National Oral Health Survey & Fluoride Mapping 2002-2003

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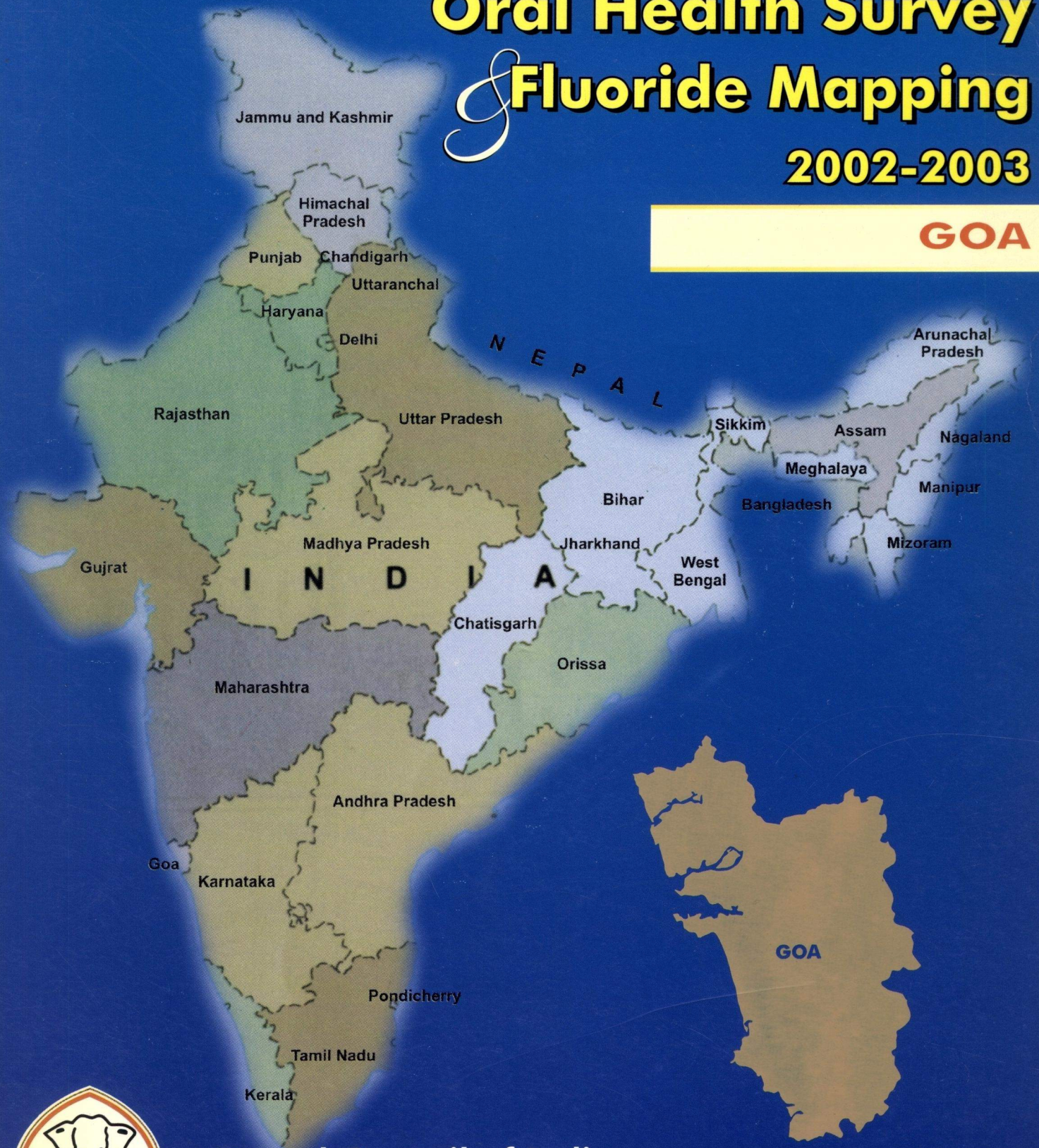

DENTAL COUNCIL OF INDIA

Dental Council of India
New Delhi
2004

NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

2002-2003

GOA

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DENTAL COUNCIL OF INDIA
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TABLE OF CONTENTS

ABBREVIATIONS & ACRONYMS

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

FOREWORD

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

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

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

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

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

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

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

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

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

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

Dr R. K. Bali

President, Dental Council of India.

July 2004.

PREFACE

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Dr. R. K. Bali

Dr. V. B. Mathur

Prof. P. P. Talwar

H.B. Chanana

July 2004.

ACKNOWLEDGEMENTS

We are extremely grateful to Dr. R. K. Bali, Hon. President Dental Council of India, Dr. V. B. Mathur, Project Officer National Oral Health Survey & Fluoride Mapping (NOHS&FM), Dr. P. P. Talwar, Mr. H.B. Chanana and Dr. S. G. Damle, Regional Coordinator for Maharashtra & Goa, for selecting us to be part of this National Survey, for reposing faith in us, for being very patient with us especially when we couldn't keep the prescribed deadlines and for advising us and guiding us from time to time right through the project.

We would also like to acknowledge the Health Secretary Govt. of Goa Mrs. Rina Ray, Panchayat Secretary Govt. of Goa Mr. Ray, Dean, Goa Dental College & Hospital, Dr. P. K. Chandra Prof. Head Dept. of Orthodontics and Periodontics who helped us with all matters official.

We are also grateful to the many public health dentists, especially Dr. Ujwala Desai and staff at the Sanguem PHC who went out of their way to help us.

We also like to thank the staff at some of the Panchayats and municipalities who endeavoured to make life bearable for us.

My heartfelt gratitude also goes out to Dr. Damodar Bhonsle who with his vast experience was a large source of inspiration and practical advice, helping us throughout the survey, especially in its initial stage when things were very difficult for us.

I am thankful to Dr. James Samuel, Asst. Prof. in Periodontics, Dr. Aquaviva Fernandes, Lecturer in Prosthodontics, Dr. Sandeep Lawande, Lecturer in Periodontics. Kennedy Mascarenhas, Diksha Kamat, Kavita Dhargalkar, Bilva Desai and Pushpa Kumari who as the back up team shouldered their responsibilities and worked tirelessly right through the survey.

To Dr R. B. Bhonsle, Dr. Aquaviva Fernandes and Dr. Sandeep Lawande who helped me write the state report.

Dr. Radhika Puri, Mr. John Fernandes and Mrs. Angela Fernandes who help to rewrite and type the manuscript.

Last but not the least, we are extremely grateful to the wonderful people of Goa who in spite of various shortcomings co-operated with us and helped make the survey possible.

Dr. Steven Rodrigues
State Coordinator

LIST OF TABLES

LIST OF FIGURES

CHAPTER 0
EXECUTIVE SUMMARY

1. GENESIS

Oral health is a very important component of general health. However, it is one component about which there is very little awareness and little clear understanding of the implications of the consequences of ill-health. The high prevalence of dental diseases, like dental caries, periodontal diseases, various stages of malocclusion, besides 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, it is necessary to know the prevalence of oral health problems and understand the dental health practices that people follow. Such information is basic for formulation of oral health policies and implementation of appropriate programmes to improve the awareness and knowledge of general public about the preventive 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 of assessment of (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 the drinking water of the people 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 for 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 considerati ons were kept in mind while deciding upon the sample size: (1) The estimates should be valid at the state level; (2) Intra-state regional variations may be captured in oral health problems and practices; and (3) It should be 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 behaviour **Annexures**.

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, data collection, and standardisation of the assessment of oral health problems. The last is very important, and very thorough training was imparted for it, so that all field teams adopted uniform assessment methods in recording dental problems. A workshop on report writing was also organised in Mumbai to standardise the format & writing of each state report. This was necessary because some coordinators undertook responsibility of writing reports for their respective state. Of course some state reports were prepared by the Central Survey Unit.

7. AREA COVERAGE IN SURVEY

The National Oral Health Survey, was designed to cover all Agro-Climatic regions of the state. Since Goa state is one Agro-climatic region this was covered completely in the survey.

8. FINDINGS (ORAL HEALTH KNOWLEDGE AND PRACTICES)

8.1 Characteristics of households surveyed

- About 19 per cent households live in Pucca houses while another 76 per cent were living in Semi-Pucca houses. Pucca houses were 18 per cent in rural areas and 22 per cent in urban areas.
- A majority of the households had a monthly expenditure in the range of Rs. 2,501-5,500.
- About 52 per cent households in the state were Christians, followed by 45 per cent Hindus and 2 per cent Muslims. Other Backward Classes (OBCs) comprised 81 per cent of the households followed by Scheduled Castes (11 per cent) and Scheduled Tribes (2 per cent).
- The staple food was rice, with almost 87 per cent of the people being non-vegetarians.
- Nearly 70 per cent of the subjects said their source of drinking water supply was taps.

8.2 Profile of population surveyed across age groups

- Literacy was very high in the young respondents, more in urban areas and more among males.
- The level of illiteracy increased (from zero to 74 percent) with increase in age group of respondents.
- With regard to exposure to media, TV was found to be the most utilised media. Analysis of daily habits across age groups revealed that 50 per cent watched TV while 18 per cent had read newspapers and 14 per cent listened to the radio daily. Exposure to cinema was very low, with only 3 per cent respondents across age groups reported watching cinema once in 3 months.

8.3 Abnormal oral health habits across age groups

- The habit of "sucking fingers/thumbs" & "grinding/gritting teeth" constituted a major habits in 5 year olds.
- Overall, prevalence of each of abnormal oral habits across all ages/age groups & both sexes was generally very low.

8.4 Sweet /sugar intake habit across age groups

- About 48 per cent of the subjects, across all ages and sexes reported taking sugar at least once in the last one day. There was no significant difference in sugar intake of males and females.
- About 52 per cent respondents across age groups did not taken sugar sweets at all in the last 24 hours. However, it was seen that intake decreased with increase in age of respondents in both rural and urban areas.

8.5 Oral hygiene practices across age groups

- The practice of cleaning teeth was universal.
- About 75 per cent across all age groups, across both sexes and more in urban areas reported using toothbrush to clean their teeth.
- About 93 per cent, across all ages groups, both sexes and more in rural areas cleaned their teeth once a day. In urban areas, more reported cleaning twice a day.
- About 80 per cent, across all ages, both sexes, and more in the urban areas reported the use of toothpaste.
- About 82 per cent, across all ages, both sexes, and more in rural areas reported the use of non-fluoridated toothpaste/powder.
- About 92 per cent, across all ages, more males and slightly more in urban areas changed their toothbrushes once in 1-3 months.
- About 98 per cent of the respondents, across all ages and both sexes, and more in urban areas reported rinsing their mouth after every meal "always".

8.6 Dental problems and treatment aspects across age groups

- Around 27 per cent of the respondents, across all age groups and across sexes, had dental problems in the last one year. Reporting was more in urban areas.
- The most common problem reported was dental decay (over 85 per cent).
- More than one-third subjects (37 per cent), across all ages, had consulted trained doctors. Also, 87 per cent subjects, across all ages and both sexes, but more in urban areas was aware of availability of governmental dental facility.
- Most respondents reported less than half-an-hour to reach the health facilities. This was especially so in urban areas.

8.7 Awareness of dental health problems across age groups

- About 95 per cent of subjects across all ages and both sexes, but more in urban areas, were aware of oral health problems in the state.
- About 9 per cent of respondents across all age groups, more males & more in rural were not aware of the factors that cause oral health problems.

  Of those who were aware, most of them reported "not brushing regularly" (86 per cent) followed by "eating sweets/ice cream" (84 per cent).
- About preventive measures in regard to oral health problems, again 9 per cent subjects across all ages and sexes reported no knowledge.

8.8 Tobacco smoking and chewing habits across age groups

- About 18 per cent across age groups had the habit of smoking tobacco in the state. The habit was more prevalent among males and in rural areas. More than half of respondents, more males and more from rural areas, had smoked Bidis. Around 80 per cent of smokers, across both sexes and place of residence, said they were smoking less than 10 times in a day.
- About 12 per cent, across all ages and place of residence, but more females said they chewed pan or pan masala with tobacco. A majority of those who chewed tobacco or pan masala with tobacco said they been doing so for more than 5 years. About 50 percent of them were chewing 5-10 times in a day.
- About 24 per cent, across all ages, but more males and more in rural areas, said they had the habit of taking alcohol. About 40 percent were consuming alcohol daily.

9. FINDINGS (ORAL HEALTH ASSESSMENT)

The oral health status of subjects was clinically assessed in the field conditions by teams of dental surgeons who were previously trained and calibrated. The WHO Clinical Assessment Form (1997) was used to record the clinical conditions. The clinical findings are presented in this report in Chapter VI 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 lesions
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.

9.1 Dental caries

- Overall, the mean number of teeth present in the mouth of individuals decreased as age advanced. In the age group of 65-74 years, the mean number of teeth present was about 16.9 indicating a loss of about one-half of the normally present 32 teeth in an average mouth. About 31 out of 264 (more males than females), subjects in the age group of 65-74 years were edentulous or without natural teeth.
- The prevalence of caries in 5 year olds (primary teeth) was 86.5 per cent (more in urban areas than rural areas in the state but with no marked gender based differentials. The prevalence (permanent teeth), was approximately 60.7percent in the age groups 12 years; 67.2 percent in 15 years; 86.4 percent in 35-44 years; and 96.3 percent in 65-74 years, respectively.

- In the 5 year age group, where only primary teeth are present, the mean dmft value is 5.9. The decayed teeth (dt) component contributed to the whole of dmft value in this age group. The mean DMFT as incrementally higher as age advanced. It was 1.8 in 12 year olds; 2.2 in 15 year olds; 7.0 in 35-44 year olds; and 18.8 in 65-74 year olds. The decayed teeth (DT) component contributed most to the DMFT in the age groups of 12 years, 15 years and 35-44 years. In the 65-74 year age group, the missing teeth component (MT) contributed the most. The pattern of distribution of the components of DMFT was similar in rural and urban areas.

- The SIC Index, which provides a measure of the mean DMFT value of the one third of the subjects with the highest mean scores of DMFT, was consistently high across age groups and was two to three times more than the mean dmft/ DMFT values in the respective age groups. In the highest age group of 65-74 years, the SiC index was 30.2 while at 12 years, it was 4.2.

