21.6	94.2	0.3	70.1	79.0	85.3
Change of toothbrush once in	**7678**	**5497**	**6758**	**6417**	**13175**	**1251**	**526**	**1660**	**724**	**511**	**559**	**871**	**833**	**646**	**705**	**574**	**921**	**621**	**1285**	**362**	**309**	**344**	**210**	**263**
1-3 months	23.4	34.2	29.3	29.2	29.3	31.2	20.5	6.0	30.0	39.8	66.2	44.6	31.8	37.7	36.5	48.6	24.6	14.5	58.5	1.2	41.8	50.2	94.3	51.1
4-6 months	30.9	33.5	31.7	32.4	32.0	39.7	48.9	16.2	31.3	42.6	25.7	36.8	57.9	35.0	30.5	39.1	56.6	24.0	31.0	20.0	52.5	38.6	4.7	32.6
6 + months	42.8	31.5	36.8	36.7	36.7	28.0	29.3	76.9	36.1	17.7	7.8	17.1	10.0	23.1	30.3	12.3	18.7	55.7	9.3	77.2	5.8	11.7	1.0	16.1
Rinse mouth after eating	**13635**	**6762**	**10469**	**9928**	**20397**	**1921**	**638**	**2383**	**981**	**628**	**957**	**1278**	**991**	**1252**	**1639**	**1694**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Sometimes	29.9	31.3	30.7	30.2	30.5	32.1	30.3	54.9	34.7	48.8	14.9	42.8	6.9	42.9	37.6	1.3	32.7	12.2	37.7	22.6	76.8	12.8	2.0	11.9
Always	61.9	58.7	60.3	61.0	60.6	52.8	68.1	25.5	60.5	35.6	82.4	43.9	92.3	43.8	47.2	95.2	63.3	84.7	55.4	76.9	18.4	83.5	97.7	59.5

5.3.4 35-44 YEAR OLDS

60 percent of respondents, across both sexes and more in urban reported the use of toothbrush for cleaning teeth in the country. About 65 percent and more respondents in all states and union territories, except in Jammu and Kashmir, Madhya Pradesh, Maharashtra, Orissa, Rajasthan, and Uttar Pradesh, wherein 40-60 percent had used tooth brush to clean teeth.

89 percent across both sexes, and more in rural, cleaned teeth once a day. Another 10 percent, more males and more in urban areas, cleaned teeth twice a day.

Three-fourths and more respondents in all the states and union territories except Kerala and Chandigarh cleaned teeth once a day. There were comparatively more in Kerala and Chandigarh who cleaned teeth twice a day.

The respondents across both sexes were more or less equally divided with regard to periodicity of change of toothbrushes. More urban respondents changed toothbrush once in 1-3 months, while more rural respondents changed toothbrushes after six months of use. Nearly 69 percent in the country across both sexes, and more in rural, changed toothbrushes once after four months of use.

About 40 to 60 percent in Himachal Pradesh, Jammu and Kashmir, Karnataka, Orissa, Tamil Nadu, Chandigarh, Delhi, Goa and Pondicherry, and 25-30 percent in Andhra Pradesh, Assam, Haryana, Kerala, Madhya Pradesh, Maharashtra, and Punjab, and about 15 percent in Rajasthan, 6 percent and below in Gujarat, and a few in Uttar Pradesh changed tooth brushes once in 1-3 months. About 60 percent of respondents, except about 40 percent in J&K and in Tamil Nadu, changed toothbrushes after four and more months of use in the remaining states and union territories. Only 6 percent in Goa had changed toothbrushes after 6 or more months of use.

As regards material used for cleaning teeth, about 66 percent across both sexes, and more in urban, reported the use of tooth paste, while another 25 percent, across both sexes, and more in rural, had used tooth powder in the country.

A high percentage of respondents in each of the states and union territories reported the use of toothpaste instead of tooth powder.

62 percent, across both sexes and more in rural, reported the use of non- fluoridated tooth paste/ powder, whereas only 20 percent, across both sexes and more in urban, had used fluoridated tooth paste/powder in the country.

A high percentage of respondents, except 22 percent in Tamil Nadu and 0.3 percent in Chandigarh, reported the use of non-fluoridated tooth paste/powder in the remaining states.

As regards rinsing of mouth, about 61 percent of the respondents in the country, across both sexes and more in rural, rinsed mouth always after eating, while another 32 percent, across both sexes and places of residence, rinsed mouth sometimes after eating.

60-95 percent in Assam, Haryana, Jammu and Kashmir, Kerala, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, Delhi, Goa, and Pondicherry, and 45-55 percent in Andhra Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Tamil Nadu, and 30 percent and below in the remaining states, had rinsed mouth always after eating.

Table 5.3.5. Per cent respondents 65-74 year olds by Oral Hygiene Practices in India (rural, urban, males, females), States and Union Territories.																								
	INDIA					States/ Union Territories																		
Oral Hygiene Practices	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
Age 65-74 Yrs																								
Clean teeth with	**12615**	**6144**	**9654**	**9105**	**18759**	**1831**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1401**	**997**	**697**	**1834**	**629**	**314**	**346**	**268**	**318**
finger	35.6	29.9	32.4	35.0	33.6	33.9	38.5	6.0	6.8	10.7	4.3	58.4	35.3	27.7	73.9	7.0	12.0	34.3	42.1	30.3	4.0	15.1	59.9	49.6
brush	25.0	49.3	34.0	32.0	33.0	35.7	58.1	48.9	34.5	17.1	9.9	37.9	50.2	43.9	18.1	24.3	36.2	29.5	35.3	23.7	47.1	50.8	35.7	37.9
datun	20.9	6.1	16.9	14.9	15.9	24.5	2.8	25.5	23.4	30.4	54.5	0.8	1.6	25.5	1.5	68.1	9.3	22.6	18.3	7.8	0.9	6.1	0.0	8.7
others	18.5	14.8	16.7	18.0	17.3	6.0	0.6	19.8	35.4	41.9	31.4	3.0	13.1	3.0	6.7	0.6	42.6	13.8	4.4	38.3	48.2	28.0	4.4	3.9
Frequency of cleaning teeth	**7547**	**4453**	**6148**	**5852**	**12000**	**1272**	**602**	**1231**	**389**	**196**	**192**	**1199**	**689**	**820**	**1436**	**361**	**405**	**440**	**1513**	**344**	**159**	**223**	**257**	**272**
Once a day	91.8	88.9	90.6	90.9	90.7	96.6	76.7	94.5	79.0	95.4	69.5	94.5	68.7	79.8	95.5	96.3	88.7	87.9	96.8	92.6	44.0	87.2	96.0	99.7
Twice a day	5.2	9.6	7.6	6.1	6.9	0.8	22.9	4.4	9.3	1.9	5.6	4.9	26.5	17.0	3.7	5.1	7.2	5.7	3.1	4.2	52.3	12.2	4.1	0.4
After every meal	0.6	0.8	0.7	0.7	0.7	0.3	0.4	0.7	4.1	0.0	3.6	0.3	4.1	1.7	0.9	1.0	3.7	0.0	0.2	0.0	3.8	0.7	0.0	0.0
Material used for cleaning teeth																								
Tooth paste	39.7	64.7	50.9	48.4	49.6	54.0	62.1	56.4	65.4	63.8	83.9	41.1	58.5	53.8	24.6	66.8	83.8	55.4	48.6	44.2	95.6	80.6	48.9	46.3
Tooth powder	36.5	24.0	31.2	32.5	31.8	28.0	16.5	40.0	10.9	22.4	3.6	24.1	12.7	41.3	32.5	13.7	12.2	24.3	40.5	48.0	4.5	18.2	3.9	27.7
Type of toothpaste / powder	**5730**	**4034**	**5061**	**4703**	**9764**	**1050**	**508**	**1193**	**304**	**183**	**181**	**826**	**508**	**773**	**869**	**293**	**390**	**355**	**1318**	**317**	**159**	**220**	**139**	**178**
Flouridated	13.4	21.1	17.4	17.0	17.2	7.1	10.0	10.3	42.7	58.9	16.3	25.9	10.4	16.4	15.9	39.1	45.1	7.1	35.0	2.6	98.3	25.7	13.3	10.9
Non flouridated	61.0	55.8	57.2	59.3	58.2	79.4	60.2	44.0	41.4	22.3	61.9	49.6	82.5	45.0	47.9	34.4	48.8	47.1	22.5	94.3	0.8	69.7	86.7	78.1
Change of toothbrush once in	**3706**	**3129**	**3641**	**3194**	**6835**	**666**	**403**	**1125**	**325**	**150**	**158**	**510**	**433**	**498**	**316**	**294**	**314**	**218**	**770**	**151**	**136**	**173**	**98**	**97**
1-3 months	23.0	31.7	28.6	28.0	28.3	24.8	20.3	4.1	19.3	19.5	71.5	44.1	29.6	36.1	31.4	51.5	19.5	16.2	64.4	0.7	50.3	42.3	90.4	34.3
4-6 months	28.3	30.1	29.6	29.6	29.6	37.5	41.5	11.4	22.6	57.2	17.6	35.9	57.3	36.9	27.6	40.6	47.2	25.1	25.0	13.8	39.9	44.7	5.1	50.5
6 + months	45.2	35.8	39.3	39.2	39.3	32.7	36.1	83.0	48.9	23.3	10.9	17.5	11.3	24.1	34.4	12.5	32.4	57.4	9.2	83.0	9.9	13.6	4.6	13.0
Rinse mouth after eating	**12615**	**6144**	**9654**	**9105**	**18759**	**1831**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1401**	**997**	**697**	**1834**	**629**	**314**	**346**	**268**	**318**
Sometimes	27.4	25.8	26.8	27.2	27.0	28.4	31.2	44.5	28.2	60.7	13.6	41.1	9.0	37.7	33.6	1.1	19.6	10.2	31.8	20.3	60.1	10.4	1.5	14.3
Always	64.3	65.8	64.8	64.7	64.7	56.5	68.2	37.5	67.4	38.1	84.0	43.0	90.4	47.2	55.4	94.5	78.2	86.8	57.7	78.8	36.4	86.3	98.1	57.0

5.3.5 65-74 YEAR OLDS

The decrease in percentage of toothbrush users with increase in the age of users as reported earlier, was visible here also. Only one-third of the respondents in the country, across both sexes and more in urban, reported the use of toothbrushes for cleaning teeth.

There were more users of toothbrushes than the national level in all except the states of Himachal Pradesh, Jammu and Kashmir, Maharashtra, Orissa, Rajasthan and Uttar Pradesh, which had comparatively fewer numbers of brush users.

91 percent, across both sexes and more in rural, cleaned teeth once a day, while only 7 percent, across both sexes and more in urban, cleaned teeth twice a day.

Nearly 80 and more percent, except 44 percent in Chandigarh, cleaned teeth once a day in the remaining states and union territories.

As regards periodicity in change of toothbrushes, there were about 40 percent and more across sexes and more in rural, who had changed toothbrushes after six months of use, while another 60 percent across both sexes and places of residence had changed toothbrushes once in 1-6 months.

A comparatively larger percentage of respondents in most of the states and union territories had changed toothbrushes once after four months of use.

As regards material used for cleaning teeth, 49 percent, across both sexes and more in urban, had used tooth paste, while another 32 percent, across both sexes and more in rural, reported the use of tooth powder in the country.

50 and more percent in all states, except in the states of Karnataka, Maharashtra, Tamil Nadu, and Uttar Pradesh and Pondicherry, where the figure was less than 50 percent, reported the use of tooth paste for cleaning teeth.

59 percent, across both sexes and more in rural, had used non-fluoridated tooth paste/powder, while 18 percent, across both sexes and more in urban, reported the use of fluoridated tooth paste/powder in the country.

There was a comparatively larger percentage, except in the states of Himachal Pradesh, Orissa, Tamil Nadu, and union territories of Chandigarh, using non-fluoridated tooth paste/powder.

As regards rinsing of mouth after eating, 65 percent and 27 percent of respondents of this age group in the country, across both sexes and places of residence, rinsed mouth always and sometimes after eating respectively.

There were comparatively more who rinsed mouth always in Andhra Pradesh, Assam, Haryana, Jammu and Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Orissa, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh, and in the union territories of Delhi, Goa and Pondicherry than in the remaining states and union territories.

ORAL HYGIENE PRACTICES ACROSS AGE GROUPS (SUMMING UP)

About two-thirds of 5, 12, 15, and 35-44 year olds and one-third of 65-74-year-old respondents across both sexes, and more in urban, had used toothbrush to clean teeth in the country.

Nearly three-fourths in most of the states and union territories reported the use of toothbrushes for cleaning teeth.

About 90 percent, across ages, both sexes, and more in rural, had cleaned teeth once a day. Only 8-9 percent, irrespective of age, across both sexes and more in urban, had cleaned teeth twice a day in the country as well as in most of the states and union territories.

The respondents, across ages, were equally divided by duration of change of toothbrushes. More changed toothbrushes once in 1-3 months in urban, while more changed brushes once in 4 and more months in rural areas of the country. This pattern was also visible in most of the states and union territories.

About two-thirds of respondents, across both sexes and more in urban, had used tooth paste, while a quarter of them, across ages and both sexes and more in rural, reported the use of tooth powder in the country.

About two-thirds of respondents, across ages and both sexes and more in rural, had used non-fluoridated tooth paste/powder, while only 20 percent, more in urban, reported the use of fluoridated toothpaste in the country.

Half the respondents in the country, across ages and more in rural, rinsed mouth always after eating.

5.4 DENTAL PROBLEMS AND TREATMENT PRACTICES

The respondents were asked whether they had had dental problems in the last one year, the nature of these problems, whom they consulted, nature of the facilities available for dental care, and the time required to reach such places. They were also asked whether they had ever suffered from diseases like hypertension, diabetes, epilepsy, jaundice and asthma.

The responses to all these questions as obtained from respondents, belonging to ages/age groups 5, 12, 15, 35-44 and 65-74 years, both sexes and places of residence, from the states and union territories are presented in Table 5.4.1 to 5.4.5, and discussed below.

Table 5.4.1. Per cent respondents 5 year olds by Reported Nature of Dental Problems and Treatment related aspects in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs																								
Suffered from oral health problems	**12704**	**6225**	**10055**	**8874**	**18929**	**1863**	**617**	**2173**	**954**	**630**	**944**	**1255**	**842**	**1154**	**1549**	**1450**	**1001**	**805**	**1808**	**630**	**315**	**359**	**266**	**314**
in last one year	**8.70**	**11.10**	**9.50**	**9.80**	**9.60**	**8.10**	**44.60**	**13.70**	**9.70**	**5.40**	**5.70**	**15.60**	**21.80**	**6.10**	**11.20**	**13.60**	**5.70**	**2.30**	**8.00**	**1.00**	**4.50**	**12.90**	**28.50**	**13.30**
Type of oral health problems	**1410**	**821**	**1170**	**1061**	**2231**	**152**	**261**	**314**	**82**	**25**	**79**	**203**	**247**	**70**	**216**	**219**	**40**	**18**	**123**	**6**	**18**	**37**	**76**	**45**
Dental decay	82.40	85.60	82.80	84.30	83.50	97.10	95.20	92.10	69.30	63.80	93.10	94.50	95.60	74.90	79.70	36.10	98.30	75.70	95.50	18.60	80.50	89.00	96.80	87.50
Gum disease	8.30	7.70	8.50	7.00	7.80	0.90	21.40	1.30	12.80	30.00	19.80	3.70	1.50	17.50	14.40	1.70	1.70	12.60	1.50	0.00	23.40	0.20	2.40	0.00
Foul breath	10.30	4.20	7.30	7.70	7.50	0.00	1.10	1.20	1.60	11.80	2.30	0.00	0.40	3.80	7.90	58.10	0.00	8.00	0.00	60.50	21.60	0.00	0.00	0.00
Bleeding gums	0.70	1.70	1.50	1.00	1.30	0.80	0.00	0.40	2.10	0.00	0.00	0.80	0.00	5.10	2.20	0.40	0.00	0.00	0.90	0.00	12.80	0.00	0.00	4.60
Others	1.90	2.30	2.90	1.50	2.10	0.00	0.00	1.70	8.90	12.40	0.00	0.40	1.50	1.60	8.20	0.30	0.00	3.90	0.00	0.00	0.00	4.20	0.00	0.00
Consulted (out of those suffered)																								
None	**56.80**	**40.50**	**49.90**	**52.00**	**50.90**	**48.00**	**79.30**	**75.20**	**45.60**	**52.00**	**12.50**	**51.40**	**24.80**	**42.50**	**52.90**	**75.50**	**21.90**	**43.50**	**42.10**	**59.30**	**17.70**	**21.00**	**46.10**	**64.70**
Trained dentist	20.20	35.30	27.60	26.10	26.90	0.00	0.70	16.00	28.70	42.10	69.00	33.90	70.00	6.20	24.10	7.60	61.00	0.00	35.30	9.30	45.90	73.90	32.90	34.40
Availaibility of dental facility n=	**12704**	**6225**	**10055**	**8874**	**18929**	**1863**	**617**	**2173**	**954**	**630**	**944**	**1255**	**842**	**1154**	**1549**	**1450**	**1001**	**805**	**1808**	**630**	**315**	**359**	**266**	**314**
None	23.70	9.00	18.50	18.50	18.60	17.10	28.50	15.40	20.60	97.70	66.90	33.70	0.40	35.20	14.50	35.80	47.80	23.50	8.60	0.50	0.10	1.80	1.40	18.80
Govt. facility	16.20	23.10	18.50	18.70	18.50	22.80	36.90	18.90	26.40	0.10	32.70	29.40	46.20	34.70	9.10	13.00	22.20	13.70	30.20	4.20	25.30	11.90	86.40	51.80
Pvt. facility	1.50	4.40	2.50	2.80	2.60	42.70	20.90	16.90	11.50	2.20	0.20	26.90	83.80	3.30	64.60	3.50	37.10	9.50	48.50	6.80	97.60	87.50	74.00	18.80
Do not know	40.00	35.10	37.60	37.40	37.50	21.90	15.30	52.80	44.40	0.00	0.40	18.70	0.70	27.30	13.70	47.00	4.20	53.50	14.30	88.80	0.00	1.30	0.40	12.80
Time taken to reach the facility n=	**5316**	**3593**	**4699**	**4210**	**8909**	**988**	**384**	**583**	**305**	**22**	**266**	**646**	**829**	**421**	**1058**	**211**	**419**	**204**	**1388**	**67**	**314**	**331**	**262**	**211**
Less than 1/2 hr.	43.20	83.50	62.50	64.10	63.30	43.70	15.50	28.60	65.00	100.00	39.20	73.90	72.80	59.60	64.00	70.00	84.40	62.50	54.10	41.20	94.30	94.90	97.20	67.90
1/2 - 1 hr	36.50	10.80	24.20	22.50	23.40	40.30	58.70	36.30	23.10	0.00	41.30	18.80	24.30	25.20	21.30	22.80	11.00	14.00	32.20	23.70	5.70	4.50	2.90	27.20
> 1 hr	16.50	2.80	9.80	9.80	9.80	14.10	19.60	27.60	8.20	0.00	19.50	5.30	2.90	10.80	13.60	1.80	2.70	7.50	11.90	29.10	0.00	0.60	0.00	5.00
Cannot say	3.70	2.70	3.30	3.40	3.40	1.40	6.30	7.60	3.80	0.00	0.00	2.10	0.10	4.40	1.20	3.20	2.00	16.10	1.90	6.20	0.00	0.00	0.00	0.00
Ever suffered from n=	**12704**	**6225**	**10055**	**8874**	**18929**	**1863**	**617**	**2173**	**954**	**630**	**944**	**1255**	**842**	**1154**	**1549**	**1450**	**1001**	**805**	**1808**	**630**	**315**	**359**	**266**	**314**
Hypertension	0.10	0.30	0.10	0.40	0.20	0.00	0.00	0.10	0.20	0.00	0.20	0.30	0.60	0.20	0.20	0.10	0.20	0.70	0.40	0.20	0.30	0.00	1.00	1.40
Diabetes	0.20	0.10	0.20	0.10	0.10	0.00	0.30	0.00	0.10	0.00	0.00	0.10	0.30	0.40	0.20	0.00	0.00	0.40	0.30	0.20	0.00	0.00	0.00	0.00
Epilepsy	0.10	0.40	0.30	0.20	0.30	0.10	0.00	0.70	0.00	0.00	0.00	0.40	0.80	0.20	0.50	0.10	0.20	0.00	0.20	0.00	0.00	0.40	0.60	0.50
Jaundice	0.30	0.40	0.30	0.40	0.30	0.10	0.00	0.40	0.70	0.00	0.50	0.30	0.00	0.10	0.40	0.10	0.20	0.00	0.10	0.20	3.30	0.10	0.00	0.30
Asthma	0.20	0.10	0.10	0.20	0.10	0.30	0.00	0.00	0.10	0.00	0.70	0.10	0.40	0.20	0.20	0.20	0.00	0.50	0.00	0.00	0.00	0.00	1.20	0.20

5.4.1 5 YEAR OLDS

About 10 percent of the respondents in the country, across both sexes and more in urban, reported oral health problems in the last one year.

As regards states, and union territories, 47 percent, the highest, in Assam, and only 1 percent, the lowest, in Uttar Pradesh, had oral health problems, and 22 percent in Kerala and 28 percent in Goa, had oral health problems in the last one year while 2 to 20 percent in the remaining states and union territories had oral health problems.

As regards nature of problems, 84 percent across both sexes and more in urban, had problem of dental decay. Another 16 percent in the country had problems such as gum disease including bleeding gums and foul breath.

Two thirds or more respondents, except 36 percent in Orissa and 19 percent in Uttar Pradesh, reported dental decay problem in the remaining states and union territories.

Those who reported problems were asked whether they had consulted trained dentists. Only 27 percent of them in the country, across both sexes and more in urban, had consulted trained dentist.

As regards states and union territories, 70-74 percent in Jammu and Kashmir, Kerala, Punjab and Delhi, 35-45 percent in Himachal Pradesh, Karnataka, Tamil Nadu, Chandigarh and Goa, 25-30 percent in Haryana and Madhya Pradesh, and 10 percent and below in the remaining states had consulted trained dentists. However, in Rajasthan, none of the respondents who had problems reported consulting trained dentists.

As regards their knowledge about the availability of dental care facility, only 19 percent in the country, across both sexes and more in urban, had knowledge of or were aware of government facilities.

About 86 percent, the highest in Goa, 35-50 percent in Jammu and Kashmir, Kerala, Madhya Pradesh, and Pondicherry, 20-30 percent in Andhra Pradesh, Haryana, Karnataka, Punjab, Tamil Nadu and Chandigarh, and 19 percent and below in the remaining states, knew of government dental care facilities in their respective areas.

When asked how much time would be required to reach these dental care facility places, about 63 percent, across both sexes and more in urban, said less than half an hour. Another 34 percent in the country, across both sexes and more in rural, said between half an hour to more than an hour.

There was a comparatively larger percentage, except in Assam, Gujarat and Jammu and Kashmir, who reported less than half an hour to reach dental care facility places in the remaining states and union territories.

Table 5.4.2. Per cent respondents 12 year olds by Reported Nature of Dental Problems and Treatment related aspects in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 yrs																								
Suffered from oral health problems	**12665**	**6266**	**9684**	**9247**	**18931**	**1851**	**617**	**2178**	**956**	**629**	**941**	**1272**	**784**	**1124**	**1588**	**1505**	**1004**	**762**	**1840**	**630**	**316**	**349**	**267**	**318**
in last one year	11.8	14.4	13.2	12.7	12.9	10.7	46.6	15.9	11.2	19.4	11.9	26.1	19.0	7.9	16.4	18.3	9.7	3.0	12.4	3.0	7.4	21.3	25.5	25.7
Type of oral health problems	**1841**	**1051**	**1471**	**1421**	**2892**	**221**	**270**	**329**	**109**	**92**	**136**	**335**	**164**	**75**	**304**	**305**	**75**	**24**	**206**	**19**	**31**	**60**	**67**	**70**
Dental decay	75.8	79.2	78.4	76.7	77.6	84.4	94.9	86.4	73.6	88.7	88.4	87.2	85.5	69.1	65.5	34.2	87.3	75.6	89.6	58.5	82.0	84.8	95.8	73.0
Gum disease	10.8	11.3	9.4	10.6	10.0	2.6	20.2	0.6	26.4	65.1	17.0	6.4	4.0	29.8	18.3	6.0	12.8	13.9	5.4	0.0	62.1	5.6	1.5	6.7
Foul breath	9.3	5.0	7.8	7.2	7.5	1.5	2.7	1.2	10.6	29.7	0.0	0.8	1.1	3.2	7.9	57.6	0.0	3.7	0.0	0.0	24.6	0.0	0.0	1.1
Bleeding gums	4.4	2.6	4.0	3.3	3.7	10.7	0.1	4.0	2.3	1.9	0.0	2.4	1.3	1.5	4.0	1.7	3.6	3.7	1.2	4.0	19.9	0.0	0.0	1.1
Others	3.1	1.7	2.2	2.7	2.4	1.2	0.0	0.6	4.4	1.7	1.5	0.8	3.2	0.0	12.3	0.4	2.7	0.0	2.3	0.0	0.0	5.9	1.1	0.5
Consulted (out of those suffered)																								
None	55.6	40.1	48.8	49.0	49.0	43.2	82.3	69.7	53.7	53.9	17.1	44.4	18.0	55.5	46.2	69.1	18.5	65.5	36.1	58.2	15.0	13.6	50.6	31.1
Trained dentist	21.0	40.4	29.3	31.2	30.2	1.3	1.8	18.3	26.6	18.0	64.5	40.1	78.1	9.7	32.1	10.4	64.2	10.6	36.8	0.0	56.0	82.7	25.9	60.5
Availaibility of dental facility	**12665**	**6266**	**9684**	**9247**	**18931**	**1851**	**617**	**2178**	**956**	**629**	**941**	**1272**	**784**	**1124**	**1588**	**1505**	**1004**	**762**	**1840**	**630**	**316**	**349**	**267**	**318**
None	26.6	9.0	20.3	20.4	20.4	17.2	31.9	22.1	21.3	97.7	67.1	37.1	0.9	34.2	13.9	44.1	47.0	28.1	6.5	0.4	0.0	0.9	0.4	12.1
Govt. facility	21.3	31.9	25.3	24.3	24.8	25.1	35.5	21.9	40.8	0.1	32.5	30.6	49.0	38.8	10.6	16.8	23.6	21.2	34.8	21.7	26.5	12.4	87.2	57.3
Pvt. facility	1.7	6.0	3.3	3.1	3.2	46.8	22.6	30.8	17.4	2.3	0.7	31.1	82.1	4.2	63.3	4.6	39.6	10.0	51.5	22.0	96.9	75.9	72.4	17.5
Do not know	30.6	23.7	26.8	28.9	27.9	16.5	11.8	31.6	26.5	0.0	0.2	10.6	0.7	23.4	14.8	33.6	1.1	41.7	9.2	67.0	0.0	14.2	0.8	14.6
Time taken to reach the facility	**5768**	**4272**	**5204**	**4836**	**10040**	**1083**	**410**	**893**	**461**	**22**	**267**	**712**	**772**	**453**	**1083**	**325**	**450**	**260**	**1562**	**202**	**316**	**278**	**264**	**227**
Less than 1/2 hr.	39.7	82.2	59.8	61.0	60.4	45.0	19.1	40.1	58.9	99.7	37.7	75.4	71.6	57.5	61.3	71.0	81.7	62.4	52.5	46.2	93.7	96.2	97.2	69.6
1/2 - 1 hr	39.1	12.1	26.4	24.9	25.7	38.1	56.3	34.5	29.6	0.3	43.1	18.0	26.2	28.4	22.8	24.8	10.1	17.9	33.8	30.0	6.3	3.3	2.8	23.0
> 1 hr	17.7	2.7	10.0	11.0	10.6	14.2	19.5	21.8	6.4	0.0	19.2	5.4	2.3	10.1	14.3	1.7	2.7	7.7	11.6	19.9	0.0	0.6	0.0	6.7
Cannot say	3.4	3.0	3.6	3.0	3.3	1.5	5.2	3.7	5.1	0.0	0.0	1.3	0.1	4.2	1.7	2.4	5.6	12.0	2.2	4.0	0.0	0.1	0.0	0.9
Ever suffered from	**12665**	**6266**	**9684**	**9247**	**18931**	**1851**	**617**	**2178**	**956**	**629**	**941**	**1272**	**784**	**1124**	**1588**	**1505**	**1004**	**762**	**1840**	**630**	**316**	**349**	**267**	**318**
Hypertension	0.2	0.4	0.2	0.3	0.3	0.2	0.0	0.1	0.6	0.0	0.2	0.5	0.3	0.2	0.1	0.2	0.1	1.2	0.3	0.2	0.6	0.0	0.8	0.2
Diabetes	0.1	0.1	0.1	0.1	0.1	0.0	0.3	0.1	0.2	0.0	0.0	0.2	0.0	0.3	0.2	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0
Epilepsy	0.3	0.2	0.3	0.2	0.3	0.4	0.0	1.6	0.2	0.0	0.0	0.3	1.3	0.3	0.1	0.1	0.1	0.1	0.3	0.0	0.0	0.0	0.4	0.2
Jaundice	0.5	0.6	0.6	0.5	0.5	0.5	0.0	1.2	0.3	0.0	0.2	0.4	0.1	0.4	0.4	0.2	0.2	0.0	0.2	1.2	0.1	0.8	1.5	0.0
Asthma	0.1	0.1	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.9	0.1	0.2	0.2	0.2	0.4	0.1	0.0	0.0	0.4	0.3	0.0

5.4.2 12 YEAR OLDS

About 13 percent of the respondents in the country, across both sexes and more in urban, had oral health problems in the last one year. About 47 percent in Assam, 20-26 percent in Karnataka, Kerala, Delhi, Goa and Pondicherry, and 16 percent and below in the remaining states and union territories reported oral health problems in the last one year.

As regards the nature of the oral health problem, about 78 percent of those reported problems across both sexes and more in urban, named dental decay. Another 21 percent in the country, across both sexes and more in rural, had the problem of gum disease including gum bleeding and foul breath.

75 and more percent, except 34 percent in Orissa, reported the problem of dental decay. The states differ greatly in the prevalence of gum disease and foul breath. Comparatively larger percentage of respondents had gum disease as well as foul breath problem in Haryana, Himachal Pradesh, Madhya Pradesh and Chandigarh than in other states and union territories.

Of those who had had oral health problems in the last one year, only 30 percent of them, across both sexes and more in urban, had consulted trained dentists in the country.

There were great variations in the percentage that consulted trained dentists in the states. 78 percent in Kerala and 83 percent in Delhi, (60-65) percent in Jammu and Kashmir, Punjab and Pondicherry, 25-40 percent in Haryana, Karnataka, Maharashtra, Tamil Nadu and Goa, 10-20 percent in Gujarat, Himachal Pradesh, Kerala, Orissa, Rajasthan and 2 percent and less in the remaining states, consulted trained dentists.

As regards knowledge of dental care facilities, a quarter of the respondents, across both sexes and more in urban, were aware of government facilities in their areas in the country.

About 12 percent of states and union territories had more percentage of respondents than the national level who were aware of government dental care facilities in their respective states and union territories.

Upon being asked about the time required to reach facility places, 60 percent in the country, across both sexes and more in urban, said it would take less than half an hour. Another 37 percent, across both sexes and more in rural, reported that it would take between half an hour to more than one hour to reach the facility places.

A comparatively larger percentage in a large number of states and union territories reported that it took less than half an hour to reach the dental care facility places. This was followed by those in the other states and union territories, who said it took between half an hour and more than one hour to reach dental care facility places.

Table 5.4.3. Per cent respondents 15 year olds by Reported Nature of Dental Problems and Treatment related aspects in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 yrs																								
Suffered from oral health problems	**12459**	**6233**	**9677**	**9015**	**18692**	**1834**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1491**	**1004**	**705**	**1801**	**631**	**314**	**333**	**268**	**314**
in last one year	16.5	18.1	17.1	17.7	17.4	15.9	48.0	23.6	17.5	29.0	11.2	23.9	18.1	11.0	15.7	24.8	16.6	5.2	12.3	12.6	17.8	20.1	27.8	24.5
Type of oral health problems	**2304**	**1288**	**1815**	**1777**	**3592**	**359**	**290**	**555**	**176**	**161**	**122**	**292**	**155**	**114**	**271**	**398**	**128**	**36**	**197**	**82**	**63**	**54**	**74**	**65**
Dental decay	75.3	77.4	74.4	77.3	75.8	83.4	94.1	86.1	69.5	81.1	93.0	82.6	85.7	60.6	57.0	33.6	81.8	80.0	85.9	84.1	96.9	84.6	91.4	73.2
Gum disease	14.0	13.0	14.3	13.4	13.8	6.4	22.5	4.3	22.9	71.2	10.8	6.1	2.8	37.6	23.9	16.4	18.5	24.8	3.6	7.4	65.1	6.4	4.4	10.0
Foul breath	9.4	6.5	7.6	9.6	8.6	1.8	5.0	8.5	6.4	40.8	0.0	0.9	2.0	5.7	10.9	44.0	3.6	2.5	0.1	3.7	28.2	2.0	0.0	0.6
Bleeding gums	8.7	5.6	7.2	7.9	7.5	12.2	0.6	11.0	6.5	14.3	1.1	7.3	0.0	12.5	6.0	5.4	6.6	9.5	7.8	5.0	25.1	0.0	0.0	0.0
Others	2.4	1.6	2.7	1.4	2.1	0.4	0.7	0.9	3.1	5.7	0.0	0.8	3.7	0.0	9.9	0.9	0.7	3.2	1.0	0.0	0.0	2.4	0.0	0.6
Consulted (out of those suffered)																								
None	54.8	36.8	46.3	49.5	47.9	35.7	80.0	55.7	49.3	47.1	8.0	43.4	17.6	46.6	44.9	62.6	19.2	67.4	27.4	58.7	5.4	9.1	44.6	55.2
Trained dentist	17.3	39.9	25.9	27.9	26.9	1.4	2.4	27.4	30.0	19.7	80.8	41.2	77.0	17.6	32.5	16.6	65.4	15.8	42.7	5.8	73.9	84.6	41.3	36.9
Availaibility of dental facility	**12459**	**6233**	**9677**	**9015**	**18692**	**1834**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1491**	**1004**	**705**	**1801**	**631**	**314**	**333**	**268**	**314**
None	29.4	10.1	23.1	22.0	22.5	17.7	31.4	30.0	22.1	97.7	66.9	35.5	0.9	36.9	13.4	59.3	47.0	34.7	6.6	0.9	0.1	1.7	0.4	17.0
Govt. facility	34.5	40.5	35.9	36.6	36.2	26.4	38.9	31.0	47.6	0.1	32.7	34.2	46.9	42.7	9.6	22.7	23.7	26.8	35.1	67.8	25.6	10.6	86.1	55.8
Pvt. facility	3.0	10.6	5.6	5.2	5.4	50.7	22.8	42.1	23.9	2.2	0.7	33.7	84.8	7.9	67.7	7.9	40.3	11.5	53.9	71.7	96.4	80.4	74.0	19.4
Do not know	11.8	9.3	10.8	11.2	11.0	11.2	9.3	11.7	14.6	0.0	0.2	6.5	0.3	15.0	11.9	8.9	1.0	29.6	6.1	10.1	0.0	10.5	0.4	10.7
Time taken to reach the facility n=	**6285**	**4778**	**5708**	**5355**	**11063**	**1153**	**430**	**1066**	**582**	**23**	**271**	**776**	**781**	**513**	**1039**	**492**	**451**	**286**	**1564**	**560**	**313**	**281**	**266**	**216**
Less than 1/2 hr.	34.1	83.2	55.5	54.7	55.1	45.5	19.9	44.7	58.9	99.5	37.3	71.5	72.0	53.9	62.2	68.6	79.0	65.4	54.4	42.6	93.8	96.5	98.0	75.7
1/2 - 1 hr	43.4	12.6	29.8	30.2	30.0	37.3	56.3	36.2	28.7	0.3	44.5	20.6	26.1	28.2	22.2	25.7	11.3	20.0	33.1	37.9	6.2	2.9	2.0	19.4
> 1 hr	20.1	2.5	12.4	13.1	12.8	15.0	19.4	17.5	5.9	0.3	18.3	5.3	1.9	12.3	14.0	3.9	4.2	5.6	11.7	19.4	0.0	0.7	0.0	4.1
Cannot say	2.4	1.6	2.2	1.9	2.0	1.3	4.5	1.8	6.5	0.0	0.0	2.7	0.1	5.7	1.7	1.5	5.5	9.1	0.9	0.2	0.0	0.1	0.0	1.0
Ever suffered from	**12459**	**6233**	**9677**	**9015**	**18692**	**1834**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1491**	**1004**	**705**	**1801**	**631**	**314**	**333**	**268**	**314**
Hypertension	0.3	0.5	0.4	0.3	0.3	0.4	0.3	0.6	0.5	0.0	0.5	0.2	1.0	0.2	0.3	0.3	0.4	0.0	0.5	0.2	0.7	0.0	0.4	0.7
Diabetes	0.3	0.2	0.3	0.3	0.3	0.1	0.0	0.1	0.2	0.0	0.2	0.1	0.0	0.2	0.2	0.1	0.0	2.6	0.1	0.0	0.0	0.0	0.0	0.2
Epilepsy	0.3	0.2	0.3	0.3	0.3	0.5	0.0	1.2	0.2	0.0	0.7	0.1	1.5	0.3	0.1	0.0	0.3	0.0	0.4	0.2	0.0	0.0	0.4	0.0
Jaundice	0.7	0.6	0.7	0.7	0.7	0.4	0.0	2.7	0.6	0.0	0.0	0.5	0.0	1.4	0.3	0.1	0.4	0.0	0.0	1.5	0.3	0.5	0.8	0.0
Asthma	0.1	0.2	0.2	0.1	0.2	0.3	0.0	0.2	0.2	0.0	0.2	0.0	1.0	0.1	0.2	0.2	0.4	0.4	0.1	0.0	0.0	0.4	0.8	0.2

5.4.3 15 YEAR OLDS

About 18 percent of this age, across both sexes and more in urban, reported oral health problems in the last one year in the country.

About 48 percent in Assam, 20-30 percent in Gujarat, Himachal Pradesh, Karnataka, Orissa, Goa and Pondicherry, and below 20 percent in the remaining states had had oral health problems in the last one year.

As regards type of oral health problems, about 76 percent, of those reported problems across both sexes and places of residence, suffered from dental decay. Another 30 percent in the country had had gum disease, including bleeding gum and foul breath in the last one year.

Two thirds or more of respondents in all the states & union territories, except 34 percent in Orissa, had dental decay problems. Except 71.2 percent and 65.1 percent in Himachal Pradesh and Chandigarh respectively, 20-25 percent in Assam, Haryana, Maharashtra, Punjab and Rajasthan and 10 percent and below in remaining states had gum disease, including foul breath and bleeding gums.

About 28 percent, across both sexes and more in rural, had consulted trained dentists in the country.

As regards states and union territories, 75-85 percent in Jammu and Kashmir, Kerala, Chandigarh and Delhi, 30-40 percent in Haryana, Karnataka, Maharashtra, Tamil Nadu, Goa and Pondicherry, and less than 20 percent in the remaining states consulted trained dentists.

36 percent, across both sexes and more in urban, had knowledge of government facilities in the country. There were more who were aware of government dental care facilities in half of the states and union territories, while were more aware of private dental care facilities in the remaining half of the states and union territories.

As regards time required to reach facility places, about 55 percent in the country, across both sexes and more in urban, said less than half an hour. Another 44 percent, across both sexes and more in rural, reported half to more than one hour.

As regards states and union territories, 50 to 95 percent of respondents, except 20 percent in Assam and 37 percent in Jammu and Kashmir reported less than half an hour to reach the facility places in the remaining states and union territories. 50 and more percent in Assam and Jammu and Kashmir, and less than this in the remaining states and union territories said it took between half to more than one hour to reach facility places.

Less than one percent of respondents in the country reported having ever suffered from any of the diseases such as hypertension, diabetes, epilepsy, jaundice and asthma.

Table 5.4.4. Per cent respondents 35-45 year olds by Reported Nature of Dental Problems and Treatment related aspects in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-45 yrs																								
Suffered from oral health problems	**13623**	**6748**	**10446**	**9925**	**20371**	**1915**	**638**	**2383**	**981**	**628**	**957**	**1278**	**991**	**1252**	**1639**	**1674**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
in last one year	42.2	38.4	39.1	42.7	40.8	43.8	53.3	31.7	42.7	63.9	25.9	43.8	30.8	25.9	34.3	32.8	28.1	18.3	29.7	59.6	41.9	38.2	31.1	36.7
Type of oral health problems	**4954**	**2577**	**3689**	**3842**	**7531**	**917**	**352**	**1034**	**410**	**293**	**239**	**577**	**320**	**317**	**633**	**596**	**243**	**214**	**529**	**379**	**142**	**138**	**87**	**111**
Dental decay	69.0	71.5	68.4	70.1	69.3	80.0	94.2	73.6	59.6	78.6	93.6	72.9	80.2	30.4	55.8	40.1	67.8	56.4	85.2	76.1	91.5	57.1	80.2	79.0
Gum disease	42.7	35.5	41.0	41.6	41.2	22.7	63.3	49.5	44.6	82.5	15.3	26.8	12.1	53.4	31.8	26.7	36.1	50.8	8.6	51.9	46.1	62.5	17.2	11.3
Foul breath	12.9	10.7	13.7	11.0	12.4	6.3	46.0	9.6	10.8	49.5	2.4	1.7	0.1	16.1	19.3	29.1	13.8	3.2	2.3	9.5	60.5	4.8	0.0	2.1
Bleeding gums	15.2	13.3	14.9	14.2	14.5	15.0	1.2	25.0	16.4	28.8	5.7	4.8	1.4	22.4	18.9	12.0	20.2	26.0	4.8	11.7	65.7	3.7	0.0	0.0
Others	2.5	2.7	2.3	2.9	2.6	3.0	0.0	1.5	2.5	1.5	1.7	2.3	4.1	2.8	9.8	0.4	1.1	4.1	0.6	0.6	5.1	9.3	2.7	7.0
Consulted (out of those suffered)																								
None	44.4	28.5	39.7	38.6	39.2	29.9	76.3	54.2	40.6	23.4	3.4	34.6	24.6	44.3	33.6	51.7	19.5	50.6	39.3	43.6	3.4	6.2	36.3	43.7
Trained dentist	18.8	44.5	26.8	28.5	27.6	1.9	2.2	29.1	41.1	19.3	88.1	51.1	68.9	16.3	44.6	20.4	57.5	24.0	39.3	10.7	77.9	89.9	52.5	48.0
Availaibility of dental facility	**13623**	**6748**	**10446**	**9925**	**20371**	**1915**	**638**	**2383**	**981**	**628**	**957**	**1278**	**991**	**1252**	**1639**	**1674**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
None	30.8	9.4	23.9	22.2	23.1	18.3	30.7	36.3	24.0	97.1	65.4	36.5	0.7	42.3	13.5	61.0	45.6	33.7	5.7	0.6	0.1	0.8	1.2	18.4
Govt. facility	36.7	45.3	39.5	39.0	39.3	30.7	37.7	33.3	51.9	0.4	34.3	34.0	47.7	43.9	12.1	24.4	24.2	35.3	34.9	75.4	26.8	12.4	86.4	56.8
Pvt. facility	5.2	15.9	7.9	9.2	8.5	54.3	24.5	45.4	31.3	2.3	0.7	37.4	85.3	10.3	71.1	9.4	41.5	18.2	60.0	85.6	96.2	88.6	75.5	25.9
Do not know	5.4	2.4	3.9	4.8	4.3	4.2	8.9	4.0	4.1	0.4	0.2	3.8	0.6	9.0	6.4	5.0	1.4	16.1	2.0	0.9	0.5	0.8	0.0	4.8
Time taken to reach the facility n=	**7303**	**5606**	**6591**	**6318**	**12909**	**1324**	**463**	**1208**	**700**	**24**	**284**	**826**	**978**	**594**	**1276**	**615**	**471**	**612**	**1729**	**620**	**314**	**368**	**269**	**234**
Less than 1/2 hr.	33.6	82.4	54.0	55.2	54.6	45.2	23.6	45.9	62.4	89.8	39.9	71.3	75.1	54.6	61.6	67.0	86.6	65.5	55.1	40.1	94.4	96.0	96.5	66.5
1/2 - 1 hr	42.8	14.1	30.4	30.0	30.2	36.5	52.1	36.2	28.3	9.7	40.6	19.6	22.6	30.2	24.0	26.5	9.5	17.7	33.3	38.4	5.6	3.5	3.6	29.2
> 1 hr	21.9	2.6	14.2	13.5	13.8	15.5	20.4	17.3	5.9	0.3	19.5	7.6	2.4	11.8	12.9	5.1	3.5	12.0	11.2	21.4	0.0	0.6	0.0	4.3
Cannot say	1.6	0.8	1.4	1.3	1.4	1.5	4.0	0.7	3.6	0.2	0.0	1.5	0.0	3.6	1.6	1.2	0.4	4.9	0.4	0.2	0.0	0.0	0.0	0.0
Ever suffered from	**13623**	**6748**	**10446**	**9925**	**20371**	**1915**	**638**	**2383**	**981**	**628**	**957**	**1278**	**991**	**1252**	**1639**	**1674**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Hypertension	3.7	8.1	5.0	5.6	5.4	5.0	1.6	8.6	8.1	7.9	6.9	4.2	4.1	3.6	5.2	3.0	11.6	2.2	4.6	4.0	32.1	12.3	8.4	6.3
Diabetes	1.6	3.2	2.2	2.3	2.2	2.9	0.6	3.6	2.1	1.6	0.2	1.7	4.1	3.0	2.1	0.4	3.2	1.1	2.0	1.4	7.7	5.3	3.1	4.0
Epilepsy	0.6	0.6	0.6	0.7	0.6	0.6	1.9	0.5	0.4	0.0	0.0	0.2	0.6	0.2	0.5	0.2	0.3	2.2	0.2	0.4	0.1	0.0	0.4	1.7
Jaundice	1.0	1.2	1.1	1.2	1.1	1.1	0.9	4.3	0.2	8.8	0.2	0.5	0.1	1.8	0.4	0.1	0.9	0.5	0.2	1.5	1.9	0.8	2.7	0.2
Asthma	1.1	1.3	1.1	1.3	1.2	2.5	0.1	0.7	1.6	2.5	1.4	0.8	1.4	2.3	1.2	0.9	0.8	1.7	0.3	0.2	3.0	1.5	1.1	1.0

5.4.4 35-44 YEAR OLDS

About 43 percent of respondents of this age group in the country, more females and more in rural, had oral health problems in the last one year.

About 54-64 percent in Assam, Himachal Pradesh, Uttar Pradesh, 40-45 percent in Andhra Pradesh, Haryana, Karnataka, Chandigarh, and 35 percent and below in the remaining states and union territories had oral health problems in the last one year.

As regards type of oral health problems, 69 percent in the country, across both sexes and places of residence, had dental decay. 41 percent, across both sexes and more in rural, reported gum disease, while 29 percent, across both sexes and more in rural, had problems such as foul breath and gum bleeding in the last one year.

70 and more percent, except 30 percent of respondents in Madhya Pradesh and 40 percent in Orissa, and 56 percent in Rajasthan had dental decay in the remaining states and union territories. 50 percent and more in Assam, Gujarat, Madhya Pradesh, Rajasthan, Uttar Pradesh and Delhi had had gum disease, while 45-50 percent in Assam, Himachal Pradesh, and Chandigarh had the problem of foul breath.

28 percent of those who had had problems, across both sexes and more in urban, had consulted trained dentists in the country.

As regards states and union territories, 70-90 percent in Jammu and Kashmir, Kerala, Chandigarh and Delhi, 40-60 percent in Haryana, Karnataka, Maharashtra, Punjab, Tamil Nadu, Goa and Pondicherry, and a very low percentage in the remaining states, had consulted trained dentists.

To the question of whether the respondents were aware of dental care facilities, about 40 percent, across both sexes and more in urban, said they had knowledge of the governmental dental care facilities in the country.

As regards states and union territories, there was a larger percentage of respondents than the national level aware of governmental dental care facilities in Haryana, Kerala, Madhya Pradesh, Uttar Pradesh, Goa and Pondicherry, while a lower percentage than the national level, were aware in the remaining states and union territories.

Of those aware of dental care facilities, 54 percent of them, across both sexes and more in urban, reported less than half an hour to reach the facility, while another 46 percent, across both sexes and more in rural, reported half to more than one hour travel time in the country.

While analyzing the figures for state and union territories, 54 and more percent of respondents in fourteen states and union territories reported less than half an hour to reach dental care facility places. The respondents were asked whether they had ever suffered from non-communicable diseases such as hypertension, diabetes, epilepsy, jaundice and asthma. About 5 percent across both sexes and more in urban reported having suffered from hypertension, while nearly 1-2 percent, more in urban, had suffered from diabetes, epilepsy, jaundice and asthma in the country. There were comparatively more who had suffered from hypertension than from any other disease in all of the states and union territories.

Table 5.4.5. Per cent respondents 65-74 year olds by Reported Nature of Dental Problems and Treatment related aspects in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
65-74 yrs																								
Suffered from oral health problems	**12610**	**6141**	**9650**	**9101**	**18751**	**1831**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1393**	**997**	**697**	**1834**	**629**	**314**	**346**	**268**	**318**
in last one year	45.70	40.20	43.80	42.70	43.30	65.80	57.70	38.70	41.80	72.10	34.50	50.20	28.20	31.20	26.80	33.20	26.10	17.60	30.70	68.30	25.90	33.60	21.90	32.40
Type of oral health problems	**4960**	**2429**	**3819**	**3570**	**7389**	**1201**	**373**	**995**	**385**	**349**	**254**	**629**	**239**	**334**	**457**	**506**	**230**	**125**	**522**	**432**	**104**	**101**	**60**	**93**
Dental decay	60.60	61.00	60.30	60.40	60.40	68.20	92.20	50.30	54.90	59.50	92.70	57.70	83.30	23.80	33.00	57.30	56.20	64.10	73.40	65.30	80.40	40.90	63.30	36.50
Gum disease	57.20	55.60	56.70	57.40	57.00	38.20	80.90	73.20	65.70	76.60	14.70	53.20	21.60	61.90	43.10	29.50	40.30	45.90	25.90	77.00	53.90	67.60	35.00	39.60
Foul breath	17.70	12.70	17.70	14.80	16.40	8.00	50.80	12.60	25.00	47.80	3.40	2.30	0.30	19.10	12.80	17.70	16.60	13.10	2.80	21.00	64.20	4.90	0.00	0.50
Bleeding gums	22.50	13.60	20.60	19.70	20.20	13.80	2.70	17.40	23.70	31.10	5.40	4.80	3.30	18.70	13.10	8.50	19.50	18.50	3.40	31.80	75.70	4.80	0.00	1.90
Others	4.80	5.30	4.90	5.20	5.10	5.70	0.00	3.00	1.90	3.50	0.00	4.30	2.20	5.70	22.50	1.00	3.00	7.70	1.50	2.00	7.40	7.30	1.80	21.30
Consulted (out of those suffered)																								
None	47.80	28.40	40.90	43.60	42.20	33.20	77.10	49.30	36.30	16.70	3.50	48.60	23.00	40.30	40.80	53.70	14.10	55.10	46.70	41.10	7.70	9.30	57.10	64.50
Trained dentist	15.70	41.70	24.90	22.90	23.90	2.70	1.90	33.20	41.40	22.70	88.40	39.90	69.20	19.90	35.80	17.20	59.20	20.50	31.70	15.90	68.90	86.80	32.30	31.80
Availaibility of dental facility	**12610**	**6141**	**9650**	**9101**	**18751**	**1831**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1393**	**997**	**697**	**1834**	**629**	**314**	**346**	**268**	**318**
None	30.00	9.90	23.80	22.10	22.90	19.60	29.30	30.80	27.60	96.80	65.30	35.40	1.40	41.80	13.20	61.40	47.60	37.00	6.30	0.80	0.10	1.40	0.80	18.20
Govt. facility	37.00	44.40	39.10	39.10	39.00	31.20	38.00	35.00	44.90	0.40	34.20	34.40	46.50	44.90	11.30	23.90	23.00	31.80	35.30	74.90	25.60	10.40	86.90	55.20
Pvt. facility	5.20	14.50	8.20	7.70	8.00	48.70	24.20	45.40	26.00	2.20	0.80	35.00	81.50	8.90	68.90	8.10	38.60	13.10	57.20	82.20	97.30	88.70	70.60	18.50
Do not know	7.00	4.90	5.40	7.30	6.30	7.00	10.00	8.30	12.20	0.90	0.20	6.60	0.50	8.40	9.70	5.70	1.60	19.70	3.30	1.70	0.50	1.40	0.00	11.30
Time taken to reach the facility	**6642**	**4929**	**5964**	**5607**	**11571**	**1201**	**447**	**1115**	**582**	**24**	**286**	**784**	**783**	**551**	**1170**	**491**	**441**	**323**	**1651**	**614**	**313**	**319**	**266**	**210**
Less than 1/2 hr.	33.30	83.50	54.50	54.10	54.30	44.80	19.60	44.60	63.30	99.50	38.00	71.90	72.20	55.30	61.60	64.40	82.30	65.70	54.10	40.90	93.20	96.00	97.60	66.20
1/2 - 1 hr	42.50	12.90	29.00	30.80	29.80	36.90	55.20	36.70	24.70	0.30	42.80	20.10	24.60	27.90	23.40	26.90	12.20	18.70	33.00	37.60	6.90	3.00	2.50	29.60
> 1 hr	22.50	2.50	15.00	13.60	14.30	16.10	21.50	17.90	10.10	0.30	18.30	6.70	3.20	13.00	13.90	6.60	4.90	10.80	11.80	21.30	0.00	0.60	0.00	3.30
Cannot say	1.70	0.90	1.30	1.50	1.50	1.00	3.90	0.90	2.00	0.00	1.10	1.50	0.10	3.90	1.20	1.70	0.60	4.90	1.20	0.30	0.00	0.50	0.00	1.00
Ever suffered from	**12610**	**6141**	**9650**	**9101**	**18751**	**1831**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1393**	**997**	**697**	**1834**	**629**	**314**	**346**	**268**	**318**
Hypertension	12.70	21.30	15.40	16.00	15.70	33.20	22.00	19.40	21.70	45.30	39.20	18.30	33.80	6.00	9.00	9.00	34.10	5.00	13.90	10.00	75.90	20.50	31.10	18.50
Diabetes	7.00	12.90	9.10	9.00	9.00	19.60	8.60	15.30	8.20	3.50	2.20	7.40	22.20	5.40	4.10	2.90	10.50	4.30	10.30	4.90	56.80	12.40	9.30	13.80
Epilepsy	0.70	0.80	0.80	0.70	0.80	0.60	1.40	0.50	0.20	0.70	0.20	0.40	0.70	0.30	0.60	0.60	1.20	0.40	0.60	0.70	2.50	0.40	0.80	0.00
Jaundice	1.20	1.00	1.00	1.20	1.10	5.30	0.90	3.30	0.20	27.50	0.50	0.10	0.00	1.70	0.30	0.10	0.90	0.30	0.20	0.30	9.70	0.00	0.40	0.20
Asthma	4.80	3.50	4.80	3.80	4.30	5.50	2.80	4.40	4.80	17.00	12.10	3.60	6.30	5.90	5.10	2.70	6.50	4.10	1.20	3.40	8.30	4.20	2.30	5.80

5.4.5 65-74 YEAR OLDS

bout 43 percent of the respondents in this age group, across both sexes and more in rural, had oral health problems in the last one year in the country.

50 to 72 percent of respondents in Andhra Pradesh, Assam, Himachal Pradesh, Karnataka and Uttar Pradesh had oral health problems in the last one year, while 22 to 42 percent had oral health problems in the last one year in the remaining states and union territories. Rajasthan reportedly had the lowest percentage (18 percent) respondents who had oral health problems.

As regards nature of problems, 60 percent, and another 57 percent, across both sexes and places of residence, had problems of dental decay and gum disease respectively. Another about 37 percent, across both sexes and more in rural, had problems such as foul breath and bleeding gums, in the country.

60 and more percent in majority of states and union territories had the problem of dental decay as well as of gum disease. It is surprising to find that 64 and 78 percent of respondents, the highest among states and union territories, reported the problems of foul breath and bleeding gums respectively.

Only 24 percent of those who had oral health problems, across both sexes and more in urban, had consulted trained dentists in the country.

70-88 percent in Jammu and Kashmir, Kerala, Chandigarh and Delhi, 40-45 percent in Gujarat, Haryana, Karnataka, Maharashtra, Tamil Nadu, Goa and Pondicherry, and below 23 percent in the remaining states, had consulted trained dentists. A negligible percentage (3 and below) of respondents in Andhra Pradesh and Assam had consulted trained dentists.

As regards respondents knowledge of dental care services, about 40 percent, across both sexes and more in urban, were aware of governmental dental care facilities in the country.

States and union territories differ greatly in regard to knowledge of dental care facilities. 45 percent and more of the respondents reported knowledge of governmental dental care facilities in four states and two union territories, and less than this in the remaining states and union territories.

As regards time required to reach facility places, about 54 percent, across both sexes and more in urban, reported less than half an hour. Another 45 percent said half to more than one hour in the country.

53 and more percent of respondents in 14 states and union territories covered in the survey reported less than half an hour to reach facilities, while 40-45 percent, except 20 percent in Assam, reported half to more than one hour to reach facility places in the remaining states and union territories.

The respondents were asked whether they had ever suffered from non-communicable disease such as hypertension, diabetes, epilepsy, jaundice and asthma, and to this about 17 percent and 9 percent, across both sexes and more in urban, reported having suffered from hypertension and diabetes respectively. Another 6 percent had suffered from epilepsy, jaundice and asthma.

It is very surprising to find that 76 percent of respondents, the highest percentage, among the states reported having suffered from hypertension in Chandigarh. There was a comparatively greater percent of hypertension victims in each of the states and union territories than victims of any other disease.

DENTAL PROBLEMS AND TREATMENTASPECTS ACROSS AGE GROUPS (SUMMING UP)

More and more respondents, with the increase in their ages, across both sexes and more in urban, reported oral health problems. More repondents in Assam than in other states and union territories reported the occurrence of oral health problems.

Nearly three-fourths from each age group of respondents, who had reported dental problems across both sexes and more in urban, had dental decay problem.

Only a quarter of respondents from each age group consulted trained dentists in the country. State and Union Territories differed greatly in this respect.

More older than younger respondents across both sexes and more in urban, had knowledge of dental care facilities in their areas.

More than 50 percent of respondents, across both sexes and more in urban, reported less than half an hour to reach dental care facility in the country as well as in states and union territories.

5.5 AWARENESS OF DENTAL HEALTH PROBLEMS

Three questions were asked on awareness of dental health problems. The first was about the common dental problems, the second about major factors responsible for the problems and the third on how to prevent the problems. The responses that were obtained from respondents belonging to ages/age groups 12, 15, 35-44 and 65-74 years, of both sexes and all places of residence in states and union territories, are analysed and presented in Tables 5.5.2 to 5.5.5 and discussed below.

Table 5.5.2. Per cent respondents 12 year olds by Reported Awareness of Oral Health Problems, their Causes and Preventive Measures in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 yrs																								
Awareness of Oral Health Problems	**12822**	**6310**	**9781**	**9351**	**19132**	**1881**	**616**	**2178**	**956**	**629**	**941**	**1272**	**785**	**1115**	**1587**	**1685**	**1004**	**762**	**1840**	**630**	**316**	**350**	**267**	**318**
No knowledge	52.2	39.1	47.4	48.2	47.8	0.0	13.9	28.3	55.1	13.3	36.8	58.6	3.5	36.7	47.6	68.6	7.8	77.3	56.5	80.8	6.0	37.5	4.3	48.0
Tooth decay	36.1	49.6	41.5	40.6	41.1	64.0	83.5	61.7	38.6	66.7	61.4	39.1	93.6	28.5	45.3	13.2	82.9	8.6	40.7	18.6	87.9	56.8	86.3	39.0
Gum disease	12.1	16.2	13.7	13.7	13.7	7.0	36.3	13.5	15.6	77.0	14.4	1.9	23.5	29.0	16.1	3.8	56.5	11.2	1.8	1.7	29.2	39.2	17.8	13.0
Bad smell	5.6	7.3	6.1	6.3	6.2	2.5	3.9	3.2	4.2	39.5	5.3	0.9	8.1	11.5	6.5	2.2	44.8	1.4	0.9	0.4	58.1	8.7	5.2	0.0
Stained teeth	1.7	2.5	1.9	2.3	2.0	0.2	0.1	2.2	2.7	1.7	1.4	0.4	0.9	1.8	1.5	5.8	5.5	2.6	0.8	0.2	28.3	9.9	2.9	0.0
Others	5.3	3.6	4.5	4.4	4.5	32.3	0.0	0.5	0.2	0.1	0.2	0.7	0.9	0.2	0.7	0.8	0.8	0.2	0.0	0.0	2.5	33.7	0.6	
Factors that cause Oral Health Problems	**12267**	**6131**	**9397**	**9001**	**18398**	**1140**	**617**	**2178**	**956**	**629**	**941**	**1272**	**785**	**1124**	**1584**	**1686**	**1004**	**762**	**1840**	**630**	**316**	**349**	**267**	**318**
Eating sweets/ice cream	25.0	39.8	30.5	30.4	30.5	39.1	14.4	44.9	28.6	67.5	44.5	32.5	35.5	33.9	38.3	8.0	76.6	4.5	29.4	9.9	54.3	58.6	85.6	13.0
Not brushing regularly	33.1	40.9	35.1	36.2	35.7	65.2	61.4	43.2	29.9	77.2	34.8	11.1	74.0	37.7	28.6	12.4	75.0	23.6	12.5	33.8	91.6	53.9	85.6	27.0
Not rinsing	8.0	7.9	8.1	8.1	8.1	2.5	2.8	5.7	6.6	36.1	15.4	0.4	16.0	9.1	5.7	5.0	46.3	3.6	0.4	2.4	86.0	15.1	0.4	1.0
Consuming tobacco	2.6	3.7	3.4	2.8	3.1	0.9	0.1	3.4	1.2	10.8	1.4	0.2	0.1	4.4	4.1	1.1	19.1	2.2	0.1	0.0	5.4	2.3	1.0	0.0
Do not know	48.8	34.1	43.8	43.7	43.7	8.8	35.2	20.4	53.8	16.1	42.8	61.4	9.2	25.5	43.1	67.6	7.1	67.1	60.2	57.9	6.0	31.8	7.3	60.0
Reported Preventive Measures	**12820**	**6305**	**9780**	**9345**	**19125**	**1881**	**617**	**2159**	**956**	**629**	**941**	**1272**	**785**	**1124**	**1588**	**1686**	**1004**	**762**	**1840**	**630**	**316**	**350**	**267**	**318**
Not consuming tobacco	7.6	10.2	8.8	8.5	8.6	5.7	7.4	9.7	6.9	24.6	16.5	2.0	2.7	13.3	14.6	7.2	45.6	6.2	2.7	0.5	7.9	4.7	5.6	2.0
Cleaning teeth regularly	37.1	47.9	40.1	41.2	40.7	54.0	58.3	71.2	34.0	80.4	47.5	19.5	86.4	47.2	35.3	12.3	82.6	21.8	16.5	35.0	91.7	62.1	90.7	34.0
Visiting dentist regularly	6.4	7.7	6.8	6.8	6.8	1.8	2.5	1.1	7.7	43.9	14.9	1.5	4.4	8.2	13.5	2.4	40.8	4.3	1.8	0.0	91.3	8.2	2.1	1.0
Using flouride paste / powder	3.0	3.4	3.3	3.0	3.1	0.2	0.1	1.0	1.7	9.6	0.2	0.3	0.3	2.3	2.2	0.4	10.6	0.2	15.7	0.2	28.8	0.5	0.0	8.0
Avoid sweet items	7.8	16.2	11.0	11.2	11.1	11.9	3.0	16.0	14.4	27.0	17.2	13.5	12.9	8.2	12.0	1.5	28.1	0.6	0.1	5.1	40.3	42.9	66.3	0.0
Do not know	52.8	36.3	47.7	46.9	47.3	36.7	38.0	14.8	53.8	16.7	42.1	65.9	10.0	29.4	42.5	68.1	8.5	67.5	64.6	60.8	6.3	32.1	7.7	55.0

5.5.2 12 YEAR OLDS

About 48 percent of respondents of this age, across both sexes and more in rural, had no knowledge of oral health problems. 41 percent and 14 percent, across both sexes and more in urban, reported oral health problems such as tooth decay and gum disease respectively. Another 13 percent, across both sexes and places of residence, described bad smell, stained teeth etc, as oral health problems.

The states and union territories differ greatly in knowledge of oral health problems. 55 to 80 percent in Haryana, Karnataka, Orissa, Rajasthan, Tamil Nadu and Uttar Pradesh, 35-50 percent in Jammu and Kashmir, Madhya Pradesh, Maharashtra, Delhi and Pondicherry and 4 to 13 percent in the remaining states had no knowledge of oral health problems. In Andhra Pradesh, all respondents were aware of oral health problems.

A comparatively larger percentage of respondents had knowledge of oral health problems such as tooth decay, followed by gum disease and other diseases such as bad smell and stained teeth in each of the states and union territories.

44 percent of the respondents, across both sexes and more in rural, reported no knowledge of factors responsible for oral health problems while 31 percent and 36 percent, across both sexes and more in urban, described factors such as eating sweets/ice cream and not brushing regularly, while another 8 percent and 3 percent, across both sexes and places of residence, reported not rinsing and consuming tobacco respectively, the causes of oral health problems in the country.

Factors such as not brushing regularly, followed by eating sweets/ice cream, not rinsing and consuming tobacco were reported as responsible for oral health problems in each of the states and union territories.

As regards knowledge of preventive measures, 47 percent, across both sexes and more in rural, were unaware of these. 41 percent and 11 percent, across both sexes and more in urban, described measures such cleaning teeth regularly and avoidance of sweet items respectively. Another 9 percent and 10 percent, across both sexes and more in urban, identified measures such as not consuming tobacco and visiting dentist regularly and using fluoride paste/powder respectively in the country.

There was a comparatively larger percentage were aware of preventive measures such as cleaning teeth regularly than others such as not consuming tobacco, visiting dentists regularly, using fluoride tooth paste/powder and avoidance of sweet items in each of the states and union territory.

Table 5.5.3. Per cent respondents 15 year olds by Reported Awareness of Oral Health Problems, their Causes and Preventive Measures in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 yrs																								
Awareness of Oral Health Problems	**12632**	**6278**	**9791**	**9119**	**18910**	**1878**	**618**	**2177**	**959**	**629**	**940**	**1256**	**788**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**266**	**314**
No knowledge	38.3	24.6	33.3	34.2	33.8	0.0	12.6	11.7	45.4	3.2	25.6	50.6	2.2	27.0	39.4	64.1	5.2	63.3	46.6	41.7	1.6	23.6	4.0	32.0
Tooth decay	48.3	61.4	53.1	52.4	52.8	73.2	85.0	77.8	47.1	72.9	70.5	45.4	94.4	29.2	48.8	15.0	62.6	13.5	50.3	56.6	94.2	67.2	91.7	52.0
Gum disease	16.8	23.7	19.7	18.9	19.3	10.1	40.4	21.1	23.0	85.2	16.8	5.1	37.8	36.0	21.7	5.3	57.7	17.2	2.8	9.7	31.8	47.6	31.2	18.0
Bad smell	7.9	10.8	9.0	9.0	9.0	5.9	7.3	9.1	5.5	64.5	4.8	1.7	15.3	18.2	7.8	2.7	43.7	5.0	1.2	0.9	66.7	13.6	5.5	3.0
Stained teeth	2.4	3.7	2.9	3.2	3.0	0.2	0.5	2.1	4.4	8.0	2.4	0.5	0.7	3.6	1.7	7.6	9.9	5.0	0.5	0.3	44.0	15.8	5.0	0.0
Others	3.9	2.9	3.4	3.4	3.4	21.5	0.0	0.3	0.3	1.6	0.2	0.8	1.9	0.2	1.4	1.5	1.5	0.2	0.0	0.0	2.7	48.3	0.2	0.0
Factors that cause Oral Health Problems	**12247**	**6137**	**9517**	**8867**	**18384**	**1350**	**618**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**333**	**267**	**314**
Eating sweets/ice cream	28.5	43.6	34.6	33.5	34.1	40.1	12.1	50.9	34.2	70.9	47.8	35.7	38.3	24.4	38.3	9.6	63.5	5.6	36.1	20.8	63.5	67.7	92.3	23.0
Not brushing regularly	41.3	52.0	45.6	44.4	45.0	69.2	64.1	65.5	36.1	94.2	42.3	14.6	77.5	50.6	38.8	15.2	75.3	38.6	15.1	42.9	96.3	67.4	92.3	32.0
Not rinsing	10.2	10.3	10.3	10.3	10.3	4.3	3.0	6.7	10.9	62.5	13.9	1.1	21.1	16.3	6.0	6.9	50.6	5.7	1.3	5.1	90.9	19.9	0.0	2.0
Consuming tobacco	5.2	7.0	6.3	5.6	6.0	1.9	0.7	12.2	1.9	22.8	2.7	0.9	0.7	9.7	6.5	1.8	31.0	7.2	0.4	0.7	18.4	3.3	0.7	0.0
Do not know	38.8	22.4	32.1	34.1	33.1	7.6	33.4	9.2	44.1	3.5	34.7	55.1	6.8	20.1	33.8	63.8	5.4	48.0	52.0	41.0	1.8	13.6	3.5	47.0
Reported Preventive Measures	**12632**	**6279**	**9791**	**9120**	**18911**	**1878**	**617**	**2178**	**959**	**629**	**940**	**1256**	**789**	**1155**	**1473**	**1667**	**1004**	**705**	**1801**	**631**	**314**	**334**	**267**	**314**
Not consuming tobacco	8.9	11.4	10.6	9.4	9.9	6.2	6.6	17.7	7.1	30.7	14.3	3.4	3.5	15.3	16.5	8.1	28.2	10.2	3.1	1.2	9.9	6.2	4.9	0.0
Not brushing regularly	42.4	54.7	47.4	45.7	46.6	61.5	61.6	75.6	39.0	95.5	55.4	21.2	88.0	53.3	41.1	14.7	79.8	26.4	19.6	43.9	96.1	73.3	95.5	40.0
Visiting dentist regularly	6.8	10.2	7.9	8.6	8.2	3.0	4.2	2.0	11.0	67.2	15.4	3.6	6.0	9.6	13.9	3.8	40.9	6.2	2.8	0.3	95.4	13.8	5.2	2.0
Using flouride paste / powder	4.1	4.6	4.4	4.1	4.2	0.3	0.0	0.9	1.2	18.6	0.2	0.5	0.6	6.0	1.7	0.7	29.1	0.4	16.9	0.2	43.6	0.1	1.1	14.0
Avoid sweet items	12.2	21.1	15.6	15.4	15.6	16.4	2.8	27.5	16.9	35.6	21.7	17.5	15.4	9.5	13.4	3.4	31.3	0.9	0.1	13.9	50.0	50.9	76.0	0.0
Do not know	44.6	28.1	38.0	40.0	39.0	29.3	36.4	9.1	47.4	2.0	33.4	58.8	8.6	23.4	33.7	64.0	7.2	59.5	60.3	47.1	1.4	19.0	2.8	47.0

5.5.3 15 YEAR OLDS

34 percent, across both sexes and more in rural, had no knowledge of oral health problems. 53 percent and 20 percent, across both sexes and more in urban, reported knowledge of problems such as tooth decay and gum disease respectively. In addition to these, another 9 percent and 3 percent described bad smell and stained teeth oral health problems, in the country.

A comparatively larger percentage reported knowledge of oral health problems such as tooth decay followed by gum disease, bad smell and stained teeth in each of the states and union territories.

As regards factors responsible for oral health problems, 33 percent, across both sexes and more in rural, had no knowledge. 34 percent and 45 percent, across both sexes and more in urban described factors such as eating sweets/ice cream and not brushing regularly respectively, while another 10 percent and 6 percent, across both sexes and places of residence, talked of factors such as not rinsing and consuming tobacco respectively, in the country.

A comparatively larger percentage reported causative factors such as not brushing regularly, followed by eating sweets/ice cream, not rinsing and consuming tobacco in each of the states and union territories.

As regards preventive measures, 39 percent, across both sexes and more in rural, had no knowledge. 47 percent and 16 percent across both sexes and more in urban, described measures such as cleaning teeth regularly and avoidance of sweet items respectively. Another 10 percent and 13 percent, across both sexes and more in urban, described not consuming tobacco and visiting dentist regularly and using fluoridated paste/powder as the measures to prevent oral health problems.

A comparatively larger percentage reported preventive measures such as cleaning teeth regularly, followed by avoidance of sweet items, not consuming tobacco, visiting dentist regularly and using fluoridated tooth paste/powder in each of the states and union territories.

Table 5.5.4. Per cent respondents 35-44 year olds by Reported Awareness of Oral Health Problems, their Causes and Preventive Measures in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 yrs																								
Awareness of Oral Health Problems	**13811**	**6798**	**10617**	**9992**	**20609**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1251**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**271**	**318**
No knowledge	24.5	14.9	20.5	22.0	21.3	0.0	7.9	5.7	30.4	0.7	18.9	48.0	2.7	15.0	32.1	62.6	4.9	52.2	39.8	7.8	0.6	17.5	2.4	24.0
Tooth decay	56.0	68.6	60.1	60.4	60.2	77.6	89.7	75.4	59.2	71.1	77.8	43.0	93.4	27.1	50.8	14.7	67.3	21.3	54.8	79.7	98.3	69.9	93.9	62.0
Gum disease	36.1	43.5	39.0	38.3	38.7	21.1	64.1	57.3	40.9	87.7	21.2	12.7	49.5	56.1	36.6	10.4	52.6	25.2	5.6	55.4	63.7	65.0	47.2	19.0
Bad smell	12.8	17.2	15.2	13.6	14.4	12.4	31.8	13.4	12.3	75.2	5.7	1.7	17.8	23.2	13.5	5.2	46.1	5.4	2.1	5.5	76.2	27.5	9.4	2.0
Stained teeth	5.0	7.3	6.3	5.7	6.0	0.9	3.5	5.2	6.0	27.4	1.6	2.1	3.7	6.1	5.9	7.9	16.7	11.2	0.9	1.2	38.2	17.0	3.9	2.0
Others	3.6	2.6	3.0	3.4	3.2	17.3	0.1	0.7	0.3	4.5	0.2	0.6	3.5	0.3	2.4	1.9	1.2	0.3	0.2	0.0	4.0	59.2	2.0	0.0
Factors that cause Oral Health Problems	**13366**	**6682**	**10346**	**9702**	**20048**	**1382**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**386**	**271**	**318**
Eating sweets/ice cream	29.3	43.7	35.5	34.3	34.9	38.5	19.8	48.2	37.8	57.5	41.3	29.3	36.0	19.4	36.0	8.5	57.9	9.1	37.8	26.5	91.3	66.0	84.4	16.0
Not brushing regularly	45.0	61.2	51.3	50.1	50.7	78.6	68.2	80.8	47.9	94.9	41.4	18.0	76.7	55.6	42.7	15.9	74.4	35.2	18.7	48.7	98.0	77.4	86.8	39.0
Not rinsing	16.9	16.5	17.7	16.3	17.0	6.4	6.2	12.9	18.2	74.7	15.4	1.7	27.2	23.1	10.5	9.4	53.1	8.8	3.1	17.5	93.1	32.2	1.8	7.0
Consuming tobacco	11.4	14.6	13.6	11.6	12.6	6.0	3.7	34.6	4.4	45.2	3.6	5.8	3.3	23.5	17.9	3.1	35.4	8.0	1.1	3.9	57.5	6.5	3.2	0.0
Do not know	33.0	18.3	26.0	29.5	27.7	8.5	29.1	5.7	33.6	1.6	38.3	55.8	11.1	12.7	33.0	62.9	5.7	49.0	45.3	27.3	1.2	10.9	7.7	44.0
Reported Preventive Measures	**13812**	**6798**	**10618**	**9992**	**20610**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**627**	**315**	**387**	**272**	**318**
Not consuming tobacco	15.0	18.5	18.2	14.5	16.4	8.2	10.5	37.2	8.4	36.3	16.7	6.2	5.0	30.1	26.2	10.1	30.7	11.2	5.0	5.4	58.0	10.2	7.5	1.0
Not brushing regularly	45.5	62.0	51.2	50.9	51.1	64.3	64.4	83.3	52.6	93.4	51.6	22.8	83.1	55.5	46.2	14.9	72.9	35.0	22.8	51.1	95.2	78.1	88.9	44.0
Visiting dentist regularly	9.8	15.8	12.1	11.7	11.9	7.7	6.2	8.8	17.2	70.2	14.8	5.1	6.6	15.8	18.9	4.4	45.7	7.1	4.8	1.5	95.6	17.8	4.8	6.0
Using flouride paste / powder	4.5	6.2	4.9	5.1	5.0	0.3	0.2	1.9	1.4	24.4	0.8	0.7	1.0	5.3	4.2	0.6	28.9	0.3	18.3	0.5	50.6	0.5	0.4	8.0
Avoid sweet items	14.4	22.6	18.7	17.0	17.8	18.3	7.6	28.8	18.9	52.7	17.2	13.0	15.6	8.9	17.0	4.0	30.8	1.3	0.3	18.7	80.0	53.9	67.7	0.0
Do not know	39.5	21.1	31.5	34.7	33.1	27.8	33.9	5.9	34.0	0.7	36.1	60.3	11.9	17.1	29.3	62.9	7.9	52.6	52.2	37.0	2.3	9.7	7.3	43.0

5.5.4 35-44 YEAR OLDS

21 percent, across both sexes and more in rural, had no knowledge of oral health problems. 60 percent and 39 percent, across both sexes and more in urban, described oral health problems such as tooth decay and gum disease. Another 21 percent, across both sexes and more in urban talked of bad smell and stained teeth in the country.

A comparatively larger percentage reported knowledge of oral health problems such as tooth decay followed by gum disease, bad smell and stained teeth in each of the states and union territories.

As regards factors responsible for oral health problems, 28 percent, across both sexes and more in rural, were unaware. 51 percent and 35 percent, across both sexes and more in urban, reported factors such as not brushing regularly and eating sweets/ice cream respectively. Others 17 percent and 13 percent, across both sexes and more in urban described not rinsing and consuming tobacco respectively as the factors responsible for oral health problems.

A comparatively larger percentage reported as responsible for oral health problems factors such as not brushing regularly, followed by eating sweets/ice cream, not rinsing and consuming tobacco in each of the states and union territories.

About 33 percent, more males and more in rural, had no knowledge of preventive measures, while 51 percent and 18 percent, across both sexes and more in urban, mentioned preventive measures such as cleaning teeth regularly and visiting dentists regularly/using fluoridated paste/powder respectively. Another 16 percent, more males and more in urban, talked of not consuming tobacco.

A comparatively larger percentage reported preventive measure such as cleaning teeth regularly, followed by not consuming tobacco, visiting dentist regularly and using fluoridated paste/powder in each of the states and union territories.