- The percentage of subjects with root caries was high compared to other states and stood at 35.3 and 49.8 per cent for 35-44 and 65-74 year age groups respectively. The mean number of teeth with root caries was 1.3 and 2.6 respectively in the two age groups. There were no subjects with root fillings in the state. This was surprising since the root caries was high and facilities for dental treatment exist in the state's dental colleges and in private sector. The high levels of mean number of teeth decayed and missing, together with negligible numbers of filled teeth indicate that either there was little priority for treatment of decayed teeth or it is not affordable for most people. Another possibility is the inaccessibility (difficult to reach facilities) or non-availability of dental services in the area where the subjects live.

9.2. Treatment need

- Approximately 87.8 percent subjects aged 5 years required some treatment. This percentage was 73.5 percent (12 year olds); 77.3 (15 year olds); 84.2 percent (35-44 year olds); and 96.3 (65-74 year olds).

- The most prevalent need was for one or more surface fillings, followed by the need for preventive care, pulp care and extractions.

- The mean number of teeth which required treatment was highest in the highest age group of 65-74 years (19.2) and lowest in the subjects aged 12 years (2.5). Ranking by the type of treatment need, the mean number of teeth was highest for fillings (one or more surfaces), preventive care, pulp care and extractions.

9.3. Periodontal status

- The periodontal status was assessed using the Community Periodontal Index (CPI) with its three indicators of gingival bleeding, calculus and periodontal pockets. In addition, the loss of periodontal attachment was also measured to provide an indication of the status of periodontal health.

- There was no indication of periodontal disease in the youngest age group of 5 years where periodontal disease may not have been investigated in the state. In other age groups, the prevalence of periodontal disease in the state was generally high: 33.4 percent in 12 year olds; 35.1 percent in 15 year olds; 71.9 percent in 35-44 year olds; and 68.4 percent in 65-74 year olds. Calculus was the most prominent condition in the majority of the subjects across age groups. Pockets were occasionally present.

- The prevalence of periodontal disease in general, tended to be marginally higher in rural areas compared to the urban areas with the exception of 65-4 years where the prevalence was almost even between rural and urban subjects.
- The mean number of sextants with periodontal disease conditions was lowest in 12 year olds (0.8) and highest in 35-44 year olds (3.4),.
- Loss of attachment had an incrementally higher prevalence as age advanced from 15 years to 65-74 years. Overall, the prevalence of Loss of Attachment in one or more sextants was lowest in 15 years (2.5 percent) and highest in 65-74 years (58.3 percent) in the state The least severe form of loss of attachment (4-5 mm), followed by the more severe form of 6-8 mm, was the most prevalent across age groups and place of residence. The mean number of sextants with loss of attachment was high in 35-44 years and 65-74 years.

9.4. Malocclusion status

- The Dental Aesthetic Index (DAI), recommended by the WHO, was used to analyze the severity of malocclusion in the surveyed population.
- Malocclusion was seen in 8.4 per cent subjects (12 years);6.7 per cent subjects (15 years) and 28.9 per cent subjects (35-44 years). The majority of these had 'definite' malocclusion followed by 'severe' malocclusion. Very severe form of malocclusion was rare

9.5. Oral cancer & oral mucosal lesions

Oral cancer was detected in only two subjects (one each male and female subjects) in the age groups of 5 years. This data should be further investigated. The prevalence of oral mucosal lesions was overall low in the state.

9.6. Dental fluorosis status

There was no case of dental fluorosis in the state.

9.7 Other lesions

9.7.1 Extra Oral Lesions

There was a very low prevalence of extra oral lesions in the state. These lesions were mainly ulceration, sores, erosions or fissures located in the head, neck or limbs region, followed by abnormalities of upper and lower lips.

9.7.2 T M joint symptoms and signs

The prevalence of T M Joint symptoms and signs recorded was very low in all age groups and were mainly in the form of clicking and tenderness.

9.7.3 Enamel defects (opacities, hypoplasia)

Overall, enamel defects decreased in prevalence as age increased. These affected 8.7 and 6.4 per cent subjects respectively in age groups 12 and 15 years. The majority had demarcated opacity.

9.8 Prosthetic status & need

- The dental prosthetic status and need for both upper and lower dental arches was recorded for subjects 15 years and above. The information was collected to assess the extent to which subjects were wearing or needing dental prostheses including bridge, partial dentures and full dentures.
- There were no subjects who were wearing a prosthesis in the age group of 15 year. The overall proportion of subjects (65-74 years) wearing one or the other type of prostheses in the upper/ lower arch was low (7.6 percent) though its need existed. About 32.5 percent subjects in the age group 35-44 years and 55.1 percent in 65-74 years needed prostheses.
- The full denture prosthesis was the most prevalent, followed by partial dentures in the 65-74 year age group, while in the 35-44 year old group, the partial denture was most prevalent. The prevalence pattern of subjects wearing prostheses and their pattern of distribution by type of prostheses was similar in rural and urban area and in regions.
- The most prevalent need in 35-44 years and in 65-74 year old subjects was for multi-unit prostheses followed by full dentures. The need was similar for upper and lower arches, in rural and urban area, between sexes and between regions.

9.9 Community need for immediate care and referrals

Overall, there were virtually no life threatening, painful or infective conditions in the population surveyed in the state.

Summary of findings of important oral health conditions and practices by age in Goa

	Findings	Age in years				
		5	12	15	35-44	65-74
1.	**Oral disease conditions**					
1.1	Dental Caries					
	% Prevalence	86.5	60.7	67.2	86.4	96.3
	Mean DMFT	5.9	1.8	2.2	7.0	18.8
	SiC Index	11.4	4.2	5.1	14.6	30.2
1.2	Periodontal disease					
	Bleeding, calculus or pockets					
	% Prevalence	0.0	33.4	35.1	71.9	68.4
	Mean no of Sextants affected	0.0	0.8	0.9	3.4	2.3
1.3	Loss of attachment					
	% Prevalence	NA	NA	2.5	29.3	58.3
	Mean no of Sextants affected	NA	NA	0.0	0.7	1.4
1.4	Malocclusion (%)	0.0	8.4	6.7	28.9	NA
1.5	Dental Fluorosis (%)	0.0	0.0	0.0	0.0	0.0
1.6	Oral mucosal conditions (No.)	1	0	0	4	11
1.7	Oral Cancer (No.)	1	0	0	0	0
1.8	Edentulousness (%)	NA	NA	0.0	1.2	29.2
2	**Oral Health Practices**					
2.1	Sugar Intake in last 24 hours					
	Once	30.3	27.2	28.5	18.4	12.0
	Two & more times	37.3	32.2	29.7	16.3	10.3
2.2	Clean teeth with					
	Tooth Brush	83.1	84.8	93.1	76.2	35.7
	Fingers	15.8	14.1	6.9	23.5	59.9
2.3	Rinsing mouth					
	Always	94.0	99.6	99.2	97.7	98.1
	Sometimes	5.7	0.4	0.8	2.0	1.5
2.4	Tobacco smoking	NA	NA	NA	9.9	25.8
2.5	Frequency of tobacco smoking					
	Less than 10 times	NA	NA	NA	86.4	74.8
	10 or more times	NA	NA	NA	14.0	26.3

CHAPTER I
INTRODUCTION

1.1 BACKGROUND OF THE STATE

1.1.1 Geographical location

Goa formerly a Union Territory along with Daman & Diu was liberated from Portuguese occupation on October 19, 1961. It received its statehood in 1987.

Goa is situated on the West coast of India being bound by the Arabian Sea on the West, Maharashtra to the North and Karnataka to the East and South. It covers an area of 3702 sq. km. Administratively, it is divided into 2 districts, namely North Goa and South Goa. North Goa comprises 6 talukas while South Goa comprises 5 talukas.

The capital of Goa is the city of Panjim and its official language is Konkani. The soil structure of Goa is predominantly laterite while the coastal tracks are alluvial flat. Goa experiences a minimum temperature of 20oC and a maximum temperature of 35oC. Goa also receives 300cm. of rain annually.

1.1.2 Population and demographic profile

The population of Goa is 13,43,998 with a density of 363 persons per sq. km. Males (685617) outnumber the females (658381). The rural population (675129) is marginally higher than the urban population (668889). The birth rate of Goa is 14.3/1000 and the death rate is 7.2/1000. The infant mortality rate is 15.5.

Contrary to popular belief, the largest segment of the Goan population is Hindu, followed by Christians, Muslims and Sikhs.

1.1.3 Socio-economic characteristics

Male literacy levels in Goa are pegged at 88.88 per cent, while female literacy levels are at 75.51% for a mean literacy level of 82.32 for the state.

The per capita income for the state is Rs. 61,301 per annum, while the per capita deposits are Rs. 70,915 per annum. The main occupations of the people of Goa are mining, tourism related businesses and agriculture.

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 Heath & Family Welfare agreed to support the Council's efforts to seek financial and technical support from other agencies.

1.4.2 Support from Colgate India/ International

The President of the Dental Council of India, Dr R K Bali, 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 can 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 comprises of the following main chapters:

0 Executive Summary

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

CHAPTER II

METHODOLOGY AND DATA COLLECTION

2.1 BASIC CONSIDERATIONS IN 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. That is, 92,225 examinations were done. Their state-wise, rural/urban distribution is shown in Table- 2.1

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

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

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

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

Table 2.1(a) Statement showing regions/districts within regions and sampled district in the state of GOA

Code	Region	Districts	Sampled District	*Coverage as per design No. of Households*			*Actual Coverage No. of Households*		
				Rural	Urban	Total	Rural	Urban	Total
		GOA	GOA	210	105	315	210	105	315

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 **Annexure-7**.

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 will 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 to interview/ examine 14 individuals of each of the five ages 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.

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

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

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

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

A new approach to grouping of dmft/ DMFT by range according to the percentage of affected teeth in the mouth 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 analyser:

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

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

2.8 FIELD WORK EXPERIENCES

2.8.1 Pre-fieldwork activity

In order to get help and support in the fieldwork, it was felt necessary to get Government clearances from the right authorities. All concerned authorities were approached and permissions taken. The Census office was also approached for getting maps for the Census Enumeration Blocks (CEBs) or taking sample of households.

2.8.2 Identification and training of field teams

One team consisting of 3 dental surgeons namely Dr. R. B. Bhonsle, Dr. Rajesh Gaonkar and Dr. Vedesh Jhalmi was finally assembled after much effort. Sustained efforts to assemble a second team were not fruitful. It was, therefore, decided at a team meeting that it would be prudent to go

ahead and start the survey with the already existing team instead of wasting time waiting for the 2nd team to be assembled.

Simultaneously a request was made to Dr. (Mrs.) Muglikar from Bharati Vidyapeeth, Pune, as directed by Dr. S. G. Damle to conduct a training workshop in Goa.

Dr. (Mrs.) Muglikar graciously agreed to spare the August 28-29 for the workshop. She conducted theoretical training at the Dept. of Children's. Dentistry GDC & H Goa on the September 28. Arrangements were made to visit a nearby village (Curca) to conduct a pilot survey. The team assembled the next morning and left for the village. The exact methodology as described in the dispatch from the DCI was followed. There was difficulty encountered in following the lane system since most houses in the villages are not arranged systematically in lanes.

After an initial demonstration by Dr. Muglikar on filing the socio-economic questionnaire and examining and simultaneously calling out the findings which were recorded, the team that would actually be in the field took over, and practised administering the questionnaire and examining and recording while Dr. Muglikar supervised.

After completing a few households, the team then reviewed the entire process discussing the various pitfalls and shortcomings. Dr, Muglikar provided helpful tips from her past experience having already covered the Ahmednagar district in Maharashtra as part of the DCI Survey.

After the training, the team took stock of the situation and began preparing themselves both physically and mentally for the job ahead. **Annexure -6**

2.8.3 Fieldwork

It was decided to do field work four days a week, starting on Thursday and returning to our base, Bambolim (Goa Dental College) on Sunday late evening. Saturday and Sunday generally being holidays we had hoped to find our target individuals at home. The survey started on October 3, 2002 and was completed on January 11, 2003. An average of 19 to 20 households were covered per day.

The Supervisors were very alert to make sure that data was complete and consistent. They also ensured that all forms were scrutinised and corrected before they were submitted to the Coordinator.

In order to get cooperation from the respondents, the teams carried free samples of medicines and vitamins. These were distributed to the respondents to build the necessary equation with them. It was found that people in rural areas were more cooperative than those in the urban areas.

2.9 SCRUTINY OF DATA

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

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

2.10 DATA ANALYSIS

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

2.11 REPORT WRITING

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

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

CHAPTER III

BACKGROUND CHARACTERISTICS OF SURVEYED POPULATION

3.1 CHARACTERISTICS OF HOUSEHOLDS

The characteristics of household are shown in Table 3.1. It may be noted that about 19 per cent households live in Pucca houses while another 76 per cent were living in Semi-Pucca houses. Pucca houses were 18 per cent in rural areas and 22 per cent in urban areas.

Most of the respondents (about 63 per cent) had a monthly expenditure (proxy for household income) in the range of Rs. 2,501-5,500. Another 30 per cent reported monthly expenditure of less than or equal to Rs. 2,500, was more in rural areas.

About 52 per cent households in the state were of Christians, followed by 45 per cent Hindus households and 2 per cent was of Muslims.

81 per cent of the households were of Other Backward Classes (OBCs) followed by Scheduled Castes (11 per cent) and Scheduled Tribes (2 per cent).

Nearly 70 per cent of the households cited taps as their main source of drinking water, while 30 per cent cited other sources. Piped water supply was higher in urban areas.

Rice was the staple food of the people. About 87 per cent of the households reported that they were non-vegetarians.

CHARACTERISTICS OF HOUSEHOLDS SURVEYED (SUMMING UP)

1. About 19 per cent households live in Pucca houses while another 76 per cent were living in Semi-Pucca houses. Pucca houses were 18 per cent in rural areas and 22 per cent in urban areas.
2. A majority of the households had a monthly expenditure in the range of Rs. 2,501-5,500.
3. About 52 per cent households in the state were Christians, followed by 45 per cent Hindus and 2 per cent Muslims. Other Backward Classes (OBCs) comprised 81 per cent of the households followed by Scheduled Castes (11 per cent) and Scheduled Tribes (2 per cent).
4. The staple food was rice, with almost 87 per cent of the people being non-vegetarians.
5. Nearly 70 per cent of the subjects said their source of drinking water supply was taps.