Table 5.5.5. Per cent respondents 65-74 year olds by Reported Awareness of Oral Health Problems, their Causes and Preventive Measures in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
65-74 yrs																								
Awareness of Oral Health Problems	**12740**	**6184**	**9751**	**9173**	**18924**	**1864**	**618**	**2189**	**948**	**630**	**956**	**1260**	**798**	**1156**	**1566**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**267**	**318**
No knowledge	30.0	23.8	26.4	29.8	28.1	0.0	6.5	6.8	41.6	1.9	33.9	63.2	20.3	13.4	49.4	70.2	10.6	61.5	45.5	11.9	0.6	26.9	10.4	44.0
Tooth decay	48.0	56.9	52.2	49.3	50.8	68.0	89.0	65.0	46.5	64.0	62.9	27.3	76.4	20.4	34.9	8.9	64.6	15.8	46.1	72.4	82.2	56.1	82.1	35.0
Gum disease	41.3	43.3	42.9	40.7	41.8	24.8	76.5	68.6	35.2	86.5	20.7	13.6	31.5	57.6	26.8	8.6	48.1	19.5	8.8	74.5	59.8	56.9	45.8	22.0
Bad smell	13.4	15.6	14.8	13.4	14.1	10.4	35.6	13.0	11.9	73.6	5.7	2.1	11.0	26.4	8.6	5.4	43.0	5.5	1.1	12.6	69.6	13.5	3.4	0.0
Stained teeth	4.1	6.0	5.4	4.2	4.8	2.3	1.8	3.6	5.4	37.5	3.5	0.7	0.7	6.2	3.9	5.8	15.7	7.6	1.4	1.5	38.9	11.5	2.9	0.0
Others	4.4	2.9	3.3	4.1	3.7	25.6	0.6	0.2	0.2	4.7	0.0	0.5	2.7	0.9	1.9	1.6	1.3	0.4	0.0	11.2	0.9	33.8	2.5	0.0
Factors that cause Oral Health Problems	**12173**	**6007**	**9435**	**8745**	**18180**	**1122**	**618**	**2190**	**948**	**630**	**956**	**1260**	**798**	**1157**	**1566**	**1535**	**997**	**697**	**1835**	**629**	**314**	**344**	**266**	**318**
Eating sweets/ice cream	23.9	35.2	29.1	26.8	28.1	35.6	15.1	43.2	26.0	64.4	35.2	14.6	30.0	12.0	25.5	4.6	54.4	6.7	30.4	25.1	76.4	49.0	73.9	5.0
Not brushing regularly	34.0	48.8	40.9	37.0	39.0	72.4	64.6	79.8	39.1	89.3	30.0	13.5	52.1	55.0	30.3	10.0	64.7	26.2	14.7	25.1	84.6	56.3	77.5	32.0
Not rinsing	18.7	17.5	19.4	17.4	18.4	7.3	4.2	17.1	15.7	70.9	16.3	1.8	24.0	25.6	7.9	6.6	49.6	11.7	2.2	25.8	83.0	32.1	0.8	1.0
Consuming tobacco	11.9	13.8	14.0	11.2	12.6	8.4	2.4	28.5	5.0	58.5	5.5	5.6	2.6	26.3	14.2	2.3	38.5	6.5	1.5	5.6	59.4	7.2	0.8	0.0
Do not know	43.3	30.6	35.9	42.0	38.9	12.5	33.2	6.6	46.5	1.9	52.4	71.0	33.7	13.2	48.4	72.8	10.9	53.4	55.0	47.4	1.9	20.9	19.1	63.0
Reported Preventive Measures	**12739**	**6185**	**9752**	**9172**	**18924**	**1862**	**618**	**2190**	**948**	**630**	**956**	**1260**	**798**	**1158**	**1566**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**266**	**318**
Not consuming tobacco	14.8	17.8	17.4	14.5	16.0	8.6	7.5	33.3	9.8	55.9	17.2	7.2	3.0	28.3	20.5	9.1	37.2	12.9	4.4	8.2	55.8	12.0	3.4	0.0
Not brushing regularly	34.9	49.9	41.9	37.9	39.9	51.0	62.0	82.6	38.6	90.2	36.2	14.5	59.5	58.2	35.2	6.7	65.0	29.9	18.9	26.4	82.3	57.6	79.8	33.0
Visiting dentist regularly	8.8	12.9	11.0	9.4	10.2	5.5	4.7	7.2	14.1	56.0	15.2	3.6	4.1	14.0	17.0	2.9	45.1	8.8	3.0	1.7	82.1	11.5	0.0	2.0
Using flouride paste / powder	4.3	5.1	4.5	4.5	4.5	0.3	0.4	1.4	0.8	22.6	0.7	0.4	0.3	6.9	3.3	0.6	25.1	0.3	16.5	0.6	47.0	0.1	0.0	1.0
Avoid sweet items	12.2	18.7	15.3	14.2	14.7	12.7	6.4	26.1	15.4	69.7	14.9	6.8	13.0	7.3	10.5	1.5	28.6	2.4	0.3	18.4	60.1	41.7	56.7	0.0
Do not know	50.1	33.0	41.4	47.2	44.2	40.6	36.5	6.7	46.0	1.6	53.3	71.2	34.9	15.5	40.7	74.0	13.4	58.1	59.7	59.8	3.1	24.6	19.0	63.0

5.5.5 65-74 YEAR OLDS

About 28 percent, more females and more in rural, had no knowledge of oral health problems, while 51 percent and 14 percent, across both sexes and more in urban, reported tooth decay and bad smell respectively, oral health problems. Another 42 percent and 5 percent, across both sexes and places of residence, talked of gum disease and stained teeth respectively in the country (See Table 5.5.5).

A comparatively larger percentage reported knowledge of tooth decay followed by gum disease, bad smell and stained teeth oral health problems in each of the states and union territories.

As regards factors responsible for oral health problems, 39 percent, more females and more in rural, did not know of the factors, while 39 percent and 28 percent, more males and more in urban, described not brushing regularly and eating sweets/ice creams as factors responsible for oral health problems. Another 19 percent and 13 percent, across both sexes and places of residence, held responsible causative factors such as not rinsing and consuming tobacco respectively.

A comparatively larger percentage reported as responsible for oral health problems factors such as not brushing regularly, followed by eating sweets/ice cream, not rinsing and consuming tobacco in each of the states and union territories.

As regards preventive measures, about 44 percent, more females and more in rural did not know, while 40 percent and 16 percent, more males and more in urban, reported preventive measures such as cleaning teeth regularly and not consuming tobacco respectively. Another 29 percent, more males and more in urban, mentioned avoidance of sweet items, visiting dentist regularly/using fluoridated paste/powder in the country.

A comparatively larger percentage reported preventive measures such as cleaning teeth regularly, followed by not consuming tobacco, avoiding sweet items, visiting dentist regularly and using fluoride paste/powder in each of the states and union territories.

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

More and more respondents reported knowledge of oral health problems, factors responsible for problems and their preventive measures with increase in age of respondents in the country as well as in each of the states and union territories.

The majority of respondents, irrespective of age, across both sexes and more in rural, reported oral health problems such as dental decay, followed by gum disease and foul breath in the country as well as in each of the states and union territories.

About two-thirds of respondents, irrespective of age, across both sexes and more in urban, held as responsible for oral health problems, factors such as not brushing regularly and eating sweet items, in the country as well as in each of the states and union territories.

About 45 percent of respondents, irrespective of age, across both sexes and more in urban, spelt out as preventive measure the cleaning of teeth regularly than other measures in the country as well as in each of the states and union territories.

5.6 TOBACCO SMOKING AND CHEWING HABITS

Smoking tobacco and chewing paan masala with tobacco have great effects on oral health. Therefore, questions related to habits such as smoking tobacco, chewing paan with tobacco, etc. and drinking alcohol, were asked of respondents belonging to age groups 35-44 and 65-74, years, both sexes and places of residence, in the states and union territories surveyed (assuming that negligible fraction of people in younger ages of 5, 12, and 15 years have such habits). The responses thus obtained are presented in Tables 5.6.4 and 5.6.5 and discussed below.

Table 5.6.4. Per cent respondents 35-44 year olds by Reported Smoking, Chewing Pan & Pan Masala and Alcohol taking habits and Age in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs																								
Smoking Habits	13675	6764	10504	9935	20439	1892	638	2383	981	628	957	1278	991	1252	1639	1765	1026	1182	1907	628	315	387	272	318
Subjects smoking tobacco	25.7	17.5	37.5	7.5	22.8	24.0	9.5	20.8	17.4	37.5	24.3	16.1	18.1	15.0	15.0	27.1	7.3	20.8	10.4	38.1	21.5	14.7	9.9	9
Nature of Smoking	3002	1098	3474	626	4100	489	57	502	153	260	173	216	182	216	336	529	75	261	214	238	70	62	26	41
Chillum	1.5	1.9	1.1	4.3	1.6	1.7	0.0	0.6	8.6	4.3	1.6	4.4	13.3	2.9	5.2	8.5	0.0	4.9	1.1	0.5	0.0	0.0	0.0	0
Hookah	6.7	2.6	5.1	9.3	5.9	0.7	1.5	3.6	28.1	10.8	74.7	7.0	0.0	3.8	2.9	7.9	0.0	6.6	2.1	44.7	0.5	3.3	0.0	0
Cigars	5.9	5.7	4.3	15.3	6.0	40.2	1.0	0.9	0.6	3.5	0.0	0.6	3.0	1.1	9.1	26.8	1.6	0.7	2.8	0.7	2.3	2.7	3.6	1
Cigarettes	14.1	41.7	22.0	13.2	20.4	25.8	66.4	15.6	12.5	21.8	6.6	40.3	60.6	15.8	31.4	8.4	37.8	14.3	80.1	15.6	96.1	19.8	19.8	95
Bidis	50.6	34.4	46.8	44.4	46.6	25.3	31.1	79.5	49.8	59.7	14.1	47.8	23.3	73.8	47.9	45.0	57.4	68.8	13.9	38.6	1.2	74.3	74.6	4
Number of times Smoking in a day																								
< 10 times	84.9	84.9	83.1	91.0	85.0	85.5	98.5	86.7	78.6	98.4	93.9	80.7	81.2	79.0	87.2	98.2	91.7	81.5	91.0	91.4	98.8	80.7	86.0	86
10 - 20 times	12.2	11.9	13.6	7.6	12.0	8.0	1.5	13.2	15.8	1.6	5.4	12.2	13.7	18.1	12.2	1.6	3.0	11.3	5.8	8.7	1.2	13.2	10.5	14
20 + times	2.4	2.8	2.9	0.9	2.4	1.2	0.0	0.2	5.7	0.0	0.8	7.1	5.1	2.9	0.6	0.3	5.4	7.2	3.2	0.0	0.0	6.1	3.6	1
Chewing pan/pan masala habits	13249	6543	10186	9606	19792	1858	638	2383	981	628	957	1278	991	1252	1639	1442	1026	892	1907	628	315	387	272	318
Chew pan or pan masala with tobacco	9.5	7.8	11.0	6.4	8.8	3.4	7.7	17.1	7.4	4.7	0.6	20.3	5.6	13.0	18.7	46.4	2.0	9.4	6.7	12.0	5.2	4.8	7.6	5
No. of yrs of chewing pan or pan masala	1798	674	1682	790	2472	70	47	396	66	21	8	212	111	188	320	629	18	102	113	75	25	17	20	34
Less than 5 years	31.3	33.3	29.9	35.3	31.8	43.8	25.7	26.0	81.8	13.8	36.4	43.9	18.1	16.2	31.2	14.7	61.5	27.9	28.9	51.4	14.8	9.1	20.6	70
5-10 years	52.6	50.2	50.7	52.6	51.6	39.0	38.0	61.4	10.4	78.0	12.9	31.4	50.5	75.0	38.3	79.9	28.8	45.7	65.6	47.7	85.3	24.6	51.5	27
> 10 years	15.4	16.2	18.7	11.7	16.0	15.6	36.4	12.6	10.0	8.3	0.8	24.7	31.5	8.9	31.1	3.5	9.8	27.1	6.5	1.0	0.0	66.4	28.0	3
No. of times of chewing tobacco in a day																								
Less than 5 times	44.5	46.9	43.7	47.8	45.3	82.8	39.2	48.8	93.2	80.0	15.3	60.3	25.8	23.8	53.1	14.5	78.9	52.6	53.7	60.3	27.5	46.4	25.8	78
5 - 10 times	46.7	44.7	45.6	45.9	45.6	23.4	44.0	41.4	9.1	20.0	34.8	24.9	56.0	66.1	42.0	78.2	21.1	42.0	43.3	33.9	72.5	12.3	58.9	22
> 10 times	7.1	7.8	9.3	4.8	7.6	0.3	16.9	9.9	0.0	0.0	0.0	14.9	18.2	10.2	5.6	0.9	0.0	5.6	4.0	5.8	0.0	41.4	15.5	0
Alcohol consumption habits	13630	6757	10485	9902	20387	1862	638	2383	981	628	956	1278	990	1252	1639	1746	1026	1182	1907	627	315	387	272	318
Consuming alcohol	14.8	9.3	21.1	4.1	12.8	13.5	7.1	8.4	6.9	41.0	3.2	11.2	8.1	9.4	10.1	25.0	12.0	6.3	5.6	16.9	33.1	11.4	23.5	6
Frequency of alcohol consumption	1997	715	2249	463	2712	284	42	150	61	278	79	141	142	135	228	498	146	86	104	104	104	45	62	23
Daily	15.5	12.3	13.5	23.8	15.1	2.2	22.5	23.8	22.7	0.1	2.8	13.0	26.5	10.5	4.8	53.1	3.9	14.5	7.3	13.7	2.0	10.8	22.0	26
3 times a week	22.8	21.5	22.2	18.2	22.7	16.6	13.9	48.3	21.3	9.1	10.1	61.4	32.3	9.0	18.9	4.4	30.8	35.9	7.0	12.7	13.8	12.1	9.9	3
Occasionally	57.6	58.4	59.0	55.3	57.5	58.5	63.7	27.9	53.2	88.6	87.2	25.7	41.4	75.8	68.1	41.6	63.9	49.7	73.4	73.7	84.3	26.8	18.2	21

5.6.4 35-44 YEAR OLDS

About 23 percent, more males and more in urban, reported smoking tobacco in the country.

About 38 percent of respondents in Himachal Pradesh and a similar percentage in Uttar Pradesh, 20-25 percent in Andhra Pradesh, Gujarat, Jammu and Kashmir, Orissa, Rajasthan, Chandigarh, and 7-18 percent in the remaining states and union territories reported smoking tobacco.

As regards nature of smoking, 47 percent, more males and more in rural, had the habit of smoking bidis, while 20 percent, more males and more in urban, had the habit of smoking cigarettes. Another 14 percent, more females and mostly in rural, had the habit of smoking hookah, chillum and cigars, in the country.

There was a comparatively larger percentage of bidi smokers followed by cigarette smokers in each of the states and union territories.

As regards number of times the respondents smoked in a day, about 85 percent, more females, irrespective of their places of residence, were smoking less than 10 times in a day, while another 12 percent and 2 percent, more males, irrespective of their places of residence, reported smoking 10-20 times and more than 20 times in a day respectively in the country.

80-100 percent, of respondents in each of the states and union territories had the habit of smoking less than 10 times in a day, while 8-15 in all the states and union territories, except 3 percent and less in Assam, Himachal Pradesh Orissa and Chandigarh, had the habit of smoking 1020 times in a day.

About 9 prcent of the respondents of this age group, more males and more in rural, reported the habit of chewing paan or paan masala with tobacco in the country.

There was a larger percentage of respondents than the national level with the habit of chewing paan or paan masala with tobacco in Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Orissa, rajasthan, and Uttar Pradesh, while there was a smaller percentage than the national level in the remaining states and union territories.

52 percent, across both sexes and places of residence had been chewing paan or paan masala for the last 5-10 years. Another one-third, more females, irrespective of places of residence, reported having had this habit for the last 5 years and below. Only 16 percent males, irrespective of places of residence, had been chewing paan or paan masala with tobacco for more than the last 10 years, in the country.

There was a comparatively larger percentage that had been chewing paan or paan masala with tobacco for the last 5-10 years in most of the states and union territories.

About 91 percent of the respondents, more females, irrespective of places of residence, were equally divided by number of times chewing tobacco i.e. less than 5 times and 5-10 times in the country.

There were more respondents chewing tobacco less than 5 times than 5-10 times and more in a day in the majority of states and union territories.

Only 13 percent, more males and more in rural, had the habit of consuming alcohol.

24-25 percent in Orissa and Goa, 33 percent in Chandigarh, 41 percent in Himachal Pradesh and 8-12 percent in the remaining states and union territories reported the habit of consuming alcohol. A larger percentage of them reported consuming alcohol occasionally in the country as well as in most of the states and union territories.

Table 5.6.5. Per cent respondents 65-74 year olds by Reported Smoking, Chewing Pan & Pan Masala and Alcohol taking habits and Age in India (rural, urban, males, females), States and Union Territories.

	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
65-74 Yrs																								
Smoking Habits	**12628**	**6152**	**9667**	**9113**	**18780**	**1806**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1448**	**997**	**697**	**1834**	**629**	**314**	**345**	**268**	**318**
Subjects smoking tobacco	27.1	17.6	37.9	9.0	23.7	27.4	9.7	25.8	21.7	45.5	36.0	21.0	14.8	11.5	14.8	31.0	11.8	21.7	11.4	36.2	17.5	14.8	25.8	21
Nature of Smoking	**3136**	**1078**	**3497**	**717**	**4214**	**522**	**53**	**583**	**195**	**301**	**244**	**269**	**121**	**155**	**290**	**499**	**122**	**166**	**221**	**227**	**56**	**57**	**67**	**66**
Chillum	2.6	3.9	3.4	4.5	3.0	0.0	0.0	3.2	5.1	4.2	0.6	2.4	0.0	2.7	5.2	14.1	2.9	13.3	0.0	4.1	0.0	0.0	0.0	43
Hookah	14.8	5.8	12.0	16.2	13.0	0.1	0.0	4.9	48.3	34.6	70.2	20.2	0.0	6.0	3.6	8.0	17.1	19.8	1.6	64.9	0.0	38.8	0.0	0
Cigars	10.8	8.5	8.3	19.3	10.3	62.6	1.0	1.2	0.5	1.2	0.0	0.6	5.9	8.0	15.5	28.2	0.0	0.3	7.3	1.4	3.9	0.0	0.0	13
Cigarettes	7.3	22.9	11.5	6.9	10.6	6.3	58.3	9.5	11.5	14.2	10.1	9.9	29.5	9.3	15.7	2.6	28.1	5.9	64.4	9.3	70.7	10.3	14.9	40
Bidis	39.7	48.0	42.8	31.6	41.0	24.1	40.8	81.3	34.1	46.0	15.3	67.0	64.7	71.3	58.6	43.7	52.0	56.9	26.9	20.4	25.5	51.0	55.9	4
Number of times Smoking in a day																								
< 10 times	75.7	77.6	73.3	86.0	76.2	85.4	97.1	69.0	75.0	88.6	89.2	72.5	84.9	84.7	79.0	96.6	94.9	78.5	81.1	78.9	88.7	80.9	74.8	92
10 - 20 times	20.3	18.7	22.6	11.7	20.2	8.0	2.9	25.9	22.0	4.7	9.2	16.0	10.3	13.3	16.0	2.7	4.6	11.7	9.1	21.2	11.4	14.1	21.0	3
20 + times	3.3	3.3	3.5	1.6	3.2	0.7	0.0	5.2	3.2	6.7	1.7	11.6	4.9	2.1	5.1	0.8	0.6	9.9	9.8	0.0	0.0	5.1	4.3	5
Chewing pan/pan masala habits	**12290**	**5980**	**9411**	**8859**	**18270**	**1790**	**617**	**2190**	**948**	**630**	**956**	**1260**	**799**	**1158**	**1566**	**1139**	**997**	**512**	**1834**	**629**	**314**	**345**	**268**	**318**
Chew pan or pan masala with tobacco	9.7	7.4	10.3	7.3	8.8	7.6	8.7	9.5	5.6	9.8	1.5	32.2	19.1	9.3	19.7	48.4	1.7	6.7	15.2	9.0	4.7	5.3	16.0	24
No. of yrs of chewing pan or pan masala	**1880**	**661**	**1459**	**1082**	**2541**	**156**	**52**	**200**	**55**	**53**	**10**	**359**	**177**	**114**	**302**	**512**	**15**	**41**	**258**	**56**	**20**	**17**	**41**	**103**
Less than 5 years	20.8	20.2	20.6	20.6	20.5	24.4	9.2	4.7	27.2	12.1	32.3	23.6	19.3	14.9	16.2	8.9	39.7	14.5	21.7	34.1	24.2	0.0	5.7	21
5-10 years	40.9	40.2	41.5	39.9	40.8	43.6	75.8	49.9	61.6	46.6	35.0	31.7	11.7	67.6	25.5	81.0	17.3	24.1	58.0	38.6	73.6	6.6	33.8	65
> 10 years	37.9	38.5	37.3	39.0	38.2	27.4	15.1	45.9	11.3	41.4	32.8	44.9	69.4	19.7	58.7	10.3	49.4	61.3	20.8	27.4	2.3	93.4	60.5	14
No. of times of chewing tobacco in a day																								
Less than 5 times	34.8	39.6	36.3	35.1	35.8	62.5	22.7	30.6	93.4	38.6	7.3	45.5	31.1	17.8	39.7	10.8	87.1	36.0	50.5	36.0	30.2	27.1	17.0	54
5 - 10 times	51.2	44.7	49.4	50.1	49.7	37.8	62.2	58.3	2.2	49.0	92.7	36.7	49.3	76.8	45.0	80.8	19.2	52.4	40.1	49.6	67.6	44.6	40.6	37
> 10 times	12.4	14.9	12.8	13.3	13.1	0.7	15.1	11.7	4.5	12.5	0.0	18.0	20.1	7.5	15.8	2.3	0.0	10.5	9.9	14.4	2.3	28.3	42.5	10
Alcohol consumption habits	**12597**	**6137**	**9651**	**9083**	**18734**	**1783**	**617**	**2190**	**948**	**630**	**955**	**1260**	**798**	**1158**	**1566**	**1427**	**997**	**697**	**1834**	**629**	**314**	**345**	**268**	**318**
Consuming alcohol	11.8	8.5	17.6	3.2	10.6	11.9	6.0	4.7	6.0	43.6	4.5	12.9	6.5	4.5	7.6	22.1	16.9	5.0	6.6	13.3	28.5	6.7	24.5	11
Frequency of alcohol consumption	**1687**	**609**	**1922**	**374**	**2296**	**239**	**29**	**63**	**62**	**298**	**106**	**158**	**100**	**57**	**146**	**370**	**206**	**42**	**117**	**82**	**87**	**27**	**65**	**42**
Daily	18.0	15.2	15.4	27.2	17.3	6.4	2.4	12.8	29.9	25.1	9.6	22.6	6.4	14.8	8.5	54.0	0.0	24.7	30.7	23.1	1.6	16.4	57.6	17
3 times a week	19.8	18.3	20.8	14.7	19.3	17.3	2.4	58.7	6.4	8.9	13.9	32.1	50.6	17.7	15.0	5.1	12.5	10.6	6.3	29.4	51.8	0.3	6.1	12
Occasionally	57.8	62.6	59.9	53.0	59.2	50.3	95.3	28.6	63.8	64.5	76.5	45.4	43.0	53.6	62.8	40.0	83.3	64.8	48.3	47.5	46.6	83.1	36.4	22

5.6.5 65-74 YEAR OLDS

About 24 percent, more males and more in rural, reported the habit of smoking tobacco in the country.

There were more smokers of tobacco than the national level (24 percent) in Andhra Pradesh, Gujarat, Himachal Pradesh, Jammu and Kashmir, Orissa, Uttar Pradesh, and Goa, while there was a smaller percentage than the national level in the remaining states and union territories.

As regards nature of smoking, 41 percent, more males and more in urban, reported smoking bidis. Another 11 percent, more males and more in urban, had the habit of smoking cigarettes. About 13 percent and 10 percent, more females and more in rural, had the habit of smoking hookah and cigars respectively in the country.

There was a comparatively larger percentage smoking Bidis in most of the states and union territories.

As regards number of times the respondents smoked in a day, 76 percent, more females, across places of residence, reported smoking less than 10 times a day. 24 percent, more males and more in rural, had the habit of smoking 10 and more times in a day in the country.

75-97 percent of respondents of this age group reported smoking less than 10 times in a day in the states and union territories.

9 percent, more males and more in rural, reported the habit of chewing paan/ paan masala in the country. As regards how long they had been chewing, 21 percent, 41 percent and 38 percent of these across both sexes and places of residence, had been chewing for the last 5 years and below, 5-10 years and more than 10 years respectively. When asked about the number of times they chewed per day, 36 percent, and 13 percent across both sexes and more in urban were chewing less than 5 times and more than 10 times a day respectively. About 50 percent of them, across both sexes and more in rural, had the habit of chewing 5-10 times in a day in the country.

The states and union territories differ greatly with regard to chewing paan/paan masala. 48 percent in Orissa, 32 percent in Karnataka and 15-24 percent in Kerala, Maharashtra, Tamil Nadu, Goa and Pondicherry, and 2 to 10 percent in the remaining states and union territories had the habit of chewing paan or paan masala with tobacco. As regards duration of chewing, 60-80 percent in Assam, Haryana, Madhya Pradesh, Orissa, Tamil Nadu Chandigarh and

Pondicherry, and less in the remaining states and union territories had been chewing for the last 5-10 years.

As regards consumption of alcohol, about 11 percent, more males and more in rural, reported taking alcohol. 59 percent of them, more males and more in urban, consumed it occasionally, while another 17 percent, more females and more in rural, reported taking alcohol daily in the country.

There was a comparatively larger percentage taking alcohol in Himachal Pradesh (43.6), Orissa (22.1), Chandigarh (28.5), Goa (24.5) than in the remaining states and union territories. Most of those consuming alcohol consumed it occasionally in most of the states and union territories.

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

About 23-24 percent, males with higher percentage across age groups, reported smoking tobacco in the country. About 50 percent of states and union territories had more smokers than the national level.

40-45 percent, males with higher percentage, across age groups were smoking bidi, followed by the habit of smoking cigarettes while was more males and more in urban across age groups.

About 76-86 percent of smokers, more females, across places of residence and age groups in country as well as in the states and union territories, reported smoking less than 10 times in a day.

9 percent, more males and more in rural, across age groups reported chewing paan or paan masala with tobacco in the country. The states and union territories differ greatly with regard to chewing of paan or paan masala. A high percentage reported chewing paan or paan masala in Orissa than in other states and union territories.

42-52 percent reported chewing paan or paan masala over the last 5-10 years.

About 11-13 percent, more males and more in rural, across age groups, reported the habit of consuming alcohol, and 50 and more percent of these were consuming alcohol occasionally.

CHAPTER VI

ORAL HEALTH STATUS

6.0 CLINICAL FINDINGS

The clinical findings are presented under the following broad heads:

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

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

Tables (tabulated data) and Figures (charts or graphs) accompany the narrative report. The tables present a detailed picture of the findings (male and female subjects) while figures present the high points of the prevalence patterns based on totals (percentages combined for male and female subjects). The tables are numbered based on the chapter and section they represent while the figures are similarly numbered and represent the tables from which the data is drawn. The figures are only selectively prepared and do not always follow a table. The consistency of numbering is maintained and therefore, certain numbers of figures may be absent. A complete list of tables and figures is separately included in the report.

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 WHO's Significant Caries Index (SIC) helps identify the high risk group in the surveyed population. The SIC Index is represented by the mean dmft/DMFT score of the one third of the population with the highest mean dmft/DMFT scores.

The root caries develops in the higher age groups and are therefore assessed for the age groups of 35-44 and 65-74 years subjects. Its greatest significance lies in the aging population i.e. 50-60 years or higher age groups.

The terms caries, dental caries and caries experience have been used interchangeably in this section to denote the levels of caries experience in the surveyed population groups. The term caries experience denotes the total cumulative impact of decay in the teeth of subjects till the day of examination. Caries experience includes the consequences of dental decay in the individuals such as teeth treated (filled); teeth filled but exhibiting secondary decay; and teeth extracted or missing due to caries. In contrast, the term dental caries would imply active and visible caries which denote decayed and filled teeth. The term caries experience is therefore preferred when describing the dmft/ DMFT levels in the population groups being studied. The dmft scores apply to primary or deciduous teeth while DMFT scores apply to permanent teeth. The distinction is important since the dmft/ DMFT index, by definition, includes teeth decayed, missing and filled, as per the criteria laid down by WHO. This assumes further importance in the case of individuals in the age groups 35-44 and 65-74 year, where WHO recommends that the `M' or Missing component in the DMFT Index includes teeth missing both due to caries and other reasons. Other reasons are usually recorded through a history taking process. These may be extractions or loss of teeth due to periodontal, traumatic or orthodontic reasons.

Dental caries (dmft/DMFT scores) was recorded both for primary (deciduous) and permanent dentition. It was recorded in this survey for all selected age groups (5, 12, 15, 35-44 and 65-74 year). The minimum dmft/DMFT score possible is 0 which denotes a caries-free dentition but the maximum dmft/DMFT score possible is the total number of teeth present in the individual. Therefore, in the 5 year age group, where only primary teeth are present, the maximum dmft score possible is 20; while in 12 and 15 years, the maximum DMFT score possible is 28 and in 35-44 and 65-74 year age group, the maximum DMFT score possible is 32. Conventionally, caries is described in defined population groups by the proportion of people which have no caries (dmft/DMFT=0); the proportion with dmft/DMFT=1 to 3; and the proportion with dmft/ DMFT level of 4 or more than 4. While this grouping is usually adequate, it fails to provide a more detailed picture of caries experience in the population.

In view of the limitations of the conventional grouping described above, we have introduced a modified grouping of dmft/ DMFT levels in population sub-groups based on the proportion of teeth affected out of those normally present or expected to be present in the individuals of specified age. The grouping is made so that dmft/ DMFT levels, besides a zero level (caries free), reflect upto one fourth or one quarter (1-25 per cent); one quarter to one half (25-50 per cent); one half to three fourth (50-75 per cent) and three fourth to whole dentition (75-100 per cent) of normally present teeth in individuals of specified age groups. This would help visualize the caries experience in terms of one or more quadrants where each quadrant represents 25 per cent of normally present teeth in an individual.

Table 6.01. Percent subjects with caries experience and with dmft/ DMFT values by age in India. (rural, urban, males & females), States & Union Territories.

Decayed, Missing & Filled Teeth	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	12623	6155	9991	8787	**18778**	1880	617	2017	926	629	941	1246	838	1143	1537	1523	996	805	1795	629	315	361	266	314
With caries experience	49.6	50.7	50.5	49.3	**50.0**	41.5	68.9	47.8	40.7	51.1	50.6	53.4	73.0	54.0	52.9	51.2	71.5	24.9	49.8	42.3	85.4	37.1	86.5	53.5
dmft value 1-3	25.0	27.3	25.7	25.9	**25.8**	20.6	19.1	25.3	21.2	33.4	25.8	25.4	34.6	35.1	26.3	19.4	41.0	17.4	24.1	29.4	70.2	24.6	25.3	21.1
dmft value 4-5	12.0	12.2	12.4	11.6	**12.1**	12.1	21.2	14.4	10.3	10.8	13.9	12.1	17.6	10.0	12.4	11.2	22.8	3.8	10.5	7.2	14.3	8.0	11.0	14.1
dmft value 6-10	10.5	9.2	10.3	9.9	**10.1**	7.5	27.3	7.0	8.7	5.9	9.6	12.5	17.6	7.4	12.9	17.5	6.5	3.5	11.9	4.1	1.0	3.1	30.7	14.3
dmft value 11-15	1.6	1.7	1.7	1.6	**1.7**	1.2	1.2	1.0	0.3	1.0	1.4	2.6	2.7	1.1	1.1	2.6	1.2	0.2	2.4	1.3	0.0	1.4	17.0	4.1
dmft value 16 or more	0.5	0.3	0.5	0.4	**0.4**	0.1	0.2	0.1	0.2	0.2	0.1	0.9	0.6	0.6	0.3	0.6	0.0	0.2	1.0	0.3	0.0	0.0	2.7	0.0
12 Yrs	12828	6313	9787	9354	**19141**	1881	617	2178	956	629	941	1272	785	1122	1588	1686	1004	762	1840	630	315	350	267	318
With caries experience	52.9	52.0	52.9	52.2	**52.5**	53.1	68.1	43.9	49.3	72.5	47.5	39.1	66.5	61.7	58.0	52.4	81.9	36.1	52.2	51.1	93.4	46.8	60.7	38.6
DMFT value 1-3	33.2	32.3	33.2	32.5	**32.9**	34.8	31.3	30.8	28.7	43.8	35.8	25.6	52.4	39.2	30.3	38.0	36.3	27.5	30.9	41.9	31.7	37.3	40.1	29.2
DMFT value 4-7	16.8	16.1	16.7	16.4	**16.5**	16.9	34.4	12.2	16.1	26.6	11.2	5.6	13.0	20.0	21.2	13.0	43.4	7.2	16.4	7.8	51.9	7.4	19.9	7.9
DMFT value 8-14	2.7	3.2	2.6	3.1	**2.8**	1.4	2.5	0.9	4.4	2.2	0.5	5.9	1.1	2.3	6.6	1.1	2.1	1.6	4.1	1.5	9.8	2.0	0.8	1.6
DMFT value 15-21	0.1	0.2	0.2	0.1	**0.1**	0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.0	0.0	0.0	0.1	0.2	0.0	0.3	0.0	0.0	0.0	0.0	0.0
DMFT value 22-28	0.2	0.3	0.3	0.2	**0.2**	0.0	0.0	0.0	0.1	0.0	0.0	1.5	0.2	0.4	0.0	0.1	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
15 Yrs	12635	6279	9793	9121	**18914**	1877	618	2178	959	629	940	1257	789	1155	1473	1668	1004	705	1801	631	314	334	268	314
With caries experience	60.6	63.0	61.1	61.7	**61.4**	57.9	69.6	64.2	57.7	75.4	62.7	46.6	68.0	72.6	65.0	56.3	90.7	39.1	60.9	73.4	96.5	54.8	67.2	46.1
DMFT value 1-3	32.3	33.4	32.5	32.8	**32.7**	35.7	24.0	38.2	26.1	34.8	37.6	33.7	54.5	34.2	32.7	32.2	22.7	28.2	28.4	49.1	19.1	37.8	42.2	28.1
DMFT value 4-7	23.9	24.3	23.8	24.3	**24.0**	19.8	40.0	23.8	23.6	33.7	21.3	10.5	12.5	33.5	25.5	21.8	60.3	7.1	23.0	21.7	61.5	15.0	20.9	15.3
DMFT value 8-14	4.1	5.1	4.4	4.4	**4.4**	2.4	5.5	2.4	7.8	6.8	3.8	2.0	0.8	4.2	6.5	1.9	7.8	3.7	8.2	2.6	15.9	1.8	3.8	2.6
DMFT value 15-21	0.2	0.2	0.1	0.2	**0.2**	0.1	0.2	0.0	0.1	0.0	0.1	0.5	0.3	0.2	0.2	0.3	0.0	0.1	0.2	0.0	0.0	0.3	0.4	0.3
DMFT value 22-28	0.2	0.0	0.2	0.2	**0.2**	0.0	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.5	0.0	0.1	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	13812	6799	10619	9992	**20611**	1943	638	2383	981	628	957	1278	992	1252	1639	1885	1026	1182	1907	628	315	387	272	318
With caries experience	78.7	80.3	77.3	81.0	**79.2**	76.7	78.1	78.2	77.2	96.5	87.2	73.9	87.7	84.8	77.6	69.2	96.0	66.0	80.4	94.3	97.5	77.4	86.4	83.4
DMFT value 1-3	23.4	24.2	24.0	23.4	**23.7**	29.2	16.0	16.8	22.0	11.2	21.6	29.8	26.9	22.6	27.4	25.2	7.2	39.3	22.5	20.3	4.5	34.7	23.3	28.3
DMFT value 4-8	34.9	35.7	34.2	36.1	**35.1**	35.7	39.3	37.0	34.4	36.5	39.0	32.7	47.2	36.7	39.2	36.3	38.9	17.1	35.0	46.8	36.5	28.0	31.3	40.6
DMFT value 9-16	17.5	17.7	16.7	18.4	**17.6**	10.7	21.1	19.1	18.9	44.5	20.3	9.8	11.6	23.9	10.2	6.7	47.7	7.5	17.7	24.3	55.6	13.5	20.9	12.3
DMFT value 17-24	1.8	1.8	1.7	2.0	**1.8**	0.7	1.8	2.9	1.7	3.5	5.0	1.3	1.6	0.8	0.6	0.7	2.2	1.0	3.5	1.6	1.0	1.1	8.1	1.3
DMFT value 25-28	0.3	0.3	0.3	0.4	**0.3**	0.1	0.0	0.1	0.1	0.2	0.6	0.3	0.2	0.0	0.1	0.2	0.1	1.2	0.8	0.6	0.0	0.0	1.9	0.3
DMFT value 29 or more	0.7	0.5	0.6	0.8	**0.7**	0.3	0.0	2.5	0.2	0.8	0.7	0.3	0.2	0.9	0.3	0.2	0.0	0.4	1.0	0.8	0.0	0.3	1.1	0.7
65-74 Yrs	12745	6184	9755	9174	**18929**	1864	618	2190	948	630	956	1261	799	1158	1565	1535	997	697	1835	629	314	347	268	318
With caries experience	84.2	85.6	84.4	84.9	**84.7**	88.8	90.3	81.9	79.5	99.2	97.4	77.7	71.4	63.9	84.8	81.3	92.3	81.2	84.6	97.2	99.7	94.0	96.3	87.1
DMFT value 1-3	8.6	7.3	8.1	8.2	**8.2**	12.2	5.2	3.7	6.1	1.0	3.3	11.8	5.2	5.7	11.1	9.1	0.3	14.5	11.4	3.5	1.3	10.5	6.0	16.7
DMFT value 4-8	14.9	15.7	15.5	14.9	**15.2**	23.9	21.7	7.3	10.2	5.6	10.5	18.5	16.3	11.5	22.1	17.1	5.5	15.9	18.8	14.5	11.5	17.0	12.0	17.3
DMFT value 9-16	20.2	21.7	20.7	20.6	**20.6**	22.0	36.9	19.1	18.0	20.5	21.8	21.1	28.7	20.4	21.4	29.1	8.7	16.1	17.5	33.1	20.1	18.7	18.4	11.4
DMFT value 17-24	12.1	11.8	11.5	12.4	**11.9**	9.4	7.5	17.2	9.3	18.4	18.9	11.4	12.5	8.6	7.9	10.5	12.7	11.3	10.0	17.0	18.5	7.9	22.4	12.3
DMFT value 25-28	6.7	5.6	6.5	6.2	**6.4**	3.0	0.5	3.6	19.0	6.2	12.0	5.2	5.2	2.8	4.6	2.5	2.7	23.4	4.7	4.2	0.6	2.6	12.7	7.3
DMFT value 29 or more	22.7	24.5	23.1	23.4	**23.3**	18.4	18.6	31.2	16.9	47.7	31.2	9.8	3.6	15.1	17.9	13.1	62.6	14.0	22.4	25.0	47.8	37.4	25.0	22.4

6.1.1 CORONAL CARIES

Table 6.01 presents the percentage of subjects by age and gender who were caries-free and those who had experienced caries (dmft/DMFT>0).

Table 6.02 presents the mean number of teeth decayed, missing and filled (mean dmft and mean DMFT) in the 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 percentage of subjects with missing teeth, due to caries and due to other reasons. This is presented only for age groups 35-44 and 65-74 years, since in these two age groups, the score for the Missing or `M' component of the DMFT includes both missing teeth due to caries or other reasons. In all other age groups, the `m' or `M' component only includes teeth missing due to caries.

Overall, the mean number of teeth present in the country in older adults (65-74 years) was about 19.1, indicating a mean loss of about 13 out the normally expected 32 teeth in this age group. The corresponding figure in the younger adults (35-44 years) was 30, indicating a mean loss of 2 teeth per mouth. In young children (5 years) with only primary teeth present, and in children (12 and 15 years), virtually the full dentition was present indicating no loss of teeth in these children. It appeared, therefore, that there was a rapid loss of teeth beyond the age of 35-44 years. The teeth reported missing in 35-44 years were mainly due to caries while reasons other than caries accounted for the majority of lost or missing teeth in older adults (65-74 years). These other reasons may be extraction or exfoliation of teeth due to periodontal disease; trauma; prosthetic or orthodontic (in their young age) reasons, in that order.

Caries experience was high in all age groups surveyed and the percentage of subjects with caries (dmft/ DMFT>0) increased as age advanced in the population surveyed. The percentage of subjects with caries experience ranged from about 50 per cent in primary teeth (5 years) to about 84.7 per cent in permanent teeth in older adults (65-74 years).

The dmft/ DMFT value of 1-3 teeth was most prevalent in children (5, 12 and 15 years). The percentage subjects with higher dmft/ DMFT values decreased as dmft/ DMFT values increased. However, in the age group of 65-74 years, the highest DMFT value of 25-32 was most prevalent, followed by the DMFT values of 9-16 and 4-8. In 35-44 years, the most prevalent DMFT value of 4-8 followed by 1-3.

In subjects aged 5 years with primary teeth, the vast majority of the affected children (about 37.9 per cent) had experienced caries in about 25 per cent of their teeth. If the 10.1 per cent subjects who had experienced caries in a quarter to one half (25-50 per cent) of their teeth were also included, then over 48 per cent of the 50 per cent affected subjects had experienced caries in one or more but not more than half of the teeth present.

In children aged 12 and 15 years, the vast majority had experienced caries in one or more but not more than one fourth of their total number of teeth. Almost all of the remaining subjects had experienced caries in upto one half of their teeth. The picture was similar in subjects in younger adults (35-44 years). However, in older adults (65-74 years), the vast majority had experienced caries in more than half and almost the whole of their dentition.

While the prevalence of caries experience was high across age groups, the number of affected teeth per individual (mean dmft/DMFT) in children and younger adults were relatively low ranging from about 1.7 in 12 years to 5.2 in 35-44 years. In 65-74 years, the mean DMFT of 14.6 indicates widespread caries or its consequences in individuals in this age group. The decayed teeth component (dt/DT) contributed most to the dmft/DMFT levels in children and younger adults while in the older adults (65-74 years), it was the missing teeth (MT) component which contributed the most. The filled teeth (ft/FT) component contributed only negligibly, if at all, to the dmft/DMFT values across age groups. This means that though the need for fillings existed, there were virtually no subjects with fillings in their teeth.

There were no marked gender related differentials in the prevalence and pattern of distribution of caries experience by dmft/ DMFT values. There were also no marked rural and urban differentials but urban residents appeared to have a marginally higher caries experience compared with their rural counterparts, across age groups.

The SiC Index was about 2 to 2.5 times higher than the mean dft/DMFT levels across age groups. Thus there was a group of subjects which had a considerably higher caries than others in their age range. It would be important to identify this group amongst the subjects in each age range and in their local geographic areas to consider special treatment strategies that would reach and benefit them.

In the majority of the states surveyed, the children aged 5 years had a caries prevalence range of 40-60 per cent. The prevalence was below the average for the country for this age group in Delhi (37.1 per cent) and Rajasthan. In the states namely Assam, Kerala and Punjab, caries was prevalent in 60-80 per cent of the population in this age while the prevalence was highest in Goa (86.5 per cent) and Chandigarh (85.4 per cent). The mean dmft, in most states, ranged between 1.3 and 3 in children (5 years). However, the mean dmft was higher in Assam (3.7) and in Kerala (3.3). The dmft peaked in the state of Goa where it nearly approached 6 (5.9). The mean dmft was markedly low in Rajasthan.

In children (12 and 15 years), the majority of the states surveyed had a caries prevalence ranging between 40 and 80 per cent. In the two northern and closely associated states of Punjab and Chandigarh (Union Territory), the caries prevalence was between 81 and 97 per cent. The prevalence in Punjab was about 81 and 93.4 per cent respectively in 12 and 15 year olds while the corresponding figures for Chandigarh stood at 91 and 96.5 per cent. Caries prevalence was reportedly the lowest in Rajasthanfor 12 year olds (36.1 per cent) and for 15 year olds (39.1 per cent). The mean DMFT at 12 years ranged between 1 and 3 in the majority of the states but was exceptionally high in Chandigarh (4.5). The mean DMFT at 15 years was between 2 and 4 in most of the states surveyed. In Punjab and Chandigarh, the mean DMFT was 4.2 and 5.0 respectively. The lowest mean DMFT figures were reported from Rajasthan for 12 years (0.97) and 15 year olds (1.2)

In adults (35-44 and 65-74 years), the caries prevalence was remarkably higher than in other age groups in the states. In at least half of the states surveyed, caries was experienced by 80 to 96.5 per cent subjects, the highest (96.5 per cent) being in Himachal Pradesh. The state of Rajasthan recorded the lowest caries prevalence in the age group 35-44 years (66.0 per cent). Eleven out of the 19 states surveyed recorded a high mean DMFT value of between 5 and 10 in the 35-44 year age-group. The highest DMFT values in the age group were recorded in Himachal Pradesh (9.6) and Chandigarh (9.5).

In 16 out of the 19 states surveyed, caries was experienced by 80 to 100 per cent of the population in the age group of 65-74 years. Chandigarh recorded a caries prevalence which nearly approached cent per cent (99.7) in this age-group while Kerala had the lowest prevalence (71.4) of caries experience. The mean DMFT was lowest in Kerala (10.5) and the highest in Himachal Pradesh (24.1) in this age group. The mean number of teeth missing due to caries was very high (20.7 and 18.0 respectively) in Himachal Pradesh and Chandigarh while Gujarat reported the highest mean number of teeth missing due to reasons other than caries (17.2).

In summary therefore, caries experience and mean DMFT increased as age advanced across age and gender groups. Many states recorded higher prevalence than the national average of caries experience across age groups. Punjab, Chandigarh and Himachal Pradesh were amongst the worst affected states as far as caries prevalence and mean number of affected teeth were concerned in adults.

Table 6.02. Mean number of decayed, missing and filled teeth, by age in India. (rural, urban, males & females), States & Union Territories.

Decayed, Missing & Filled Teeth	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	12623	6155	9991	8787	**18778**	1880	617	2017	926	629	941	1246	838	1143	1537	1523	996	805	1795	629	315	361	266	314
Mean no. of teeth present (mnt)	19.9	19.9	19.9	19.9	**19.9**	19.9	20.0	19.9	19.9	20.0	20.0	19.8	19.8	19.9	19.9	19.9	20.0	19.8	19.8	19.9	20.0	19.9	20.0	20.0
Mean dmft	1.9	1.8	1.9	1.8	**1.9**	1.5	3.7	1.9	1.3	2.0	1.8	2.4	3.3	1.9	1.9	2.6	2.4	0.7	2.3	1.4	2.3	1.3	5.9	2.5
Mean no. of decayed teeth (dt)	1.9	1.7	1.9	1.7	**1.8**	1.5	3.6	1.8	1.3	1.9	1.8	2.3	3.2	1.8	1.9	2.6	2.4	0.7	2.2	1.3	1.8	1.2	5.9	2.4
Mean no. of missing teeth (mt)	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	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1
Mean no. of filled teeth (ft)	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.1
SIC Index	5.4	5.2	5.3	5.2	**5.3**	4.6	7.1	4.6	4.4	4.2	5.2	6.3	6.9	4.7	5.7	6.8	5.0	2.3	6.2	3.7	3.7	3.5	11.4	7.0
No. of subjects Edentulous	1	0	0	1	**1**	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
12 Yrs	12643	6186	9627	9202	**18829**	1869	616	2011	951	629	940	1272	784	1115	1575	1614	996	762	1818	629	315	349	267	317
Mean no. of teeth present (MNT)	27.0	27.0	27.0	27.1	**27.1**	28.0	28.0	27.3	26.5	28.0	28.0	27.9	27.9	26.8	26.3	27.5	26.7	24.0	25.8	27.9	28.0	27.2	28.0	25.6
Mean DMFT	1.7	1.8	1.7	1.7	**1.7**	1.7	2.6	1.3	1.5	2.7	1.1	1.9	1.7	1.9	1.8	1.4	2.9	0.9	2.5	1.3	4.5	1.2	1.8	1.2
Mean no. of decayed teeth (DT)	1.6	1.7	1.6	1.6	**1.6**	1.6	2.6	1.3	1.5	2.6	1.1	1.8	1.6	1.9	1.7	1.4	2.9	0.9	2.5	1.2	3.4	1.1	1.7	1.1
Mean no. of missing teeth (MT)	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Mean no. of filled teeth (FT)	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.1	0.1
SIC Index	4.3	4.6	4.5	4.5	**4.5**	3.9	5.1	3.5	4.6	5.1	3.1	5.4	3.7	4.8	5.3	3.6	5.2	2.6	5.0	3.3	7.0	3.1	4.2	3.0
No. of subjects Edentulous	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15 Yrs	12423	6151	9624	8950	**18574**	1856	617	2013	951	629	938	1251	787	1152	1462	1582	995	697	1786	628	314	334	268	314
Mean no. of teeth present (MNT)	27.9	27.9	27.9	27.9	**27.9**	27.9	28.0	27.8	28.0	28.0	27.9	27.9	27.9	27.9	28.0	27.9	28.0	28.0	27.9	27.8	28.0	28.0	27.9	27.9
Mean DMFT	2.2	2.3	2.3	2.3	**2.3**	2.0	3.1	2.2	2.1	3.4	1.9	1.5	1.8	2.7	2.3	1.8	4.2	1.2	3.4	2.2	5.0	1.7	2.2	1.7
Mean no. of decayed teeth (DT)	2.1	2.1	2.2	2.2	**2.2**	1.9	3.0	2.1	2.1	3.2	1.8	1.4	1.6	2.6	2.3	1.8	4.1	1.1	3.4	2.0	3.8	1.6	2.0	1.6
Mean no. of missing teeth (MT)	0.1	0.0	0.1	0.1	**0.1**	0.1	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	0.1	0.0	0.0	0.1	0.1
Mean no. of filled teeth (FT)	0.0	0.1	0.0	0.0	**0.0**	0.1	0.0	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.1	1.3	0.2	0.2	0.0
SIC Index	5.3	5.4	5.4	5.3	**5.4**	4.5	6.0	4.9	6.1	6.1	4.9	3.9	3.7	6.0	5.7	4.7	6.8	3.4	6.8	4.7	7.6	4.1	5.1	4.1
No. of subjects Edentulous	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35-44 Yrs	13422	6587	10279	9730	**20009**	1916	618	2020	971	628	941	1264	983	1245	1636	1786	1020	1179	1886	628	315	384	272	317
Mean no. of teeth present (MNT)	29.9	30.3	30.1	29.9	**30.0**	30.8	31.3	29.0	30.4	28.2	29.4	30.2	29.5	30.3	30.8	31.3	30.4	30.7	30.8	28.8	31.0	30.5	29.2	29.4
Mean DMFT	5.3	4.9	4.9	5.4	**5.2**	3.9	5.5	5.9	4.4	9.6	5.7	3.9	5.1	5.7	4.0	3.4	8.2	2.8	5.8	6.6	9.5	3.9	7.0	4.7
Mean no. of decayed teeth (DT)	3.1	3.1	3.1	3.2	**3.1**	2.6	4.7	2.8	2.7	5.5	3.1	1.9	2.3	4.0	2.8	2.7	6.5	1.5	4.5	3.2	5.4	2.3	3.5	2.1
Mean no. of missing teeth (MT)	2.1	1.7	1.9	2.1	**2.0**	1.2	0.8	3.0	1.6	3.8	2.6	1.8	2.6	1.7	1.2	0.7	1.6	1.3	1.3	3.3	1.1	1.6	2.9	2.6
Mean no. of filled teeth (FT)	0.1	0.2	0.1	0.1	**0.1**	0.1	0.0	0.1	0.1	0.3	0.0	0.2	0.3	0.1	0.0	0.0	0.1	0.0	0.1	0.1	3.1	0.2	0.6	0.0
SIC Index	10.7	10.6	10.2	10.9	**10.6**	8.4	10.2	12.7	10.4	13.7	12.7	8.4	9.1	11.2	8.3	7.7	13.5	7.0	12.0	11.7	12.8	8.5	14.6	9.7
No. of subjects Edentulous	64	19	37	46	**83**	3	0	30	0	1	1	2	1	2	1	0	0	1	3	3	0	1	1	1
65-74 Yrs	11888	5738	9083	8543	**17626**	1841	616	1863	829	629	939	1241	598	868	1490	1451	941	683	1771	626	313	346	264	317
Mean no. of teeth present (MNT)	19.2	19.1	19.3	18.9	**19.1**	21.4	22.1	14.5	20.2	10.8	16.9	22.9	23.3	22.2	19.8	22.1	10.1	21.9	21.6	15.9	14.0	15.2	16.9	19.3
Mean DMFT	14.5	14.6	14.5	14.8	**14.6**	12.8	13.3	18.8	12.8	24.1	18.4	10.6	10.5	11.4	13.7	11.8	23.8	11.2	13.3	17.6	22.8	17.9	18.8	13.7
Mean no. of decayed teeth (DT)	1.6	1.7	1.7	1.7	**1.7**	2.2	3.4	1.3	0.9	2.8	3.3	1.5	1.7	1.5	1.5	1.9	1.9	1.1	2.8	1.5	3.5	1.0	3.6	1.0
Mean no. of missing teeth (MT)	12.8	12.9	12.7	13.1	**12.9**	10.7	9.9	17.6	11.9	21.2	15.1	9.1	8.8	9.9	12.3	9.9	21.9	10.2	10.5	16.1	18.1	16.9	15.1	12.8
Mean no. of filled teeth (FT)	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3	0.1	0.1	0.0
SIC Index	29.3	29.8	29.5	29.6	**29.5**	26.7	25.8	31.5	29.6	32.0	31.3	23.4	20.1	24.9	26.8	24.0	32.0	25.7	29.2	29.9	32.0	32.0	30.2	29.7
No. of subjects Edentulous	2194	1191	1724	1660	**3382**	137	44	316	69	134	90	67	6	73	113	79	299	41	157	66	73	63	16	28

Table 6.03. Mean number of teeth missng due to caries or other reasons by age in India (rural, urban, males & females), States & Union Territories.

Missing Teeth	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs	**13422**	**6587**	**10279**	**9730**	**20009**	**1916**	**618**	**2020**	**971**	**628**	**941**	**1264**	**983**	**1245**	**1636**	**1786**	**1020**	**1179**	**1886**	**628**	**315**	**384**	**272**	**317**
Mean no. of teeth missing due to caries	1.0	1.0	1.0	1.2	1.1	0.8	0.8	0.3	0.9	3.5	2.6	0.5	2.3	0.7	0.7	0.4	1.2	0.4	1.0	1.8	0.9	1.2	1.6	2.1
Mean no. of teeth missing due to other reason	1.0	0.7	0.8	1.0	0.9	0.4	0.0	2.8	0.7	0.4	0.0	0.8	0.3	1.0	0.5	0.3	0.5	0.9	0.3	1.5	0.2	0.3	1.4	0.6
65-74 Yrs	**11888**	**5738**	**9083**	**8543**	**17626**	**1841**	**616**	**1863**	**829**	**629**	**939**	**1241**	**598**	**868**	**1490**	**1451**	**941**	**683**	**1771**	**626**	**313**	**346**	**264**	**317**
Mean no. of teeth missing due to caries	3.3	3.4	3.2	3.4	3.3	2.1	9.8	0.3	2.2	20.7	14.8	0.8	6.2	1.7	3.0	1.1	16.5	1.7	4.1	1.9	18.0	6.3	6.8	3.4
Mean no. of teeth missing due to other reason	9.4	9.4	9.4	9.5	9.4	8.6	0.1	17.2	9.7	0.6	0.4	8.9	2.6	8.2	9.3	8.9	5.5	8.4	6.4	14.3	0.1	10.6	8.4	9.4

Table 6.04. Percent subjects with root caries and root fillings by age, in India (rural, urban, males & females), States & Union Territories.

Root caries & root fillings	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs	**13812**	**6799**	**10619**	**9992**	**20611**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
% subjects with Root caries	4.5	2.6	3.5	4.4	3.9	7.0	6.6	2.9	7.7	19.7	0.5	14.2	24.8	5.8	7.7	1.0	22.2	2.8	13.3	15.5	15.6	14.1	35.3	17.4
Mean nos of teeth with Root caries	0.3	0.2	0.2	0.3	0.2	0.2	0.2	0.1	0.7	0.5	0.0	0.4	0.6	0.3	0.2	0.0	0.7	0.1	0.6	0.4	0.7	0.4	1.3	0.5
% subjects with Root fillings	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.0	0.0	0.3	0.1	0.1	0.2	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Mean no. of teeth with Root fillings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-74 Yrs	**12706**	**6153**	**9709**	**9150**	**18859**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**798**	**1144**	**1525**	**1535**	**993**	**697**	**1835**	**621**	**314**	**347**	**268**	**315**
% subjects with Root caries	6.1	3.7	5.7	4.9	5.4	7.9	9.5	4.4	7.2	25.1	0.8	18.2	25.1	2.8	10.9	3.9	14.2	3.6	16.4	15.1	25.0	20.0	49.8	13.7
Mean nos of teeth with Root caries	0.4	0.4	0.4	0.4	0.4	0.4	0.8	0.2	1.0	1.0	0.1	0.7	1.1	0.3	0.4	0.2	1.2	0.3	1.1	0.5	0.7	0.9	2.6	0.9
% subjects with Root fillings	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
Mean no. of teeth with Root fillings	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

6.1.2. ROOT CARIES

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

Unlike coronal caries, root caries does not appear in children. Therefore the data on root caries is presented only for adults (35-44 and 65-74 years).

Root caries was recorded in about 3.9 and 5.4 per cent subjects in the country in the age groups of 35-44 and 65-74 years respectively. The prevalence of root caries appeared to be higher in rural areas than in urban areas in both age groups. In the 35-44 years age group, root caries appeared in more females than males while the opposite was true in older adults aged 65-74 years.

The mean number of teeth affected with root caries was less than one tooth in both age groups (0.2 and 0.4 teeth respectively in 35-44 and 65-74 years age groups). There were virtually none or a negligibly small number of subjects with root fillings in the age groups surveyed.

The picture was more or less similar in states and there were no apparent gender based differentials or differentials by geographical area or in between regions.

Table 6.05. Percent subjects with treatment need by age, in India. in India (rural, urban, males & females), States & Union Territories.

Treatment need	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**12855**	**6264**	**10159**	**8960**	**19119**	**1896**	**617**	**2173**	**954**	**630**	**944**	**1468**	**630**	**1154**	**1549**	**1603**	**1001**	**805**	**1808**	**630**	**315**	**362**	**266**	**314**
Treatment needed	49.4	48.0	49.4	48.2	49.0	39.1	66.6	46.2	40.4	76.2	46.0	55.5	69.8	53.5	49.8	47.8	67.6	40.5	48.2	42.7	85.8	40.2	87.8	53.3
Preventive care & fissure sealant	4.4	3.8	4.1	4.5	4.3	2.2	2.1	3.9	0.7	18.7	0.0	4.5	0.0	7.8	0.8	1.2	3.2	26.2	9.6	0.5	0.0	0.4	2.8	0.0
Filling one or more surfaces	43.1	41.6	43.4	41.0	42.6	36.5	64.4	37.6	36.7	65.0	45.1	49.6	65.5	47.2	45.5	40.3	64.8	17.5	38.6	37.2	85.8	39.8	83.0	50.3
Crown & Veneer	0.3	0.6	0.3	0.6	0.4	0.0	0.1	0.7	0.2	0.0	0.0	0.3	0.1	0.6	0.4	0.9	0.0	0.7	0.4	0.3	0.0	0.0	0.8	0.0
Pulp care	3.9	4.5	3.9	4.5	4.1	1.0	0.9	5.4	2.5	3.6	0.0	9.6	20.7	4.6	6.6	0.3	3.3	1.7	1.9	4.1	0.0	0.1	44.5	6.5
Extraction	6.3	4.1	6.4	4.0	5.5	2.1	15.6	1.0	1.8	1.7	6.1	7.3	13.1	0.9	4.7	23.7	1.5	3.3	1.8	8.2	0.0	2.0	18.2	5.1
Need for other care	1.0	1.4	0.9	1.5	1.1	0.7	0.6	6.0	2.8	0.1	0.2	1.0	1.6	1.5	0.9	0.5	0.6	1.7	0.3	0.5	0.0	0.0	0.0	1.1
12 Yrs	**12830**	**6313**	**9788**	**9355**	**19143**	**1881**	**617**	**2178**	**956**	**629**	**941**	**1428**	**629**	**1124**	**1588**	**1686**	**1004**	**762**	**1840**	**630**	**315**	**350**	**267**	**318**
Treatment needed	59.7	58.3	59.7	58.3	59.3	54.8	68.5	47.5	56.4	84.8	53.4	56.9	73.6	65.7	64.2	51.8	82.2	46.9	64.1	56.9	95.8	55.9	73.5	52.0
Preventive care & fissure sealant	3.8	4.5	3.7	4.6	4.0	2.3	0.0	3.9	2.7	0.0	0.0	6.0	0.0	6.4	2.5	1.1	1.6	13.5	6.2	0.9	0.0	0.0	35.9	0.0
Filling one or more surfaces	49.8	49.0	50.1	48.5	49.4	51.3	66.0	36.0	46.0	82.3	41.6	39.4	52.7	57.8	57.4	45.0	80.1	27.7	58.3	45.6	94.9	51.4	35.2	49.5
Crown & Veneer	3.0	1.9	3.0	2.0	2.6	1.4	0.1	0.7	0.7	0.0	0.0	0.2	0.0	1.7	0.8	0.6	1.5	2.8	0.9	8.6	1.3	0.1	1.1	1.1
Pulp care	3.3	3.6	3.3	3.7	3.4	2.4	4.2	3.6	2.1	7.5	0.3	4.0	2.8	5.3	4.9	1.1	2.9	1.5	1.8	2.6	3.0	3.2	14.5	1.7
Extraction	9.1	6.3	9.1	6.6	8.1	2.8	6.8	1.9	2.8	2.3	3.3	16.2	33.8	8.2	8.5	13.7	1.1	11.3	2.5	9.4	0.0	6.1	36.5	4.4
Need for other care	3.3	3.5	3.2	3.7	3.4	1.4	0.6	6.4	10.5	0.9	14.2	4.4	3.0	6.9	2.1	2.6	1.6	7.9	2.5	1.3	0.0	1.7	3.1	3.3
15 Yrs	**12635**	**6279**	**9793**	**9121**	**18914**	**1877**	**618**	**2178**	**959**	**629**	**940**	**1417**	**629**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Treatment needed	65.3	64.4	65.4	64.4	65.0	58.4	68.6	65.2	63.4	86.8	59.5	56.6	66.1	69.5	63.2	54.2	87.6	49.9	66.6	73.3	97.1	58.8	77.3	46.7
Preventive care & fissure sealant	3.9	4.8	3.6	5.2	4.2	2.3	0.0	5.0	2.8	0.0	0.0	10.0	0.0	3.2	2.5	0.6	1.5	10.7	3.9	1.1	0.0	0.0	36.2	0.0
Filling one or more surfaces	58.0	56.6	58.3	56.1	57.5	55.4	67.0	47.5	48.7	83.8	55.1	44.5	63.3	63.4	59.2	49.0	85.1	33.1	60.8	67.0	94.1	54.9	55.3	43.1
Crown & Veneer	4.0	2.7	3.9	2.7	3.5	1.2	0.3	1.6	1.3	1.0	0.0	0.9	0.4	3.7	0.3	0.2	2.2	2.6	1.2	11.9	1.4	0.0	1.1	0.7
Pulp care	5.1	5.3	5.1	5.2	5.1	4.6	6.7	7.0	4.1	13.1	0.3	4.6	4.7	10.5	5.5	2.1	4.5	2.5	1.8	4.8	36.1	0.9	24.3	3.8
Extraction	4.4	3.7	4.5	3.6	4.2	4.0	6.5	1.1	2.2	1.0	8.2	4.5	5.8	1.5	3.5	12.6	0.5	2.2	2.5	5.2	0.2	3.5	25.5	5.5
Need for other care	4.7	4.7	4.9	4.7	4.8	2.4	1.7	15.4	18.4	2.8	7.1	5.2	3.2	6.2	2.1	5.2	2.8	13.4	4.1	0.3	1.0	3.9	4.5	6.6
35-44 Yrs	**13812**	**6799**	**10619**	**9992**	**20611**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1642**	**628**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Treatment needed	78.5	76.8	78.4	77.0	78.0	78.2	76.8	69.9	83.3	97.7	83.4	73.9	86.6	82.0	76.9	66.3	93.1	70.3	79.2	93.3	96.8	74.9	84.2	84.3
Preventive care & fissure sealant	0.8	1.8	0.8	1.8	1.0	0.1	0.0	1.9	1.0	0.0	0.0	0.8	0.0	2.6	0.6	1.0	1.0	0.3	2.6	0.0	0.0	0.0	6.5	0.0
Filling one or more surfaces	59.1	58.3	59.3	57.9	58.8	62.6	62.0	47.9	55.2	89.4	62.4	51.6	63.6	64.2	58.6	55.4	88.2	37.1	65.0	80.8	94.7	59.2	56.7	59.6
Crown & Veneer	8.7	5.0	8.7	4.9	7.4	1.3	0.3	0.4	2.4	0.2	0.6	1.6	1.6	4.8	1.7	1.2	2.0	1.4	3.6	31.4	6.7	0.1	1.7	0.3
Pulp care	7.3	7.1	7.3	7.2	7.3	4.4	13.3	12.7	5.1	14.0	1.3	7.3	8.5	12.1	9.1	6.6	4.4	5.6	2.5	9.4	12.7	2.7	21.4	8.6
Extraction	20.1	15.4	19.8	16.0	18.4	29.7	36.2	12.4	14.3	29.3	39.0	22.8	27.6	25.2	20.2	30.7	22.4	21.5	15.2	31.8	11.7	12.9	52.2	31.6
Need for other care	30.2	28.4	30.1	28.8	29.7	22.4	20.4	39.9	44.1	63.1	60.0	38.8	42.0	38.5	22.6	20.2	34.4	37.6	26.0	28.1	15.5	35.2	57.3	45.9
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1430**	**630**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
Treatment needed	81.2	79.3	81.2	79.2	80.5	87.2	87.5	59.6	62.4	87.1	95.9	77.0	60.0	66.0	85.4	73.3	79.7	80.8	81.7	94.5	63.9	95.0	96.3	85.7
Preventive care & fissure sealant	0.2	0.8	0.2	0.8	0.4	0.0	0.0	0.5	0.2	0.0	0.0	0.2	0.0	0.8	0.0	1.0	0.3	0.4	2.9	0.0	0.0	0.0	0.0	0.0
Filling one or more surfaces	25.6	25.4	25.7	25.1	25.5	38.3	19.9	18.8	16.7	29.8	38.6	22.5	26.9	23.9	22.8	24.1	19.4	12.7	35.3	42.0	46.4	29.3	17.6	23.0
Crown & Veneer	3.7	4.8	3.7	4.8	4.1	0.7	0.7	0.2	1.0	0.9	1.4	1.1	0.7	2.1	1.3	1.3	2.2	1.5	3.8	15.9	2.3	0.4	0.0	1.4
Pulp care	2.5	2.1	2.4	2.2	2.4	1.9	1.3	1.0	2.2	1.5	0.0	4.0	4.4	3.2	3.4	5.2	1.2	3.2	1.6	2.7	12.5	1.4	4.5	4.5
Extraction	27.6	22.5	27.4	23.3	26.0	45.4	31.9	18.1	20.0	34.0	47.5	39.5	27.8	19.1	27.8	33.5	16.7	33.4	18.5	26.4	20.7	20.3	72.5	33.7
Need for other care	64.7	61.3	64.8	61.2	63.4	61.0	67.0	46.1	49.6	84.5	92.4	62.7	45.5	53.5	67.3	51.6	72.3	64.1	57.3	77.9	33.4	84.4	91.2	72.9

Table 6.06. Mean number of sextants with treatment need by age in India. (rural, urban, males & females), States & Union Territories.

Treatment need		India					States/ Union Territories																		
		R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**n=**	**12518**	**6103**	**9917**	**8704**	**18621**	**1883**	**617**	**2017**	**934**	**628**	**943**	**1248**	**832**	**1143**	**1534**	**1454**	**995**	**756**	**1771**	**610**	**315**	**361**	**266**	**314**
Treatment needed		2.4	2.2	2.3	2.3	2.2	1.6	3.4	1.7	1.8	2.8	1.8	1.9	3.2	1.8	2.0	2.5	2.5	5.5	2.7	1.3	1.9	1.2	5.9	2.4
Preventive care & fissure sealant		0.4	0.4	0.4	0.4	0.4	0.1	0.0	0.1	0.0	0.8	0.0	0.2	0.0	0.3	0.0	0.0	0.1	4.5	0.8	0.0	0.0	0.0	0.1	0.0
Filling one or more surfaces		1.5	1.4	1.5	1.5	1.5	1.4	3.0	1.3	1.3	2.0	1.6	1.4	2.4	1.3	1.6	1.4	2.2	0.5	1.8	1.0	1.9	1.2	4.0	2.1
Crown or 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	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Pulp care		0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.1	0.4	0.1	0.2	0.0	0.1	0.1	0.1	0.1	0.0	0.0	1.5	0.2
Extraction		0.2	0.1	0.2	0.2	0.2	0.0	0.3	0.0	0.0	0.0	0.2	0.2	0.3	0.1	0.2	0.9	0.1	0.1	0.1	0.3	0.0	0.1	0.5	0.1
Need for other care		0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.2	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0
12 Yrs	**n=**	**12596**	**6181**	**9604**	**9173**	**18777**	**1869**	**616**	**2011**	**947**	**629**	**940**	**1272**	**776**	**1123**	**1582**	**1578**	**997**	**756**	**1803**	**629**	**315**	**350**	**267**	**317**
Treatment needed		2.9	3.0	3.0	2.9	2.9	1.7	2.6	1.5	3.7	2.7	1.4	2.9	2.4	2.4	2.2	1.6	3.3	4.9	3.0	1.6	3.5	1.5	2.5	1.7
Preventive care & fissure sealant		0.3	0.3	0.3	0.3	0.3	0.1	0.0	0.1	0.1	0.0	0.0	0.4	0.0	0.3	0.1	0.0	0.1	2.3	0.4	0.0	0.0	0.0	0.7	0.0
Filling one or more surfaces		1.9	2.1	2.0	2.0	2.0	1.5	2.4	1.2	1.5	2.5	1.0	1.6	1.1	1.7	1.8	1.2	2.9	0.6	2.5	1.1	3.4	1.4	0.7	1.5
Crown or Veneer		0.1	0.0	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	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.0	0.0
Pulp care		0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.3	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0
Extraction		0.3	0.2	0.3	0.3	0.3	0.1	0.1	0.0	0.1	0.1	0.0	0.5	1.2	0.2	0.2	0.3	0.0	0.4	0.0	0.3	0.0	0.1	0.9	0.1
Need for other care		0.2	0.2	0.2	0.3	0.2	0.1	0.0	0.1	2.1	0.0	0.4	0.3	0.0	0.2	0.0	0.1	0.2	1.4	0.1	0.0	0.0	0.0	0.1	0.1
15 Yrs	**n=**	**12372**	**6133**	**9589**	**8916**	**18505**	**1857**	**617**	**2013**	**944**	**629**	**937**	**1248**	**780**	**1151**	**1462**	**1558**	**994**	**693**	**1772**	**621**	**314**	**334**	**268**	**313**
Treatment needed		2.9	2.8	2.9	3.0	2.9	2.0	3.1	2.5	5.9	3.3	1.9	2.2	1.7	2.7	2.3	2.0	4.3	6.5	3.4	2.2	3.9	1.8	3.0	1.8
Preventive care & fissure sealant		0.3	0.3	0.2	0.3	0.3	0.1	0.0	0.2	0.1	0.0	0.0	0.7	0.0	0.1	0.1	0.0	0.0	2.5	0.3	0.0	0.0	0.0	0.9	0.0
Filling one or more surfaces		2.0	1.9	2.0	2.0	2.0	1.7	2.8	1.8	1.9	3.1	1.7	1.1	1.5	2.2	2.0	1.6	3.8	0.9	2.9	1.9	3.4	1.6	1.3	1.5
Crown or Veneer		0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.1	0.2	0.0	0.0	0.0	0.0
Pulp care		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.2	0.0	0.1	0.1	0.2	0.1	0.0	0.1	0.0	0.0	0.1	0.4	0.1	0.4	0.0
Extraction		0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.5	0.1
Need for other care		0.4	0.3	0.4	0.3	0.4	0.1	0.0	0.4	3.7	0.0	0.1	0.2	0.1	0.1	0.1	0.2	0.4	2.8	0.2	0.0	0.1	0.1	0.1	0.1
35-44 Yrs	**n=**	**13371**	**6577**	**10249**	**9699**	**19948**	**1915**	**618**	**2020**	**969**	**628**	**941**	**1276**	**972**	**1243**	**1632**	**1752**	**1019**	**1179**	**1868**	**628**	**315**	**384**	**272**	**317**
Treatment needed		6.3	5.5	5.9	6.3	6.1	4.5	5.4	5.1	11.3	8.7	5.2	3.5	4.6	5.4	3.8	3.3	8.0	8.4	6.0	6.4	5.9	3.9	6.3	5.2
Preventive care & fissure sealant		0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.1	0.0
Filling one or more surfaces		2.7	2.8	2.8	2.8	2.8	2.4	2.8	2.3	2.3	4.5	1.9	1.3	2.0	2.9	2.4	1.9	5.7	1.0	3.8	2.9	4.8	2.3	1.5	2.5
Crown or Veneer		0.3	0.1	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.1	0.9	0.1	0.0	0.0	0.0
Pulp care		0.2	0.1	0.2	0.2	0.2	0.1	0.5	0.3	0.1	0.2	0.0	0.1	0.1	0.3	0.1	0.1	0.1	0.1	0.0	0.2	0.2	0.1	0.3	0.2
Extraction		0.9	0.6	0.7	0.9	0.8	0.8	1.5	0.3	0.6	1.1	1.2	0.9	0.9	0.8	0.5	0.7	0.7	0.6	0.6	0.9	0.4	0.4	1.8	1.0
Need for other care		2.3	1.8	2.1	2.2	2.1	1.3	0.8	2.2	8.3	2.9	2.2	1.2	1.6	1.4	0.8	0.6	1.5	6.7	1.3	1.6	0.5	1.2	2.5	1.7
65-74 Yrs	**n=**	**11663**	**5646**	**8943**	**8366**	**17309**	**1843**	**616**	**1789**	**678**	**629**	**938**	**1240**	**529**	**895**	**1473**	**1426**	**923**	**687**	**1775**	**628**	**313**	**346**	**264**	**317**
Treatment needed		15.5	14.7	15.3	15.5	15.4	11.8	13.4	11.1	12.6	20.6	16.9	15.7	7.0	10.4	13.0	9.4	20.3	15.4	13.8	15.7	9.5	16.3	19.2	15.4
Preventive care & fissure sealant		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	0.0	0.1	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0
Filling one or more surfaces		1.1	1.3	1.2	1.1	1.1	1.4	0.6	1.1	0.6	1.4	1.1	0.7	1.1	0.9	0.9	0.9	0.8	0.4	1.9	1.2	2.9	1.0	0.4	1.6
Crown or Veneer		0.2	0.3	0.2	0.2	0.2	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.0	0.3	0.7	0.1	0.0	0.0	0.0
Pulp care		0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.0	0.1	0.2
Extraction		2.2	1.8	2.0	2.0	2.0	2.4	3.0	1.9	1.1	2.4	2.3	5.7	1.8	1.2	1.5	1.4	1.3	2.3	1.3	1.0	0.6	0.9	5.6	3.1
Need for other care		11.9	11.3	11.8	12.0	11.9	7.9	9.7	8.2	10.8	16.8	13.6	9.2	4.1	8.2	10.6	7.0	18.1	12.6	10.0	12.8	5.9	14.3	13.2	10.6

6.1.3 TREATMENT NEED

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

The treatment need was high across age groups and increased as age advanced in the country. In children aged 5 years, the need or treatment was recorded in 49 per cent subjects. The majority (42.6 per cent) needed fillings in one or more surfaces of their teeth. The other types of treatment needed, in order of prevalence, were the needs for extraction of teeth (5.5 per cent); pulp care (4.1 per cent); and preventive care including fissure sealing (4.3 per cent). The mean number of teeth which needed fillings was 2.2 across the country. Ranked in descending order by the type of treatment needs, the mean number of teeth which needed fillings (one or more surfaces) was highest (1.5) followed by extraction of teeth (0.2), preventive care (0.4) and pulp care (0.1). There were no marked rural/ urban or gender related differentials.

In the states, the lowest prevalence of the need for treatment in the 5-year age group was recorded in the state of Andhra Pradesh (39.1 per cent) while the state/UT with the highest prevalence for treatment need was Goa (87.8 per cent). The mean number of teeth needing treatment in Andhra Pradesh and Goa were 1.6 and 5.9 respectively. The state of Delhi had the lowest mean number of teeth which needed treatment (1.2) while Goa had the highest corresponding mean number (5.9). However, the need for treatment by type was similar to the average for the country in the majority of states. There was no marked differential in the pattern of treatment need by type in states.

The treatment need in permanent teeth in both children and adults surveyed tended to rise with age, bing highest in the age range of 65-74 years. The treatment need in the children aged 12 years was 59.3 per cent and in older adults (65-74 years), it was 80.5 per cent. The mean number of teeth with treatment need was lowest in children aged 12 and 15 years (2.9) and highest (15.4) in the older adults (65-74 years). Overall, the predominant treatment need, by type of need, in children aged 12 and 15 years was fillings (one or more surfaces), followed by extractions, in 12 year olds and by pulp care, in 15 year olds. In adults (35-44 and 65-74 years), the predominant need was that of fillings (one or more surfaces) followed by extractions and pulp care. Although there were no marked differentials, there appeared to be a marginally higher treatment need in rural residents and in male subjects across age groups.

In the states surveyed, Chandigarh, a UT, reported the highest treatment need in children (12 and 15 years). It was 95.8 and 97.1 per cent respectively for children aged 12 and 15 years respectively. In the same age groups, the states which reported the lowest treatment need were Orissa (51.8 per cent) in 12 year olds and Pondicherry (46.7 per cent) in 15 year olds. Similarly, the highest treatment need was reported in adults in the 35-44 and 65-74 year age-groups respectively in the states of Himachal Pradesh (97.7) and Goa (96.3 per cent). The lowest treatment need was recorded in the same age-groups in the states of Orissa (66.3 per cent) in 35-44 year age group and Gujarat (59.6 per cent) respectively.

Table: 6.07. Percent subjects with bleeding, calculus and/ or pockets by age, in India. (rural, urban, males & females), States & Union Territories.