Table 3.1 Percent distribution of the households by characteristics

STATE : Goa

	Household Charactersties		STATE		
			R	U	T
1	**Type of household**	n=	**803**	**230**	**1033**
	Kuccha		5.6	4.3	5.4
	Semi Pucca		76.5	73.9	76.0
	Pucca		17.9	21.7	18.6
2	**Monthly expenditure (in Rs.)**				
	<= 2,500		33.1	17.0	30.3
	2,501 - 5,500		61.1	71.3	62.9
	5,501 - 10,000		5.1	11.3	6.2
	10,000 +		0.6	0.4	0.6
3	**Religon**				
	Hindus		45.0	47.4	45.4
	Muslims		2.1	2.6	2.2
	Sikhs		0.6	0.0	0.5
	Christians		52.2	50.0	51.8
4	**Caste**				
	Scheduled Caste		10.4	12.8	10.8
	Scheduled Tribe		0.7	6.8	1.8
	Other Backward Class		83.7	69.9	81.2
	Others		5.2	10.5	6.2
5	**Sources of drinking water**				
	Pipe/tap		66.1	87.8	69.9
	Tubewell/hand pump		0.6	0.0	0.5
	Others		33.3	12.2	29.6
6	**Staple food**				
	Wheat		0.4	0.0	0.3
	Rice		99.5	100.0	99.6
7	**Nature of food**				
	Vegetarian		14.9	3.9	13.0
	Non-vegetarian		85.1	96.1	87.0

3.2 PROFILE OF POPULATION

3.2.2 12 year olds

3.2.2.1 Educational levels

The literacy level in this age was nearly 100 per cent. About 98 per cent of the respondents across both sexes & more in urban had education up to the middle level. Table 3.2.2

Table 3.2.2 Percent distribution of 12 years old by educational level and media exposure, sex & geographical area.

AGE: 12 yrs STATE : Goa

	Education Level & Media Exposure		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Educational level**	n=	**107**	**27**	**134**	**106**	**27**	**133**	**267**
	Illiterate		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Upto middle		98.1	100.0	98.4	96.2	100.0	96.8	**97.6**
	High school & above		1.9	0.0	1.6	3.8	0.0	3.2	**2.4**
2	**Newspaper reading habits**				NOT ASKED				
3	**Radio listening habits**				NOT ASKED				
4	**TV watching habits**				NOT ASKED				
	Daily								
	Sometimes								
	Not at all								
5	**Cinema watching habits**				NOT ASKED				
	Once in 3 months								
	Less often								
	Not at all								

3.2.3 15 year olds

3.2.3.1 Educational levels

Almost all in this age were literate. About 55 percent more males and more in rural had education up to middle. While other 45 percent more females & more in urban were high school & above in the state.

3.2.3.2 Exposure to media

About 19 per cent of respondents of this age across both sexes & more in urban area reported reading newspapers daily. While 29 percent, more males & more in urban did not read newspaper at all. The remaining 53 percent, more females & more in urban were reading newspaper sometimes.

Exposure to radio was limited in the state – about 49 per cent reported no exposure to radio. In contrast, only 3 per cent of the respondents reported no exposure to TV. While 76 percent, across both sexes & more in urban reported watching TV daily. The exposure to cinema, at least once in three months or less often, was only 4 per cent. Table 3.2.3

Table 3.2.3 Percent distribution of 15 years old by educational level and media exposure, sex & geographical area.

AGE: 15 yrs **STATE : Goa**

	Education Level & Media Exposure		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Educational level**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	Illiterate		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Upto middle		58.9	57.1	58.6	52.9	41.4	51.0	**54.8**
	High school & above		40.2	42.9	40.6	47.1	58.6	49.0	**44.8**
2	**Newspaper reading habits**								
	Daily		17.8	28.6	19.5	13.5	37.9	17.6	**18.6**
	Sometimes		49.5	53.6	50.2	54.8	55.2	54.9	**52.6**
	Not at all		32.7	17.9	30.3	31.7	6.9	27.6	**29.0**
3	**Radio listening habits**								
	Daily		11.2	32.1	14.5	14.4	27.6	16.6	**15.6**
	Sometimes		43.9	21.4	40.3	33.7	17.2	30.9	**35.6**
	Not at all		44.9	46.4	45.1	51.9	55.2	52.5	**48.8**
4	**TV watching habits**								
	Daily		72.0	89.3	74.7	75.0	89.7	77.5	**76.1**
	Sometimes		23.4	10.7	21.3	23.1	10.3	20.9	**21.1**
	Not at all		4.7	0.0	3.9	1.9	0.0	1.6	**2.8**
5	**Cinema watching habits**								
	Once in 3 months		5.6	3.6	5.3	2.9	0.0	2.4	**3.9**
	Less often		0.0	3.6	0.6	1.0	3.4	1.4	**1.0**
	Not at all		94.4	92.9	94.1	96.2	96.6	96.2	**95.2**

3.2.4 35-44 year olds

3.2.4.1 Educational levels

About 37 per cent in this age group more females, and more in the rural areas was illiterate. While 34 percent, and 28 percent more males & more in urban had education up to middle & high school & above respectively.

3.2.4.2 Exposure to media

About 28 per cent of respondents in this age group reported reading newspapers daily (17 per cent females and 38 per cent males). Urban areas had much greater exposure than rural areas. About 50 percent, more females & more in rural did not read news paper at all. Daily exposure to radio was only 19 per cent.

TV viewership in this age group was 53 per cent, more in urban areas. Not much exposure was found to cinema, with about 3 per cent viewing cinema once in three months. Table 3.2.4

Table 3.2.4 Percent distribution of 35-44 years old by educational level and media exposure, sex & geographical area.

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

	Education Level & Media Exposure		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Educational level**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	Illiterate		30.8	14.8	28.4	48.1	36.7	46.2	**37.3**
	Upto middle		40.2	37.0	39.7	26.9	40.0	29.1	**34.4**
	High school & above		29.0	48.1	31.9	25.0	23.3	24.7	**28.3**
2	**Newspaper reading habits**								
	Daily		36.4	48.1	38.3	16.7	20.0	17.2	**27.8**
	Sometimes		21.5	37.0	23.9	19.4	30.0	21.2	**22.6**
	Not at all		42.1	14.8	37.8	63.9	50.0	61.6	**49.7**
3	**Radio listening habits**								
	Daily		25.2	33.3	26.5	11.1	13.3	11.5	**19.0**
	Sometimes		25.2	40.7	27.6	27.8	43.3	30.4	**29.0**
	Not at all		49.5	25.9	45.9	61.1	43.3	58.1	**52.0**
4	**TV watching habits**								
	Daily		53.3	74.1	56.5	45.4	70.0	49.5	**53.0**
	Sometimes		13.1	22.2	14.5	18.5	13.3	17.7	**16.1**
	Not at all		33.6	3.7	29.0	36.1	16.7	32.9	**31.0**
5	**Cinema watching habits**								
	Once in 3 months		3.7	3.7	3.7	0.9	3.3	1.3	**2.5**
	Less often		1.9	0.0	1.6	0.9	0.0	0.8	**1.2**
	Not at all		94.4	96.3	94.7	98.1	96.7	97.9	**96.3**

3.2.5 65-74 year olds

3.2.5.1 Educational levels

In this age group, about 74 per cent of the respondents were illiterate (84 per cent females and 64 per cent males) (Table 3.2.5). As expected, literacy level was higher in the urban areas and among males.

3.2.5.2 Exposure to Media

Educational levels clearly affect the reading habits of a population. Only 6 per cent of the respondents in this age group was reading newspaper daily with more males (11 per cent) than females (2 per cent). Again, readership was higher in the urban areas than in the rural areas. 86 percent, more females & more in rural did not read newspaper at all.

Exposure to radio was much lower. Only 8 percent, more males & more in urban area reported listening to radio daily. While 71 percent, more females & more in rural did not listen to radio at all.

Exposure to TV though more than radio yet only 20 percent more males & more in urban had watched TV daily. About 61 percent, more females & more in rural did not watch TV at all.

Exposure to cinema was lower than other media. Only 3 percent had watched cinema once in 3 months.

Table 3.2.5 Percent distribution of 65-74 years old by educational level and media exposure, sex & geographical area.

AGE: 65-74 yrs STATE : Goa

	Education Level & Media Exposure		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Educational level**	n=	**102**	**31**	**133**	**108**	**27**	**135**	**268**
	Illiterate		68.6	41.9	63.8	86.1	70.4	83.7	**73.8**
	Upto middle		24.5	48.4	28.8	13.9	22.2	15.2	**22.0**
	High school & above		6.9	9.7	7.4	0.0	7.4	1.1	**4.3**
2	**Newspaper reading habits**								
	Daily		7.8	22.6	10.5	1.9	3.7	2.1	**6.3**
	Sometimes		10.8	12.9	11.2	3.7	7.4	4.3	**7.8**
	Not at all		81.4	64.5	78.3	94.4	88.9	93.6	**86.0**
3	**Radio listening habits**								
	Daily		8.8	25.8	11.9	3.7	3.7	3.7	**7.8**
	Sometimes		26.5	35.5	28.1	9.3	44.4	14.7	**21.4**
	Not at all		64.7	38.7	60.0	87.0	51.9	81.6	**70.8**
4	**TV watching habits**								
	Daily		22.5	51.6	27.8	9.3	29.6	12.4	**20.1**
	Sometimes		19.6	19.4	19.6	14.8	33.3	17.7	**18.7**
	Not at all		57.8	29.0	52.6	75.9	37.0	70.0	**61.3**
5	**Cinema watching habits**								
	Once in 3 months		2.0	3.2	2.2	1.9	11.1	3.3	**2.8**
	Less often		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Not at all		98.0	96.8	97.8	98.1	88.9	96.7	**97.3**

PROFILE OF POPULATION SURVEYED ACROSS AGE GROUPS (SUMMING UP)

1. Literacy was very high in the young respondents, more in urban areas and more among males.
2. The level of illiteracy increased (from zero to 74 percent) with increase in age group of respondents.
3. With regard to exposure to media, TV was found to be the most utilised media. Analysis of daily habits across age groups revealed that 50 per cent watched TV while 18 per cent had read newspapers and 14 per cent listened to the radio daily. Exposure to cinema was very low, with only 3 per cent respondents across age groups reported watching cinema once in 3 months.

CHAPTER IV

MAPPING OF FLUORIDE LEVELS

4.1 INTRODUCTION

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

4.2 COLLECTION OF WATER SAMPLES

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

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

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

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

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

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

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

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

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

4.3 ANALYSIS OF WATER SAMPLES

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

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

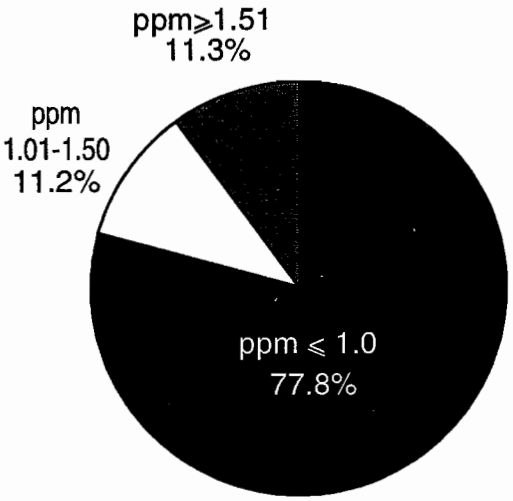
4.4 FINDINGS

The fluoride levels in different regions, rural, urban areas and total Goa are shown in Table 4.1. A graphical representation of prevailing fluoride levels is given in Fig. 4.1

Table 4.1 Percent distribution of water samples by levels of fluoride in rural, urban and total Goa.

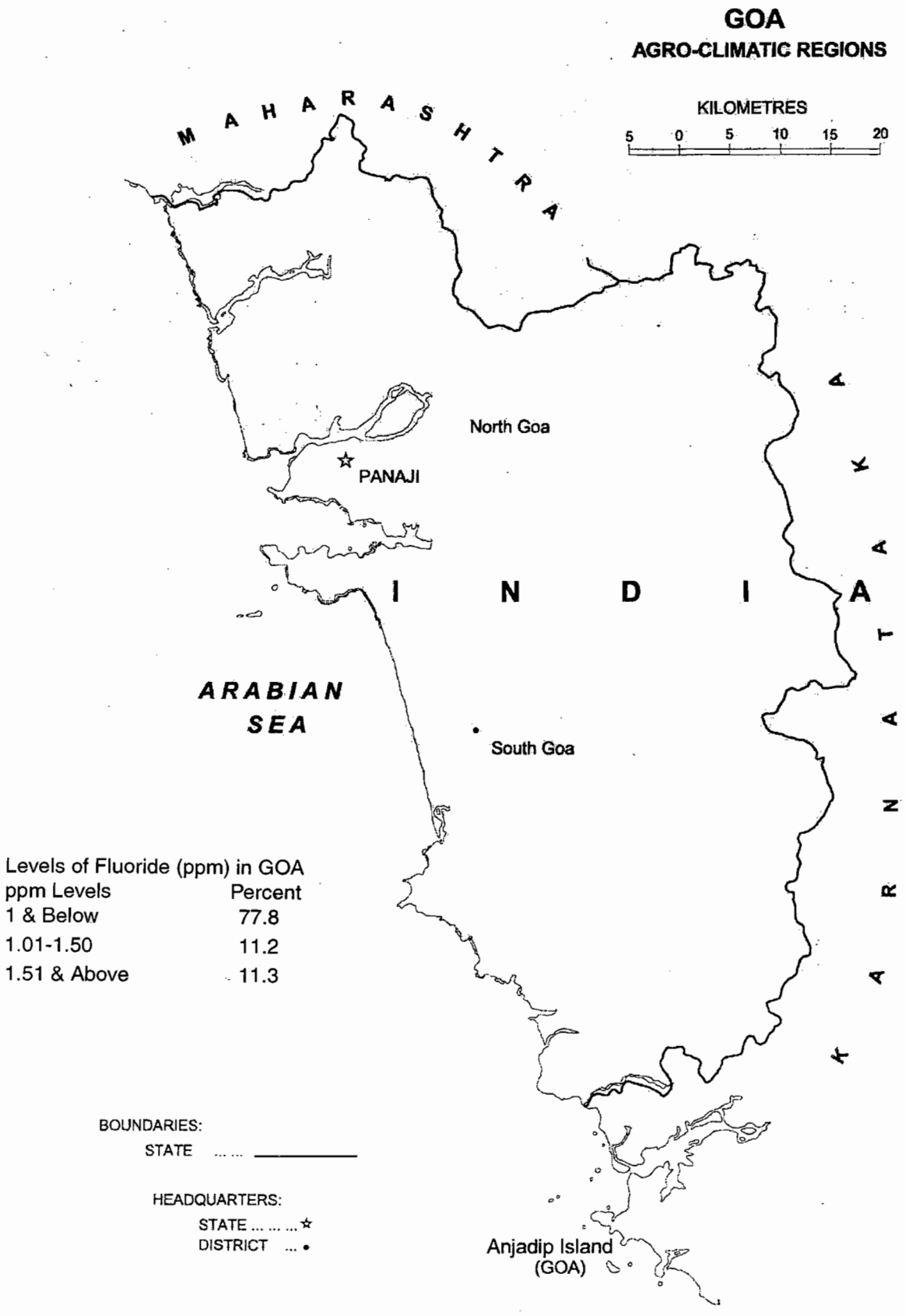
Levels of fluoride (ppm)	% distribution of water samples		
	Rural	Urban	Total
0.0 – 0.5	78.6	64.1	75.1
0.51 – 1.00	3.6	0.0	2.7
1.01 – 1.50	10.0	15.0	11.2
1.51 – 2.00	0.6	10.5	3.0
2.01 – 4.00	7.2	10.5	8.0
4.01 – 8.00	0.0	0.0	0.0
8.01+	0.0	0.0	0.0