Periodontal disease	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 Yrs	**10798**	**5123**	**8139**	**7782**	**15921**	**1614**	**256**	**1982**	**802**	**626**	**376**	**1243**	**514**	**1027**	**1128**	**1468**	**815**	**652**	**1576**	**606**	**307**	**347**	**267**	**315**
With bleeding,calculus, or pockets	60.5	45.1	55.7	55.0	**55.4**	52.9	76.5	16.1	55.1	76.8	14.5	84.7	47.1	58.6	43.4	53.2	67.4	33.2	44.8	76.6	65.1	31.3	33.4	96.4
with bleding	26.4	22.7	25.8	24.7	**25.3**	37.2	76.4	15.3	43.2	66.7	12.7	57.1	9.5	52.3	30.8	27.4	66.3	27.4	34.4	56.0	50.7	22.6	0.4	65.4
with calculus	16.7	12.8	15.0	15.6	**15.3**	33.2	0.1	5.4	18.9	58.1	6.2	51.6	41.1	13.2	24.3	32.9	20.2	10.1	18.3	50.5	40.6	10.5	33.4	66.2
with pockets 4-5 mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.1	0.1	0.4	0.0	0.4	0.1	0.0	0.1	1.0	0.1	0.0	0.0	0.2	0.5	0.0	0.0	0.7
with pockets 6mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
bleeding or higher	44.1	32.3	40.8	39.7	**40.2**	37.2	76.4	15.3	43.2	66.7	12.7	57.1	9.5	52.3	30.8	27.4	66.3	27.4	34.4	56.0	50.7	22.6	0.4	65.4
calculus or higher	16.3	12.8	14.9	15.3	**15.1**	15.7	0.1	0.9	11.9	10.1	1.8	27.7	37.7	6.4	12.5	25.4	1.1	5.9	10.4	20.6	14.4	8.7	33.0	31.1
pockets 4-5 mm or higher	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
pockets 6mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 Yrs	**12358**	**6104**	**9561**	**8901**	**18462**	**1851**	**617**	**2012**	**944**	**628**	**935**	**1248**	**785**	**1116**	**1459**	**1574**	**983**	**690**	**1764**	**627**	**314**	**334**	**267**	**314**
With bleeding,calculus, or pockets	70.9	57.6	66.9	65.9	**66.4**	61.1	67.8	28.2	63.0	88.6	85.0	86.8	53.2	79.5	60.5	65.8	64.3	50.4	61.7	84.7	74.8	50.5	35.1	99.6
with bleding	22.2	21.9	22.5	22.3	**22.4**	40.4	66.6	24.1	35.2	78.2	27.4	48.5	9.8	64.1	38.0	29.0	60.1	38.9	48.8	49.9	55.8	39.2	2.0	50.8
with calculus	25.9	20.4	23.9	23.7	**23.8**	37.2	2.8	18.0	38.5	75.9	77.4	62.7	49.5	38.6	38.2	49.4	33.0	18.0	26.5	73.9	55.3	18.4	34.3	84.5
with pockets 4-5 mm	0.1	0.0	0.0	0.1	**0.1**	0.3	0.0	0.1	1.9	1.4	3.5	4.5	0.1	0.8	1.0	1.4	1.4	0.5	0.0	0.8	2.4	0.0	0.4	1.8
with pockets 6mm	0.0	0.0	0.0	0.0	**0.0**	0.1	0.0	0.2	0.2	0.1	0.2	0.0	0.0	0.2	0.1	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0
bleeding or higher	45.0	36.9	42.9	42.1	**42.5**	40.4	66.6	24.1	35.2	78.2	27.4	48.5	9.8	64.1	38.0	29.0	60.1	38.9	48.8	49.9	55.8	39.2	2.0	50.8
calculus or higher	25.8	20.6	23.8	23.8	**23.8**	20.7	1.3	4.1	27.5	10.5	57.0	38.3	43.4	15.4	22.3	36.4	4.2	11.2	13.0	34.8	18.8	11.3	33.1	48.8
pockets 4-5 mm or higher	0.1	0.1	0.1	0.1	**0.1**	0.1	0.0	0.1	0.4	0.0	0.7	0.2	0.0	0.0	0.2	0.5	0.0	0.3	0.0	0.0	0.1	0.0	0.0	0.0
pockets 6mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13308**	**6544**	**10206**	**9646**	**19852**	**1911**	**618**	**1995**	**969**	**623**	**925**	**1259**	**977**	**1240**	**1630**	**1765**	**1014**	**1167**	**1858**	**620**	**312**	**382**	**270**	**317**
With bleeding,calculus, or pockets	90.5	86.1	89.3	89.0	**89.1**	94.9	88.2	68.7	88.9	96.6	97.7	94.3	78.6	92.4	90.7	89.9	90.8	83.7	87.8	93.3	93.4	85.0	71.9	99.2
with bleding	13.0	15.7	13.8	14.5	**14.2**	35.8	74.6	26.1	29.7	65.7	15.0	20.4	13.6	52.9	34.9	26.4	64.2	46.4	55.7	19.5	63.0	56.5	0.8	34.5
with calculus	37.3	38.7	37.7	37.8	**37.7**	85.2	22.4	52.9	69.4	88.9	89.7	65.9	73.5	71.1	72.6	77.1	63.0	63.0	59.8	83.7	83.2	54.3	68.4	80.7
with pockets 4-5 mm	3.7	2.3	3.4	3.1	**3.3**	12.3	0.1	17.8	23.2	37.1	35.4	39.8	5.1	29.9	13.7	6.6	22.4	6.6	9.8	45.1	30.0	0.9	12.6	49.4
with pockets 6mm	0.8	0.2	0.6	0.5	**0.6**	1.0	0.3	0.5	3.4	26.3	7.6	11.4	0.9	2.1	5.3	0.6	10.5	1.2	1.1	21.7	9.2	0.4	0.8	6.0
bleeding or higher	32.7	36.5	34.6	33.9	**34.2**	35.8	74.6	26.1	29.7	65.7	15.0	20.4	13.6	52.9	34.9	26.4	64.2	46.4	55.7	19.5	63.0	56.5	0.8	34.5
calculus or higher	52.0	46.7	49.8	50.4	**50.1**	58.2	13.6	41.1	51.9	26.6	76.4	52.8	64.0	33.4	51.8	62.0	25.3	35.8	30.4	66.7	27.3	28.4	67.6	53.9
pockets 4-5 mm or higher	5.1	2.7	4.3	4.2	**4.2**	0.8	0.0	1.5	6.3	3.2	6.0	17.9	1.0	5.7	3.2	1.5	1.3	1.4	1.8	6.5	2.3	0.1	3.5	10.6
pockets 6mm	0.8	0.2	0.6	0.5	**0.5**	0.0	0.0	0.0	1.1	1.2	0.4	3.3	0.1	0.3	0.8	0.1	0.0	0.2	0.0	0.7	0.9	0.0	0.0	0.3
65-74 Yrs	**10300**	**4877**	**7828**	**7349**	**15177**	**1670**	**520**	**1640**	**761**	**620**	**617**	**1083**	**559**	**704**	**1366**	**1254**	**915**	**566**	**1385**	**529**	**269**	**211**	**197**	**311**
With bleeding,calculus, or pockets	80.2	76.8	79.5	79.2	**79.3**	88.5	86.5	54.0	60.3	39.7	98.4	77.2	74.7	87.2	80.4	93.9	31.1	72.7	88.2	79.9	55.9	90.1	68.4	76.7
with bleding	5.5	6.7	6.1	5.7	**5.9**	15.3	44.7	10.3	10.8	12.7	4.1	7.4	13.4	37.7	17.8	12.1	9.6	25.2	41.6	4.3	35.4	39.6	1.1	5.4
with calculus	27.9	33.8	29.7	30.3	**30.0**	75.5	49.4	46.0	42.2	21.2	61.9	28.7	62.8	69.1	64.0	82.0	18.0	58.9	63.0	58.4	50.3	72.8	65.5	29.0
with pockets 4-5 mm	7.3	6.1	6.1	7.6	**6.9**	29.9	0.1	27.0	18.6	19.8	61.1	44.2	10.5	38.7	22.8	23.3	12.0	8.6	20.6	51.8	19.2	2.1	8.4	55.6
with pockets 6mm	4.5	2.2	4.2	3.3	**3.8**	5.9	0.3	1.7	10.8	23.1	30.2	33.9	4.4	4.9	8.6	2.8	8.9	3.5	4.5	42.4	23.5	0.1	2.0	32.2
bleeding or higher	14.9	19.1	17.1	15.7	**16.4**	15.3	44.7	10.3	10.8	12.7	4.1	7.4	13.4	37.7	17.8	12.1	9.6	25.2	41.6	4.3	35.4	39.6	1.1	5.4
calculus or higher	47.1	47.5	48.0	46.8	**47.4**	62.5	41.6	39.3	34.7	12.2	58.1	22.9	55.7	37.5	51.8	74.2	11.7	43.9	36.8	54.3	16.5	50.4	64.4	25.7
pockets 4-5 mm or higher	13.8	8.1	10.5	13.5	**12.0**	10.3	0.0	4.2	8.9	7.7	27.9	29.9	4.3	11.3	8.2	7.1	8.2	2.6	8.8	17.1	2.8	0.1	2.5	38.7
pockets 6mm	4.3	2.2	4.1	3.1	**3.6**	0.5	0.3	0.3	6.1	7.2	8.4	17.2	1.4	0.9	2.6	0.7	1.7	1.1	1.0	4.3	1.4	0.0	0.6	6.9

Table: 6.08. Mean number of sextants with bleeding, calculus and/ or pockets by age, in India. (rural, urban, males & females), States & Union Territories.

Periodontal disease	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 yrs	**12635**	**6279**	**9793**	**9121**	**18914**	**1877**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Mean no. of healthy sextants	2.8	3.6	3.0	3.1	**3.0**	3.5	2.2	4.4	2.6	2.3	3.1	2.5	4.2	3.0	3.5	2.6	3.3	3.7	3.4	2.4	3.3	4.3	5.1	1.2
With bleeding,calculus, or pockets	3.1	2.3	2.8	2.8	**2.8**	2.5	3.9	1.0	3.3	3.7	2.9	3.5	1.8	2.9	2.5	3.2	2.6	2.2	2.5	3.5	2.8	1.7	0.9	4.9
with bleeding	1.4	1.1	1.3	1.3	**1.3**	1.3	3.8	0.6	1.6	2.1	0.6	1.2	0.3	1.8	1.1	1.0	1.8	1.6	1.6	1.3	1.5	1.3	0.0	1.5
with calculus	1.6	1.2	1.4	1.4	**1.4**	1.2	0.1	0.4	1.7	1.6	2.2	2.3	1.5	1.1	1.4	2.1	0.8	0.7	0.9	2.2	1.3	0.5	0.9	3.4
with pockets 4-5 mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
with pockets 6mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not recorded	0.1	0.1	0.1	0.1	**0.1**	0.1	0.0	0.6	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.3	0.2	0.1	0.2	0.1	0.0	0.0	0.0	0.0
35-44 Yrs	**13812**	**6799**	**10619**	**9992**	**20611**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Mean no. of healthy sextants	1.0	1.6	1.2	1.2	**1.2**	0.9	0.9	2.1	1.0	0.8	0.8	1.4	2.3	1.1	1.1	1.1	1.9	1.6	1.6	1.0	1.4	1.7	2.3	0.5
With bleeding,calculus, or pockets	4.7	4.2	4.5	4.5	**4.5**	5.0	4.9	2.7	4.8	5.0	4.6	4.3	3.3	4.8	4.9	4.6	4.0	4.3	4.2	4.8	4.6	4.3	3.4	5.4
with bleeding	1.0	1.0	1.0	1.0	**1.0**	0.9	3.9	0.7	1.0	1.6	0.2	0.5	0.3	1.4	1.1	0.8	1.7	1.7	1.7	0.4	1.5	2.2	0.0	0.8
with calculus	2.8	2.6	2.7	2.7	**2.7**	3.8	0.9	1.6	3.0	2.1	3.4	2.7	2.8	2.5	3.3	3.5	1.8	2.5	2.2	2.8	2.3	2.0	3.0	2.9
with pockets 4-5 mm	0.7	0.4	0.6	0.6	**0.6**	0.3	0.0	0.4	0.8	0.9	0.8	1.0	0.2	0.9	0.4	0.2	0.5	0.2	0.3	1.1	0.7	0.0	0.3	1.6
with pockets 6mm	0.2	0.1	0.2	0.2	**0.2**	0.0	0.0	0.0	0.1	0.6	0.2	0.2	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.5	0.2	0.0	0.0	0.2
Excluded sextants	0.1	0.1	0.1	0.1	**0.1**	0.1	0.0	0.1	0.1	0.2	0.0	0.2	0.2	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.2	0.2
Not recorded	0.2	0.2	0.2	0.2	**0.2**	0.2	0.3	1.2	0.2	0.1	0.6	0.2	0.3	0.2	0.1	0.4	0.1	0.2	0.3	0.2	0.1	0.1	0.2	0.0
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
Mean no. of healthy sextants	0.5	0.6	0.5	0.5	**0.5**	0.2	0.7	0.4	0.4	0.1	0.2	0.7	1.1	0.5	0.7	0.4	0.5	1.5	0.8	0.3	0.4	0.5	0.2	0.1
With bleeding,calculus, or pockets	3.0	2.8	2.9	2.9	**2.9**	4.1	3.5	1.8	2.3	1.9	2.6	2.8	1.8	2.7	3.4	3.6	1.0	2.9	3.2	3.2	2.6	2.7	2.3	3.7
with bleeding	0.3	0.3	0.3	0.3	**0.3**	0.3	1.4	0.2	0.2	0.2	0.0	0.2	0.3	0.5	0.4	0.2	0.2	0.6	0.8	0.0	0.6	0.8	0.0	0.1
with calculus	1.5	1.7	1.6	1.5	**1.6**	2.9	2.0	0.9	1.3	0.5	1.2	1.0	1.4	1.5	2.2	2.7	0.5	2.0	1.8	1.4	1.3	1.9	2.1	0.8
with pockets 4-5 mm	0.8	0.6	0.7	0.8	**0.7**	0.8	0.0	0.7	0.5	0.4	0.9	0.9	0.2	0.6	0.6	0.6	0.2	0.2	0.5	1.0	0.4	0.0	0.2	1.9
with pockets 6mm	0.4	0.2	0.4	0.3	**0.3**	0.1	0.0	0.0	0.3	0.8	0.4	0.7	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.8	0.4	0.0	0.0	1.0
Excluded sextants	1.0	1.1	1.0	1.1	**1.0**	1.0	0.0	2.6	2.0	3.8	0.0	1.0	0.6	0.2	1.0	0.1	3.9	0.4	0.4	1.3	2.1	0.3	1.5	2.1
Not recorded	1.5	1.5	1.5	1.5	**1.5**	0.8	2.0	1.3	1.4	0.3	3.4	1.7	2.5	2.8	1.0	2.0	0.6	1.3	1.8	1.3	1.0	2.6	2.0	0.2

6.2. PERIODONTAL STATUS

6.2.1 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.

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

Overall, the prevalence of periodontal disease increased as 12 year and higher age groups were surveyed. In children aged 12 years, the prevalence was 55.4 per cent while the prevalence peaked at 89.1 per cent in the 35-44 year age group. The prevalence was lower in 65-74 year age group (79.3 per cent), possibly due to the presence of a high number of edentulous or partially edentulous subjects in the age group. Calculus was more prevalent than bleeding across age groups from 12 years to 65-74 year age groups. Periodontal pockets were recorded in the higher age groups of 35-44 and 65-74 years and both shallow (4-5 mm) and deep (6 mm) pockets were markedly more prevalent in the older adults (65-74 years).

The dentition is divided into six sextants, three upper and three lower, for assessment of the periodontal status. The mean number of sextants with periodontal disease increased as age of the surveyed population advanced from 15 to 65-74 year age group. However, the highest number of mean sextants with periodontal disease was recorded in the 35-44 years age group (4.5). While no marked gender based differentials were observed, there appeared to be a marginally higher prevalence of periodontal disease in rural areas across age groups.

In states, periodontal-disease prevalence was generally high across states and appeared very high in the majority of states in the 35-44 year age group (ranging from about 68.7 to 99.2 per cent). The pattern of distribution of the components of periodontal disease (bleeding, calculus and pockets) was similar in the states.

Table 6.09. Percent subjects with loss of periodontal attachment by severity and by age, in India. (rural, urban, males & females), States & Union Territories.

Loss of Attachment (LOA)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs	**11122**	**5356**	**8533**	**7945**	**16478**	**1682**	**615**	**1703**	**917**	**627**	**926**	**770**	**732**	**1032**	**1423**	**1153**	**967**	**685**	**1618**	**500**	**312**	**334**	**169**	**313**
With no loss of attachement	92.2	92.4	92.3	92.9	**92.6**	93.3	99.1	98.9	94.3	99.8	99.6	93.4	90.2	72.5	91.0	92.2	89.1	82.1	94.6	98.0	99.8	95.0	97.5	99.7
With Loss of attachment	8.1	7.8	8.1	7.3	**7.7**	6.5	0.9	1.1	5.8	0.2	0.5	6.5	9.7	27.5	9.1	7.8	11.0	17.9	5.5	2.0	0.2	5.0	2.5	0.3
with LOA 4-5mm as highest score	7.1	7.0	7.0	6.6	**6.8**	5.9	0.9	1.0	4.8	0.1	0.0	4.8	7.5	24.7	8.0	6.7	10.5	16.6	5.0	2.0	0.2	5.0	0.0	0.2
with LOA 6-8 mm as highest score	0.8	0.8	0.9	0.6	**0.7**	0.6	0.0	0.1	1.0	0.1	0.5	1.4	2.3	2.6	1.1	0.9	0.1	1.3	0.4	0.0	0.0	0.1	2.5	0.2
with LOA 9-11mm as highest score	0.1	0.0	0.1	0.1	**0.1**	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with LOA 12mm or more as highest score	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**12429**	**5976**	**9498**	**8907**	**18405**	**1900**	**617**	**1992**	**954**	**623**	**920**	**873**	**842**	**1227**	**1620**	**1231**	**990**	**1152**	**1770**	**512**	**311**	**381**	**174**	**316**
With no loss of attachement	54.2	62.6	56.7	57.4	**57.1**	59.5	88.8	74.3	53.6	67.1	92.4	60.5	53.0	30.6	54.6	74.3	51.1	43.4	61.9	54.0	90.6	67.6	68.2	79.2
With Loss of attachment	45.1	37.0	42.5	41.9	**42.2**	39.6	11.2	23.3	44.9	30.3	7.7	37.3	45.1	69.3	45.1	25.6	46.3	55.9	37.6	44.1	9.3	32.1	29.3	18.9
with LOA 4-5mm as highest score	32.0	30.4	31.6	31.2	**31.4**	28.7	10.5	21.3	34.3	14.8	2.8	24.0	32.7	50.7	33.9	20.3	40.7	44.7	32.7	30.8	8.9	29.0	26.9	17.6
with LOA 6-8 mm as highest score	11.2	5.5	9.1	9.4	**9.3**	9.1	0.8	1.6	9.5	14.7	4.8	10.5	12.4	15.9	8.2	4.7	5.1	8.7	3.9	12.1	0.3	2.8	2.5	1.1
with LOA 9-11mm as highest score	1.2	0.8	1.2	0.9	**1.0**	1.8	0.0	0.4	0.8	0.9	0.1	2.1	0.1	2.3	1.1	0.5	0.5	1.7	0.7	0.6	0.1	0.0	0.0	0.0
with LOA 12mm or more as highest score	0.6	0.3	0.5	0.4	**0.5**	0.1	0.0	0.1	0.3	0.0	0.0	0.6	0.0	0.5	1.9	0.1	0.2	0.9	0.2	0.6	0.0	0.0	0.0	0.2
65-74 Yrs	**9233**	**4296**	**6979**	**6550**	**13529**	**1661**	**520**	**1642**	**758**	**546**	**624**	**821**	**470**	**693**	**1361**	**890**	**288**	**564**	**1347**	**417**	**269**	**212**	**143**	**303**
With no loss of attachement	22.8	25.2	23.4	23.4	**23.3**	27.4	29.3	11.3	19.8	9.0	68.3	29.9	24.1	16.6	23.9	40.6	7.6	37.1	29.2	13.0	34.4	36.3	2.9	9.2
With Loss of attachment	62.5	55.4	60.9	60.3	**60.6**	60.2	70.8	36.8	45.6	27.0	31.7	53.6	69.5	79.1	63.5	57.4	25.2	59.6	64.8	63.4	23.5	59.0	58.3	61.6
with LOA 4-5mm as highest score	32.4	35.8	33.8	33.8	**33.8**	31.1	64.2	30.8	26.0	10.1	14.9	24.6	40.7	54.4	32.5	40.1	17.2	34.3	47.9	27.5	23.2	47.4	49.2	53.6
with LOA 6-8 mm as highest score	23.6	14.5	20.9	20.9	**20.9**	19.5	6.3	4.9	15.8	13.9	15.3	22.1	28.2	17.0	18.4	15.1	5.6	18.9	14.4	32.5	0.4	9.3	9.1	7.4
with LOA 9-11mm as highest score	4.8	3.5	4.3	4.2	**4.3**	8.5	0.0	1.0	3.1	2.2	0.9	4.8	0.6	7.2	7.6	1.8	1.4	5.0	1.7	2.7	0.0	2.4	0.0	0.7
with LOA 12mm or more as highest score	1.7	1.6	1.8	1.5	**1.6**	1.1	0.4	0.3	0.7	0.9	0.7	2.2	0.0	0.6	5.0	0.5	1.2	1.4	0.9	0.8	0.0	0.0	0.0	0.0

Table 6.10. Mean number of sextants with loss of periodontal attachment by severity and age, in India. (rural, urban, males & females), States & Union Territories.

Loss of Attachment (LOA)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs	**12635**	**6279**	**9793**	**9121**	**18914**	**1877**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
With no Loss of attachment (0-3mm)	5.1	4.6	5.0	5.0	**5.0**	5.2	6.0	5.2	5.4	6.0	5.9	4.3	5.3	4.3	5.6	3.9	5.5	5.3	5.0	4.9	6.0	5.9	3.8	6.0
With Loss of attachment	0.2	0.2	0.2	0.2	**0.2**	0.2	0.1	0.0	0.2	0.0	0.0	0.2	0.3	0.8	0.2	0.2	0.2	0.5	0.2	0.0	0.0	0.1	0.0	0.0
with LOA 4-5mm	0.2	0.1	0.2	0.2	**0.2**	0.2	0.1	0.0	0.2	0.0	0.0	0.1	0.2	0.7	0.2	0.1	0.2	0.5	0.2	0.0	0.0	0.1	0.0	0.0
with LOA 6-8mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.1	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	0.0
with LOA 9-11mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	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 LOA 12mm or more	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Not recorded	0.6	1.2	0.8	0.8	**0.8**	0.6	0.0	0.9	0.4	0.1	0.1	1.6	0.5	1.0	0.3	2.0	0.3	0.2	0.9	1.1	0.1	0.0	2.3	0.0
35-44 Yrs	**13812**	**6799**	**10619**	**9992**	**20611**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
With no Loss of attachment (0-3mm)	3.8	3.9	3.9	3.9	**3.9**	4.2	5.3	4.1	3.9	5.1	5.2	3.1	3.7	3.2	4.2	3.1	4.6	3.3	3.8	3.8	5.7	5.1	2.9	5.3
With Loss of attachment	1.5	1.2	1.5	1.3	**1.4**	1.7	0.4	0.6	1.8	0.7	0.2	1.1	1.5	2.6	1.7	0.6	1.1	2.4	1.5	1.0	0.2	0.8	0.7	0.6
with LOA 4-5mm	1.2	1.0	1.2	1.1	**1.1**	1.4	0.4	0.6	1.4	0.4	0.1	0.8	1.2	2.0	1.5	0.5	0.9	2.1	1.4	0.8	0.2	0.8	0.7	0.6
with LOA 6-8mm	0.3	0.2	0.2	0.2	**0.2**	0.3	0.0	0.0	0.4	0.3	0.1	0.3	0.3	0.5	0.2	0.1	0.2	0.3	0.1	0.2	0.0	0.1	0.0	0.0
with LOA 9-11mm	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
with LOA 12mm or more	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Excluded sextants	0.1	0.0	0.1	0.1	**0.1**	0.1	0.0	0.1	0.1	0.2	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.2
Not recorded	0.6	1.0	0.7	0.7	**0.7**	0.2	0.3	1.2	0.3	0.1	0.6	1.7	0.9	0.3	0.1	2.4	0.3	0.2	0.7	1.1	0.2	0.1	2.3	0.1
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
With no Loss of attachment (0-3mm)	1.5	1.4	1.5	1.4	**1.5**	2.0	1.3	1.2	1.2	1.1	2.3	1.4	1.3	1.2	1.8	1.5	0.7	2.3	1.7	1.2	2.6	2.0	0.2	1.4
With Loss of attachment	1.7	1.4	1.7	1.6	**1.6**	2.2	2.8	1.0	1.5	1.0	0.5	1.3	1.4	1.9	2.2	1.1	0.7	2.2	2.2	1.4	0.4	1.3	1.4	2.3
with LOA 4-5mm	1.1	1.0	1.1	1.1	**1.1**	1.3	2.6	0.9	0.9	0.6	0.2	0.7	1.0	1.4	1.5	0.8	0.4	1.4	1.8	0.8	0.4	1.1	1.3	2.1
with LOA 6-8mm	0.5	0.3	0.5	0.4	**0.5**	0.7	0.2	0.1	0.5	0.3	0.2	0.4	0.5	0.4	0.5	0.3	0.2	0.6	0.4	0.6	0.0	0.2	0.2	0.2
with LOA 9-11mm	0.1	0.1	0.1	0.1	**0.1**	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.0	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0
with LOA 12mm or more	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Excluded sextants	0.9	1.0	1.0	1.0	**1.0**	1.0	0.0	2.7	1.9	3.8	0.0	0.7	0.4	0.2	1.0	0.1	3.9	0.3	0.4	1.1	2.1	0.2	1.5	2.0
Not recorded	1.8	2.0	1.9	1.9	**1.9**	0.9	2.0	1.2	1.5	0.2	3.3	2.7	2.9	2.8	1.0	3.3	0.8	1.3	1.9	2.4	1.0	2.6	3.1	0.4

6.2.2. LOSS OF ATTACHMENT

Tables 6.09 presents the per cent subjects with loss of epithelial attachment by severity, and Table 6.10 presents 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 periodontal attachment in subjects aged 15, 35-44, and 65-74 years. The CPI Probe was used to measure pocket depth.

Loss of attachment was prevalent in subjects aged 35-44 (42.2 per cent) and 65-74 years (60.6 per cent) (Table 6.09 and Figure 6.09). The least severe form of loss of attachment (4-5 mm depth) was the most prevalent in both age groups. Ranked by the depth of loss of attachment, the prevalence decreased as the depth of loss of attachment increased. The majority had a loss of attachment not exceeding 6-8 mm.

The mouth is divided into six sextants for recording and measuring loss of attachment. Although the prevalence of loss of attachment was high, the mean number of sextants with loss of attachment was less than two sextants. It was 1.4 and 1.6 respectively in 35-44 and 65-74 year age groups. Again, the highest mean number of sextants with loss of attachment showed the least severe form of the disease. This indicates that while the prevalence of loss of attachment was high and was age related, the number of sites in the mouth were rather limited and not widespread. Moreover, the severity of the disease, measured by the depth of attachment loss, was also not high.

While gender based differentials were not marked, a higher percentage of rural population, compared with urban population, was affected. The pattern of distribution of loss of attachment by depth was similar in both rural and urban residents.

Rural and urban differentials were detected: in 15 and 35-44 year age groups, rural residents were affected more than their urban counterparts but in the 12 year age group, the opposite was true.

In the states, in adults (35-44 years), only 7 out of 19 states surveyed had loss of attachment in more than 40 per cent of the subjects with a peak at 69.3 per cent in the state of Madhya Pradesh. In 65-74 years, this number increased to 16 out of 19 states with the peak at 79.1 per cent in Madhya Pradesh. The pattern was similar in the case of mean number of sextants involved.

Table: 6.11. Percent subjects with malocclusion by age, in India (rural, urban, males & females), States & Union Territories.

Malocclusion	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**12855**	**6264**	**10159**	**8960**	**19119**	**1896**	**617**	**2173**	**954**	**630**	**944**	**1256**	**842**	**1154**	**1549**	**1603**	**1001**	**805**	**1808**	**630**	**315**	**362**	**266**	**314**
No malocclusion < 25)	100.0	98.2	100.0	98.8	**98.4**	99.8	99.5	100.0	100.0	99.8	100.0	99.7	99.0	100.0	99.7	99.8	100.0	99.9	99.8	99.7	100.0	99.7	100.0	99.4
Malocclusion present	0.0	1.8	0.0	1.2	**1.6**	0.2	0.5	0.0	0.0	0.2	0.0	0.3	1.0	0.0	0.3	0.2	0.0	0.1	0.2	0.3	0.0	0.3	0.0	0.6
Definite malocclusion(26-30)	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Severe malocclusion(31-35)	0.0	0.0	0.0	0.0	**0.0**	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
V severe malocclusion(36 or more)	0.0	1.8	0.0	1.2	**1.6**	0.2	0.3	0.0	0.0	0.2	0.0	0.3	0.8	0.0	0.3	0.2	0.0	0.1	0.2	0.0	0.0	0.3	0.0	0.6
12 Yrs	**13209**	**6435**	**10136**	**9508**	**19644**	**1881**	**617**	**2178**	**956**	**629**	**941**	**1272**	**785**	**1124**	**1588**	**1686**	**1004**	**762**	**1840**	**630**	**316**	**350**	**267**	**318**
No malocclusion < 25)	81.5	66.6	73.9	78.8	**76.4**	85.3	96.8	80.0	63.6	87.9	90.3	78.9	21.8	50.0	73.2	83.7	65.6	74.7	61.4	84.3	100.0	80.0	91.8	76.4
Malocclusion present	18.5	33.4	26.1	21.2	**23.6**	14.7	3.2	20.0	36.4	12.1	9.6	21.1	78.2	49.8	26.8	15.8	34.4	25.1	36.8	15.7	0.0	19.7	8.2	23.6
Definite malocclusion(26-30)	11.5	21.8	18.3	11.8	**15.0**	9.4	2.1	6.3	8.6	11.0	7.0	13.3	40.6	15.9	11.6	2.8	13.3	8.1	14.1	11.0	0.0	14.9	6.4	15.1
Severe malocclusion(31-35)	4.1	7.9	4.5	6.4	**5.4**	3.3	1.0	1.8	7.0	0.6	1.1	4.1	24.1	10.1	6.8	1.9	6.8	4.4	8.3	2.7	0.0	2.3	1.9	5.3
V severe malocclusion(36 or more)	2.9	3.5	3.2	3.0	**3.1**	2.0	0.2	11.8	20.8	0.5	1.5	3.7	13.5	23.8	8.3	11.2	14.2	12.7	14.5	2.1	0.0	2.6	0.0	3.1
15 Yrs	**12636**	**6279**	**9794**	**9121**	**18915**	**1878**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
No malocclusion < 25)	75.2	78.2	75.2	77.3	**76.1**	84.4	95.3	79.4	66.0	85.9	88.7	79.6	19.6	47.4	73.9	82.9	64.5	73.7	65.9	78.6	99.4	79.3	93.3	76.1
Malocclusion present	24.8	21.8	24.8	22.7	**23.9**	15.6	4.7	20.6	34.0	14.1	11.3	20.2	80.4	52.5	26.1	16.7	35.5	26.1	32.6	21.4	0.6	20.1	6.7	23.9
Definite malocclusion(26-30)	16.2	11.5	16.5	12.8	**14.6**	10.1	3.7	8.4	6.0	11.9	7.0	13.3	41.8	16.7	10.0	3.1	14.9	9.0	12.2	13.8	0.3	16.2	5.2	14.6
Severe malocclusion(31-35)	4.5	5.8	4.1	5.8	**4.9**	2.8	0.6	2.3	7.5	1.4	2.8	4.1	24.5	10.3	6.7	2.4	6.0	4.2	7.2	4.8	0.0	2.7	0.7	4.8
V severe malocclusion(36 or more)	4.1	4.4	4.3	4.1	**4.4**	2.7	0.3	10.0	20.4	0.8	1.5	2.9	14.1	25.5	9.3	11.2	14.5	12.9	13.3	2.9	0.3	1.2	0.7	4.5
35-44 Yrs	**13812**	**6799**	**10619**	**9992**	**20611**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
No malocclusion < 25)	52.9	63.0	59.8	52.8	**56.3**	76.6	93.4	49.1	57.5	62.3	79.5	69.8	20.0	47.4	68.2	79.8	58.8	69.3	54.3	54.1	91.4	70.5	70.2	55.0
Malocclusion present	44.9	36.1	39.6	44.3	**42.0**	23.0	6.6	47.8	41.7	36.8	20.2	26.1	79.7	52.1	31.4	19.4	41.1	30.3	42.0	44.6	8.6	27.4	28.7	43.1
Definite malocclusion(26-30)	20.7	13.8	16.5	20.3	**18.4**	10.1	3.9	12.0	8.5	19.4	0.2	11.0	29.0	10.9	10.5	3.8	15.5	9.7	12.4	14.0	5.4	14.5	9.6	18.9
Severe malocclusion(31-35)	10.7	7.3	9.2	9.9	**9.5**	4.3	1.1	8.1	8.0	7.5	2.2	5.2	24.2	8.6	7.1	2.5	6.9	4.7	8.3	7.6	1.3	5.7	8.8	9.7
V severe malocclusion(36 or more)	13.5	14.9	14.0	14.1	**14.1**	8.5	1.6	27.7	25.3	9.9	17.8	9.9	26.5	32.6	13.8	13.1	18.7	15.9	21.2	22.9	1.9	7.2	10.3	14.5

6.3 MALOCCLUSION STATUS

Table 6.11 presents the malocclusion status of subjects measured by DAI scores. The Dental Aesthetic Index (DAI), recommended by the WHO, was used to analyze the severity of malocclusion in the surveyed population. In calculating per cent subjects with malocclusion, only those subjects with a DAI score of 26 or higher were included. No significant malocclusion was reported in children aged 5 years where only primary teeth are present. The pattern was similar in states where virtually no subjects in the age group had malocclusion. It may be concluded, therefore, that malocclusion was virtually absent in the primary teeth in the country as a whole.

The children aged 12 and 15 years are crucial in diagnosing for malocclusion since it is in these age bands that the type and extent of malocclusion is determined. The active treatment is usually recommended at this age to ensure best results since all permanent teeth have erupted and prognosis well established. The prevalence of malocclusion in children (12 and 15 years) was 23.6 and 23.9, respectively. The majority of those affected had `definite' malocclusion, followed by those with 'severe' form of malocclusion. Malocclusion was recorded in 42 per cent subjects in the 35-44 years age group, with the majority of those affected having `definite' malocclusion followed by those with very severe type of malocclusion.

Although the differentials were only marginal, contrary to what is commonly believed, fewer females appeared to be affected with malocclusion compared to their male counterparts in the 12 and 15 year age groups. More females, than males were affected in the 35-44 year age group. rural and urban differentials were detected: in 15 and 35-44 year age groups, rural residents were affected more than their urban counterparts but in the 12 year age group, the opposite was true.

6.4. ORAL CANCER & ORAL MUCOSAL CONDITIONS

Tables 6.12 presents the number of subjects with oral mucosal conditions including oral cancer and precancerous lesions. The precancerous lesions include leukoplakia and probably lichen planus (Mehta & Hammer, 1993). Table 6.13 presents the distribution of lesions by location in the mouth of subjects.

Oral mucosal lesions were present across age groups and in both male and female subjects. However, the overall prevalence of oral mucosal lesions was low with a minimum of 0.9 per cent (5 years) and a maximum of 10.0 per cent (65-74 year age-group) being affected. The prevalence of oral cancers and leukoplakia was recorded in 0.2 and 0.1 per cent each in the subjects respectively in 5 and 12 year age groups. The prevalence was 0.3 per cent each in 15 and 35-44 year old subjects. The prevalence was highest in 65-74 year age group for both oral cancer (0.4 per cent) and leukoplakia (3.1 per cent). Lichen planus was observed in 0.4 per cent (35-44 year age group) and 0.5 per cent subjects (65-74 year age group). Ulceration, abscess, and candidiasis, in that order, were the other notable but much less prevalent conditions recorded across age groups. The actual numbers of occurrences of the conditions observed in the surveyed population is presented in Table 6.13. The total number of occurrences of oral cancers in the population surveyed was 53 while for leukoplakia it was 951 and for lichen planus it was 213.

Gender related differentials were less marked in the lower age groups of 5, 12 and 15 years, where females seemed to have marginally more oral mucosal conditions than their male counterparts. In the higher age groups of 35-44 and 65-74 years, where prevalence percentages were notably higher compared to the lower age groups, the gender related differentials were also slightly more marked but in these age groups, the males appeared to be more affected than females. In all age groups, there appeared to be a higher prevalence amongst rural rather than urban residents. The other more commonly occurring lesions were ulcerations (1774 occurrences) and abscesses (455 occurrences). The most favoured sites in the mouth for the occurrence of oral cancers, were hard and soft palate, vermillion border, commissures and buccal mucosa, in that order. The most favoured site in the mouth for the precancerous lesions such as leukoplakia and lichen planus was the buccal mucosa. Buccal mucosa was also the most favoured site for ulcerations and abscesses.

Table: 6.12. Percent subjects with oral mucosal conditions by age, in India (rural, urban, males & females), States & Union Territories.

Oral mucosal conditions	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**12416**	**6061**	**9814**	**8663**	**18477**	**1879**	**617**	**1965**	**919**	**630**	**942**	**1242**	**835**	**1141**	**1532**	**1527**	**966**	**776**	**1627**	**628**	**315**	**356**	**266**	**314**
Oral Mucusal lesions present	1.1	0.5	0.8	1.0	**0.9**	0.5	0.1	0.8	0.3	0.5	0.0	1.2	0.2	0.2	0.6	1.2	0.2	2.5	1.2	0.5	0.0	0.9	0.8	0.3
Oral Cancer	0.4	0.0	0.2	0.2	**0.2**	0.0	0.0	0.1	0.0	0.0	0.0	1.2	0.0	0.0	0.0	0.0	0.1	0.0	0.6	0.0	0.0	0.0	0.4	0.0
Leukoplakia	0.2	0.0	0.1	0.1	**0.1**	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
Lichen planus	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.2	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	0.2	0.2	0.2	0.4	**0.4**	0.0	0.1	0.5	0.2	0.0	0.0	0.2	0.0	0.1	0.3	0.0	0.1	2.5	0.3	0.0	0.0	0.9	0.4	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	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Candidiasis	0.1	0.0	0.0	0.1	**0.0**	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2
Abscess	0.1	0.2	0.2	0.2	**0.2**	0.1	0.0	0.2	0.0	0.4	0.0	0.0	0.1	0.1	0.2	0.5	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0
Other condition	0.1	0.1	0.1	0.1	**0.1**	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.6	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.3
12 Yrs	**12431**	**6135**	**9489**	**9077**	**18566**	**1869**	**616**	**1949**	**931**	**629**	**937**	**1264**	**783**	**1118**	**1581**	**1611**	**989**	**753**	**1662**	**628**	**315**	**347**	**267**	**317**
Oral Mucusal lesions present	1.8	0.9	1.4	1.5	**1.4**	0.5	0.6	1.4	0.6	0.5	0.0	0.5	0.4	1.5	0.2	9.3	0.8	1.5	1.0	2.5	5.4	0.4	0.0	0.8
Oral Cancer	0.5	0.0	0.2	0.3	**0.2**	0.0	0.0	0.1	0.0	0.0	0.0	0.4	0.0	0.2	0.0	0.1	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0
Leukoplakia	0.1	0.0	0.0	0.1	**0.1**	0.0	0.0	0.0	0.2	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.4	0.0	0.0
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Ulceration	0.5	0.4	0.5	0.4	**0.5**	0.1	0.3	1.0	0.2	0.0	0.0	0.0	0.3	1.2	0.1	0.3	0.8	1.5	0.0	0.5	3.6	0.0	0.0	0.0
ANUG	0.0	0.1	0.0	0.1	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Candidiasis	0.1	0.1	0.1	0.1	**0.1**	0.0	0.0	0.0	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.5	0.0	0.0	0.0	0.0
Abscess	0.1	0.1	0.2	0.1	**0.1**	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.0	0.0	0.0	0.5	1.8	0.0	0.0	0.7
Other condition	0.6	0.2	0.5	0.6	**0.5**	0.2	0.0	0.1	0.0	0.4	0.0	0.0	0.1	0.0	0.0	8.7	0.1	0.0	0.2	0.5	0.0	0.0	0.0	0.2
15 Yrs	**12344**	**6114**	**9565**	**8893**	**18458**	**1854**	**617**	**1952**	**926**	**629**	**937**	**1250**	**787**	**1139**	**1458**	**1579**	**985**	**695**	**1799**	**624**	**314**	**331**	**268**	**314**
Oral Mucusal lesions present	2.7	1.5	2.2	2.4	**2.4**	1.2	0.3	1.0	0.3	1.9	0.4	0.9	1.4	3.0	1.0	13.4	0.9	3.5	1.2	5.5	20.2	0.2	0.0	0.8
Oral Cancer	0.5	0.0	0.2	0.3	**0.3**	0.0	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.2	0.0	0.1	0.0	0.0	0.2	0.5	0.4	0.0	0.0	0.0
Leukoplakia	0.2	0.0	0.1	0.1	**0.1**	0.0	0.0	0.1	0.0	0.0	0.0	0.7	0.0	0.2	0.0	0.1	0.0	0.0	0.3	0.0	0.4	0.1	0.0	0.0
Lichen planus	0.0	0.0	0.0	0.1	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	2.2	0.1	0.0	0.0
Ulceration	1.0	0.8	0.9	1.0	**1.0**	0.8	0.3	0.9	0.3	0.4	0.2	0.0	0.3	1.9	0.8	0.7	0.8	3.5	0.5	1.5	10.6	0.1	0.0	0.0
ANUG	0.1	0.0	0.0	0.1	**0.0**	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Candidiasis	0.1	0.0	0.1	0.1	**0.1**	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0
Abscess	0.2	0.3	0.4	0.1	**0.3**	0.3	0.0	0.0	0.0	0.5	0.0	0.0	0.4	0.6	0.1	0.1	0.0	0.0	0.0	1.5	6.7	0.1	0.0	0.0
Other condition	0.8	0.3	0.7	0.7	**0.7**	0.2	0.0	0.0	0.0	1.0	0.2	0.0	0.7	0.1	0.1	12.7	0.1	0.0	0.2	1.0	0.0	0.0	0.0	0.8
35-44 Yrs	**13260**	**6511**	**10156**	**9615**	**19771**	**1909**	**618**	**1979**	**948**	**627**	**935**	**1261**	**986**	**1237**	**1631**	**1775**	**1008**	**1178**	**1765**	**627**	**315**	**382**	**272**	**318**
Oral Mucusal lesions present	8.0	5.2	8.7	6.0	**7.3**	4.2	1.8	12.0	1.8	27.7	0.6	0.6	3.5	7.0	4.8	30.8	7.9	9.5	5.1	14.5	48.8	2.4	2.5	5.1
Oral Cancer	0.6	0.0	0.3	0.4	**0.3**	0.1	0.0	0.2	0.0	0.4	0.0	0.3	0.1	0.2	0.1	0.4	0.0	0.5	0.4	0.5	0.9	0.0	0.0	0.0
Leukoplakia	2.2	1.1	2.7	1.2	**1.9**	0.3	0.4	5.4	0.4	8.1	0.0	0.0	0.4	0.5	1.7	1.6	2.8	3.0	2.3	6.0	4.5	1.6	0.7	0.7
Lichen planus	0.5	0.2	0.6	0.3	**0.4**	0.0	0.0	0.7	0.2	1.3	0.0	0.0	0.3	0.3	0.1	0.1	0.7	2.5	0.3	0.0	9.0	0.0	0.0	0.0
Ulceration	2.8	2.4	3.2	2.4	**2.8**	2.3	1.1	4.3	0.8	13.8	0.1	0.2	1.1	5.6	2.5	1.5	5.5	3.0	1.5	7.0	28.1	0.1	1.1	1.0
ANUG	0.1	0.2	0.2	0.1	**0.1**	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.2	0.1	0.0	0.8	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0
Candidiasis	0.2	0.1	0.2	0.1	**0.2**	0.1	0.0	0.0	0.0	3.5	0.2	0.0	0.3	0.3	0.2	0.1	0.2	0.0	0.1	0.5	0.0	0.0	0.0	0.0
Abscess	0.6	0.8	0.6	0.7	**0.7**	0.6	0.4	1.0	0.0	5.7	0.2	0.0	0.0	0.5	0.4	0.4	1.2	0.0	0.6	1.5	6.5	0.4	0.0	0.2
Other condition	2.3	1.0	2.3	1.7	**2.0**	1.4	0.0	1.6	0.3	6.1	0.2	0.0	2.1	0.5	0.7	27.0	0.0	0.5	1.3	3.0	0.0	0.8	0.8	4.1
65-74 Yrs	**12231**	**5951**	**9359**	**8823**	**18182**	**1836**	**615**	**1958**	**907**	**630**	**937**	**1238**	**771**	**1103**	**1548**	**1453**	**976**	**692**	**1655**	**626**	**314**	**344**	**264**	**315**
Oral Mucusal lesions present	10.9	7.7	10.4	9.7	**10.0**	7.5	2.2	20.5	2.0	43.9	1.0	0.7	8.4	17.3	4.0	37.1	19.1	6.5	7.9	18.5	58.5	1.4	8.4	25.4
Oral Cancer	0.6	0.1	0.3	0.5	**0.4**	0.1	0.1	0.0	0.0	1.7	0.0	0.7	0.4	0.2	0.1	0.6	0.1	0.0	0.6	1.0	1.3	0.0	0.0	0.0
Leukoplakia	3.2	2.3	3.3	2.8	**3.1**	0.8	0.3	5.5	0.5	20.7	0.0	0.3	1.2	3.3	2.5	2.9	5.7	4.0	2.3	7.5	7.1	0.4	4.9	5.5
Lichen planus	0.4	0.6	0.5	0.4	**0.5**	0.1	0.0	2.0	0.4	2.1	0.0	0.1	1.1	1.6	0.1	0.1	1.1	0.5	0.2	0.0	13.6	0.0	0.7	0.0
Ulceration	3.7	3.7	3.7	3.9	**3.8**	3.3	1.3	11.0	0.7	30.7	0.0	0.2	0.9	12.7	1.9	1.5	9.6	2.5	2.2	4.5	30.2	0.0	0.8	3.4
ANUG	0.1	0.1	0.1	0.1	**0.1**	0.0	0.0	0.2	0.0	0.9	0.0	0.2	0.1	0.2	0.0	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Candidiasis	0.5	0.3	0.3	0.5	**0.4**	0.2	0.6	0.3	0.2	4.3	0.0	0.0	0.5	1.5	0.1	0.3	1.9	0.0	0.6	0.5	0.5	0.0	0.0	1.1
Abscess	1.0	0.7	0.9	0.8	**0.9**	1.0	0.0	1.5	0.0	4.3	0.0	0.0	0.0	0.9	0.5	1.3	4.8	0.0	0.5	2.5	6.5	0.1	0.0	1.0
Other condition	3.3	1.1	2.9	2.3	**2.6**	3.0	0.0	1.6	0.5	4.1	0.9	0.0	5.1	0.3	0.1	32.2	0.3	0.0	2.8	6.5	0.0	1.0	3.2	21.4

Table 6.13. Distribution of oral mucosal conditions by location of conditions in the mouth in India (rural, urban, males & females), States & Union Territories.

Location	Oral mucosal condition							
	Oral Cancer	Leukoplakia	Lichen Planus	Ulceration	ANUG	Candidiasis	Abscess	Others
Rural								
Vermillion Border	11	52	8	118	4	19	10	32
Commissures	5	26	3	139	0	11	0	16
Lips	1	56	9	307	1	0	2	33
Sulci	1	32	3	99	0	0	27	4
Buccal mucosa	8	435	92	348	2	16	17	226
Floor of mouth	2	41	3	28	1	3	2	7
Tongue	1	29	3	74	0	21	5	110
Hard and /or soft palate	12	37	2	27	0	15	9	92
Alveolar ridges/gingiva	2	13	1	43	0	10	223	624
Sub Total (Rural)	**43**	**721**	**124**	**1183**	**8**	**95**	**295**	**1144**
Urban								
Vermillion Border	2	5	0	35	0	5	2	28
Commissures	5	5	1	65	0	0	0	1
Lips	2	14	3	121	0	0	0	5
Sulci	1	12	4	68	0	0	12	0
Buccal mucosa	1	148	84	225	1	8	6	60
Floor of mouth	0	33	0	16	0	1	2	2
Tongue	1	18	0	49	0	8	1	22
Hard and /or soft palate	1	10	1	6	6	5	2	27
Alveolar ridges/gingiva	0	1	1	33	11	3	135	163
Sub Total (Urban)	**13**	**246**	**94**	**618**	**18**	**30**	**160**	**308**
National								
Vermillion Border	13	57	8	153	4	24	12	60
Commissures	10	31	4	204	0	11	0	17
Lips	3	70	12	428	1	0	2	38
Sulci	2	44	7	167	0	0	39	4
Buccal mucosa	9	583	176	573	3	24	23	286
Floor of mouth	2	74	3	44	1	4	4	9
Tongue	2	47	3	123	0	29	6	132
Hard and /or soft palate	13	47	3	33	6	20	11	119
Alveolar ridges/gingiva	2	14	2	76	36	13	358	787
Total (National)	**56**	**967**	**218**	**1801**	**51**	**125**	**455**	**1452**

Table 6.14. Percent subjects with severity of fluorosis by age, in India (rural, urban, males & females), States & Union Territories.

Fluorosis	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**11011**	**5377**	**8688**	**7700**	**16388**	**1819**	**617**	**2015**	**866**	**628**	**925**	**1035**	**628**	**1108**	**1427**	**1254**	**984**	**627**	**1177**	**604**	**315**	**344**	**13**	**2**
With Fluorosis	6.2	4.8	5.7	5.7	**5.8**	2.7	0.0	29.6	29.8	8.5	0.2	2.0	1.7	1.5	1.3	2.8	31.9	16.2	4.5	0.0	15.6	1.6	0.0	0.0
Questionable	3.1	3.0	3.0	3.1	**3.1**	0.0	0.0	13.7	14.0	5.3	0.2	1.0	0.0	0.8	0.6	1.3	26.1	7.3	1.3	0.0	15.6	0.2	0.0	0.0
V Mild & Mild	2.8	1.7	2.5	2.5	**2.5**	2.2	0.0	13.9	15.2	3.3	0.0	1.0	1.7	0.8	0.6	1.5	5.8	8.6	2.8	0.0	0.0	1.4	0.0	0.0
Moderate	0.2	0.0	0.1	0.2	**0.2**	0.6	0.0	1.7	0.6	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.4	0.3	0.0	0.0	0.0	0.0	0.0
Severe fluorosis	0.0	0.0	0.0	0.0	**0.0**	0.0	0.0	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
12 Yrs	**12498**	**6125**	**9529**	**9094**	**18623**	**1849**	**616**	**2003**	**942**	**629**	**923**	**1397**	**629**	**1109**	**1570**	**1581**	**986**	**758**	**1763**	**624**	**314**	**349**	**264**	**317**
With Fluorosis	13.1	10.1	11.6	12.2	**12.1**	14.1	1.0	44.0	45.2	20.1	0.3	8.4	1.4	2.1	3.0	6.1	43.9	37.6	18.5	0.3	29.5	3.8	0.0	1.0
Questionable	5.0	4.8	4.7	5.0	**4.9**	1.3	0.5	18.5	17.7	12.9	0.3	1.9	0.6	1.4	1.0	3.7	35.1	14.7	4.4	0.2	28.3	1.3	0.0	0.0
V Mild & Mild	6.6	4.5	5.7	6.1	**6.0**	10.4	0.6	23.4	24.0	6.7	0.0	4.7	0.6	0.5	1.1	2.2	8.5	18.4	11.4	0.2	1.3	2.1	0.0	0.6
Moderate	1.1	0.7	1.1	0.8	**1.0**	2.2	0.0	2.1	2.8	0.6	0.0	1.6	0.3	0.1	0.7	0.1	0.3	3.0	2.2	0.0	0.0	0.4	0.0	0.5
Severe fluorosis	0.3	0.1	0.1	0.4	**0.2**	0.4	0.0	0.2	0.7	0.0	0.0	0.2	0.0	0.1	0.3	0.1	0.0	1.6	0.6	0.0	0.0	0.1	0.0	0.0
15 Yrs	**12266**	**6068**	**9489**	**8845**	**18334**	**1834**	**617**	**2002**	**940**	**629**	**930**	**1373**	**629**	**1119**	**1455**	**1547**	**983**	**689**	**1742**	**619**	**314**	**332**	**266**	**314**
With Fluorosis	12.9	9.6	12.0	11.3	**11.8**	15.0	0.3	39.2	44.8	22.8	0.6	7.1	1.5	1.8	3.3	4.4	45.3	37.2	17.8	0.5	39.4	2.8	0.0	1.7
Questionable	4.8	4.2	4.6	4.6	**4.6**	1.6	0.0	13.2	15.8	16.4	0.2	1.7	0.0	1.4	1.3	2.1	34.0	14.3	4.5	0.4	36.6	0.6	0.0	0.0
V Mild & Mild	6.4	4.7	6.2	5.4	**5.9**	11.0	0.3	22.7	25.7	6.3	0.4	3.9	1.5	0.3	1.4	2.1	11.3	16.8	11.3	0.2	2.8	2.3	0.0	1.3
Moderate	1.4	0.6	1.0	1.1	**1.1**	2.2	0.0	3.1	2.3	0.2	0.0	1.5	0.0	0.1	0.7	0.1	0.0	5.2	1.7	0.0	0.0	0.0	0.0	0.5
Severe fluorosis	0.2	0.1	0.2	0.2	**0.2**	0.3	0.0	0.3	1.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	1.1	0.4	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13018**	**6429**	**9997**	**9450**	**19447**	**1880**	**616**	**1938**	**955**	**619**	**911**	**1564**	**619**	**1211**	**1612**	**1688**	**1011**	**1155**	**1797**	**615**	**312**	**381**	**259**	**304**
With Fluorosis	9.8	8.2	9.1	9.2	**9.3**	8.4	0.3	30.8	38.2	20.4	0.7	3.4	1.7	0.5	1.5	5.9	43.1	36.2	8.0	1.1	52.0	3.3	0.0	0.5
Questionable	3.9	3.7	3.8	3.7	**3.8**	0.7	0.0	11.8	12.0	11.6	0.2	0.4	0.5	0.3	0.9	2.4	32.8	13.0	2.0	0.3	40.8	0.5	0.0	0.0
V Mild & Mild	4.8	3.8	4.5	4.4	**4.5**	6.8	0.0	15.6	23.1	8.6	0.6	2.4	1.2	0.2	0.4	3.0	10.0	17.1	5.4	0.5	11.2	2.0	0.0	0.5
Moderate	0.9	0.6	0.8	0.9	**0.9**	0.9	0.0	3.3	2.8	0.3	0.0	0.7	0.0	0.2	0.0	0.4	0.4	4.4	0.7	0.3	0.0	0.5	0.0	0.0
Severe fluorosis	0.2	0.1	0.1	0.2	**0.2**	0.1	0.3	0.1	0.3	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	1.7	0.1	0.0	0.0	0.4	0.0	0.0
65-74 Yrs	**8398**	**4116**	**6503**	**6011**	**12514**	**1543**	**510**	**994**	**515**	**345**	**538**	**1138**	**345**	**759**	**1317**	**1201**	**340**	**534**	**1341**	**486**	**155**	**213**	**121**	**119**
With Fluorosis	5.6	4.2	5.4	5.1	**5.2**	4.9	0.1	27.6	40.5	16.1	0.3	1.9	0.5	0.8	0.8	4.9	11.7	25.0	4.5	0.2	48.6	4.8	0.0	0.4
Questionable	1.8	1.6	1.8	1.6	**1.7**	0.6	0.1	10.3	10.8	8.6	0.0	0.4	0.0	0.0	0.4	1.5	10.7	7.4	1.4	0.2	40.6	0.7	0.0	0.4
V Mild & Mild	2.9	1.9	2.8	2.5	**2.6**	3.8	0.0	10.4	26.1	7.3	0.3	1.1	0.5	0.8	0.4	3.0	1.0	12.1	2.8	0.0	8.0	4.1	0.0	0.0
Moderate	0.7	0.4	0.5	0.6	**0.6**	0.5	0.0	6.9	2.8	0.3	0.0	0.3	0.0	0.0	0.1	0.3	0.0	3.7	0.2	0.0	0.0	0.0	0.0	0.0
Severe fluorosis	0.2	0.2	0.2	0.3	**0.2**	0.1	0.0	0.0	0.9	0.1	0.0	0.2	0.0	0.0	0.0	0.2	0.0	1.9	0.1	0.0	0.0	0.0	0.0	0.0

6.5. DENTAL FLUOROSIS STATUS

Table 6.14 presents the percentage of subjects with dental fluorosis by level of severity.

Fluorosis results from drinking water drawn from ground water sources containing a high fluoride content (usually more than 2.0 ppm) over the period when teeth are in the process of development or mineralization. It manifests as mottling or discoloration of enamel. It is sometimes confused with other structural enamel defects such as enamel hypoplasia. The amount of water consumed and the time period when it is consumed are important factors which influence fluorosis.

In young children (5 years), where only primary teeth are present, the prevalence of fluorosis in the country was 5.8 per cent. If the cases of `questionable' fluorosis (3.1 per cent) are ignored, then the prevalence falls to only 2.7 per cent. There were no subjects with `severe' form of the problem and only a negligible proportion (0.2 per cent) had `moderate' level of fluorosis. The remaining subjects (2.5 per cent) had `very mild or mild' fluorosis.

There were no marked gender related differentials. Very mild and mild fluorosis occurred in both rural and urban areas, more in rural than urban, but the rural areas accounted for all of the moderate fluorosis (0.2 per cent). In the states, fluorosis was negligible or virtually absent in this age group in many of the states surveyed, which included the states of Assam, UP, Goa, and Pondicherry. The majority of the states surveyed had a very low prevalence which ranged between 0.2 and 2.8 per cent. The `moderate' and `severe' form of fluorosis, was even rarer in the states. Some states showed higher prevalence figures for fluorosis but these included higher figures for `questionable' and/ or ‘v. mild/mild’ fluorosis but not for `moderate' or `severe' form of fluorosis.

In children aged 12 and 15 years in the country, Fluorosis, including `questionable' fluorosis, was prevalent in 12.1 and 11.8 per cent subjects respectively. In both case, ignoring `questionable' fluorosis, the prevalence was only 7.2 per cent in each age group. `Severe' form of fluorosis was recorded in a negligible 0.2 per cent children aged 12 and 15 years. In both age groups, only about one per cent had `moderate' fluorosis.

There were no clear gender related differentials but rural subjects had marginally higher prevalence.

The prevalence of fluorosis in adults (35-44 and 65-74 years) was low (5.5 and 3.5 per cent respectively) if the questionable fluorosis was ignored. The pattern of distribution of fluorosis by level of severity remained similar to other age groups. There were no marked gender related differentials but fluorosis was marginally prevalent in rural areas than in urban areas.

The findings suggest that overall, fluorosis in the country has a very low prevalence. In fact, the moderate and severe form of fluorosis is present in less than one per cent of the population in all the age groups. Even very mild or mild form of fluorosis does not appear in more than 6 per cent of the population in 12 and 15 year age-groups and is even lower in adults. These findings appear consistent with other studies in the country. Literature exists which reports endemic fluorosis in some pockets in some states in the country. However, such pockets are rare, localized and small and limited to some states.

6.6. OTHER ORAL CONDITIONS

6.6.1 EXTRA ORAL LESIONS

Table 6.15 presents the per cent subjects with extra oral lesions by type of lesions.

Table 6.15. Percent subjects with extra oral lesions by age, in India (rural, urban, males & females), States & Union Territories.

Extra Oral Lesions	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**10720**	**5106**	**8429**	**7397**	**15826**	**1879**	**617**	**319**	**798**	**386**	**941**	**1694**	**386**	**1148**	**1537**	**1528**	**638**	**792**	**1582**	**628**	**13**	**361**	**266**	**313**
% subjects with lesions (Total)	1.1	1.0	1.0	1.0	1.1	0.3	0.0	0.0	0.7	0.0	14.7	0.8	0.5	0.7	0.9	3.2	0.6	0.8	1.9	0.3	0.0	1.4	0.4	0.2
Ulceration,sores,erosions,fissures	0.6	0.5	0.6	0.6	0.6	0.3	0.0	0.0	0.7	0.0	1.0	0.7	0.0	0.5	0.7	2.5	0.6	0.8	1.5	0.0	0.0	0.9	0.4	0.2
head,neck,limbs	0.3	0.2	0.2	0.3	0.3	0.2	0.0	0.0	0.1	0.0	0.1	0.4	0.0	0.4	0.5	0.5	0.2	0.2	0.4	0.0	0.0	0.8	0.4	0.0
nose,cheeks,chin	0.1	0.3	0.1	0.1	0.1	0.0	0.0	0.0	0.3	0.0	0.2	0.1	0.0	0.0	0.0	0.1	0.4	0.5	0.4	0.0	0.0	0.1	0.0	0.2
commissures	0.2	0.1	0.2	0.2	0.2	0.2	0.0	0.0	0.0	0.0	0.8	0.1	0.0	0.2	0.2	1.8	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
vermillion border	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.2	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	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)	0.3	0.5	0.3	0.4	0.3	0.0	0.0	0.0	0.0	0.0	13.7	0.2	0.5	0.0	0.2	0.3	0.0	0.0	0.4	0.0	0.0	0.5	0.0	0.0
12 Yrs	**10743**	**5158**	**8149**	**7752**	**15901**	**1868**	**616**	**320**	**795**	**405**	**937**	**1641**	**405**	**1120**	**1582**	**1611**	**651**	**756**	**1620**	**628**	**12**	**349**	**267**	**318**
% subjects with lesions (Total)	1.2	0.9	1.2	0.9	1.1	0.8	0.2	0.7	1.1	0.1	16.9	0.3	0.0	1.0	1.2	2.9	2.0	0.3	1.6	0.3	12.5	0.5	2.8	0.0
Ulceration,sores,erosions,fissures	0.7	0.3	0.7	0.5	0.7	0.5	0.2	0.7	0.8	0.1	0.8	0.2	0.0	0.8	0.9	2.3	2.0	0.2	0.8	0.2	12.5	0.5	2.8	0.0
head,neck,limbs	0.3	0.1	0.2	0.3	0.3	0.3	0.2	0.7	0.3	0.0	0.0	0.2	0.0	0.1	0.7	0.3	0.6	0.0	0.2	0.0	12.5	0.5	1.2	0.0
nose,cheeks,chin	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.1	0.2	0.1	1.4	0.2	0.1	0.0	0.0	0.0	0.0	0.0
commissures	0.3	0.0	0.3	0.1	0.2	0.1	0.0	0.0	0.5	0.0	0.2	0.0	0.0	0.3	0.0	1.8	0.0	0.0	0.6	0.2	0.0	0.0	1.2	0.0
vermillion border	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.4	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	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips	0.0	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)	0.4	0.4	0.4	0.3	0.4	0.3	0.0	0.0	0.1	0.0	16.2	0.0	0.0	0.2	0.2	0.3	0.0	0.0	0.8	0.0	0.0	0.0	0.0	0.0
15 Yrs	**10688**	**5153**	**8227**	**7614**	**15841**	**1858**	**615**	**321**	**801**	**403**	**935**	**1632**	**403**	**1147**	**1462**	**1579**	**652**	**697**	**1772**	**628**	**20**	**334**	**268**	**314**
% subjects with lesions (Total)	1.2	1.0	1.1	1.3	1.2	0.4	0.0	0.7	0.5	0.6	9.7	0.7	0.6	0.9	0.8	2.5	4.0	1.1	1.0	0.5	20.1	1.4	1.6	0.3
Ulceration,sores,erosions,fissures	0.9	0.7	0.8	1.0	0.8	0.3	0.0	0.7	0.3	0.6	0.4	0.5	0.1	0.9	0.8	2.2	4.0	0.7	0.7	0.5	20.1	1.4	0.8	0.2
head,neck,limbs	0.3	0.2	0.2	0.4	0.3	0.1	0.0	0.7	0.2	0.5	0.0	0.4	0.1	0.0	0.7	0.1	0.0	0.1	0.2	0.2	9.8	0.9	0.0	0.0
nose,cheeks,chin	0.2	0.2	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	2.4	0.0	0.1	0.2	8.4	0.5	0.0	0.0
commissures	0.3	0.2	0.2	0.3	0.2	0.1	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.5	0.0	1.7	1.7	0.2	0.3	0.0	1.9	0.0	0.4	0.0
vermillion border	0.2	0.1	0.2	0.1	0.2	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.4	0.1	0.2	0.0	0.4	0.1	0.2	0.0	0.0	0.4	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.8	0.2
Enlarged lymph nodes(head & neck)	0.2	0.3	0.3	0.2	0.2	0.1	0.0	0.0	0.0	0.0	9.3	0.2	0.5	0.0	0.0	0.1	0.0	0.0	0.3	0.0	0.0	0.1	0.0	0.0
35-44 Yrs	**11636**	**5567**	**8854**	**8349**	**17203**	**1914**	**615**	**305**	**824**	**406**	**937**	**1840**	**406**	**1242**	**1624**	**1773**	**650**	**1182**	**1870**	**627**	**14**	**384**	**272**	**318**
% subjects with lesions (Total)	1.9	2.3	2.2	1.9	2.0	1.2	0.2	0.8	0.7	27.5	4.3	0.5	0.5	4.9	1.3	2.0	7.5	1.2	0.9	0.3	58.0	2.7	1.6	0.6
Ulceration,sores,erosions,fissures	1.6	1.8	1.9	1.4	1.7	0.7	0.2	0.5	0.7	25.0	0.3	0.3	0.5	4.6	1.0	1.5	7.5	1.0	0.8	0.2	58.0	2.4	0.8	0.2
head,neck,limbs	0.5	0.1	0.4	0.3	0.4	0.2	0.2	0.1	0.3	2.0	0.1	0.2	0.4	1.2	0.7	0.3	0.6	0.3	0.3	0.2	13.4	0.8	0.4	0.0
nose,cheeks,chin	0.3	0.4	0.4	0.3	0.3	0.1	0.0	0.0	0.3	12.6	0.0	0.0	0.0	0.4	0.0	0.1	4.2	0.4	0.2	0.0	6.1	0.9	0.0	0.0
commissures	0.4	0.4	0.5	0.4	0.4	0.4	0.0	0.4	0.0	6.0	0.2	0.1	0.1	1.0	0.0	1.1	2.4	0.0	0.3	0.0	31.9	0.8	0.4	0.2
vermillion border	0.4	0.9	0.6	0.6	0.6	0.2	0.0	0.0	0.2	4.5	0.0	0.1	0.0	2.0	0.3	0.1	0.3	0.3	0.1	0.0	6.7	0.0	0.0	0.0
Cancrum oris	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.2	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	0.5	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.4	0.3
Enlarged lymph nodes(head & neck)	0.2	0.4	0.2	0.4	0.3	0.4	0.0	0.3	0.0	1.0	4.0	0.0	0.0	0.2	0.3	0.1	0.0	0.1	0.2	0.0	0.0	0.4	0.0	0.0
65-74 Yrs	**10568**	**5007**	**8037**	**7538**	**15575**	**1838**	**614**	**310**	**809**	**415**	**941**	**1600**	**415**	**1117**	**1550**	**1456**	**638**	**695**	**1607**	**629**	**18**	**346**	**264**	**313**
% subjects with lesions (Total)	2.9	2.0	2.7	2.7	2.7	4.0	0.3	3.5	1.1	41.7	2.0	0.7	0.8	9.3	0.7	4.3	10.2	1.1	1.5	0.5	60.6	1.8	1.1	3.5
Ulceration,sores,erosions,fissures	2.6	1.8	2.4	2.3	2.3	3.5	0.3	2.8	0.5	37.9	0.4	0.6	0.4	9.2	0.6	2.6	9.3	1.0	1.1	0.3	52.2	1.7	0.8	0.7
head,neck,limbs	0.6	0.3	0.6	0.4	0.5	0.5	0.0	0.4	0.3	2.7	0.1	0.2	0.1	2.5	0.4	0.2	0.6	0.5	0.2	0.0	18.7	1.3	0.0	0.0
nose,cheeks,chin	0.4	0.4	0.5	0.4	0.4	0.4	0.3	1.1	0.1	5.1	0.1	0.1	0.0	0.5	0.1	0.2	3.2	0.3	0.0	0.2	16.9	0.5	0.0	0.0
commissures	0.9	0.6	0.7	0.9	0.8	1.6	0.0	1.4	0.2	17.4	0.0	0.2	0.3	2.6	0.1	2.3	3.2	0.0	0.5	0.2	16.7	0.0	0.8	0.7
vermillion border	0.7	0.5	0.7	0.6	0.7	1.1	0.0	0.0	0.1	13.0	0.2	0.2	0.1	3.5	0.0	0.0	2.3	0.3	0.3	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	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.3	0.0	1.9	0.0	0.1	0.1	0.0	0.1	0.3	0.5	0.0	0.0	0.2	8.4	0.0	0.3	1.2
Enlarged lymph nodes(head & neck)	0.2	0.1	0.1	0.2	0.2	0.5	0.0	0.0	0.2	1.4	1.6	0.0	0.0	0.1	0.0	0.9	0.5	0.0	0.2	0.0	0.0	0.1	0.0	1.0

The most important extra-oral lesion of the limbs, head, neck and face region was recorded. Such lesions include ulcerations, sores, erosions and fissures which may give clues to signs of dietary or vitamin deficiencies in individuals, especially children; cancrum oris, which may result from dietary deficiencies and poor oral hygiene conditions, abnormalities of the upper and lower lips which may indicate congenital defects such as cleft lips; enlarged lymph nodes of the head and neck region indicative of infective or other conditions and other swellings of the face and jaws.

The extra oral lesions were rare in the country with only 1.1 per cent subjects being affected in the 5 year age group and a maximum of 2.7 per cent being affected in the highest age-group of 65-74 years. The majority of those affected had ulceration, sores, erosions or fissures. These were located most commonly on commissures and vermillion border followed by head, neck and limbs and finally on nose, cheeks and chin. The other lesions observed were enlarged lymph nodes of the head or neck and abnormalities of the upper and lower lips but these were very infrequent and much less prevalent.

Since the prevalence of the lesions was very low, no clear differentials were palpable in male and female subjects or between rural and urban subjects.

Three states with strikingly higher prevalence of these lesions in comparison to other states were Chandigarh, Himachal Pradesh and Punjab, in that order.

6.6.2 T.M. JOINT SYMPTOMS AND SIGNS

Table 6.16 presents the percentage of subjects with temporomandibular joint (TM Joint) symptoms and signs. Symptoms were recorded when there was occurrence of clicking, pain, or difficulties in opening or closing the jaw once or more per week. These are subjective findings and dependent on individuals' reporting of their assessment of the problem. The signs signs were observations on the part of trained dentists during the clinical oral examination of subjects. These included clicking, tenderness on palpation or reduced jaw mobility (opening < 30 mm).

Children (5 years) had no T M Joint symptoms or signs. It is possible that these were sometimes not recorded by the examiners for this age group. Overall, in the country, TM Joint symptoms and signs were negligibly low or virtually absent in children aged 12 and 15 years. In adults (35-44 and 65-74 years), the prevalence was only 0.2 and 0.4 per cent, respectively. The signs present were reportedly clicking, tenderness, and reduced jaw mobility, in that order of prevalence.

Distribution of symptoms was even in male and female subjects. A very slight but discernible higher prevalence was detected in urban residents, compared with their rural counterparts.

In states, prevalence of TM Joint symptoms and signs was generally low. However, there were three states, viz. Chandigarh, Himachal Pradesh, and Punjab, in that order, which reported relatively high percentage prevalence figures in the age groups of 35-44 and 65-74 years.

6.6.3 ENAMEL DEFECTS (OPACITIES, HYPOPLASIA)

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

Table 6.16. Percent subjects with symptoms and signs in the temporomandibular joints by age, in India (rural, urban, males & females), States & Union Territories.

TM Joints assessment	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**12565**	**6044**	**9897**	**8712**	**18609**	**1879**	**617**	**1995**	**918**	**630**	**939**	**1243**	**829**	**1136**	**1540**	**1526**	**945**	**785**	**1744**	**628**	**315**	**360**	**266**	**314**
Symptoms present	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.1	0.0	0.4	0.0	0.0	0.0	0.4	0.0
Signs present	0.2	0.3	0.0	0.0	0.0	0.1	0.0	0.3	0.2	0.0	0.0	0.2	0.0	0.6	0.1	0.0	0.2	0.0	0.5	0.2	0.0	2.9	0.4	0.0
Clicking	0.2	0.2	0.0	0.0	0.0	0.1	0.0	0.2	0.2	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.1	0.0	0.4	0.2	0.0	2.9	0.4	0.0
Tenderness	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.2	0.1	0.0	0.2	0.0	0.3	0.0	0.0	0.0	0.4	0.0
Reduced jaw mobility	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.3	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.4	0.0
12 Yrs	**12571**	**6143**	**9568**	**9146**	**18714**	**1864**	**616**	**2004**	**916**	**629**	**935**	**1266**	**781**	**1111**	**1582**	**1607**	**975**	**753**	**1798**	**628**	**315**	**349**	**267**	**318**
Symptoms present	0.2	0.2	0.0	0.0	0.0	0.1	0.2	0.0	0.9	0.0	0.0	0.5	0.0	0.6	0.3	0.3	0.0	0.0	0.4	0.2	0.0	0.1	0.8	0.0
Signs present	0.5	0.9	0.0	0.1	0.1	0.1	0.0	0.4	1.6	0.0	0.0	1.1	0.0	1.1	0.4	0.4	0.3	0.3	1.0	0.2	0.0	5.0	0.3	0.2
Clicking	0.4	0.8	0.0	0.1	0.0	0.1	0.0	0.2	0.7	0.0	0.0	1.0	0.0	0.9	0.4	0.4	0.3	0.3	0.9	0.2	0.0	5.0	0.3	0.2
Tenderness	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	1.0	0.0	0.0	0.2	0.0	0.1	0.2	0.1	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0
Reduced jaw mobility	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 Yrs	**12352**	**6095**	**9554**	**8893**	**18447**	**1854**	**617**	**2008**	**919**	**626**	**937**	**1248**	**779**	**1141**	**1462**	**1574**	**974**	**695**	**1758**	**628**	**313**	**333**	**268**	**313**
Symptoms present	0.4	0.3	0.0	0.0	0.0	0.1	0.0	0.2	0.6	0.0	0.0	1.0	0.3	0.1	0.1	0.4	0.6	0.0	0.5	0.5	0.0	0.9	0.0	0.2
Signs present	1.0	1.1	0.1	0.1	0.1	0.2	0.0	0.6	0.8	0.0	0.0	1.4	0.5	4.6	0.6	0.7	0.5	0.8	1.4	0.7	0.0	7.2	0.6	0.2
Clicking	0.7	1.0	0.1	0.1	0.1	0.2	0.0	0.4	0.6	0.0	0.0	1.4	0.3	3.9	0.5	0.7	0.3	0.5	1.3	0.4	0.0	7.2	0.6	0.0
Tenderness	0.3	0.3	0.0	0.1	0.0	0.1	0.0	0.2	0.3	0.0	0.0	0.5	0.3	0.4	0.1	0.1	0.3	0.7	0.4	0.5	0.0	0.0	0.0	0.2
Reduced jaw mobility	0.2	0.2	0.1	0.0	0.0	0.0	0.0	0.4	0.2	0.0	0.0	0.4	0.0	0.4	0.1	0.0	0.0	0.4	0.0	0.2	0.0	0.0	0.0	0.0
35-44 Yrs	**13349**	**6542**	**10221**	**9670**	**19891**	**1911**	**617**	**2017**	**952**	**626**	**934**	**1262**	**981**	**1235**	**1632**	**1769**	**1003**	**1177**	**1859**	**627**	**315**	**384**	**272**	**318**
Symptoms present	2.2	1.9	0.2	0.2	0.2	0.3	0.3	1.3	1.1	8.0	0.0	3.0	0.7	5.1	0.9	1.4	6.9	0.1	0.7	3.1	19.1	1.1	0.0	0.2
Signs present	4.3	4.6	0.6	0.4	0.5	3.0	0.3	3.7	2.5	9.3	0.0	6.8	2.0	13.5	3.4	2.3	6.7	2.0	4.4	3.3	18.6	7.9	6.8	2.1
Clicking	3.7	4.1	0.5	0.3	0.4	2.8	0.3	2.5	1.5	5.8	0.0	6.5	1.5	12.2	3.2	2.3	6.5	1.8	4.2	2.9	14.1	7.9	4.2	1.9
Tenderness	1.2	0.8	0.2	0.1	0.1	0.2	0.1	1.9	1.0	3.2	0.0	2.0	0.5	2.8	0.9	0.1	1.7	0.5	0.7	1.7	7.9	0.4	2.6	0.2
Reduced jaw mobility	0.4	0.3	0.0	0.0	0.0	0.1	0.1	0.6	0.2	0.9	0.0	1.7	0.0	1.3	0.1	0.0	0.1	0.1	0.1	0.2	0.0	0.0	0.0	0.0
65-74 Yrs	**12387**	**5988**	**9466**	**8909**	**18375**	**1834**	**615**	**2001**	**913**	**630**	**937**	**1240**	**770**	**1115**	**1556**	**1448**	**961**	**694**	**1797**	**629**	**314**	**344**	**264**	**313**
Symptoms present	4.9	4.0	0.4	0.4	0.4	1.2	7.6	3.0	1.6	24.1	0.4	4.9	3.4	9.0	2.0	0.7	20.4	0.6	0.9	6.0	25.3	0.8	0.0	0.7
Signs present	9.3	9.9	1.0	1.0	1.0	7.5	8.4	9.3	8.6	27.7	0.4	14.0	10.1	21.4	11.6	1.8	23.4	4.1	5.6	6.5	26.5	8.3	4.2	7.6
Clicking	8.0	8.6	0.9	0.9	0.9	7.0	5.4	5.6	5.7	19.6	0.2	13.1	9.4	19.4	10.8	1.5	22.7	3.6	5.2	5.2	26.1	8.3	2.8	6.3
Tenderness	3.3	2.9	0.5	0.4	0.4	0.8	3.6	4.2	4.3	11.5	0.4	4.7	2.3	10.1	2.0	0.3	4.0	2.0	1.1	4.6	23.1	0.1	0.6	0.7
Reduced jaw mobility	1.3	0.7	0.2	0.1	0.1	0.0	0.3	1.3	0.6	10.3	0.0	3.6	0.1	2.0	0.8	0.3	1.4	0.8	0.7	1.3	1.3	0.1	0.8	0.7

Table 6.17. Percent subjects with enamel defects (opacities/ hypoplasias) by age, in India (rural, urban, males & females), States & Union Territories.

Enamel defects (opacities/ hypoplasias)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 Yrs	**12546**	**6148**	**9551**	**9143**	**18694**	**1864**	**616**	**2011**	**944**	**629**	**934**	**1253**	**776**	**1109**	**1570**	**1588**	**998**	**755**	**1776**	**625**	**315**	**349**	**265**	**317**
With enamel defects	25.0	17.7	21.6	23.0	22.3	14.9	2.4	47.4	28.0	29.4	4.1	12.2	6.6	2.7	5.8	8.3	52.0	33.8	21.5	41.8	11.5	9.2	8.7	3.1
with demarcated opacity	16.3	13.3	14.6	15.5	15.0	9.4	1.8	34.8	14.4	25.6	3.7	6.0	2.4	1.5	3.1	4.8	51.0	19.6	14.7	27.2	11.1	6.5	7.9	1.6
with diffused opacity	10.0	5.0	8.3	8.5	8.3	4.8	0.7	22.6	13.2	5.9	0.1	4.1	4.2	0.9	1.3	2.2	9.0	8.8	5.8	19.5	0.5	1.9	0.0	0.7
with hypoplasia	2.7	2.3	2.5	2.4	2.5	1.8	0.0	3.5	1.7	2.2	0.3	1.4	0.0	0.2	1.0	1.3	0.5	5.2	0.8	6.7	0.0	1.2	1.6	0.3
with other defects	0.2	0.4	0.2	0.3	0.3	0.1	0.0	5.1	0.1	0.0	0.0	0.1	0.3	0.1	0.1	0.1	0.0	0.5	0.0	0.3	0.0	0.0	0.0	0.0
with combination of opacities & hypoplasia	3.3	1.7	3.1	2.3	2.8	0.7	0.0	2.1	1.5	0.5	0.2	1.4	0.6	0.3	0.6	0.6	0.1	2.3	0.8	10.2	0.0	0.0	0.0	1.3
with all three conditions	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.4	0.0	0.0	0.0	0.6	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
15 Yrs	**12383**	**6117**	**9577**	**8923**	**18500**	**1856**	**617**	**2011**	**951**	**629**	**939**	**1234**	**782**	**1139**	**1458**	**1581**	**995**	**695**	**1757**	**628**	**314**	**333**	**267**	**314**
With enamel defects	26.0	18.3	23.0	23.4	23.2	15.3	1.2	43.1	29.6	29.5	4.1	12.4	6.3	2.6	5.4	6.8	51.6	36.2	20.3	46.4	3.9	9.5	6.4	4.4
with demarcated opacity	17.5	13.6	15.6	16.4	16.0	10.5	0.9	32.3	17.3	26.3	3.9	5.3	3.3	1.0	2.9	4.3	48.6	24.0	14.8	30.5	3.9	8.0	5.3	1.1
with diffused opacity	10.5	5.7	8.7	8.9	8.8	3.8	0.3	21.5	11.9	6.8	0.1	5.1	2.8	1.5	1.3	1.3	9.3	8.0	4.7	22.8	0.1	1.1	0.4	0.8
with hypoplasia	2.9	2.1	2.5	2.5	2.5	3.9	0.0	3.5	2.6	1.2	0.4	1.7	1.2	0.4	0.9	0.9	0.5	4.7	0.5	5.9	0.0	0.5	0.3	1.3
with other defects	0.2	0.4	0.3	0.2	0.3	0.1	0.0	6.1	0.2	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.5	0.1	0.0	0.0	0.0	0.0	0.0
with combination of opacities & hypoplasia	3.1	1.4	2.5	2.4	2.5	0.9	0.0	2.2	1.6	0.0	0.0	1.5	0.9	0.1	0.6	0.5	0.4	2.7	1.4	8.6	0.0	0.0	0.4	1.3
with all three conditions	0.0	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.2	0.0	0.0	0.0	0.0
35-44 Yrs	**13126**	**6491**	**10084**	**9533**	**19617**	**1908**	**617**	**1952**	**962**	**623**	**924**	**1238**	**956**	**1230**	**1628**	**1700**	**1018**	**1154**	**1821**	**620**	**312**	**382**	**265**	**307**
With enamel defects	18.7	13.3	17.2	17.5	17.3	6.1	0.1	33.1	21.9	24.8	2.1	4.2	4.1	1.3	2.3	6.8	48.1	32.3	9.0	36.9	2.0	7.4	0.8	1.1
with demarcated opacity	11.9	9.7	11.6	10.7	11.1	3.7	0.1	29.2	11.2	21.3	0.9	1.8	1.9	0.7	1.4	4.4	46.9	19.5	7.2	20.8	2.0	6.1	0.4	0.2
with diffused opacity	6.6	4.0	5.1	6.2	5.7	2.4	0.0	17.1	10.6	5.6	0.6	2.0	1.7	0.3	0.7	2.0	6.9	9.5	1.8	14.8	0.0	1.0	0.0	0.3
with hypoplasia	2.9	1.5	2.3	2.6	2.4	1.3	0.0	2.1	2.1	2.5	0.2	0.5	0.7	0.0	0.2	0.2	0.9	5.1	0.3	7.8	0.0	0.4	0.0	0.2
with other defects	0.5	0.6	0.8	1.1	1.0	0.2	0.0	8.1	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.2	0.2	1.7	0.1	0.7	0.0	0.0	0.0	0.0
with combination of opacities & hypoplasia	2.7	1.2	2.3	2.4	2.3	0.1	0.0	4.0	1.5	0.6	0.4	0.2	0.0	0.3	0.2	0.7	0.0	1.4	0.2	8.5	0.0	0.0	0.4	0.7
with all three conditions	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-74 Yrs	**8498**	**4171**	**6585**	**6084**	**12669**	**1551**	**526**	**1108**	**539**	**320**	**601**	**949**	**481**	**732**	**1324**	**1191**	**356**	**530**	**1345**	**471**	**155**	**215**	**153**	**122**
With enamel defects	13.1	8.5	12.4	13.0	12.7	1.5	0.0	27.8	18.3	17.5	0.9	1.2	3.4	2.3	2.1	6.9	17.6	24.3	5.6	27.7	0.0	6.1	1.4	0.0
with demarcated opacity	6.8	6.1	6.0	7.1	6.6	0.6	0.0	21.0	7.4	15.8	0.6	0.6	1.3	1.0	0.8	3.7	15.5	12.3	4.4	15.0	0.0	4.0	0.0	0.0
with diffused opacity	4.4	2.5	4.6	3.5	4.0	0.7	0.0	14.3	9.3	3.8	0.3	0.3	0.5	0.3	0.9	1.1	1.5	5.8	1.4	10.4	0.0	0.7	0.0	0.0
with hypoplasia	2.0	0.4	1.5	1.7	1.6	0.2	0.0	1.4	1.0	1.3	0.3	0.0	0.0	0.0	0.2	0.3	0.6	5.2	0.0	3.9	0.0	0.7	0.0	0.0
with other defects	0.6	0.7	1.0	1.5	1.2	0.1	0.0	8.8	0.5	1.0	0.0	0.1	1.9	0.3	0.1	1.4	0.5	2.2	0.0	0.6	0.0	0.7	0.0	0.0
with combination of opacities & hypoplasia	2.6	0.8	2.2	2.6	2.4	0.1	0.0	5.2	2.0	0.2	0.0	0.0	0.4	0.7	0.3	0.9	0.5	1.8	0.1	6.6	0.0	0.1	0.0	0.0
with all three conditions	0.1	0.2	0.1	0.3	0.2	0.0	0.0	0.1	0.3	0.0	0.0	0.3	0.0	0.5	0.2	0.2	0.0	0.0	0.0	0.2	0.0	0.0	1.4	0.0

Table 6.18. Mean number of teeth with enamel defects (opacities/ hypoplasias) by age, in India (rural, urban, males & females), States & Union Territories.