Fig. 4.1 Drinking water levels of fluoride in GOA



Almost 90 per cent of the households in Goa use water with fluoride levels of 0.0-1.5 ppm; this percentage in urban areas is 80. One-fifth of the households in urban areas have fluoride levels of above 1.5 ppm. The problems of high levels of fluoride is relatively less in rural areas though about 8 per cent of the samples had levels above 1.5 ppm.

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



CHAPTER V

ORAL HEALTH KNOWLEDGE AND PRACTICES

A series of questions were asked on food habits and other habits/practices that could affect oral health, during the survey. Prevalence of each of these practices in respondents of different ages/age groups, sex and place of residence is discussed in this chapter. These findings may help suggest appropriate educational activities to improve practices related to oral health and thus improve oral health of the population.

5.1 ABNORMAL ORAL HABITS

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

Except the habits of "sucking fingers/thumbs" and "grinding /gritting teeth" which constituted major habits in 5 year olds, the prevalence of other abnormal habits across all ages/age groups & both sexes were very low.

ABNORMAL ORAL HABITS ACROSS AGE GROUPS (SUMMING UP)

1. The habit of "sucking fingers/thumbs" & "grinding/gritting teeth" constituted a major habits in 5 year olds.
2. Overall, prevalence of each of abnormal oral habits across all ages/age groups & both sexes was generally very low.

5.2 SWEETS/SUGAR-TAKING HABITS

Since sweets eating habits affect oral health, the respondents were asked how many times they had taken sugar during the last 24 hours. (Table 5.2) and Fig. 5.1

(1) About 52 per cent respondents across age groups and across sexes did not take sugar or sweets at all in the last 24 hours. However, it was seen that intake decreased with increase in age of respondents in both rural and urban areas.

The percentage of subjects who had taken sweets/sugar more than two times across age group was 5 per cent. They were slightly more in rural areas.

(2) There were no significant differences in sugar intake among males and females, in the different age groups.

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

AGE: 5 yrs — STATE : Goa

	Habits affecting Oral Health		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	102	28	130	108	28	136	266
1	Breathing from mouth		0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Sucking fingers/thumb		7.8	10.7	8.3	11.1	14.3	11.6	10.0
3	Thrusting tongue on teeth		0.0	0.0	0.0	0.9	0.0	0.8	0.4
4	Biting nails/lips/objects like pencil		3.9	0.0	3.3	0.0	0.0	0.0	1.7
5	Grinding / gritting teeth		18.6	17.9	18.5	13.0	25.0	14.9	16.7

AGE: 12 yrs — STATE : Goa

	Habits affecting Oral Health		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	107	27	134	106	27	133	267
1	Breathing from mouth		0.9	0.0	0.8	1.9	0.0	1.6	1.2
2	Sucking fingers/thumb		3.7	7.4	4.3	2.8	11.1	4.1	4.2
3	Thrusting tongue on teeth		7.5	0.0	6.3	1.9	3.7	2.2	4.3
4	Biting nails/lips/objects like pencil		1.9	3.7	2.2	2.8	0.0	2.4	2.3
5	Grinding / gritting teeth		2.8	14.8	4.7	1.9	3.7	2.2	3.5

AGE: 15 yrs — STATE : Goa

	Habits affecting Oral Health		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	107	28	135	104	29	133	268
1	Breathing from mouth		0.9	0.0	0.8	0.0	0.0	0.0	0.4
2	Sucking fingers/thumb		1.9	3.6	2.1	1.0	0.0	0.8	1.5
3	Thrusting tongue on teeth		1.9	7.1	2.7	3.8	3.4	3.8	3.3
4	Biting nails/lips/objects like pencil		0.0	0.0	0.0	1.0	0.0	0.8	0.4
5	Grinding / gritting teeth		0.9	0.0	0.8	0.0	0.0	0.0	0.4

AGE: 35-44 yrs — STATE : Goa

	Habits affecting Oral Health		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	107	27	134	108	30	138	272
1	Breathing from mouth		0.0	0.0	0.0	0.9	0.0	0.8	0.4
2	Sucking fingers/thumb		0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Thrusting tongue on teeth		0.0	0.0	0.0	0.9	0.0	0.8	0.4
4	Biting nails/lips/objects like pencil		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Grinding / gritting teeth		0.0	0.0	0.0	0.0	0.0	0.0	0.0

AGE: 65-74 yrs — STATE : Goa

	Habits affecting Oral Health		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	102	31	133	108	27	135	268
1	Breathing from mouth		0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	Sucking fingers/thumb		0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	Thrusting tongue on teeth		0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	Biting nails/lips/objects like pencil		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Grinding / gritting teeth		1.0	0.0	0.8	0.0	0.0	0.0	0.4

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

AGE: 5 yrs STATE : Goa

	Pattern of Sugar Intake in last one day		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	102	28	130	108	28	136	266
1	Not taken		31.4	32.1	31.5	37.0	14.3	33.4	32.5
2	Taken one time		35.3	14.3	31.8	31.5	14.3	28.8	30.3
3	Taken two times		28.4	46.4	31.4	25.9	53.6	30.3	30.9
4	Taken 2+ times		4.9	7.1	5.3	5.6	17.9	7.5	6.4

AGE: 12 yrs STATE : Goa

	Pattern of Sugar Intake in last one day		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	107	27	134	106	27	133	267
1	Not taken		44.9	18.5	40.8	43.4	25.9	40.7	40.8
2	Taken one time		29.0	29.6	29.1	26.4	18.5	25.2	27.2
3	Taken two times		18.7	40.7	22.1	21.7	37.0	24.1	23.1
4	Taken 2+ times		7.5	11.1	8.0	8.5	18.5	10.1	9.1

AGE: 15 yrs STATE : Goa

	Pattern of Sugar Intake in last one day		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	107	28	135	104	29	133	268
1	Not taken		45.8	17.9	41.3	45.2	27.6	42.2	41.8
2	Taken one time		24.3	25.0	24.4	33.7	27.6	32.6	28.5
3	Taken two times		21.5	35.7	23.8	18.3	31.0	20.4	22.1
4	Taken 2+ times		8.4	21.4	10.5	2.9	13.8	4.7	7.6

AGE: 35-44 yrs STATE : Goa

	Pattern of Sugar Intake in last one day		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	107	27	134	108	30	138	272
1	Not taken		70.1	40.7	65.6	70.4	40.0	65.3	65.5
2	Taken one time		16.8	18.5	17.1	17.6	30.0	19.7	18.4
3	Taken two times		11.2	37.0	15.2	11.1	30.0	14.3	14.8
4	Taken 2+ times		1.9	3.7	2.2	0.9	0.0	0.8	1.5

AGE: 65-74 yrs STATE : Goa

	Pattern of Sugar Intake in last one day		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
		n=	102	31	133	108	27	135	268
1	Not taken		79.4	51.6	74.4	84.3	63.0	81.0	77.7
2	Taken one time		14.7	19.4	15.5	7.4	14.8	8.5	12.0
3	Taken two times		5.9	25.8	9.5	8.3	22.2	10.5	10.0
4	Taken 2+ times		0.0	3.2	0.6	0.0	0.0	0.0	0.3

SWEET /SUGAR INTAKE HABIT ACROSS AGE GROUPS (SUMMING UP)

1. About 48 per cent of the subjects, across all ages and sexes reported taking sugar at least once in the last one day. There was no significant difference in sugar intake of males and females.

2. About 52 per cent respondents across age groups did not taken sugar sweets at all in the last 24 hours. However, it was seen that intake decreased with increase in age of respondents in both rural and urban areas.

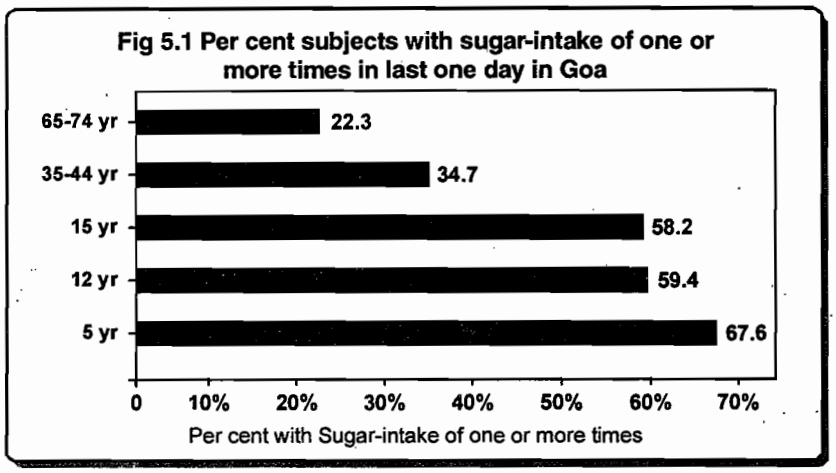


Fig 5.1 Per cent subjects with sugar-intake of one or more times in last one day in Goa

5.3 ORAL HYGIENE PRACTICES

A series of questions were asked about oral hygiene practices, like how teeth were cleaned, what material was used to clean them, whether this was fluoridated or not, how often teeth were cleaned and whether and how often mouth was rinsed after meals. The responses to these questions are shown in Tables 5.3.1 to 5.3.5 and Fig. 5.2, are discussed in the sections below by age group of the respondents.

5.3.1 5 year olds

About 83 per cent children in this age group reported the use of toothbrush in the state (about 81 per cent in rural areas and 95 per cent in urban areas) (Table 5.3.1). Usage was slightly more in females. About 93 per cent of the respondents reported change of their toothbrushes once in 1-3 months.

It was encouraging to note that everybody reported cleaning their teeth daily-about 98 per cent irrespective of sex & places of residence once a day.

About 93 per cent, more females than males was using toothpaste. More subjects in urban areas used toothpaste (100 per cent) than in the rural areas (91 per cent). However, fluoridated toothpaste/powder was used by only 18 per cent, more males & more in urban areas.

On rinsing practices, 94 per cent reported doing so after every meal, more in urban areas. The rest all in rural, rinsed their mouth "sometimes".

Table 5.3.1 Percent 5 year olds by oral hygiene practices, sex & geographical area.

AGE: 5 yrs STATE : Goa

	Oral Hygiene Practices		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Clean teeth with**	n=	**102**	**28**	**130**	**108**	**28**	**136**	**266**
	finger		22.5	7.1	20.0	13.0	3.6	11.5	**15.8**
	brush		76.5	92.9	79.2	85.2	96.4	87.0	**83.1**
	datun		1.0	0.0	0.8	1.9	0.0	1.6	**1.2**
	others		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
2	**Frequency of cleaning teeth**	n=	**101**	**28**	**129**	**106**	**28**	**134**	**263**
	Once a day		98.0	96.4	97.8	98.1	96.4	97.8	**97.8**
	Twice a day		1.0	3.6	1.4	1.9	3.6	2.2	**1.8**
	After every meal		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
3	**Material used for cleaning teeth**								
	Tooth paste		88.1	100.0	90.1	94.3	100.0	95.2	**92.7**
	Tooth powder		2.0	0.0	1.6	0.9	0.0	0.8	**1.2**
4	**Type of toothpaste/ powder**	n=	**91**	**28**	**119**	**101**	**28**	**129**	**248**
	Flouridated		17.6	28.6	19.6	10.9	39.3	15.6	**17.6**
	Non flouridated		82.4	71.4	80.4	89.1	60.7	84.4	**82.4**
5	**Change of toothbrush once in**	n=	**78**	**26**	**104**	**92**	**27**	**119**	**223**
	1-3 months		92.3	92.3	92.3	95.7	88.9	94.5	**93.4**
	4-6 months		7.7	7.7	7.7	1.1	11.1	2.8	**5.3**
	6 + months		0.0	0.0	0.0	3.3	0.0	2.7	**1.4**
6	**Rinse mouth after eating**	n=	**102**	**28**	**130**	**108**	**28**	**136**	**266**
	Sometimes		10.8	0.0	9.0	2.8	0.0	2.3	**5.7**
	Always		89.2	100.0	91.0	96.3	100.0	96.9	**94.0**

5.3.2 12 year olds

About 85 per cent in this age group, more males reported the use of toothbrush in the state – about 88 per cent in rural areas and 96 per cent in urban areas (Tables 5.3.2). About 91 per cent of respondents had changed their toothbrushes once in 1-3 months, was more in urban areas.