Enamel defects (opacities/ hypoplasias)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
12 Yrs	**12830**	**6313**	**9788**	**9355**	**19143**	**1881**	**617**	**2178**	**956**	**629**	**941**	**1272**	**785**	**1124**	**1588**	**1686**	**1004**	**762**	**1840**	**630**	**315**	**350**	**267**	**318**
With enamel defects	1.2	0.8	1.0	1.0	1.0	0.8	0.1	1.9	1.8	1.1	0.1	0.9	0.3	0.1	0.3	0.6	3.2	2.2	1.4	1.5	0.2	0.4	0.2	0.2
with demarcated opacity	0.6	0.4	0.5	0.5	0.5	0.4	0.0	1.0	0.7	0.8	0.1	0.4	0.1	0.1	0.2	0.4	2.9	1.0	0.9	0.7	0.2	0.2	0.1	0.1
with diffused opacity	0.3	0.2	0.3	0.3	0.3	0.3	0.0	0.7	0.9	0.2	0.0	0.3	0.2	0.0	0.1	0.1	0.3	0.7	0.4	0.5	0.0	0.1	0.0	0.0
with hypoplasia	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.4	0.1	0.2	0.0	0.0	0.1	0.0
with other defects	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0
with combination of opacities & hypoplasia	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2	0.0	0.0	0.0	0.1
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15 Yrs	**12635**	**6279**	**9793**	**9121**	**18914**	**1877**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
With enamel defects	1.3	0.8	1.1	1.1	1.1	0.9	0.0	1.8	1.9	1.1	0.1	0.9	0.3	0.1	0.3	0.4	3.2	2.4	1.4	1.6	0.1	0.3	0.1	0.2
with demarcated opacity	0.6	0.4	0.5	0.6	0.5	0.5	0.0	0.9	1.0	0.9	0.1	0.4	0.1	0.0	0.1	0.3	2.8	1.2	0.9	0.7	0.1	0.3	0.1	0.1
with diffused opacity	0.4	0.2	0.3	0.3	0.3	0.3	0.0	0.6	0.8	0.3	0.0	0.4	0.1	0.1	0.1	0.1	0.3	0.6	0.3	0.7	0.0	0.1	0.0	0.0
with hypoplasia	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.3	0.1	0.2	0.0	0.0	0.0	0.1
with other defects	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	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 combination of opacities & hypoplasia	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.2	0.1	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13812**	**6799**	**10619**	**9992**	**20611**	**1943**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
With enamel defects	0.8	0.6	0.7	0.8	0.8	0.3	0.0	1.3	1.3	1.1	0.1	0.3	0.2	0.0	0.1	0.5	2.9	2.1	0.6	1.3	0.0	0.4	0.0	0.0
with demarcated opacity	0.4	0.3	0.4	0.4	0.4	0.1	0.0	0.7	0.6	0.8	0.0	0.1	0.1	0.0	0.0	0.3	2.8	1.0	0.5	0.5	0.0	0.3	0.0	0.0
with diffused opacity	0.2	0.1	0.1	0.2	0.2	0.1	0.0	0.3	0.6	0.2	0.0	0.2	0.1	0.0	0.0	0.1	0.2	0.7	0.2	0.4	0.0	0.1	0.0	0.0
with hypoplasia	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.3	0.0	0.1	0.0	0.0
with other defects	0.0	0.0	0.0	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0
with combination of opacities & hypoplasia	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.2	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
With enamel defects	0.4	0.2	0.4	0.4	0.4	0.0	0.0	0.7	0.7	0.5	0.0	0.1	0.1	0.0	0.1	0.3	0.3	1.2	0.2	0.6	0.0	0.3	0.0	0.0
with demarcated opacity	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.2	0.3	0.0	0.1	0.0	0.0	0.0	0.2	0.3	0.4	0.2	0.2	0.0	0.2	0.0	0.0
with diffused opacity	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.2	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.3	0.0	0.3	0.0	0.0	0.0	0.0
with 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	0.0	0.0	0.3	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	0.1	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	0.0	0.0	0.0
with combination of opacities & hypoplasia	0.0	0.0	0.0	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	0.1	0.0	0.1	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

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

Overall, the prevalence of enamel defects in the country was low in all age groups. The prevalence in children was 22.3 per cent (12 years) and 23.2 per cent (15 years). The prevalence percentage decreased as higher age groups were surveyed and was 17.3 and 12.7 per cent respectively in adults in the age groups of 35-44 and 65-74 years. Demarcated opacity, diffuse opacity and enamel hypoplasia were the type of defects prevalent, in that order, across age groups. Other defects, and combinations of enamel defects, by type of defect, were much less prevalent.

The mean number of teeth affected with enamel defects in the country ranged from 0.4 (65-74 years) to 1.1 (15 years). This means that in the affected population, across age groups in the country, not more than one tooth per person was affected in the population at 15 years of age.

Gender related differentials across age groups were not marked. Rural residents had a relatively higher prevalence in all age groups, compared with their urban counterparts. The three states where enamel defects were more prevalent than the average across age groups were Punjab, Gujarat and Uttar Pradesh, in that order.

6.6.4 PROSTHETIC STATUS (UPPER AND LOWER DENTAL ARCHES)

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

Tables 6.19 and 6.20 present the percentage of subjects with prosthetic status of upper and lower dental arches, respectively, by type of prostheses. Table 6.23 presents the percentage of subjects wearing full mouth removable dentures.

Table 6.19. Percent subjects with prostheses status (upper dental arch) by age, in India (rural, urban, males & females), States & Union Territories.

Prosthetic status (Upper arch)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs	**12627**	**6267**	**9781**	**9113**	**18894**	**1857**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Prosthesis present	0.2	0.7	0.4	0.4	0.4	0.2	0.0	0.4	0.4	0.0	0.0	1.0	0.1	0.6	0.2	0.1	0.3	0.8	0.1	0.0	0.0	0.1	0.4	0.0
Bridge or more than one bridge	0.1	0.6	0.3	0.3	0.3	0.1	0.0	0.3	0.2	0.0	0.0	1.0	0.1	0.2	0.2	0.0	0.2	0.5	0.1	0.0	0.0	0.1	0.4	0.0
Partial denture	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.2	0.0	0.0	0.1	0.0	0.3	0.0	0.1	0.1	0.3	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Full removal denture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13794**	**6786**	**10599**	**9981**	**20580**	**1912**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Prosthesis present	2.3	3.6	2.6	3.0	2.7	1.1	0.3	5.2	4.3	2.2	0.9	1.9	1.7	2.8	1.8	0.4	3.6	5.8	4.5	1.0	7.4	3.1	1.4	0.2
Bridge or more than one bridge	0.5	1.3	0.7	0.9	0.8	0.6	0.0	3.3	1.2	1.0	0.2	0.7	0.0	0.8	0.6	0.1	1.0	0.5	0.5	0.2	6.9	1.2	0.4	0.2
Partial denture	1.4	2.0	1.5	1.8	1.6	0.5	0.3	0.6	3.0	0.7	0.5	0.9	0.8	1.7	1.1	0.3	2.3	3.9	3.7	0.5	0.5	1.5	1.0	0.0
Both Bridge and partial denture	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	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Full removal denture	0.3	0.3	0.4	0.3	0.4	0.0	0.0	1.3	0.2	0.5	0.2	0.3	0.9	0.3	0.1	0.0	0.3	1.1	0.4	0.4	0.0	0.4	0.0	0.0
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
Prosthesis present	8.0	15.2	11.0	10.2	10.5	3.8	3.1	19.3	17.7	15.9	3.8	7.1	11.5	15.6	7.9	1.3	25.1	16.5	10.5	5.1	62.9	19.2	6.9	2.6
Bridge or more than one bridge	0.5	1.0	0.8	0.5	0.6	0.3	0.0	0.7	2.0	0.4	0.0	0.7	0.0	1.2	0.8	0.2	1.0	1.3	0.8	0.0	0.9	0.8	0.0	0.2
Partial denture	2.2	4.3	3.0	2.8	2.9	0.9	0.5	3.2	2.6	0.7	1.1	2.5	2.2	5.0	3.7	0.7	2.6	4.0	4.5	1.1	13.8	2.1	3.0	0.7
Both Bridge and partial denture	0.2	0.6	0.5	0.2	0.3	0.1	0.0	0.1	0.5	0.0	0.0	0.3	0.0	0.7	0.3	0.0	0.5	0.9	0.2	0.0	0.5	1.4	0.0	0.0
Full removal denture	5.0	9.4	6.7	6.6	6.5	2.6	2.6	15.3	12.7	14.9	2.8	3.8	9.3	8.7	3.2	0.4	21.1	10.5	5.0	4.1	47.8	15.1	3.9	1.8

Table 6.20. Percent subjects with prostheses status (lower dental arch) by age, in India (rural, urban, males & females), States & Union Territories.

Prosthetic status (Lower arch)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs	**12627**	**6267**	**9781**	**9113**	**18894**	**1857**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Prosthesis present	0.2	0.9	0.5	0.4	0.5	0.1	0.0	0.1	0.7	0.0	0.2	1.6	0.0	0.3	0.1	0.2	0.3	0.6	0.0	0.0	0.0	0.4	0.0	0.0
Bridge or more than one bridge	0.2	0.8	0.4	0.4	0.4	0.0	0.0	0.1	0.4	0.0	0.0	1.6	0.0	0.1	0.0	0.1	0.2	0.3	0.0	0.0	0.0	0.4	0.0	0.0
Partial denture	0.0	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.3	0.0	0.2	0.0	0.0	0.2	0.1	0.1	0.1	0.3	0.0	0.0	0.0	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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Full removal denture	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13795**	**6786**	**10601**	**9980**	**20581**	**1915**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**385**	**272**	**318**
Prosthesis present	2.7	4.6	3.1	3.7	3.3	1.0	0.4	5.2	4.1	4.4	1.5	3.3	3.4	3.3	2.6	0.4	4.0	5.1	3.3	1.0	5.3	3.3	4.3	1.8
Bridge or more than one bridge	0.7	1.9	1.0	1.3	1.2	0.7	0.0	3.2	1.1	0.9	0.0	1.3	0.3	1.3	1.0	0.2	1.5	0.5	0.7	0.0	3.9	1.5	1.5	1.5
Partial denture	1.4	2.3	1.7	2.0	1.8	0.3	0.4	0.8	2.8	2.6	1.2	1.7	2.2	1.9	1.5	0.3	2.2	3.1	2.3	0.7	1.5	1.9	2.4	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	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Full removal denture	0.5	0.3	0.4	0.3	0.4	0.0	0.0	1.3	0.2	1.0	0.3	0.3	0.8	0.2	0.1	0.0	0.3	1.3	0.4	0.4	0.0	0.0	0.4	0.0
65-74 Yrs	**12744**	**6184**	**9755**	**9173**	**18928**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**346**	**268**	**318**
Prosthesis present	8.5	17.8	11.8	11.3	11.5	4.4	3.2	19.0	16.9	17.1	5.2	8.1	14.6	15.7	7.8	1.8	24.3	16.1	10.8	4.8	65.6	19.2	8.2	3.4
Bridge or more than one bridge	0.4	1.4	0.8	0.6	0.7	0.2	0.0	0.9	1.1	0.4	0.0	1.0	0.3	0.7	0.6	0.6	0.7	0.9	0.8	0.2	1.3	0.9	0.0	1.0
Partial denture	2.5	5.1	3.4	3.3	3.4	1.0	0.8	3.0	3.0	1.2	2.0	3.0	4.5	5.6	3.8	0.9	2.3	4.3	5.0	0.7	16.1	2.5	2.9	0.0
Both Bridge and partial denture	0.2	0.7	0.5	0.3	0.3	0.3	0.0	0.1	0.5	0.0	0.0	0.3	0.3	0.6	0.3	0.0	0.4	0.9	0.3	0.0	0.0	1.4	0.4	0.0
Full removal denture	5.2	10.7	7.1	7.1	7.0	3.0	2.5	15.1	12.4	15.5	3.2	3.9	9.6	8.9	3.2	0.4	21.0	10.1	4.8	4.1	48.2	14.6	5.0	2.4

Overall, in India, the presence of prostheses was 0.4 per cent in subjects aged 15 years. In 35-44 years, prostheses were present in about 3 per cent subjects. This percentage was 2.7 and 3.3 respectively for upper and lower dental arches, and indicated that on average, slightly more prostheses were worn in the lower dental arch as compared to the upper arch. The percentage subjects wearing prostheses in upper and lower dental arches in the age group 65-74 years was 10.5 and 11.5 respectively. However, there was a difference in the pattern of the type of prostheses present between age groups. In the age group of 35-44 years, as expected, the most prevalent prostheses present was the partial denture followed by bridge (one or more units). Full dentures were very rare. In the case of the older adults (65-74 years), the most prevalent prostheses present was the full dentures, as expected, followed by partial dentures and bridge (one or more units).

There were no clearly marked male and female differentials in the country but the prevalence of prostheses present in the individuals was higher in urban than rural areas.

In states, the prevalence pattern, by type of prostheses present, generally reflected the national pattern. The state with the highest prevalence percentage for full dentures present in upper and lower dental arches was Chandigarh.

Overall, taking both upper and lower dental arches together, there were 6.7 per cent subjects (65-74 years) who were wearing full mouth removable dentures in the surveyed population in India. In subjects aged 35-44 years or younger, there were virtually no subjects (0.4 per cent) wearing full removable dentures in the country. While there were no male and female differentials, it appeared that the urban subjects had a higher prevalence of full mouth removable denture wearers in the country.

6.6.5 PROSTHETIC NEED (UPPER AND LOWER DENTAL ARCHES)

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.

Tables 6.21 and 6.22 present the percentage of subjects with prosthetic need of upper and lower dental arches, respectively, by type of prostheses. Table 6.24 presents the percentage of subjects needing full mouth removable dentures.

Table 6.21. Percent subjects with prostheses need (upper dental arch) by age, in India (rural, urban, males & females), States & Union Territories.

Prosthetic need (upper arch)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs	**12623**	**6266**	**9779**	**9110**	**18889**	**1852**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Prosthesis needed	3.0	2.1	2.6	2.8	2.6	1.3	0.7	2.4	2.3	1.4	2.4	3.2	2.8	3.5	1.3	1.0	1.5	0.6	0.9	4.8	0.1	2.2	5.7	1.7
Need for one unit prosthesis	2.0	1.6	1.8	2.0	1.9	1.1	0.7	1.2	1.8	1.4	1.6	2.3	1.7	1.7	1.0	0.7	1.2	0.6	0.7	3.5	0.1	2.2	5.0	1.7
Need for multi-unit prosthesis	0.6	0.4	0.5	0.6	0.6	0.3	0.0	1.2	0.3	0.0	0.8	0.8	1.2	1.6	0.2	0.2	0.3	0.0	0.1	0.5	0.0	0.0	0.7	0.0
Need for combination of one and /or MUP	0.4	0.1	0.3	0.3	0.3	0.1	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.3	0.1	0.2	0.0	0.0	0.1	0.8	0.0	0.0	0.0	0.0
Need for full prosthesis	0.0	0.0	0.0	0.0	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	0.1	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13794**	**6783**	**10597**	**9980**	**20577**	**1909**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Prosthesis needed	27.4	19.1	23.5	26.7	24.5	16.9	10.3	27.0	25.1	53.6	40.4	17.8	26.7	30.4	20.5	8.6	28.9	14.5	17.0	35.1	15.4	23.2	32.5	31.3
Need for one unit prosthesis	9.4	7.1	8.6	8.9	8.7	9.1	4.9	5.6	12.5	31.1	19.8	6.3	9.0	13.3	8.8	5.8	9.3	5.8	8.1	9.3	7.3	10.7	9.8	13.5
Need for multi-unit prosthesis	10.2	8.7	9.3	10.5	9.8	7.2	5.4	12.4	9.9	11.0	15.5	7.2	10.0	15.1	10.4	2.8	17.0	6.6	6.0	8.7	7.9	8.7	21.6	16.9
Need for combination of one and /or MUP	6.8	2.7	5.0	6.4	5.3	0.3	0.0	8.0	1.0	8.6	4.3	2.9	5.2	1.4	1.1	0.0	2.4	0.7	2.6	16.1	0.3	3.7	0.0	0.2
Need for full prosthesis	0.9	0.6	0.6	1.0	0.8	0.3	0.0	1.0	1.7	3.0	0.9	1.5	2.6	0.6	0.3	0.1	0.2	1.5	0.4	1.0	0.0	0.1	1.2	0.7
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
Prosthesis needed	68.2	56.5	65.1	65.4	64.2	59.1	56.5	61.7	66.8	80.2	82.8	51.3	72.6	75.9	70.6	54.7	71.6	51.8	52.3	69.8	35.1	65.8	55.1	69.7
Need for one unit prosthesis	5.9	5.2	5.6	5.7	5.7	7.4	10.9	1.2	7.5	5.4	6.7	5.4	4.2	5.2	6.2	9.2	2.1	4.6	9.8	4.6	5.3	7.7	2.6	6.8
Need for multi-unit prosthesis	18.2	18.3	18.1	18.7	18.3	26.9	28.6	16.4	22.1	14.9	30.6	11.9	17.2	25.9	29.1	25.6	18.9	15.7	14.9	8.0	13.1	21.2	23.4	23.8
Need for combination of one and /or MUP	13.9	6.8	11.8	12.0	11.4	2.8	0.2	14.1	1.3	11.8	13.9	7.7	12.0	4.7	4.7	6.5	2.7	4.0	4.3	30.2	0.7	10.1	0.0	0.3
Need for full prosthesis	30.2	26.2	29.6	28.9	28.9	22.0	16.9	30.1	36.0	48.1	31.8	26.4	39.2	40.1	30.7	13.4	47.9	27.6	23.3	27.1	16.1	26.9	29.2	38.8

Table 6.22. Percent subjects with prostheses need (lower dental arch) by age, in India (rural, urban, males & females), States & Union Territories.

Prosthetic need (lower arch)	India					States/ Union Territories																		
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
15 Yrs	**12623**	**6266**	**9779**	**9110**	**18889**	**1852**	**618**	**2178**	**959**	**629**	**940**	**1257**	**789**	**1155**	**1473**	**1668**	**1004**	**705**	**1801**	**631**	**314**	**334**	**268**	**314**
Prosthesis needed	4.2	2.8	3.7	3.9	3.7	2.7	1.0	2.9	3.3	2.4	5.8	2.8	3.2	6.2	2.0	2.2	1.9	1.8	2.7	5.9	0.1	3.9	11.4	4.2
Need for one unit prosthesis	2.9	1.9	2.4	2.8	2.5	1.6	0.7	1.9	2.5	2.4	4.2	1.6	1.5	4.6	1.7	1.6	1.5	1.3	1.9	4.2	0.1	1.7	9.9	2.2
Need for multi-unit prosthesis	0.9	0.7	0.9	0.8	0.8	0.8	0.3	1.1	0.5	0.0	1.6	1.2	1.7	1.5	0.4	0.7	0.5	0.5	0.7	0.7	0.0	2.1	1.5	2.0
Need for combination of one and /or MUP	0.5	0.1	0.4	0.3	0.3	0.2	0.0	0.0	0.2	0.0	0.0	0.1	0.0	0.2	0.1	0.0	0.0	0.0	0.2	1.0	0.0	0.0	0.0	0.0
Need for full prosthesis	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0
35-44 Yrs	**13792**	**6783**	**10595**	**9980**	**20575**	**1907**	**638**	**2383**	**981**	**628**	**957**	**1278**	**992**	**1252**	**1639**	**1885**	**1026**	**1182**	**1907**	**628**	**315**	**387**	**272**	**318**
Prosthesis needed	31.7	23.7	27.7	31.8	29.0	20.6	12.6	31.2	31.3	60.5	52.8	20.9	32.8	33.1	22.2	16.1	31.6	18.4	25.0	40.3	16.9	31.1	38.1	42.3
Need for one unit prosthesis	10.7	8.7	10.7	9.7	10.1	10.6	6.7	6.4	11.7	32.0	21.4	7.6	11.3	12.2	8.9	10.4	11.4	8.6	12.4	10.0	10.9	14.6	13.3	13.0
Need for multi-unit prosthesis	12.5	11.1	10.7	13.9	12.1	9.1	5.7	15.1	17.1	15.0	25.8	8.7	13.3	18.4	11.7	4.7	16.0	7.8	8.7	12.1	5.9	12.7	24.2	28.6
Need for combination of one and /or MUP	7.3	3.2	5.6	6.9	5.9	0.7	0.3	8.8	1.0	11.1	5.2	3.4	6.2	1.9	1.4	1.1	3.6	0.7	3.4	16.7	0.2	3.8	0.0	0.0
Need for full prosthesis	1.1	0.6	0.7	1.2	0.9	0.3	0.1	1.0	1.7	2.6	0.4	1.3	2.0	0.6	0.2	0.0	0.6	1.4	0.5	1.5	0.0	0.1	0.7	0.8
65-74 Yrs	**12745**	**6184**	**9755**	**9174**	**18929**	**1864**	**618**	**2190**	**948**	**630**	**956**	**1261**	**799**	**1158**	**1565**	**1535**	**997**	**697**	**1835**	**629**	**314**	**347**	**268**	**318**
Prosthesis needed	68.9	57.3	65.4	66.9	65.1	62.1	55.8	62.3	70.2	80.6	83.9	49.4	72.5	74.3	70.1	62.1	70.9	53.1	57.0	71.4	35.8	66.7	53.1	68.9
Need for one unit prosthesis	5.4	5.6	5.2	5.8	5.5	9.1	7.8	1.0	7.7	6.4	4.7	4.8	5.1	6.2	6.7	5.9	2.2	6.2	10.8	3.7	4.4	8.4	3.5	6.8
Need for multi-unit prosthesis	19.5	19.1	19.6	19.8	19.4	28.2	31.0	17.7	25.6	14.4	34.0	11.3	18.3	23.6	29.2	35.7	17.7	16.7	17.9	9.2	12.8	25.0	22.0	23.6
Need for combination of one and /or MUP	14.0	6.6	11.2	12.7	11.4	2.7	0.0	13.3	1.5	10.5	13.0	7.4	11.3	4.2	4.5	7.4	3.4	3.6	5.4	30.9	2.5	7.6	0.0	0.2
Need for full prosthesis	30.0	26.0	29.4	28.6	28.7	22.2	17.1	30.4	35.4	49.3	32.3	26.1	37.9	40.3	29.8	13.1	47.7	26.6	23.0	27.6	16.1	25.7	27.6	38.5

Table 6.23. Percent subjects with full mouth removable denture (upper and lower arch) by age, in India (rural, urban, males & females), States & Union Territories.

Prosthetic status of full denture (upper and lower arch)	India					States/ Union Territories																	
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs																								
	12966	**6173**	**9825**	**9314**	**19139**	**1904**	**618**	**2014**	**951**	**628**	**928**	**837**	**852**	**1232**	**1625**	**1780**	**1011**	**1180**	**1871**	**519**	**315**	**384**	**174**	**316**
Percent subjects with full mouth removable denture	0.3	0.3	0.4	0.3	**0.4**	0.0	0.0	1.6	0.2	0.5	0.0	0.1	0.8	0.2	0.2	0.0	0.3	1.1	0.4	0.4	0.0	0.0	0.0	0.0
65-74 Yrs																								
	11959	**5582**	**9057**	**8484**	**17541**	**1830**	**615**	**1967**	**912**	**629**	**930**	**802**	**657**	**1064**	**1539**	**1448**	**985**	**693**	**1805**	**524**	**314**	**345**	**167**	**315**
Percent subjects with full mouth removable denture	4.9	10.2	6.7	6.7	**6.7**	2.5	2.4	17.2	12.8	14.9	0.0	2.2	9.9	8.3	29.0	0.4	20.9	10.0	4.6	3.9	47.8	14.8	5.6	1.8

Table 6.24. Percent subjects with need for full mouth removable denture (upper and lower arch) by age, in India (rural, urban, males & females), States & Union

Prosthetic need for full denture (upper	India					States/ Union Territories																	
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
35-44 Yrs																								
	12946	**6148**	**9801**	**9293**	**19094**	**1898**	**618**	**2008**	**946**	**627**	**930**	**833**	**852**	**1222**	**1636**	**1770**	**1011**	**1181**	**1857**	**516**	**315**	**384**	**174**	**316**
Percent subjects needing full mouth removable denture	0.8	0.6	0.6	0.9	**0.8**	0.2	0.0	1.2	1.6	2.6	0.4	1.4	2.2	0.6	0.1	0.0	0.2	1.3	0.4	1.0	0.0	0.1	0.0	0.7
65-74 Yrs																								
	11888	**5564**	**9018**	**8434**	**17452**	**1826**	**613**	**1949**	**893**	**629**	**932**	**798**	**658**	**1081**	**1543**	**1449**	**969**	**666**	**1789**	**521**	**312**	**343**	**167**	**314**
Percent subjects needing full mouth removable denture	29.4	29.2	29.5	29.3	**29.3**	21.3	16.7	34.1	37.1	46.9	29.6	32.5	41.7	40.2	3.1	11.8	48.8	27.2	21.7	27.9	16.2	25.5	40.5	38.0

The need for dental prostheses, which included one unit, multi-unit and combination of the two, and full denture prostheses, was high in the 35-44 year age group (24.5 and 29.0 per cent respectively in upper and lower dental arches) and higher in the 65-74 year age group (64.2 and 65.1 per cent respectively in upper and lower dental arches). The need was only marginally higher in the lower dental arch as compared with the upper dental arch. In the 35-44 year age group, amongst those requiring prostheses in the upper and lower dental arches, the need for multi-unit prostheses was highest, together with the lowest need for full dentures. In the highest age group of 65-74 years, in both upper and lower dental arches, there was clearly the greatest need for full dentures, followed by the need for multi-unit prostheses.

While less than one per cent (0.8 per cent) of the surveyed population aged 35-44 years was in need of full mouth removable dentures, 29.3 per cent of the subjects in the age group of 65-74 years were in need of full mouth removable dentures (Fig. 6.24). The pattern of prostheses need showed the loss of teeth increased as age advanced, requiring an incrementally higher number of units of prostheses with the highest proportion of subjects requiring full dentures to replace all the 32 teeth.

There were no marked gender based differentials in the overall prostheses need or pattern of need by type of prostheses. However, in the rural residents, the prostheses need and the need by type of prostheses was markedly higher than urban residents, except in the case of full mouth removable dentures, where no differentials existed. One possible reason for the rural and urban differentials could be the higher dentist population ratio in urban settings and consequent easier access, availability of facilities and affordability of services which urban residents enjoy.

In states, three states which seemed to have the highest prostheses need in 65-74 year age groups were Punjab, Himachal Pradesh and Kerala, in that order. The state with the lowest prevalence of prostheses need was Goa.

6.7 COMMUNITY NEED FOR IMMEDIATE CARE AND REFERRALS

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

The life threatening conditions were recorded in only 0.1 to 0.3 per cent of the surveyed population in the age groups studied. A review of the states revealed that these figures rarely exceeded 0.5 per cent and no more than 0.6 per cent (65-74 year olds) in any state and many states reported no subjects with life threatening conditions. In Pondicherry, life threatening conditions were recorded in 1.1 per cent of the subjects examined in 65-74 year age group. Pain or infection was recorded in 3.1 to 35 per cent of the subjects in the age groups of 5, 12 and 15 years. in the higher age groups of 35-44 and 65-74 years, 5 per cent subjects had pain or infection. While many states reported no subjects with pain or infection, there were wide variations in per cent subjects affected amongst states. Referrals were common and appeared to have been made in almost all cases with life threatening or painful or infected conditions.

Overall, although the differentials were not marked or highly pronounced, there appeared to be more males than females and more rural residents compared with urban residents who had these conditions and were referred.

Table 6.25. Percent subjects with need for immediate care and referral by age, in India (rural, urban, males & females), States & Union Territories.

Immediate care and referral	India					States/ Union Territories																	
	R	U	M	F	Total	AP	ASM	GUJ	HR	HP	JK	KAR	KER	MP	MAH	ORI	PB	RAJ	TN	UP	CHA	DEL	GOA	PY
5 Yrs	**12523**	**6075**	**9887**	**8711**	**18598**	**1857**	**615**	**2009**	**898**	**630**	**940**	**1231**	**826**	**1140**	**1526**	**1520**	**986**	**780**	**1763**	**624**	**315**	**362**	**266**	**310**
Life threatening condition	0.2	0.0	0.1	0.2	0.2	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.1	0.2	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	0.0
Pain or infection	3.6	2.6	3.4	3.4	3.4	0.2	39.3	3.1	2.9	2.3	0.0	0.1	4.9	10.4	0.9	15.4	6.1	4.0	0.1	0.8	0.0	0.1	0.0	0.0
Other condition	0.5	0.2	0.4	0.4	0.4	0.1	0.0	0.1	0.1	0.0	0.2	0.3	0.4	1.1	0.2	2.0	1.5	0.3	0.0	0.5	0.0	0.0	0.0	0.0
Referral	3.4	2.5	3.2	3.2	3.2	0.1	38.1	2.8	2.9	2.3	0.2	0.2	4.0	9.0	0.9	13.5	6.9	3.7	0.1	0.8	0.0	0.1	0.0	0.0
12 Yrs	**12501**	**6132**	**9537**	**9096**	**18633**	**1857**	**613**	**2010**	**900**	**629**	**932**	**1264**	**779**	**1117**	**1567**	**1584**	**984**	**754**	**1775**	**623**	**314**	**349**	**265**	**317**
Life threatening condition	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.2	0.1	0.0	0.0	0.2	0.1	0.0	0.1	0.2	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0
Pain or infection	3.6	2.1	3.0	3.3	3.2	0.4	37.8	2.9	6.2	0.6	0.0	0.2	0.7	10.7	0.6	17.2	5.4	3.9	0.3	0.7	0.0	0.0	0.0	0.0
Other condition	0.4	0.2	0.3	0.4	0.4	0.1	0.0	0.2	0.6	0.0	0.4	0.2	0.3	2.0	0.0	2.5	2.5	0.5	0.2	0.2	0.0	0.0	0.0	0.0
Referral	3.5	2.1	2.9	3.2	3.1	0.3	37.9	2.3	6.1	0.6	0.4	0.2	0.5	9.9	0.5	18.2	7.3	3.9	0.2	0.7	0.0	0.0	0.0	0.0
15 Yrs	**12341**	**6112**	**9554**	**8899**	**18453**	**1847**	**617**	**2012**	**908**	**629**	**935**	**1247**	**789**	**1145**	**1447**	**1570**	**991**	**704**	**1757**	**626**	**314**	**333**	**268**	**314**
Life threatening condition	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.2	0.1	0.0	0.0	0.2	0.0	0.4	0.0	0.0	0.2	0.2	0.3	0.0	0.0	0.0	0.0	0.0
Pain or infection	4.0	2.2	3.5	3.4	3.5	0.5	37.6	3.4	5.4	3.3	0.0	0.2	1.0	12.8	0.9	18.0	5.7	3.8	0.4	1.6	0.0	0.1	0.0	0.0
Other condition	0.3	0.3	0.4	0.3	0.3	0.1	0.0	0.1	0.6	0.4	0.4	0.2	0.3	1.7	0.1	2.5	2.6	0.5	0.2	0.0	0.0	0.0	0.0	0.0
Referral	3.8	2.2	3.2	3.3	3.3	0.5	37.0	3.1	5.4	3.3	0.4	0.3	0.6	11.7	0.8	19.0	7.3	4.0	0.1	0.9	0.0	0.1	0.0	0.0
35-44 Yrs	**13292**	**6546**	**10183**	**9655**	**19838**	**1893**	**618**	**2017**	**926**	**627**	**938**	**1261**	**978**	**1238**	**1624**	**1771**	**1006**	**1180**	**1852**	**626**	**315**	**380**	**272**	**316**
Life threatening condition	0.3	0.2	0.3	0.2	0.3	0.1	0.0	0.3	0.3	0.2	0.0	0.3	0.3	0.2	0.3	0.2	0.0	0.3	0.4	0.6	0.0	0.0	0.4	0.0
Pain or infection	5.8	3.2	5.3	4.6	5.0	1.0	40.6	5.3	6.9	16.6	0.2	0.9	3.0	14.3	2.9	26.7	9.6	5.4	0.7	1.8	0.0	0.4	0.0	0.0
Other condition	0.9	0.6	0.7	0.9	0.8	0.1	5.9	0.8	1.8	0.5	0.2	0.7	0.9	1.2	1.1	5.6	3.3	0.5	0.4	0.2	0.0	0.0	0.4	0.0
Referral	5.4	3.2	5.0	4.5	4.7	0.6	42.1	5.2	8.0	17.0	0.2	1.2	2.0	12.0	3.3	28.9	11.5	3.9	0.3	1.7	0.0	0.4	0.8	0.0
65-74 Yrs	**12159**	**5877**	**9313**	**8723**	**18036**	**1805**	**615**	**1985**	**858**	**621**	**937**	**1215**	**702**	**1081**	**1531**	**1435**	**950**	**696**	**1774**	**619**	**307**	**342**	**264**	**299**
Life threatening condition	0.4	0.3	0.4	0.3	0.3	0.2	0.0	0.2	0.1	0.5	0.0	0.6	0.0	0.4	0.6	0.2	0.0	0.4	0.5	0.6	0.0	0.1	0.0	1.1
Pain or infection	5.9	3.7	5.7	4.8	5.3	0.9	27.2	3.6	5.8	23.9	0.0	1.2	3.0	11.0	2.6	31.8	15.8	8.7	0.8	2.0	0.0	0.0	0.0	0.0
Other condition	1.5	0.9	1.3	1.3	1.3	0.8	19.1	0.6	1.4	0.6	0.4	1.0	1.5	1.7	1.9	6.2	2.9	0.8	0.3	0.0	0.0	0.0	0.4	0.8
Referral	6.0	3.8	5.7	5.0	5.4	1.0	39.2	3.0	6.6	24.1	0.4	1.6	1.3	10.4	4.1	34.5	17.8	6.7	1.0	1.5	0.0	0.0	0.4	1.2

CHAPTER VII

FACTORS AFFECTING ORAL HEALTH OF PEOPLE

The health of an individual is affected by a wide variety of factors which may include hereditary and congenital factor, environmental factors, and behavioural factors. It is the environmental and behavioural factors that are most important in maintaining and promoting the oral health of the people.

The main oral diseases or oral conditions that stand in the way of good oral health are dental caries, gingival and periodontal diseases, malocclusion, oral cancers and pre-cancerous conditions, and fluorosis. Of these, dental caries and the gingival-periodontal disease complex are almost universally prevalent, and almost every individual has experienced these in their lifetime in some form and severity. Prevention and control of these diseases is possible since their etiology and progression is well understood and technology is available for their prevention and control.

Oral diseases are known to be associated with certain environmental factors and behavioural practices. For example, dental caries is a sugar-induced disease and modification of dietary practices amongst individuals and communities relating to refined sugars intake can prevent and control its prevalence. It is also determined by individuals' tobacco inhalation practices. Similarly, gingival and periodontal diseases are largely plaque-induced (although other forms of disease exist which are related to factors such as smoking, malocclusion, traumatic occlusion and so on). At the levels of community and public health, therefore, it is possible to prevent and control gingival/ periodontal diseases by improvements in methods of brushing tooth and oral hygiene and introduction of regular professional prophyaxis programmes. Oral cancers which are related to the use of tobacco in various forms can be prevented and controlled by minimizing the use of tobacco. Fluorosis results from fluoridated water ingested by individuals during the time when their teeth are being formed or mineralized.

The present study, in order to underline the need to improve oral health and control oral diseases through a behavioural change, has studied the association of the various factors which are implicated in the progression of oral diseases. This study therefore collected data not only on the oral health status but also on the various oral health practices individuals follow. These two sets of data were independently collected – clinical data through clinical oral examinations by dental surgeons, and data on oral practices by social scientists accompanying these dental surgeons – through a structured interview form. The idea was that information on both the sets would help confirm the factors that affect oral health status and therefore help emphasise the need for prevention and control through organized programmes that can be initiated for change in behaviours and practices. The information collected on behavioural practices has been reported in chapters III and V, and the information on oral health status has been discussed in chapter VI.

This chapter attempts to study the relationship/ association of oral-health-related behavioural practices with the oral health status of people. This relationship would be indicative of the type of changes in behavioural practices that are required to improve the oral health of the population.

7.1 FACTORS ASSOCIATED WITH/RELATED TO ORAL HEALTH STATUS

One can think of several behavioural practices that affect oral health, but this study has limited itself to only a few important ones. These important practices, dealt with in this chapter, which have a strong association with oral health status are:

- Teeth cleaning practices (use of toothbrushes/ datuns; frequency of teeth cleaning; effectiveness of teeth cleaning)
- Sugar consumption (amount and frequency of sugar consumtion by individuals)
- Tobacco use (frequency of smoking, chewing tobacco)

This chapter relates/associates the selected practices with the relevant component of the oral health status. In particular, the following relationships have been studied.

- Whether cleaning teeth irregularly or regularly is associated with the periodontal conditions of (i) bleeding, (ii) calculus, and (iii) periodontal pockets 4 mm or more deep.