About 89 per cent across both sexes & more in urban reported the use of tooth paste. However, use of fluoridated toothpaste/tooth powder was much lower at 19 per cent.

About 96 per cent reported cleaning their teeth once a day – this was slightly higher in the rural areas as compared to urban areas.

Nearly all (99 per cent) of the respondents reported rinsing their mouth after every meal, and more in the urban areas.

Table 5.3.2 Percent 12 year olds by oral hygiene practices, sex & geographical area.

AGE: 12 yrs STATE : Goa

	Oral Hygiene Practices		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	Clean teeth with	n=	107	27	134	106	27	133	267
	finger		*14.0*	*7.4*	*13.0*	*17.9*	*0.0*	*15.1*	**14.1**
	brush		*85.0*	*92.6*	*86.2*	*80.2*	*100.0*	*83.3*	**84.8**
	datun		*0.9*	*0.0*	*0.8*	*0.0*	*0.0*	*0.0*	**0.4**
	others		*0.0*	*0.0*	*0.0*	*1.9*	*0.0*	*1.6*	**0.8**
2	Frequency of cleaning teeth	n=	106	27	133	104	27	131	264
	Once a day		*99.1*	*88.9*	*97.5*	*94.2*	*100.0*	*95.1*	**96.3**
	Twice a day		*0.9*	*11.1*	*2.5*	*4.8*	*0.0*	*4.0*	**3.3**
	After every meal		*0.0*	*0.0*	*0.0*	*1.0*	*0.0*	*0.8*	**0.4**
3	Material used for cleaning teeth								
	Tooth paste		*88.7*	*88.9*	*88.7*	*87.5*	*96.3*	*88.9*	**88.8**
	Tooth powder		*1.9*	*7.4*	*2.7*	*1.9*	*0.0*	*1.6*	**2.2**
4	Type of toothpaste/ powder	n=	96	26	122	93	26	119	241
	Flouridated		*20.8*	*26.9*	*21.8*	*11.8*	*34.6*	*15.7*	**18.8**
	Non flouridated		*79.2*	*73.1*	*78.2*	*88.2*	*65.4*	*84.3*	**81.3**
5	Change of toothbrush once in	n=	91	25	116	85	27	112	228
	1-3 months		*91.2*	*96.0*	*92.0*	*90.6*	*92.6*	*91.0*	**91.5**
	4-6 months		*6.6*	*4.0*	*6.2*	*8.2*	*3.7*	*7.4*	**6.8**
	6 + months		*2.2*	*0.0*	*1.8*	*1.2*	*0.0*	*1.0*	**1.4**
6	Rinse mouth after eating	n=	107	27	134	106	27	133	267
	Sometimes		*0.0*	*0.0*	*0.0*	*0.9*	*0.0*	*0.8*	**0.4**
	Always		*100.0*	*100.0*	*100.0*	*99.1*	*100.0*	*99.2*	**99.6**

5.3.3 15 years olds

93 percent of respondents in this age, across both sexes & more in urban reported the use of tooth brush to clean teeth. About 93 percent across both sexes & more in rural had cleaned teeth once a day. Other 7 percent across both sexes & more in urban had cleaned teeth twice a day. About 91 percent, across both sexes & more in urban reported change of tooth brushes once in 1-3 months. Only 4 percent, more in rural had changed tooth brushes once in after six months of use.

About 93 percent, across both sexes & more in urban were using tooth paste. While only 19 percent, more males & more in urban had used fluoridated tooth paste/powder. Almost all respondent were rinsing mouth always. Table : 5.3.3

Table 5.3.3 Percent 15 year olds by oral hygiene practices, sex & geographical area.

AGE: 15 yrs **STATE : Goa**

	Oral Hygiene Practices		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Clean teeth with**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	finger		6.5	7.1	6.6	8.7	0.0	7.2	**6.9**
	brush		93.5	92.9	93.4	91.3	100.0	92.8	**93.1**
	datun		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	others		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
2	**Frequency of cleaning teeth**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	Once a day		96.3	82.1	94.0	92.3	93.1	92.4	**93.2**
	Twice a day		3.7	17.9	6.0	7.7	6.9	7.6	**6.8**
	After every meal		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
3	**Material used for cleaning teeth**								
	Tooth paste		93.5	92.9	93.4	90.4	100.0	92.0	**92.7**
	Tooth powder		2.8	7.1	3.5	3.8	0.0	3.2	**3.4**
4	**Type of toothpaste/ powder**	n=	**103**	**28**	**131**	**98**	**29**	**127**	**258**
	Flouridated		17.5	39.3	21.1	13.3	37.9	17.6	**19.4**
	Non flouridated		82.5	60.7	78.9	86.7	62.1	82.4	**80.7**
5	**Change of toothbrush once in**	n=	**100**	**26**	**126**	**95**	**29**	**124**	**250**
	1-3 months		90.0	96.2	91.0	88.4	96.6	89.9	**90.5**
	4-6 months		6.0	3.8	5.7	6.3	3.4	5.8	**5.8**
	6 + months		4.0	0.0	3.4	5.3	0.0	4.3	**3.9**
6	**Rinse mouth after eating**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	Sometimes		1.9	0.0	1.6	0.0	0.0	0.0	**0.8**
	Always		98.1	100.0	98.4	100.0	100.0	100.0	**99.2**

5.3.4 35-44 year olds

About 76 per cent of the respondents in this age group reported the use of toothbrush to clean their teeth – about 72 per cent in rural areas and 95 per cent in urban areas (Table 5.3.4). About 94 per cent of the respondents reported change of their toothbrushes once in 1-3 months. Only one percent had changed tooth brushes after 6 months of use.

Nearly 84 per cent of the respondents said they cleaned their teeth once a day. They were more males and more in rural areas. Other 16 percent, more females & more in urban reported cleaning teeth twice a day.

The use of toothpaste was reported by 77 per cent (73 per cent in the rural areas against 98 per cent in the urban areas). More males used toothpaste. However, the use of fluoridated toothpaste was reported by 21 per cent respondents, more males & more in urban areas.

About 98 per cent of the respondents reported rinsing their mouth after every meal.

Table 5.3.4 Percent 35-44 year olds by oral hygiene practices, sex & geographical area.

AGE: 35-44 yrs STATE : Goa

	Oral Hygiene Practices		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Clean teeth with**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	finger		27.1	0.0	22.9	26.9	10.0	24.0	**23.5**
	brush		72.0	100.0	76.3	73.1	90.0	76.0	**76.2**
	datun		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	others		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
2	**Frequency of cleaning teeth**	n=	**106**	**27**	**133**	**108**	**30**	**138**	**271**
	Once a day		89.6	77.8	87.8	81.5	70.0	79.6	**83.7**
	Twice a day		9.4	22.2	11.4	18.5	30.0	20.4	**15.9**
	After every meal		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
3	**Material used for cleaning teeth**								
	Tooth paste		74.5	100.0	78.5	71.3	96.7	75.5	**77.0**
	Tooth powder		1.9	0.0	1.6	2.8	0.0	2.3	**2.0**
4	**Type of toothpaste/ powder**	n=	**81**	**27**	**108**	**80**	**29**	**109**	**217**
	Flouridated		23.5	37.0	26.1	13.8	24.1	15.9	**21.0**
	Non flouridated		76.5	63.0	73.9	86.3	75.9	84.1	**79.0**
5	**Change of toothbrush once in**	n=	**77**	**27**	**104**	**79**	**27**	**106**	**210**
	1-3 months		94.8	96.3	95.1	93.7	92.6	93.5	**94.3**
	4-6 months		5.2	3.7	4.9	3.8	7.4	4.5	**4.7**
	6 + months		0.0	0.0	0.0	2.5	0.0	2.0	**1.0**
6	**Rinse mouth after eating**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	Sometimes		2.8	0.0	2.4	1.9	0.0	1.5	**2.0**
	Always		97.2	100.0	97.6	97.2	100.0	97.7	**97.7**

5.3.5 65-74 year olds

The use of toothbrush, in this age group was relatively low at 36 per cent — about 40 per cent in rural areas and 50 per cent in urban areas (Table 5.3.5). More males (42 per cent) compared to females (29 per cent) used toothbrush. About 90 per cent of respondents said they changed their toothbrushes once in 1-3 months.

About 96 per cent of respondents, across sexes and residence, reported cleaning their teeth once a day. Only 4 percent, more females & more in urban had cleaned teeth twice a day.

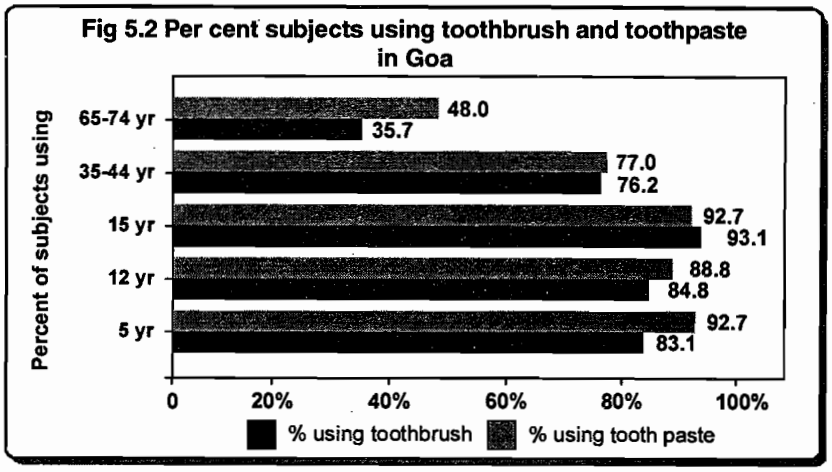
About 49 per cent of the respondents in this age group reported using toothpaste. In the rural areas, 42 per cent reported using toothpaste for cleaning their teeth while 79 per cent did so in the urban areas. The use of fluoridated toothpaste/tooth powder was reported by only 13 per cent of respondents.

About 98 per cent respondents reported that they had the habit of rinsing their mouth always after meals.

Table 5.3.5 Percent 65-74 year olds by oral hygiene practices, sex & geographical area.

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

	Oral Hygiene Practices		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Clean teeth with**	n=	**102**	**31**	**133**	**108**	**27**	**135**	**268**
	finger		54.9	32.3	50.8	69.4	66.7	69.0	**59.9**
	brush		36.3	67.7	42.0	28.7	33.3	29.4	**35.7**
	datun		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	others		8.8	0.0	7.2	1.9	0.0	1.6	**4.4**
2	**Frequency of cleaning teeth**	n=	**93**	**31**	**124**	**106**	**27**	**133**	**257**
	Once a day		96.8	96.8	96.8	96.2	88.9	95.1	**96.0**
	Twice a day		3.2	3.2	3.2	3.8	11.1	4.9	**4.1**
	After every meal		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
3	**Material used for cleaning teeth**								
	Tooth paste		46.2	83.9	53.6	38.7	74.1	44.2	**48.9**
	Tooth powder		7.5	0.0	6.1	1.9	0.0	1.6	**3.9**
4	**Type of toothpaste/ powder**	n=	**50**	**26**	**76**	**43**	**20**	**63**	**139**
	Flouridated		14.0	11.5	13.3	9.3	25.0	13.3	**13.3**
	Non flouridated		86.0	88.5	86.7	90.7	75.0	86.7	**86.7**
5	**Change of toothbrush once in**	n=	**37**	**21**	**58**	**31**	**9**	**40**	**98**
	1-3 months		94.6	90.5	93.4	87.1	88.9	87.4	**90.4**
	4-6 months		0.0	9.5	2.8	6.5	11.1	7.3	**5.1**
	6 + months		5.4	0.0	3.8	6.5	0.0	5.3	**4.6**
6	**Rinse mouth after eating**	n=	**102**	**31**	**133**	**108**	**27**	**135**	**268**
	Sometimes		1.0	3.2	1.4	1.9	0.0	1.6	**1.5**
	Always		98.0	96.8	97.8	98.1	100.0	98.4	**98.1**



ORAL HYGIENE PRACTICES ACROSS AGE GROUPS (SUMMING UP)

1. The practice of cleaning teeth was universal.
2. About 75 per cent across all age groups, across both sexes and more in urban areas reported using toothbrush to clean their teeth.
3. About 93 per cent, across all ages groups, both sexes and more in rural areas cleaned their teeth once a day. In urban areas, more reported cleaning twice a day.
4. About 80 per cent, across all ages, both sexes, and more in the urban areas reported the use of toothpaste.
5. About 82 per cent, across all ages, both sexes, and more in rural areas reported the use of non-fluoridated toothpaste/powder.
6. About 92 per cent, across all ages, more males and slightly more in urban areas changed their toothbrushes once in 1-3 months.
7. About 98 per cent of the respondents, across all ages and both sexes, and more in urban areas reported rinsing their mouth after every meal "always".

5.4 DENTAL PROBLEMS AND TREATMENT ASPECTS

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

5.4.1 5 year olds

About 29 per cent of the respondents in this age group had oral health problems in the last one year – 28 per cent in rural areas as against 35 per cent in urban areas. Females reported more dental problem. The problems mostly reported was dental decay (97 per cent).

The practice of consultation was not followed by nearly half of the respondents. This was irrespective of their places of residence. Only one third of those had problems across both sexes & places of residence consulted trained dentist. 86 per cent more in urban were aware of Government dental care facility. Majority said that facilities could be reached in less than half-an-hour. Table : 5.4.1

Table 5.4.1 Percent 5 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 5 yrs **STATE : Goa**

	Nature of Dental Problems and Treatment related aspects		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Suffered from oral health**	n=	**102**	**28**	**130**	**108**	**28**	**136**	**266**
	problems in last one year		21.6	35.7	23.9	35.2	21.4	33.0	**28.5**
2	**Type of oral health problems**	n=	**22**	**10**	**32**	**38**	**6**	**44**	**76**
	Dental decay		100.0	100.0	100.0	94.7	83.3	93.6	**96.8**
	Gum disease		0.0	0.0	0.0	5.3	0.0	4.7	**2.4**
	Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Bleeding gums		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Others		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
3	**Consulted (out of those suffered)**								
	None		36.4	60.0	42.2	50.0	50.0	50.0	**46.1**
	Trained dentist		36.4	20.0	32.3	31.6	50.0	33.5	**32.9**
4	**Availaibility of dental facility**	n=	**102**	**28**	**130**	**108**	**28**	**136**	**266**
	None		0.0	3.6	0.6	1.9	3.6	2.1	**1.4**
	Govt. facility		83.3	96.4	85.5	86.1	92.9	87.2	**86.4**
	Pvt. facility		71.6	82.1	73.3	73.1	82.1	74.6	**74.0**
	Do not know		0.0	0.0	0.0	0.9	0.0	0.8	**0.4**
5	**Time taken to reach the facility**	n=	**102**	**27**	**129**	**106**	**27**	**133**	**262**
	Less than 1/2 hr.		95.1	100.0	95.9	98.1	100.0	98.4	**97.2**
	1/2 - 1 hr.		4.9	0.0	4.1	1.9	0.0	1.6	**2.9**
	> 1 hr.		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cannot say		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
6	**Ever suffered from**	n=	**102**	**28**	**130**	**108**	**28**	**136**	**266**
	Hypertension		1.0	0.0	0.8	0.0	7.1	1.1	**1.0**
	Diabetes		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Epilepsy		0.0	0.0	0.0	0.0	7.1	1.1	**0.6**
	Jaundice		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Asthma		1.0	0.0	0.8	1.9	0.0	1.6	**1.2**

5.4.2 12 year olds

About 26 per cent of the respondents in this age group, across both sexes reported oral health problems in the last one year – 19 per cent in urban areas as against 27 per cent in rural areas.

Most of those who reported problems, had dental decay (96 per cent). About 51 per cent of respondents who had faced problems did not consult anybody. There was no significant difference in them by their place of living. But were more males than females. While 26 percent more males & more in rural had consulted a trained dentist.

87 per cent across both sexes, more in urban were aware of Government dental care facility. Majority of the respondents reported less than half-an-hour to reach these facilities. Table : 5.4.2

Table 5.4.2 Percent 12 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 12 yrs **STATE : Goa**

	Nature of Dental Problems and Treatment related aspects		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Suffered from oral health**	n=	**107**	**27**	**134**	**106**	**27**	**133**	**267**
	problems in last one year		28.0	18.5	26.6	25.5	18.5	24.4	**25.5**
2	**Type of oral health problems**	n=	**30**	**5**	**35**	**27**	**5**	**32**	**67**
	Dental decay		96.7	80.0	94.9	96.3	100.0	96.7	**95.8**
	Gum disease		3.3	0.0	3.0	0.0	0.0	0.0	**1.5**
	Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Bleeding gums		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Others		0.0	20.0	2.2	0.0	0.0	0.0	**1.1**
3	**Consulted (out of those suffered)**								
	None		56.7	40.0	54.9	44.4	60.0	46.3	**50.6**
	Trained dentist		30.0	20.0	28.9	25.9	0.0	22.9	**25.9**
4	**Availaibility of dental facility**	n=	**107**	**27**	**134**	**106**	**27**	**133**	**267**
	None		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Govt. facility		86.0	92.6	87.0	84.9	100.0	87.3	**87.2**
	Pvt. facility		73.8	81.5	75.0	67.0	85.2	69.8	**72.4**
	Do not know		0.9	0.0	0.8	0.9	0.0	0.8	**0.8**
5	**Time taken to reach the facility**	n=	**105**	**27**	**132**	**105**	**27**	**132**	**264**
	Less than 1/2 hr.		97.1	100.0	97.6	96.2	100.0	96.8	**97.2**
	1/2 - 1 hr.		2.9	0.0	2.4	3.8	0.0	3.2	**2.8**
	> 1 hr.		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cannot say		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
6	**Ever suffered from**	n=	**107**	**27**	**134**	**106**	**27**	**133**	**267**
	Hypertension		1.9	0.0	1.6	0.0	0.0	0.0	**0.8**
	Diabetes		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Epilepsy		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Jaundice		0.9	3.7	1.4	1.9	0.0	1.6	**1.5**
	Asthma		0.0	3.7	0.6	0.0	0.0	0.0	**0.3**

5.4.3 15 year olds

In this age group, 28 per cent of the respondents, more males and slightly more in rural areas, had dental problems (Table 5.4.3) in last one year. Most of them reported problems of dental decay (91 per cent), followed by gum disease (4 per cent). About 50 per cent respondents of those reported dental problem in rural areas and 15 per cent in urban areas did not consult any dentist. Another 41 per cent of respondents, more females and more in urban consulted a trained dentist.

86 per cent across both sexes & more in urban was aware of Government dental care facility. Majority of the respondents reported less than half-an-hour to reach these facilities.

Less than one percent of respondents, all males & in rural area had each of the disease such as hypertension, epilepsy, Jaundice & Asthma.

Table 5.4.3 Percent 15 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

AGE: 15 yrs **STATE : Goa**

	Nature of Dental Problems and Treatment related aspects		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Suffered from oral health**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	problems in last one year		29.0	28.6	28.9	27.9	20.7	26.7	**27.8**
2	**Type of oral health problems**	n=	**31**	**8**	**39**	**29**	**6**	**35**	**74**
	Dental decay		90.3	100.0	91.8	89.7	100.0	91.0	**91.4**
	Gum disease		3.2	0.0	2.7	6.9	0.0	6.0	**4.4**
	Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Bleeding gums		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Others		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
3	**Consulted (out of those suffered)**								
	None		58.1	12.5	50.9	41.4	16.7	38.2	**44.6**
	Trained dentist		29.0	75.0	36.3	48.3	33.3	46.3	**41.3**
4	**Availaibility of dental facility**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	None		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Govt. facility		85.0	96.4	86.9	83.7	93.1	85.2	**86.1**
	Pvt. facility		72.0	85.7	74.2	71.2	86.2	73.7	**74.0**
	Do not know		0.0	0.0	0.0	1.0	0.0	0.8	**0.4**
5	**Time taken to reach the facility**	n=	**106**	**28**	**134**	**103**	**29**	**132**	**266**
	Less than 1/2 hr.		98.1	100.0	98.4	97.1	100.0	97.6	**98.0**
	1/2 - 1 hr.		1.9	0.0	1.6	2.9	0.0	2.4	**2.0**
	> 1 hr.		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cannot say		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
6	**Ever suffered from**	n=	**107**	**28**	**135**	**104**	**29**	**133**	**268**
	Hypertension		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Diabetes		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Epilepsy		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Jaundice		1.9	0.0	1.6	0.0	0.0	0.0	**0.8**
	Asthma		1.9	0.0	1.6	0.0	0.0	0.0	**0.8**

5.4.4 35-44 year olds

About 31 per cent of the respondents in this age group, more females more in urban reported dental problems in the last one year in the state. Most of the respondents reported problems of dental decay followed by gum disease. Table 5.4.4

More from this age group who had oral health problems, had gone in for consultation — more in urban areas consulted a trained dentist (60 per cent) and less in rural areas (45 per cent).

About 86 percent, across both sexes & more in urban was aware of Government dental care facilities, with a reach time of half-an-hour. About 97 percent, across both sexes more in urban reported less than half hour to reach the facility.

The problem of hypertension and diabetes was reported by respondents of this age group. About 8 percent in this age group, reported hypertension. Other 3 percent, had diabetes. More urban respondents reported these problems as compared to the rural areas.

5.4.5 65-74 year olds

About 22 percent in this age group, across both sexes & more in urban had oral health problems in last one year. Most of them had dental decay (63 percent), followed by other 35 percent who had gum disease. About 32 percent (of those had problems) more males & more in urban consulted a trained dentist. About 87 percent more females & more in urban were aware of Govt. dental facility in their areas. As regard time to reach the dental care facility 98 percent more males & more in urban reported less than half hour. About 31 percent & 9 percent had hypertension & diabetes respectively. That were more females & more in urban. Table : 5.4.5

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

- Around 27 per cent of the respondents, across all age groups and across sexes, had dental problems in the last one year. Reporting was more in urban areas.
- The most common problem reported was dental decay (over 85 per cent).
- More than one-third subjects (37 per cent), across all ages, had consulted trained doctors. Also, 87 per cent subjects, across all ages and both sexes, but more in urban areas was aware of availability of governmental dental facility.
- Most respondents reported less than half-an-hour to reach the health facilities. This was especially so in urban areas.

Table 5.4.4 Percent 35-44 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

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

	Nature of Dental Problems and Treatment related aspects		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Suffered from oral health**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	problems in last one year		22.4	29.6	23.5	34.3	60.0	38.6	**31.1**
2	**Type of oral health problems**	n=	**24**	**8**	**32**	**37**	**18**	**55**	**87**
	Dental decay		83.3	87.5	84.1	75.7	77.8	76.2	**80.2**
	Gum disease		12.5	12.5	12.5	21.6	22.2	21.8	**17.2**
	Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Bleeding gums		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Others		4.2	0.0	3.4	2.7	0.0	2.0	**2.7**
3	**Consulted (out of those suffered)**								
	None		45.8	12.5	39.4	35.1	27.8	33.2	**36.3**
	Trained dentist		45.8	75.0	51.5	56.8	44.4	53.5	**52.5**
4	**Availaibility of dental facility**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	None		0.9	0.0	0.8	1.9	0.0	1.5	**1.2**
	Govt. facility		86.0	96.3	87.6	84.3	90.0	85.2	**86.4**
	Pvt. facility		72.0	81.5	73.4	73.1	100.0	77.6	**75.5**
	Do not know		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
5	**Time taken to reach the facility**	n=	**106**	**27**	**133**	**106**	**30**	**136**	**269**
	Less than 1/2 hr.		94.3	100.0	95.2	97.2	100.0	97.7	**96.5**
	1/2 - 1 hr.		5.7	0.0	4.8	2.8	0.0	2.3	**3.6**
	> 1 hr.		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cannot say		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
6	**Ever suffered from**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	Hypertension		6.5	11.1	7.2	7.4	20.0	9.5	**8.4**
	Diabetes		3.7	7.4	4.3	0.9	6.7	1.9	**3.1**
	Epilepsy		0.0	0.0	0.0	0.9	0.0	0.8	**0.4**
	Jaundice		1.9	3.7	2.2	3.7	0.0	3.1	**2.7**
	Asthma		0.0	3.7	0.6	1.9	0.0	1.5	**1.1**

Table 5.4.5 Percent 65-74 year olds by reported nature of dental problems and treatment related aspects, sex & geographical area.

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

	Nature of Dental Problems and Treatment related aspects		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Suffered from oral health**	n=	102	31	133	108	27	135	268
	problems in last one year		21.6	29.0	22.9	18.5	33.3	20.8	21.9
2	**Type of oral health problems**	n=	22	9	31	20	9	29	60
	Dental decay		54.5	66.7	57.3	70.0	66.7	69.2	63.3
	Gum disease		40.9	33.3	39.2	30.0	33.3	30.8	35.0
	Foul breath		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Bleeding gums		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Others		4.5	0.0	3.5	0.0	0.0	0.0	1.8
3	**Consulted (out of those suffered)**								
	None		59.1	33.3	53.2	70.0	33.3	61.0	57.1
	Trained dentist		31.8	44.4	34.7	25.0	44.4	29.8	32.3
4	**Availaibility of dental facility**	n=	102	31	133	108	27	135	268
	None		2.0	0.0	1.6	0.0	0.0	0.0	0.8
	Govt. facility		84.3	87.1	84.8	87.0	100.0	89.0	86.9
	Pvt. facility		68.6	83.9	71.4	67.6	81.5	69.7	70.6
	Do not know		0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	**Time taken to reach the facility**	n=	100	31	131	108	27	135	266
	Less than 1/2 hr.		96.0	100.0	96.7	98.1	100.0	98.4	97.6
	1/2 - 1 hr.		4.0	0.0	3.3	1.9	0.0	1.6	2.5
	> 1 hr.		0.0	0.0	0.0	0.0	0.0	0.0	0.0
	Cannot say		0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	**Ever suffered from**	n=	102	31	133	108	27	135	268
	Hypertension		28.4	16.1	26.2	32.4	55.6	36.0	31.1
	Diabetes		8.8	9.7	9.0	9.3	11.1	9.5	9.3
	Epilepsy		1.0	0.0	0.8	0.9	0.0	0.8	0.8
	Jaundice		0.0	0.0	0.0	0.9	0.0	0.8	0.4
	Asthma		2.0	0.0	1.6	2.8	3.7	2.9	2.3

5.5 AWARENESS OF DENTAL HEALTH PROBLEMS

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

5.5.2 12 year olds

Nearly all the respondents (96 per cent) in this age group, across both sexes, reported knowledge of dental health problems (Table 5.5.2). Most of them told dental decay (86 per cent), and gum disease (18 per cent). Awareness was higher in urban areas as compared to in rural areas. Males were slightly more aware than females.

Only 7 per cent of the respondents, across both sexes, & more in rural reported lack of knowledge about the factors that can cause such problems. Urban respondents were more aware. The most-often cited factors causing dental problems were "not brushing regularly" and "eating sweets/ice cream/chocolates" (86 per cent each).

When asked about the preventive measures, again about 8 per cent of the respondents reported no knowledge. They were more in rural than in urban areas. Around 91 per cent cited cleaning of teeth regularly as a preventive measure. Another 66 per cent cited "avoid sweet items".

5.5.3 15 year olds

About 96 per cent of the respondents of this age group, more females and more in urban areas, reported knowledge of oral health problems (Table 5.5.3). Most of them knew about dental decay (92 per cent) and gum disease (31 per cent). They were more in urban areas irrespective of their sex.

Only 4 per cent of the respondents aged 15 years did not know about the factors causing oral health problems. They were slightly more in rural areas than in urban areas. The most-often reported factor causing oral health problems was "not brushing regularly" and "eating sweets/ ice cream/chocolates" (92 per cent each).

Again, only 3 per cent of the respondents of this age group reported lack of knowledge of preventive measures. Such subjects were more in rural areas and less in urban. The main preventive measures reported were "cleaning teeth regularly" (96 per cent), and "avoid sweet items" (76 per cent).