- Whether cleaning teeth with (a) fingers and tooth brush, (b) datun and tooth brush, and (c) fingers and datun, has relation/association with the periodontal conditions of (i) bleeding, (ii) calculus, and (iii) pockets of sizes 4 mm or more.
- Whether sugar intake is related/associated with caries.
- Whether use of tobacco is associated/related with the oral mucosal conditions of (i) malignant tumour, and (ii) leukoplakia.
- Whether frequency of smoking (less than or equal to five cigarettes and more than five cigarettes) is associated/related with the oral mucosal conditions of (i) malignant tumour, and (ii) leukoplakia.
- Whether chewing paan with tobacco is associated/related with the oral mucosal conditions of (i) malignant tumour, and (ii) leukoplakia.
- Whether chewing paan masala with tobacco is associated/related with the oral mucosal conditions of (i) malignant tumour, and (ii) leukoplakia.
- Whether frequency of chewing paan masala with tobacco (less than or equal to five and more than five times a day) is associated/related with the mucosal conditions of (i) malignant tumour, and (ii) leukoplakia.

7.2 METHOD OF DETERMINING RELATIONSHIP/ASSOCIATION BETWEEN DIFFERENT ORAL-HEALTH-RELATED PRACTICES AND ORAL HEALTH STATUS

The method that has been used to test whether any relationship or association exists is that of putting data in a 2x2 contingency table (two factors and their two results). Two factors could be cleaning teeth regularly, and not cleaning teeth regularly. The results could be occurrence of oral disease and non-occurrence of the disease. Their statistically significant association/relation was tested by Chi-Square test. If it was found that statistically significant association exists, then the degree/strength of the association was determined by calculating Odds Ratio (OR), an estimate of relative risk. The Odds Ratio is defined as the odds in favour of oral disease among exposed individuals (Factor1) divided by the odds in favour of oral diseases among unexposed (Factor2). In other words, it measures the increased risk to oral disease contributed by the exposure factor whose risk is being measured.

The critical value of Chi-Square with one degree of freedom is 3.84. All values higher than 3.84 show that relationship/association between two factors under consideration is statistically significant.
Note 1: All Chi-square values greater than 3.84 show statistically significant association/ relationship between the two variables under consideration. Larger the value of the Chi-Square, the stronger is the association/relationship.
Note 2: The two factors listed in columns 3 and 4 are the factors whose effects on oral diseases are being measured/assessed. For instance, effects of cleaning teeth by fingers and tooth brush on periodontal diseases are being measured in serial number 4 of the above table. Two factors in this case are: fingers (factor1) and tooth brush (factor2).
Note 3: Odds ratio is a measure to compare relative risk of two factors. Its value equal to unity means that the two factors have equal risks. Values of less than or greater than unity means that the relative risk of the second factor is lower or higher than that for the first factor. The extent to which it is lower or higher than unity indicates the degree of reduced/higher risk.

7.3 RESULTS

The results of Chi-square testing and the estimated value of the Odds Ratio (OR) are shown in Table 7.1. The results from the information in the above table are summarised below:

1. Clearing teeth regularly greatly reduces the prevalence of periodontal diseases –cleaning teeth irregularly increases prevalence of calculus by 53 percent(serial no. 2) and occurrence of Pockets of sizes 4 mm and more by almost more than two times (serial no. 3).
2. Use of tooth brush for cleaning teeth reduces the periodontal diseases of bleeding, deposit of calculus or formation of pockets of sizes 4 mm and more as against the situation of use of fingers for cleaning teeth. The magnitude of reduction by use of the tooth brush is of the order of 25%, 40% and 60% respectively (serial nos. 4, 5, & 6).

3. Use of tooth brush for cleaning is better than datun and datun is better than use of fingers. Their relative effectiveness is shown in the last column of the table above. Thus use of tooth brush is recommended as the first choice, followed by datun and then finger.
4. Intake of sugar is positively associated with dental caries (Serial No. 13)
5. Use of tobacco is very highly associated with occurrence of leukoplakia: here the prevalence becomes three times (serial no.15). Strangely, association was not found between tobacco intake and malignant tumour (serial no. 14) – enough number of cases were not found.
6. Frequency of smoking is also positively associated with occurrence of leukoplakia – those smoking more than five times a day have 52 percent higher prevalence of leukoplakia than those smoking less than five times (serial no. 17).
7. Chewing of paan with tobacco also greatly increases the prevalence of oral mucosa related diseases. The odds ratio in this case is higher than those incurred by smoking cigarettes/cigars/bidis (serial no. 19).
8. Chewing paan masala with tobacco also creates conditions of oral mucosa – leukoplakia increases by 41 percent than in the instance of not chewing paan masala with tobacco (serial no. 21).
9. Like frequency of smoking, frequency of taking paan masala with tobacco is associated with the occurrence of leukoplakia – those who take paan masala more than five times a day have a 55 percent higher chance of getting leukoplakia than those who take it fewer than five times a day.

7.4 CONCLUSIONS

A correlation was established between selected clinical findings and findings on the subjects' socio-economic and cultural backgrounds and oral health their oral health related practices from the questionnaire administered. Health of an individual is affected by a wide variety of factors which may include hereditary, congenital, environmental and behavioural factors. It is the environmental and behavioural factors that are most important in maintaining and promoting oral health of the people.

The present study has studied the association of the various factors which are implicated in the causation and progression of oral diseases. It would be indicative of the type of changes in behavioural practices that are required to improve oral health of the population. The data was collected on the oral health status (clinical findings) and on the oral health practices individuals follow to maintain oral health (oral health knowledge and practices).

The following are the key findings from the study of relationships of oral health related behavioural practices with the clinical oral health status of people:

The practice of cleaning teeth and the regularity with which this was done by individuals was associated with the prevalence of periodontal disease: cleaning teeth regularly was negative related with prevalence of periodontal disease, especially the component of bleeding. Further, the effectiveness of cleaning increased with the use of cleaning aids. The best results were achieved with the use of tooth brush, and datum (chew-sticks). The use of finger was least effective and should be discouraged.

Dental caries is a sugars-dependent disease. A strong correlation existed between the consumption of sugar and its frequency and the prevalence of dental caries.

The use of tobacco in its various forms (tobacco-smoking and tobacco chewing) affects oral health. In the present study, there was a strong association between the prevalence of oral mucosal conditions, especially leukoplakia and tobacco-smoking. Strangely, malignant turours did not appear to be associated with smoking, perhaps because only a very small number of cases of malignant tumours could be disgnosed in the sample (covering ages 12, 15, 34-44 and 65-74 years)

The consumption of tobacco in the three forms (smoking cigarettes, cigars, bidis; chewing pan with tobacco; and chewing pan masala with tobacco) has detrimented effects on oral health. Their relative position in regard to the risk is difficult to assess in this study because of overlap of the three types of users. A special study is needed to assess their comparative risks.

The frequency of tobacco-smoking is positively associated with the prevalence of oral health diseases.

Table 7.1 Results of Testing Various Associations/Reiationships

Relation/Association Between	ChiSq. Value[1]	Risks of oral disease from		Odds Ratio
		Factor 2	Factor 1	
1. Cleaning teeth {Regularly vs. Irregularly) and Periodontal condition {Normal vs Bleeding)	Not Significant			
2. Cleaning teeth (Regularly vs. Irregularly) and Periodontal condition (Normal vs Calculus)	20.53	0.46	0.56	1.53
3. Cleaning teeth (Regularly vs. Irregularly) and Periodontal condition (Normal vs Pockets size 4mm)	109,24	021	0.44	2.93
4. Cleaning teeth (Finger vs. Tooth brush) and periodontal condition (Norma! vs, bleeding)	158-22	0.44	0.37	0.74
5. Cleaning teeth (Finger vs. Tooth brush) and Periodontal condition (Norma! vs. Calculus)	514.58	0.56	0.44	0.61
6. Cleaning teeth (Finger vs. Tooth brush) and Periodontal condition (Normal vs. Pockets of size 4mm or more)	1140.71	0.35	0.18	.39
7. Cleaning teeth (Tooth brush vs. Datun) and Periodontal condition (Normal vs. Bleeding)	Not Significant			
3. Cleaning teeth (Tooth brush vs. Datun) and Periodontal condition (Normal vs. calculus)	661.0	0.44	0.58	1.77
9. Cleaning teeth (Tooth brush vs. Datun) and Periodontal condition (Normal vs. Pocket of more than 4mm)	698.2	0.18	0.32	224
10 Cleaning teeth (Finger vs. Datun) and Periodontal condition (Norma! vs. Bleeding)	2292	0.44	0.34	0.67
11. Cleaning teeth {Finger vs. Datun) and Periodontal condition (Normal vs. Calculus)	Not Significant			
12. Cleaning teeth (Finger vs. Datun) and Periodontal condition (Normal vs. Pocket of more than 4mm)	14.2	0.35	0.32	.87
13. Whether or not sugar consumption is a associated with dental caries.	135.7	.69	.74	124
14. Use o(tobacco (No vs, yes) and Ora! mucosa condition (Normal vs. Malignant tumour)	Not Significant			
15. Use of tobacco (No vs. yes) and Oral mucosa condition (Normal vs. Leukoplakia)	281.83	0.02	0.05	2.93
16. Frequency of smoking (Less than 5 vs. more than 5) and Ora! mucosa condition (Normal vs. Malignant tumour)	Not Significant			
17. Frequency of smoking (Less than 5 vs. more than 5) and Oral mucosa condition (Normal vs. leukoplakia)	10.68	0.04	0.06	1.52
18. Chewing Paan with Tobacco (No vs. Ves) and Oral mucosa (Normal vs. malignant tumour)	4.76	0.006	0.008	1.48
19. Chewing Paan with Tobacco (No vs. Yes) and Oral mucosa (Normal vs. Leukoplakia)	304.35	0.02	0.06	3.25
20. Chewing Paan Masala with tobacco (No vs. Yes) and Oral mucosa (Normal vs. Malignant tumour)	Not significant			
21. Chewing Paan Masala with tobacco (No vs. Yes) and Ora! mucosa [Normal vs. leukoplakia)	6.50	0.04	0.07	1.41
22, Frequency of chewing Paan Masala (Less than 5 vs. More than 5 times) and Ora! mucosa (Normal vs Malignant tumour)	Not significant			
23. Frequency of chewing Paan Masala (Less than 5 vs. Mote than 5 times) *and Orai* mucosa *(Normal* vs *Leukoplakia)*	11.26	0.05	0.07	1.55

CHAPTER VIII

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

This chapter presents the summary of key findings from the survey, conclusions drawn and recommendations based on the findings for improving the oral health of the people.

The findings of the survey are reported in more detail under Chapters III, IV, V and VI of the report. These chapters contain detailed tables of data, graphical representations (figures) presenting the highlights of the related findings, and a brief narrative.

8.2 SUMMARY FINDINGS

The main findings are summarized in Table 8.1.

A summary of findings and conclusions based on the findings are presented below, followed by some recommendations for action on preventive and treatment aspects of important oral health problems based on the findings of this survey.

Table 8.1. Summary of findings of important oral health conditions and practices by age in India.

	Findings	Age in years				
		5	12	15	35-44	65-74
1.	Oral disease conditions					
1.1	Mean number of teeth present in mouth	19.9	27.1	27.9	30.0	19.1
1.2	Dental Caries					
	% Prevalence	50.0	52.5	61.4	79.2	84.7
	Mean DMFT	1.9	1.7	2.3	5.2	14.6
	SiC Index	5.3	4.5	5.4	10.6	29.5
1.3	Periodontal disease					
	Bleeding, calculus or pockets					
	% Prevalence	NA	NA	66.2	89.2	79.4
	Mean no of Sextants affected	NA	NA	2.8	4.5	2.9
1.4	Loss of attachment					
	% Prevalence	NA	NA	7.7	42.2	60.6
	Mean no of Sextants affected	NA	NA	0.2	1.4	1.6
1.5	Malocclusion (%)	0.6	23.6	23.9	42.0	NA
1.6	Dental Fluorosis (%)	5.8	12.1	11.8	9.3	5.2
1.7	Oral mucosal conditions (%)	0.9	1.4	2.4	7.3	10.0
1.8	Oral Cancer (%)	0.2	0.2	0.3	0.3	0.4
1.9	Edentulousness (%)	NA	NA	NA	0.8	29.3
2	Oral Health Practices					
2.1	Sugar Intake in last 24 hours					
	Once	22.5	23.9	27.2	27.4	25.5
	Two & more times	47.0	42.8	38.7	30.6	24.8
2.2	Clean teeth with					
	Tooth Brush	60.9	66.7	67.9	60.4	33.0
	Fingers	27.7	21.8	20.7	23.3	33.6
2.3	Rinsing mouth					
	Always	39.3	47.5	53.0	60.6	64.7
	Sometimes	35.2	36.4	35.3	30.5	27.0
2.4	Tobacco smoking	NA	NA	NA	22.8	23.7
2.5	Frequency of tobacco smoking					
	Less than 10 times	NA	NA	NA	85.0	76.2
	10 or more times	NA	NA	NA	14.4	23.4

8.3 DENTAL CARIES AND TREATMENT NEED

The caries experience was high in all age groups and increased as age advanced. The decayed teeth component (dt/DT) was the most dominant in children (5, 12, 15 years) and younger adults (35-44 years), while the missing teeth component (MT) was most dominant in older adults (65-74 years). There were virtually no filled teeth across age groups in the country, indicating a very high proportion of untreated caries.

There was a skewed distribution of dental caries experience, meaning that there was a subgroup of the population who were worse affected with a much higher severity of the disease. The mean dmft/ DMFT value gives an impression of a uniform caries situation in the study population. However, this may not be true, and not reflect the skewed distribution. The SiC Index helps identify this high risk subgroup, especially children, with a much higher than average dmft/ DMFT value, who may need more complex treatment in the future. In the present study, the Significant Caries (SiC) Index was two or more but less than three times higher than dmft/ DMFT levels.

There were no marked gender based differentials but the prevalence was slightly higher in rural residents.

The findings lead to the conclusions that the country should first achieve the WHO recommended goal of 3 or less DMFT for the whole population. The next goal, as recommended by WHO, should be to reach a SiC Index (for one third of the highest caries scores, by definition) of 3 DMFT for the country. Once this goal is reached, an effort must be made to target regions, districts, towns and cities and rural areas where SiC Index may still be high. Action plans and strategies to achieve these objectives would help to provide an equitable, appropriate distribution of services so that resources would then be utilized for maintaining and reducing these levels further through a health promotion approach. The ultimate aim of the services, from a public health perspective, should be to increase the proportions of caries free population, especially children, in the country.

The data on treatment need also indicates a high prevalence and consequences of dental caries which requires treatment, increasing as age advances. The above strategy does not undermine, but complements the need for treatment services. Where treatment of caries or its consequences is required, it should be provided at a priority to all those who need it, at a cost that the communities can afford, and as close to their place of residence as possible. Once the treatment services are being made available, the focus must be on quality of services, rather than just the numerical increase in facilities and manpower.

In conclusion, therefore, the overall goal for service provision for oral health care must be to increase the proportion of children and adults with caries-free teeth; to reduce the dmft/ DMFT and SiC Index values with special emphasis on the dt/ DT component; and to reduce the number of missing or extracted teeth due to caries (and periodontal disease) through preventive measures and appropriate treatment in communities.

8.4 PERIODONTAL DISEASE

The periodontal disease, marked by calculus and bleeding, was widely prevalent in all age groups. Pockets and loss of attachment were detected in adults (35-44 years) and older adults (65-74 years) but the depth of pockets and the severity of loss of attachment measured by their depth indicated that the shallow pockets (4-5 mm) and less severe forms of loss of attachment were the most dominant. Rural residents were affected more than their urban counterparts.

The majority of subjects (two thirds of 5,12,15,35-44 year-olds and one third of 65-74-year-olds) had indicated in their interviews that they brushed their teeth with a tooth brush at least once a day, This practice should be encouraged and promoted at all possible levels. A small percentage ranging from about 7 to 13 percent across age groups, were using a datum (chew stick) and they may be encouraged to continue with their traditional practice until they are ready to switch over to toothbrush, which may be more efficient and have the added advantage of the use of fluoridated toothpaste providing cover against dental caries and periodontal infections. It

must be appreciated, though, that the effectiveness of mechanical plaque removal is directly associated with reductions in plaque levels on a regular basis and therefore important in long term prevention and control of periodontal disease.

There may be a significant proportion of the population, especially in the rural areas, who need to be educated on effective methods of brushing their teeth and monitor their plaque levels. Since the interview data suggests that most younger subjects, even in rural areas, read newspapers and listen to radio and watch TV, the health education components of any oral health care programme must address these issues of the use of media and publications. Health education provided through media and illustrated publications should be scientifically published and widely disseminated. In addition, clinical programmes of professional prophylaxis or cleaning of teeth for plaque control must be strengthened and expanded to cover all age groups and communities.

8.5 EDENTULOUSNESS

Complete edentulousness or absence of teeth in the mouth was a feature of the highest age group of 65-74 years. Nearly 30 per cent subjects (29.3%) in the age group were completely edentulous. In contrast, only 0.8 or say one percent subjects were edentulous in the 35-44 years age group. This indicates that teeth are rapidly lost in middle and old age due to dental caries and periodontal disease. A specially designed study should be initiated to assess whether teeth arte lost more because of dental caries or due to periodontal disease in the country.

An analysis of the data on caries and periodontal disease leads to the conclusion that more teeth may be lost due to the consequences of caries than periodontal disease. The facts which lead to this conclusion are:

Caries experience was high and increased with age. Periodontal disease prevalence was marked by calculus and bleeding in children and adults. Shallow and deep pockets and loss of attachment was marked in higher age groups only and less severe forms of advanced periodontal disease were dominant. The number of sextants affected were not markedly high. Since tooth loss would be more likely associated with loss of attachment and deep pocket formation, it is likely that most subjects had actually lost teeth due to caries and its consequences.

However, whatever be the reasons for tooth loss, the data on edentulousness emphasizes the need for enhanced preventive care beginning with childhood in order that more teeth, if not all teeth, may be retained for life.

8.6 MALOCCLUSION

The Dental Aesthetics Index, recommended by the WHO was used to report malocclusion. There was virtually no malocclusion reported in children aged 5 years with primary teeth alone. In 12 and 15 years, it was 23.6 and 23.9 per cent respectively. However, these figures only include the definite, severe and very severe types of malocclusion. It excludes the minor malocclusion (requires no treatment) which is reported jointly with no malocclusion. Malocclusion mainly results from an unfavourable tooth and bone ratio, which may be hereditary or have congenital causes. It also results from childhood habits such as thumb sucking and tongue thrusting or mouth breathing. Early exfoliation of primary teeth, nutritional deficiencies and other causes also may account for some forms of malocclusion. The interview data from structured questionnaires administered to the subjects examined indicated a very low prevalence of oral habits which cause malocclusion. The malocclusion was reported more in males than in females, contrary to popular perception, and more in rural than in urban residents in the 12 and 15 year age groups.

Malocclusion, or at least some forms of malocclusion, can be prevented through effective health education based strategies which provide information and action points for children and their parents. These health education activities should focus on the personal and environmental causes and advise parents and children about what can be done to control the causes of

malocclusion and prevent its occurrence. Where treatment is required, this should be made available at public funded facilities. At present, there are few, if any, such facilities in the rural and peri-urban areas. It is recommended that such facilities should be made available at district levels. With the recent expansion of dental colleges in the country, people should be educated to avail of the facilities provided in these facilities at a reasonable and affordable cost. Since the age at which diagnosis is established and treatment initiated is important in malocclusion, these facts must be integral part of the health education messages.

8.7 ORAL MUCOSAL CONDITIONS

Only a very few percent cases of oral cancers and pre-cancerous lesions were detected in the sample in the present study. The impression from this study is that the prevalence rate for oral cancer is about 0.2 to 0.4 per cent across age groups in the country. The prevalence of pre-cancerous lesions is higher.

Smoking was associated with diseases of the oral mucosa, particularly leukoplakia (Chapter VII). However, an association of smoking or other tobacco use was not established in this study with malignant oral tumours. This could perhaps be attributed to the limitations of small sample size and low numbers of cases diagnosed in the field situation.

Results from other, more pertinent studies on oral cancers and pre-cancerous lesions in the country, from other sources, should be reviewed and compared with these results to assess the prevalence and distribution of oral cancers and pre-cancers in the country.

In conclusion, Oral cancer and other oral mucosal conditions appeared in a small fraction of the subjects. An estimation of the prevalence of these conditions and identification of people at high risk for these important public health problems may require a specially designed study.

8.8 FLUOROSIS

Moderate and severe forms of fluorosis, which may be associated with skeletal fluorosis, appeared to be infrequent and had a very low prevalence in the country. Results from this study would seem to confirm results from earlier studies in the country carried out mainly by Dr Amrit Tewari et al in 1985 which are suggestive that fluorosis is not widely prevalent in the country and that there is a fluorosis belt, comprising about 5 per cent population, where fluorosis may pose a public health problem. A fluoride map is being developed as part of the present study, on a sound sampling design basis, without bias to known geographic regional pockets with endemic fluorosis, which may provide an understanding of the levels of fluoride in a variety of drinking water sources in urban and rural areas of the country.

In conclusion, therefore, Fluorosis was prevalent in 12.1 per cent children (12 years) and 11.8 per cent children (15 years). If the questionable fluorosis was excluded, no more than about 7 per cent subjects in any one age group had fluorosis. Severe fluorosis was recorded in no more than 0.2 per cent subjects in any age group. It is possible that there are small, localized geographical pockets in the country with endemic fluorosis in the country, as reported in literature, but it was clear that on a national level, moderate and severe fluorosis did not appear as a major public health problem.

8.9 SOME RECOMMENDATIONS FOR TREATMENT AND PREVENTIVE STRATEGIES

1. While the treatment need is immediate and high priority, it must not be allowed to divert attention from the longer term need and goal for prevention and control of oral disease. Dental diseases can best be prevented and controlled through a combination of high risk and whole population strategies to achieve the greatest benefits. The high risk strategy has the advantage of identifying only those at risk and target precious resources at those who need them most. The strategy can be used to identify those at risk of oral cancers and precancers and other such diseases of public health importance. The whole population directed strategy complements the high risk strategy. It helps control the determinants and removes the underlying causes providing benefits to all by altering social norms when

reinforcement of behaviours become less important. It would work well in the case of caries and periodontal disease. For example, the distribution of caries (DMF) depends on the distribution of exposures to sugar (non-milk extrinsic sugar) and fluorides. Altering exposure distributions in the country through a health promotion approach of a more sensible sugar consumption (reducing amount and restricting frequency to no more than three times a day) can achieve dramatic reductions in caries in the country. Such a population directed strategy may be applied to community groups like school children, office workers and so on. It would still be different from high risk approach since screening of individuals for risk factors is excluded.

2. Caries is a sugar-dependent, infectious disease of the teeth. Fluorides can play an effective role in combating the effects of sugar in the diet and in control of caries. A major preventive strategy for dental caries prevention and control should be the use of fluoride in toothpastes and mouthrinses. The survey data from interviews of subjects shows that a large proportion of subjects (upto 67.9% of 15-year-olds) use toothbrushes and many of these use toothpastes for cleaning their teeth at least once a day. The toothbrush users were more than three times those who used their fingers for cleaning teeth except in older adults (65-74 years). Further, rinsing the mouth with water after meals was a widely prevalent practice in the country across age groups. Further, people should be educated through the media, and preventive professional programmes that fluorides are safe, effective and efficient in prevention for dental decay. Community based discussions, involving community leaders should be encouraged as health promotion programmes to help appreciate the potential benefits of fluoride in controlling caries in children.

3. It has usually believed that India in general has a high fluoride content in its drinking water sources. This is not true. There are known but well demarcated, small and localized areas with a very high fluoride content in drinking water sources in the country, and scientific literature documents the fact that no more than about 5 per cent of the country's population lives in these high fluoride or endemic fluoride areas. Media should be utilised to present these facts before the people and enhance people's acceptance of the use of fluoridated toothpastes in the country for effective caries control. .

4. Dental plaque is the most important factor in the etiology and progression of prevalent forms of periodontal disease (and dental caries)]. The prevention and control of periodontal disease at public health level, requires effective and efficient plaque control. This can be is achieved through promoting a daily regimen of tooth brushing, once or twice a day, preferably with a fluoride containing toothpaste.

5. Tobacco cessation and freedom from the habit of tobacco consumption can have great benefits in the prevention and control of not only oral cancers, but also some forms of periodontal disease and cardio-vascular diseases, diminished taste and smell acuity, halitosis, tooth discolouration and failure of treatment like implants. Therefore, from a public health perspective, it is important that health education and health promotion programmes, integrated with general health programems are directed to achieve this goal. Since most youngsters read newspapers, watch TV, and listen to Radio, these media should be well-utilised to spread these messages. In addition, alternatives and agents which help relieve one from the urge of smoking should be encouraged and promoted. In this survey, interview data suggested that most people knew that smoking is injurious to oral health and this may mean that people are ready to change. They need to be shown easily acceptable methods to be able to change.

6. Treatment care remains a high priority service, especially in cases where extensive surgical procedures are necessary. The government facilities provide essential, quality treatment services but may be over utilized, working under pressure of great demand. Private services supplement these government services but may be expensive and therefore not fully utilized. Since treatment care requires trained manpower, expensive diagnostic and surgical facilities, it is recommended that these be expanded and extended in all rural and urban areas in such a away that these are affordable, accessible and acceptable for the communities that they serve, based on local needs and demands. An efficient network of referrals and treatment care should be established to avoid duplication and maximize use

of precious resources. Private enterprise may be encouraged to help supplement the largely efficient but sometimes inadequate government facilities. With the rapid growth in numbers of dental colleges in the country, it is important to ensure that not just highly skilled dental surgeons but also auxiliary staff, to form complete dental teams at all levels of service are proportionately produced.

7. To evaluate and monitor future trends of the dental caries and other oral and dental diseases and monitor progress of planned programmes, an oral health surveillance system must be established. A national research centre to plan appropriate programmes and provide the following services should be set up and include the following tasks:

   - Development and standardisation of new parameters and indicators in clinical and social dental research;

   - Provide standard recording protocols, criteria, methods for use by various potential investigators so that the data collected is nationally and internationally comparable.

   - Organise training and calibration for trainers and various investigators for ongoing oral health surveillance and maintain the country's oral health data bank;

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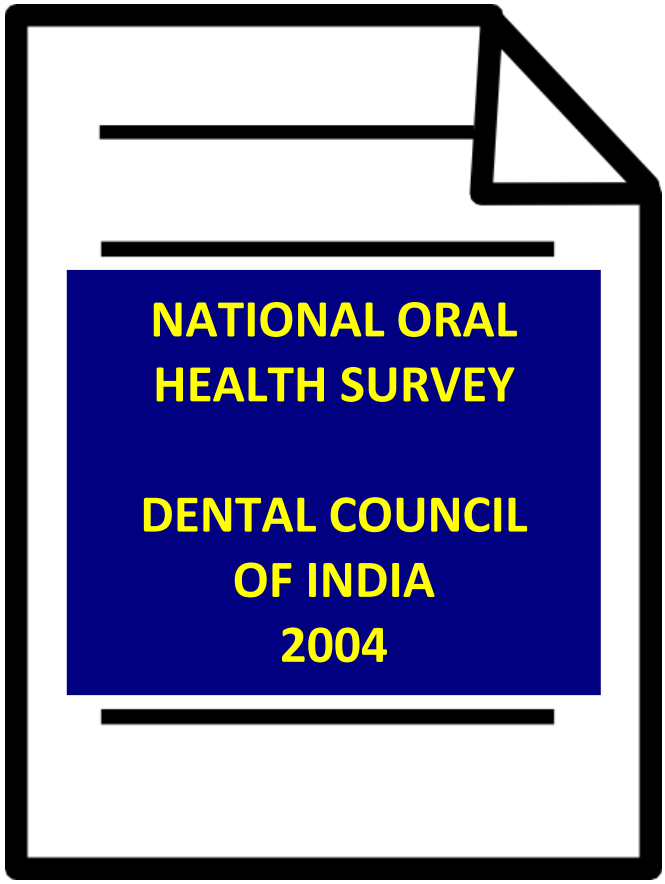

ANNEXURES

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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

ANNEXURE - 3

LIST OF STATES, REGIONS WITHIN STATES AND SELECTED DISTRICTS

State/UT Code	Region/ State	Zone	Zonal Code	Districts	District Code
01	Andhra Pradesh	North Coastal Andhra	01	Vishakapatnam	1
		South Coastal Andhra	02	Guntur	1
		Nellore	03	Nellore	1
		Rayalseema	04	Chittoor	1
		S Telangana	05	Ranga Reddy	1
		N Telangana	06	Khammam	1
02	Assam	N Eastern Hills	01	Karbi Anglong	1
		Lower Brahamputra	02	Kamrup	1
		Upper Brahamputra	03	Jorhat	1
03	Bihar	N Bihar Plains	01	Siwan	1
		N E Plains	02	Purnea	1
		S Bihar Plains	03	Aurangabad	1
04	Jharkhand	Chota Nagpur Hills	04	Godda	1
		Chota Nagpur Plateau	05	Singbhum	1
05	Gujarat	S Hills	01	Bulsar	1
		S Gujarat	02	Surat	1
		M Gujarat	03	Baroda	1
		N Gujarat	04	Ahmedabad	1
		N W Arid	05	Kutch	1
		N Saurashtra	06	Jamnagar	1
		Saurashtra	07	Junagarh	1
06	Haryana	Foot Hills of Shivalik	01	Yamunanagar	1
		Plains	02	Rohtak	1
		Arid	03	Sirsa	1
07	Himachal		01	Simla	1
			02	Kinnaur	1
08	Punjab	N Punjab	01	Roppas (Ropar)	1
		C Punjab	02	Patiala	1
		S Punjab	03	Sangrur	1
09	Chandigarh	Chandigarh	01	Chandigarh	1
10	Delhi	Delhi	01	Delhi	1
11	Karnataka	N Dry Region	01	Dharwad	1
		Central Region	02	Bangalore	1
		S Region	03	Mysore	1
		Hills & Coastal Region	04	Kodagu	1
12	Kerala	Coastal Midland	01	Malappuram	1

		Midlands	02	Kottayam	1
		Hills	03	Wayanad	1
13	Madhya Pradesh	Bundelkhand	01	Chattarpur	1
		Chattisgarh Hills	02	Mandla	1
		Keymora Plateau & Satapura Hills	03	Jabalpur	1
		Vindhya Plateau	04	Bhopal	1
		Satpura Plateau	05	Chindwara	1
		Central Narmada Valley	06	Hoshangabad	1
		Gird	07	Guna	1
		Malwa & Nimar (?) Plate	08	Indore	1
14	Chattisgarh	Chattisgarh plains	01	Durg	1
		N Hills	02	Sarguja	1
		Bastar Plateau	03	Bastar	1
15	Maharashtra	E Vidharba	01	Bhandara	1
		W Hills & Plains	02	Nasik	1
		Scarcity Region	03	Ahmednagar	1
		C Plateau	04	Amrawati	1
		C Vidharba	05	Wardha	1
		Konkan	06	Thane	1
16	Goa	Goa	01	Goa	1
17	Orissa	Inland	01	Dhankonal	1
		N Plateau Hills	02	Keonjar	1
		S W Hills	03	Koraput	1
		Coastal	04	Cuttack	1
		Ganjan	05	Ganjam	1
18	Rajasthan	N Arid	01	Ganganagar	1
		S Plains	02	Udaipur	1
		E Plains	03	Jaipur	1
		S Plateau	04	Jhalawar	1
		W Arid	05	Sikar	1
19	Tamil Nadu	N Region	01	Salem	1
		C Region	02	Coimbatore	1
		NE Coastal	03	Chennai	1
		Delta	04	Thanjavur	1
		SE Coastal	05	Tirunevalli	1
		S Region	06	Kanyakumari	1
		Hills Region	07	Nilgiri	1
20	U P	N E Plains	01	Gonda	1
		E Plains	02	Ballia	1
		C Plains	03	Sitapur	1
		N W Plains	04	Ghaziabad	1
		S W Plains	05	Aligarh	1
		Bundelkhand	06	Banda	1
21	Uttaranchal	E Hills (Uttaranchal)	01	Nainital	1
			02	Tehri Garhwal	1

22	W Bengal	1	01	Maldah	1
		Alluvial	02	Midnapur	1
		Coastal	03	N 24 Pargana	1
		4	04	Birbhum	1
		Terai	05	Jalpaiguri	1
		Hills	06	Darjeeling	1
23	J & K	Ladhakh	01	Ladakh	1
		Kashmir Valley	02	Srinagar	1
		Jammu	03	Jammu	1
24	Sikkim	Sikkim Himalaya	01	S District, E District	1
25	Arunachal Pradesh	1	01	W Kamong	1
26	Tripura	Tripura Plains	01	W Tripura	1
		Tripura Hills	02	N Tripura	1
27	Nagaland	Nagaland Hills	01	Tuensang	1
28	Manipur	Manipur Hills	01	Manipur N, Manipur S,	1
		Imphal Valley	02	Manipur C, Imphal	1
29	Mizoram	Mizoram	01	Mizoram	1
		E Meghalaya	01	E Khasi Hills	1
30	Meghalaya	W Meghalaya	02		1
31	Pondicherry	Pondicherry	01	Pondicherry	1

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 (Karnataka)
9. Bharati Vidyapeeth Dental College & Hospital, Pune (Maharashtra)
10. Dental Wing, S.C.B. Medical College, Cuttak (Orissa)
11. Mahatma Gandhi Dental College & Hospital, Pondicherry.
12. Dental College & Hospital, Lucknow (Uttar Pradesh)
13. Govt Dental College, Indore (M.P.)
14. Sri Sai College of Dental Surgery, Vikarabad (Hyderabad, Andhra Pradesh)
15. Govt. Dental College, Srinagar (J&K)
16. Pacific Dental College, Udaipur (Rajasthan)

REGIONAL COORDINATORS

ANNEXURE - 5

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, Deptt. of Community Dentistry, Shimla
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

ANNEXURE - 6

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 (जोन) | | | (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)

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

FORM NO. फार्म संख्या | 1 | 1 |

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			NOT ASKED	NOT 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			NOT ASKED	NOT ASKED				(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			NOT TO BE ASKED	NOT TO BE ASKED				(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 TO BE ASKED	NOT TO BE ASKED				(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			NOT ASKED	NOT ASKED				(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. ब.	**Abnormal Oral Habits** 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 ***Mouth/*** मुँह ***Can't Say/*** कह नहीं सकता	1 2 3							(95-99)
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 ***Yes/*** हां ***Can't Say/*** कह नहीं सकता	1 2 3							(100-104)
31.	***Did/does the interviewee have a habit of thrusting his/her tongue on his/her teeth? (Observe & Record) /*** क्या आपको अपनी जीभ दांतों पर दबाने की आदत है या थी? (देखें और लिखें)	***No/*** नहीं ***Yes/*** हां ***Can't Say/*** कह नहीं सकता	1 2 3							(105-109)
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 ***Yes/*** हां ***Can't Say/*** कह नहीं सकता	1 2 3							(110-114)
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 ***In Sleep/*** नींद में ***In Stress/*** दबाव में ***Can't Say/*** कह नहीं सकता	1 2 3 4							(115-119)
C. स.	**Eating Habits** 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 ***2 times/*** 2 बार ***3 times/*** 3 बार ***4 times/*** 4 बार ***5 times/*** 5 बार ***> 5 times/*** 6 बार ***Not taken/*** नहीं खाई	1 2 3 4 5 6 7							(120-124)

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 *In Between Meals* भोजन के समय के बीच *During & In Between Meals* भोजन के समय व बीच में *N.A.* / लागू नहीं होता	1 2 3 4							(125-129)
D. द.	**Oral Hygiene Practices** मुख की सफाई									
36.	*How do you generally clean your teeth?*/ सामान्यतः आप अपने दांत कैसे साफ करते हैं?	*Finger*/ उंगली से *Brush*/ ब्रुश से *Datun*/ दातुन *Others (Specify)* अन्य	1 2 3 4	**If Code chosen either 3 or 4, go to Q. 42.**						(130-134)
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 *Twice*/ दिन में दो बार *After every meal* प्रति भोजन के बाद *Don't clean every day* प्रतिदिन साफ नहीं करते	1 2 3 4							(135-139)
38.	*What are your timings of cleaning teeth ?* / दांत साफ करने का समय क्या है?	*Morning only*/ केवल प्रातःकाल *Night only (before going to bed)* केवल रात में सोने से पहले *Morning & Night* प्रातःकाल व रात *After meals* भोजन के बाद *Others (Specify)* अन्य	1 2 3 4 5							(140-144)
39.	*What material do you generally use to clean teeth ?* / सामान्यतः आप अपने दांत किस चीज से साफ करते हैं?	*Toothpaste* टूथपेस्ट *Toothpowder* टूथपाउडर *Others (Specify)* अन्य	1 2 3	**If Code chosen 3, go to Q. 41**						(145-149)

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. द.	**Pattern of Practices for Dental Treatment** 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 प्रेक्टिशनर ***Pharmacist/ Chemist*** फारमासिस्ट / कैमिस्ट ***Untrained Dentist*** अनट्रेण्ड डेन्टिस्ट ***Trained Dentist*** ट्रेण्ड 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									
		Tooth Decay ..... 1 दंत–क्षय			SKIP TO BE ASKED					
		Gum Disease ..... 2 मसूड़ों की बीमारी								
		Bad Smell ..... 3 दुर्गन्ध								
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?	***Crooked teeth*** ..... 4 टेढ़े–मेढ़े दांत								(275-294)
		Mouth Ulcers ..... 5 मुख का अल्सर								
		Stained teeth ..... 6 गन्दे दांत								
		Others (Specify) ..... 7 अन्य								
	(Tick as many as reported) (जितना बताएं सब लिखें)	***Don't Know*** ..... 8 नहीं जानता								
		Eating sweets icecreams/chocolates ..... 1 मिठाई / आइसक्रीम / चाकलेट खाना			SKIP TO BE ASKED					
		Not brushing regularly ..... 2 नियमित रूप से ब्रुश न करना								
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?	***Not rinsing*** ..... 3 पानी से मुख साफ न करना								(295-314)
		Consuming Tobacco products/ ..... 4 तम्बाकू उत्पाद खाना								
		Others (Specify) ..... 5 अन्य								
	(Tick as many as reported) (जितना बताएं सब लिखें)	***Don't Know*** ..... 6 नहीं जानता								

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		SKIPPED					(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. जी. Tobacco Smoking and Chewing Habits 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**	A S					(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 O					(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		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					(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

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)

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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)

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*

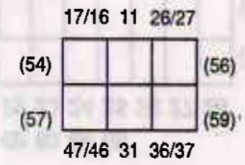
0 = Normal
1 = Questionable
2 = Very mild
3 = Mild
4 = Moderate
5 = Severe
8 = Excluded
9 = Not recorded

☐ (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

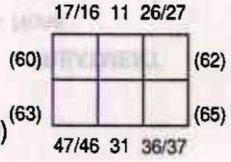
*Not recorded under 15 years of age



LOSS OF ATTACHMENT*

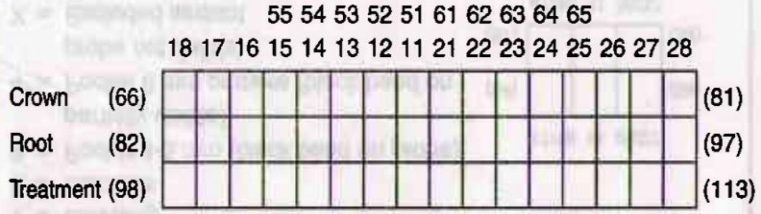
0 = Healthy
1 = 4-5 mm (cementoenamel junction (CEJ) within black band)
2 = 6-8 mm (CEJ between upper limit of black band and 8.5 mm ring)
3 = 9-11 mm (CEJ between 8.5 mm and 11.5 mm rings)
4 = 12 mm or more (CEJ beyond 11.5 mm ring)
X = Excluded sextant
9 = Not recorded

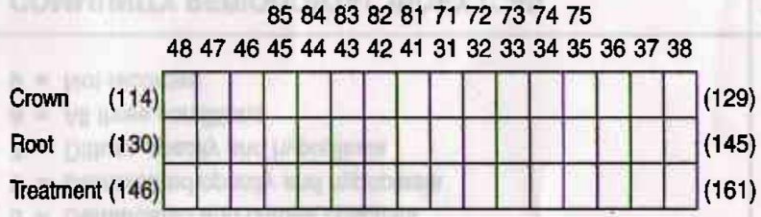
*Not recorded under 15 years of age



DENTITION STATUS AND TREATMENT NEED

Identification Number





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