Table 5.5.2 Percent 12 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

AGE: 12 yrs **STATE : Goa**

	Awareness of Oral Health Problems, Causes and Preventive Measures		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Awareness of Oral Health Problems**	n=	107	27	134	106	27	133	267
	No knowledge		5.6	0.0	4.7	3.8	3.7	3.8	**4.3**
	Tooth decay		84.1	88.9	84.9	86.8	92.6	87.7	**86.3**
	Gum disease		14.0	29.6	16.4	17.9	25.9	19.2	**17.8**
	Bad smell		4.7	3.7	4.5	5.7	7.4	5.9	**5.2**
	Stained teeth		4.7	11.1	5.7	0.0	0.0	0.0	**2.9**
	Others		30.8	59.3	35.2	26.4	63.0	32.1	**33.7**
2	**Factors that cause Oral Health Problems**								
	Eating sweets/ice cream		85.0	96.3	86.8	82.1	96.3	84.3	**85.6**
	Not brushing regularly		84.1	96.3	86.0	83.0	96.3	85.1	**85.6**
	Not rinsing		0.0	0.0	0.0	0.9	0.0	0.8	**0.4**
	Consuming tobacco		0.0	7.4	1.1	0.9	0.0	0.8	**1.0**
	Do not know		6.5	3.7	6.1	9.4	3.7	8.5	**7.3**
3	**Reported Preventive Measures**								
	Not consuming Tobacco		4.7	3.7	4.5	6.6	7.4	6.7	**5.6**
	Cleaning teeth regularly		89.7	96.3	90.7	89.6	96.3	90.7	**90.7**
	Visiting dentist regularly		1.9	7.4	2.7	0.9	3.7	1.4	**2.1**
	Using flouride paste / powder		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Avoid sweet items		63.6	81.5	66.3	61.3	92.6	66.2	**66.3**
	Do not know		9.3	3.7	8.5	7.5	3.7	6.9	**7.7**

Table 5.5.3 Percent 15 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

AGE: 15 yrs **STATE : Goa**

	Awareness of Oral Health Problems, Causes and Preventive Measures		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Awareness of Oral Health Problems**	n=	106	28	134	103	29	132	266
	No knowledge		5.7	0.0	4.8	3.9	0.0	3.2	**4.0**
	Tooth decay		90.6	96.4	91.5	90.3	100.0	91.9	**91.7**
	Gum disease		23.6	42.9	26.7	35.9	34.5	35.7	**31.2**
	Bad smell		4.7	10.7	5.7	4.9	6.9	5.2	**5.5**
	Stained teeth		7.5	7.1	7.5	2.9	0.0	2.4	**5.0**
	Others		48.1	71.4	51.9	41.7	58.6	44.6	**48.3**
2	**Factors that cause Oral Health Problems**								
	Eating sweets/ice cream		91.6	96.4	92.4	91.3	96.6	92.2	**92.3**
	Not brushing regularly		90.7	100.0	92.1	92.2	93.1	92.4	**92.3**
	Not rinsing		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Consuming tobacco		0.9	3.6	1.4	0.0	0.0	0.0	**0.7**
	Do not know		2.8	0.0	2.4	4.9	3.4	4.6	**3.5**
3	**Reported Preventive Measures**								
	Not consuming Tobacco		3.8	10.7	4.9	5.8	0.0	4.8	**4.9**
	Cleaning teeth regularly		98.1	92.9	97.3	92.3	100.0	93.6	**95.5**
	Visiting dentist regularly		1.9	3.6	2.2	7.7	10.3	8.1	**5.2**
	Using flouride paste / powder		0.9	0.0	0.8	1.0	3.4	1.4	**1.1**
	Avoid sweet items		74.5	92.9	77.5	72.1	86.2	74.5	**76.0**
	Do not know		2.8	0.0	2.4	3.8	0.0	3.2	**2.8**

5.5.4 35-44 years old

About 98 per cent respondents of this age group reported awareness of oral health problems. This percentage was more in urban areas than in the rural areas. Most of the respondents cited problems such as dental decay (almost 94 per cent), and gum disease (47 per cent). About 9 percent described bad smell, a oral health problem.

About 8 per cent respondents in this age group reported lack of knowledge on the factors that cause oral health problems. This was more in rural areas than in the urban and more among females. The factors most reported as causing problems were "not brushing regularly" (87 per cent), and "eating sweets/ice cream/chocolates" (84 per cent).

About preventive measures in regard to oral health problems, 7 per cent reported no knowledge. Their percentage was more in rural areas as compared to urban areas. Of those with knowledge of preventive measures, about 88 per cent said "cleaning teeth regularly" was one such measure. The other measure cited was "avoid sweet items" (68 per cent). Table : 5.5.4

Table 5.5.4 Percent 35-44 year olds by reported awareness of oral health problems, their causes & preventive measures, sex & geographical area.

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

	Awareness of Oral Health Problems, Causes and Preventive Measures		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Awareness of Oral Health Problems**	n=	106	27	133	108	30	138	271
	No knowledge		0.9	0.0	0.8	4.6	0.0	3.9	**2.4**
	Tooth decay		96.2	100.0	96.8	89.8	96.7	91.0	**93.9**
	Gum disease		45.3	37.0	44.0	51.9	43.3	50.4	**47.2**
	Bad smell		7.5	11.1	8.1	10.2	13.3	10.7	**9.4**
	Stained teeth		3.8	7.4	4.3	2.8	6.7	3.4	**3.9**
	Others		54.7	70.4	57.2	57.4	80.0	61.2	**59.2**
2	**Factors that cause Oral Health Problems**								
	Eating sweets/ice cream		85.8	96.3	87.5	78.7	93.3	81.2	**84.4**
	Not brushing regularly		88.7	88.9	88.7	82.4	96.7	84.8	**86.8**
	Not rinsing		0.0	3.7	0.6	2.8	3.3	2.9	**1.8**
	Consuming tobacco		2.8	11.1	4.1	2.8	0.0	2.3	**3.2**
	Do not know		6.6	0.0	5.6	11.1	3.3	9.8	**7.7**
3	**Reported Preventive Measures**								
	Not consuming Tobacco		9.3	3.7	8.5	6.5	6.7	6.5	**7.5**
	Cleaning teeth regularly		88.8	100.0	90.5	86.1	93.3	87.3	**88.9**
	Visiting dentist regularly		4.7	3.7	4.5	4.6	6.7	5.0	**4.8**
	Using flouride paste / powder		0.9	0.0	0.8	0.0	0.0	0.0	**0.4**
	Avoid sweet items		62.6	81.5	65.5	65.7	90.0	69.8	**67.7**
	Do not know		7.5	0.0	6.3	9.3	3.3	8.3	**7.3**

5.5.5 65-74 year olds

About 90 percent, across both sexes & more in urban was aware of oral health problems. 82 percent of those aware across both sexes & more in urban reported tooth decay. This followed by other about 46 percent more males & more in rural cited gum disease- a oral health problem.

About 19 percent, across both sexes & more in rural did not have the knowledge of factors responsible for oral health problems – About 78 of those aware, cited not brushing regularly. While another 74 percent across both sexes & more in urban described eating sweets/ice cream factor responsible for oral health problems.

As regard knowledge of preventive measures, 19 percent reported no knowledge. About 80 percent of those aware of preventive measures, more males & more in urban reported avoid sweet items. They were more males & more in urban. Table : 5.5.5

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

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

	Awareness of Oral Health Problems, Causes and Preventive Measures		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Awareness of Oral Health Problems**	n=	**101**	**31**	**132**	**108**	**27**	**135**	**267**
	No knowledge		10.9	9.7	10.7	11.1	3.7	10.0	**10.4**
	Tooth decay		81.2	83.9	81.7	80.6	92.6	82.4	**82.1**
	Gum disease		50.5	48.4	50.1	43.5	29.6	41.4	**45.8**
	Bad smell		4.0	3.2	3.8	2.8	3.7	2.9	**3.4**
	Stained teeth		2.0	9.7	3.4	2.8	0.0	2.4	**2.9**
	Others		28.7	51.6	32.9	29.6	63.0	34.7	**33.8**
2	**Factors that cause Oral Health Problems**								
	Eating sweets/ice cream		72.3	80.6	73.8	72.0	85.2	74.0	**73.9**
	Not brushing regularly		76.2	83.9	77.6	73.8	96.3	77.3	**77.5**
	Not rinsing		0.0	0.0	0.0	1.9	0.0	1.6	**0.8**
	Consuming tobacco		1.0	0.0	0.8	0.9	0.0	0.8	**0.8**
	Do not know		20.8	12.9	19.4	21.5	3.7	18.7	**19.1**
3	**Reported Preventive Measures**								
	Not consuming Tobacco		2.0	0.0	1.6	4.7	7.4	5.1	**3.4**
	Cleaning teeth regularly		78.2	87.1	79.8	76.6	96.3	79.7	**79.8**
	Visiting dentist regularly		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Using flouride paste / powder		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Avoid sweet items		54.5	74.2	58.0	50.5	81.5	55.3	**56.7**
	Do not know		18.8	12.9	17.7	23.4	3.7	20.3	**19.0**

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

1. About 95 per cent of subjects across all ages and both sexes, but more in urban areas, were aware of oral health problems in the state.
2. About 9 per cent of respondents across all age groups, more males & more in rural were not aware of the factors that cause oral health problems. Of those who were aware, most of them reported "not brushing regularly" (86 per cent) followed by "eating sweets/ice cream" (84 per cent).
3. About preventive measures in regard to oral health problems, again 9 per cent subjects across all ages and sexes reported no knowledge.

5.6 TOBACCO SMOKING AND CHEWING HABITS

As smoking habits and chewing pan or pan masala with tobacco have special affects on oral health. A set of questions on these aspects were asked. These questions related to smoking habits, chewing pan or pan masala with tobacco and drinking alcohol. This section summarises findings on those questions for the age groups 35-44 years and 65-74 years since these age groups were considered more relevant for these questions. The findings are shown in Tables 5.6.4 and 5.6.5

5.6.4 35-44 year olds

About 10 per cent of respondents had the habit of smoking tobacco in the state (Table 5.6.4), more in rural areas. About 19 per cent males and less than one per cent females reported smoking habit.

About 49 per cent of males more in rural had smoked Bidis. While 38 per cent of them more in urban had smoked cigarettes. When asked about frequency of smoking, around 86 per cent reported smoking less than 10 times in a day.

The practice of chewing pan or pan masala with tobacco was lower; only about 8 per cent reported this habit, across sexes, but more in rural areas. About 52 percent of those who chewed tobacco or pan masala with tobacco said they had been doing so for 5-10 years.

Another 28 percent more females & more in urban were chewing pan or pan masala with tobacco for more than 20 years. When asked number of times chewing tobacco, 60 percent, across both sexes & more in urban were chewing 5-10 times in a day. While 16 percent more in rural reported chewing more than 10 times in a day.

24 per cent reported taking alcohol. 18 per cent of them said they were taking occasionally and another 22 per cent said they were consuming it daily.

Table 5.6.4 Percent (35-44) year olds by reported smoking, chewing pan & pan masala with tobacco and alcohol taking habits, sex & geographical area.

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

	Tobacco Smoking or Chewing with Pan Masala and Alcohol taking habits		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Smoking Habits**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	Subjects smoking tobacco		19.6	14.8	18.9	0.9	0.0	0.8	**9.9**
2	**Nature of Smoking**	n=	**21**	**4**	**25**	**1**	**0**	**1**	**26**
	Chillum		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Hookah		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cigars		4.8	25.0	7.2	0.0	0.0	0.0	**3.6**
	Cigarettes		38.1	50.0	39.5	0.0	0.0	0.0	**19.8**
	Bidis		52.4	25.0	49.1	100.0	0.0	100.0	**74.6**
3	**Number of times Smoking in a day**								
	< 10 times		71.4	75.0	71.9	100.0	0.0	100.0	**86.0**
	10-20 times		23.8	0.0	20.9	0.0	0.0	0.0	**10.5**
	20 + times		4.8	25.0	7.2	0.0	0.0	0.0	**3.6**
4	**Chewing pan/pan masala habits**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	Chew pan or pan masala with tobacco		8.4	3.7	7.7	8.3	3.3	7.5	**7.6**
5	**Number of years of chewing pan or**								
	pan masala with Tobacco	n=	**9**	**1**	**10**	**9**	**1**	**10**	**20**
	Less than 5 years		11.1	0.0	10.3	33.3	0.0	30.9	**20.6**
	5 - 10 years		77.8	0.0	72.0	33.3	0.0	30.9	**51.5**
	> 10 years		11.1	100.0	17.7	33.3	100.0	38.3	**28.0**
6	**Number of times of chewing tobacco**								
	in a day								
	Less than 5 times		22.2	0.0	20.6	33.3	0.0	30.9	**25.8**
	5 - 10 times		55.6	100.0	58.9	55.6	100.0	58.9	**58.9**
	> 10 times		22.2	0.0	20.6	11.1	0.0	10.3	**15.5**
7	**Alcohol consumption habits**	n=	**107**	**27**	**134**	**108**	**30**	**138**	**272**
	Consuming alcohol		49.5	33.3	47.0	0.0	0.0	0.0	**23.5**
8	**Frequency of alcohol consumption**	n=	**53**	**9**	**62**	**0**	**0**	**0**	**62**
	Daily		45.3	33.3	44.0	0.0	0.0	0.0	**22.0**
	3 times a week		20.8	11.1	19.7	0.0	0.0	0.0	**9.9**
	Occasionally		34.0	55.6	36.3	0.0	0.0	0.0	**18.2**

5.6.5 65-74 year olds

About 26 per cent in this age group (35 per cent males and 17 per cent females), more in rural areas (Table 5.6.5) had the habit of smoking tobacco. Bidis were smoked the most at 56 per cent, followed by cigarettes (15 per cent). The frequency of smoking was mostly less than 10 times in a day.

In the state, about 16 per cent (10 per cent males and 22 per cent females) of this age group reported chewing pan masala with tobacco. Their percentage was more in the rural areas (18 per cent) as opposed to urban areas (7 per cent). About 58 per cent of them said they were chewing it less than 10 times a day but 61 per cent said they had this habit for more than 10 years.

Around 25 per cent (mostly males) reported taking alcohol. Most of them (58 per cent) were consuming alcohol daily while 36 per cent had taken it occasionally.

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

1. About 18 per cent across age groups had the habit of smoking tobacco in the state. The habit was more prevalent among males and in rural areas. More than half of respondents, more males and more from rural areas, had smoked Bidis. Around 80 per cent of smokers, across both sexes and place of residence, said they were smoking less than 10 times in a day.
2. About 12 per cent, across all ages and place of residence, but more females said they chewed pan or pan masala with tobacco. A majority of those who chewed tobacco or pan masala with tobacco said they been doing so for more than 5 years. About 50 percent of them were chewing 5-10 times in a day.
3. About 24 per cent, across all ages, but more males and more in rural areas, said they had the habit of taking alcohol. About 40 percent were consuming alcohol daily.

Table 5.6.5 Percent (65-74) year olds by reported smoking, chewing pan & pan masala with tobacco and alcohol taking habits, sex & geographical area.

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

	Tobacco Smoking or Chewing with Pan Masala and Alcohol taking habits		MALE			FEMALE			STATE TOTAL
			R	U	T	R	U	T	
1	**Smoking Habits**	n=	102	31	133	108	27	135	268
	Subjects smoking tobacco		36.3	29.0	35.0	19.4	0.0	16.5	**25.8**
2	**Nature of Smoking**	n=	37	9	46	21	0	21	67
	Chillum		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Hookah		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cigars		0.0	0.0	0.0	0.0	0.0	0.0	**0.0**
	Cigarettes		21.6	44.4	25.0	4.8	0.0	4.8	**14.9**
	Bidis		67.6	44.4	64.1	47.6	0.0	47.6	**55.9**
3	**Number of times Smoking in a day**								
	< 10 times		64.9	88.9	68.5	81.0	0.0	81.0	**74.8**
	10-20 times		27.0	0.0	23.0	19.0	0.0	19.0	**21.0**
	20 + times		8.1	11.1	8.6	0.0	0.0	0.0	**4.3**
4	**Chewing pan/pan masala habits**	n=	102	31	133	108	27	135	268
	Chew pan or pan masala with tobacco		12.7	0.0	10.4	24.1	7.4	21.5	**16.0**
5	**Number of years of chewing pan or**								
	pan masala with Tobacco	n=	13	0	13	26	2	28	41
	Less than 5 years		7.7	0.0	7.7	3.8	0.0	3.6	**5.7**
	5 - 10 years		38.5	0.0	38.5	30.8	0.0	29.1	**33.8**
	> 10 years		53.8	0.0	53.8	65.4	100.0	67.2	**60.5**
6	**Number of times of chewing tobacco**								
	in a day								
	Less than 5 times		23.1	0.0	23.1	11.5	0.0	10.9	**17.0**
	5 - 10 times		38.5	0.0	38.5	42.3	50.0	42.7	**40.6**
	> 10 times		38.5	0.0	38.5	46.2	50.0	46.4	**42.5**
7	**Alcohol consumption habits**	n=	102	31	133	108	27	135	268
	Consuming alcohol		42.2	45.2	42.7	7.4	0.0	6.3	**24.5**
8	**Frequency of alcohol consumption**	n=	43	14	57	8	0	8	65
	Daily		79.1	71.4	77.6	37.5	0.0	37.5	**57.6**
	3 times a week		11.6	14.3	12.1	0.0	0.0	0.0	**6.1**
	Occasionally		9.3	14.3	10.3	62.5	0.0	62.5	**36.4**

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 and 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 Significant Caries Index (SIC) helps identify the one third of the population with the highest caries (mean DMFT value) and the mean DMFT for this group. The root caries develops in the higher age groups and is therefore assessed for the age groups of 35-44 and 65-74 years subjects; its greatest significance lies in the aging population in the 50-60 years or higher age groups.

6.1.1. Coronal caries

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

Table 6.02 and Fig. 6.02 present the mean number of teeth decayed, missing and filled (mean dmft and mean DMFT) in 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 percent 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 mainly relates to age groups 35-44 and 65-74 year olds.

In 5 year old groups, about 84.3% males & 86.1% females in the rural area and 92.9% males and 89.3% females in the urban had either carious, missing (due to extraction because of caries) and filled teeth.

5 year

In children aged 5 years in the rural area, most of the 5 year boys (26.5%) and girls (37.0%) in the rural area had a deft value between 6-10. An almost equal percentage of boys and girls (23.5%, 23.1%) had deft scores between 1-3 (23.5%, 23.1%) and 11-15 (18.6%, 18.5%).

In the urban area maximum percentage of boys (35.7%) had a deft value of 1-3, while the girls (35.7%) had a deft value of 6-10. Among the boys an equal percentage had a deft value between 4-5 (17.9%), 6-10 (17.9%) and 11-15 (17.9%). Only 3.6% had a deft score of 16 or more.

There was a higher percentage of children with caries, extracted teeth (due to caries) and filled teeth in the urban area (92.9%, 89.3%) as compared to the rural area (84.3%, 86.1%).

In rural area, the majority of children aged 5 years had a dmft value of 6-10, while this value in the majority in urban areas was 1-3. This indicates a higher impact of dental caries in rural population in the state in this age.

Each of the 5 yr old boys and girls in the rural as well as urban areas had an average of 20 teeth (full complement). The boys in the rural area had a mean dmft score of 6.0, all decayed, and none extracted (due to caries) or filled.

Similarly the 5 year old girls in the rural area had a dmft score of 6.1 all of which were decayed and none were extracted or filled.

The Significant Caries (SIC) Index was 11.8 (Rural) and 9.7 (Urban) in the age group.

In the urban area 5 year old boys had a dmft of 5.7 again all of which were decayed & none extracted or filled. 5 year old urban girls had a dmft of 4.4 all of which again were decayed & none were extracted or filled.

The mean deft scores for the 5 year old rural boys and girls was higher in the rural area (6.0 and 6.1) than in the urban area (5.7 and 4.4).

In the rural area the dmft of the girls was marginally higher (6.1) when compared to mean deft of the boys (6.0)

While in the urban area the mean dmft of the boys 5.7 was greater than the mean deft of the girls (4.4).

Though the 5 yr olds in both the rural & urban areas had a fairly large component of decayed teeth, it is significant to note that none were treated.

12 yrs

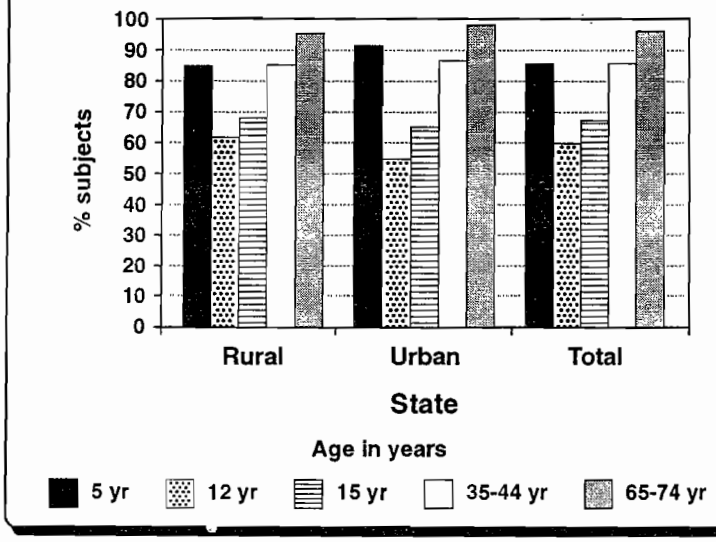
Among the 12 yr olds 63.6% boys and 60.4% girls in the rural area and 66.7% boys and 44.4.% girls in the urban area had decayed or filled teeth.

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

Decayed, Missing, Filled Teeth		5 years			Decayed, Missing, Filled Teeth		12 years			15 years			35-44 years			65-74 years		
		M	F	T			M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	*210*	**State Rural**	n=	107	106	*213*	107	104	*211*	107	108	*215*	102	108	*210*
With caries		84.3	86.1	*85.2*	With caries		63.6	60.4	*62.0*	65.4	69.2	*67.3*	82.2	89.8	*86.0*	95.1	96.3	*95.7*
dmft value 1-3		23.5	23.1	*23.3*	DMFT value 1-3		42.1	42.5	*42.3*	40.2	47.1	*43.7*	31.8	21.3	*26.6*	5.9	6.5	*6.2*
dmft value 4-5		10.8	6.5	*8.7*	DMFT level 4-7; 4-8		21.5	16.0	*18.8*	19.6	19.2	*19.4*	35.5	25.9	*30.7*	9.8	13.0	*11.4*
dmft value 6-10		26.5	37.0	*31.8*	DMFT value 8-14; 9-16		0.0	1.9	*1.0*	5.6	1.9	*3.8*	10.3	28.7	*19.5*	21.6	14.8	*18.2*
dmft value 11-15		18.6	18.5	*18.6*	DMFT value 15-21; 17-24		0.0	0.0	*0.0*	0.0	1.0	*0.5*	3.7	9.3	*6.5*	22.5	22.2	*22.4*
dmft value 16 or more		4.9	0.9	*2.9*	DMFT value 22-28; 25-28		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.9	1.9	*1.4*	10.8	13.9	*12.4*
					DMFT value 29 or more		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	2.8	*1.4*	24.5	25.9	*25.2*
State Urban	n=	28	28	*56*	**State Urban**	n=	27	27	*54*	28	29	*57*	27	30	*57*	31	27	*58*
With caries		92.9	89.3	*91.1*	With caries		66.7	44.4	*55.6*	64.3	69.0	*66.7*	85.2	90.0	*87.6*	100.0	96.3	*98.2*
dmft value 1-3		35.7	28.6	*32.2*	DMFT value 1-3		40.7	22.2	*31.5*	28.6	44.8	*36.7*	18.5	3.3	*10.9*	3.2	7.4	*5.3*
dmft value 4-5		17.9	21.4	*19.7*	DMFT level 4-7; 4-8		25.9	22.2	*24.1*	32.1	20.7	*26.4*	18.5	46.7	*32.6*	19.4	7.4	*13.4*
dmft value 6-10		17.9	35.7	*26.8*	DMFT value 8-14; 9-16		0.0	0.0	*0.0*	3.6	3.4	*3.5*	37.0	16.7	*26.9*	25.8	11.1	*18.5*
dmft value 11-15		17.9	3.6	*10.8*	DMFT value 15-21; 17-24		0.0	0.0	*0.0*	0.0	0.0	*0.0*	7.4	20.0	*13.7*	22.6	22.2	*22.4*
dmft value 16 or more		3.6	0.0	*1.8*	DMFT value 22-28; 25-28		0.0	0.0	*0.0*	0.0	0.0	*0.0*	3.7	3.3	*3.5*	9.7	18.5	*14.1*
					DMFT value 29 or more		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	19.4	29.6	*24.5*
State Total	n=	130	136	*266*	**State Total**	n=	134	133	*267*	135	133	*268*	134	138	*272*	133	135	*268*
With caries		86.2	86.8	*86.5*	With caries		64.2	57.1	*60.7*	65.2	69.2	*67.2*	82.8	89.9	*86.4*	96.2	96.3	*96.3*
dmft value 1-3		26.2	24.3	*25.3*	DMFT value 1-3		41.8	38.3	*40.1*	37.8	46.6	*42.2*	29.1	17.4	*23.3*	5.3	6.7	*6.0*
dmft value 4-5		12.3	9.6	*11.0*	DMFT level 4-7; 4-8		22.4	17.3	*19.9*	22.2	19.5	*20.9*	32.1	30.4	*31.3*	12.0	11.9	*12.0*
dmft value 6-10		24.6	36.8	*30.7*	DMFT value 8-14; 9-16		0.0	1.5	*0.8*	5.2	2.3	*3.8*	15.7	26.1	*20.9*	22.6	14.1	*18.4*
dmft value 11-15		18.5	15.4	*17.0*	DMFT value 15-21; 17-24		0.0	0.0	*0.0*	0.0	0.8	*0.4*	4.5	11.6	*8.1*	22.6	22.2	*22.4*
dmft value 16 or more		4.6	0.7	*2.7*	DMFT value 22-28; 25-28		0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.5	2.2	*1.9*	10.5	14.8	*12.7*
					DMFT value 29 or more		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	2.2	*1.1*	23.3	26.7	*25.0*

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

Fig 6.01. Percent subjects with caries experience in Goa



The highest percentage of boys and girls in the rural area (42.1%, 42.5%) as well as the urban area (40.7%, 22.2%) had a DMFT value between 1-3. Almost all the rest of the 12 yr olds in the rural area had a DMFT value between 4- 8. Only 0.9% of girls in the rural area had a DMFT value between 9-16. Similarly, all the remaining boys and girls in the urban area had a DMFT value between 4-8.

The percentage of 12 yr boys with D,M or F teeth was higher in the urban when compares to the rural area while the % of girls with D, M or F teeth was higher in the rural as compared to the urban area.

In both the rural and urban areas, maximum number of boys and girls had a DMFT score between 1-3, while most of the remaining 12 yr children had a DMFT value between 4-8.

The mean number of teeth that were present in the mouths of the 12 yr boys and girls in the rural area was 27.9 while in the urban area it was 28.

The 12 yr boys and girls in the rural area had a similar mean DMFT of 1.8 of which 1.7 were decayed and 0.1% were missing due to dental caries while none received any dental treatment.

The mean DMFT score for the 12 yr urban boys was 2.1 of which 1.5 were decayed, none were missing and 0.6 had received some type of permanent filling.

The mean DMFT for the urban girls was lower at 1.3 of which 1.2 were decayed, none missing & none filled.

While the 12 yr urban boys had a higher mean DMFT (2.1) than the rural boys (1.8). The 12 yr rural girls had a higher mean DMFT (1.8) that the urban girls (1.2).

It is significant to note that only 25% of the component of caries among the 12 yr urban received dental attention, in the form of fillings, while, none of the 12 yr urban girls of 12 yr rural boys & girls received any treatment for their carious teeth.

Higher treated component than the 5 yr olds

15 yrs

Among the 15 yr olds a marginally higher percentage of boys and girls in the rural area (65.4%, 69.2%) had D, M or F teeth as compared to the urban area (64.3%, 69.0%).

In the rural area, maximum number of both boys and girls (40.2%, 47.1%) had a DMFT score between 1-3, while 23.4% boys and 19.2% girls had a DMFT score between 4-8 and 1.9% boys and 2.9% girls had a DMFT score between 9-16.

In the urban area maximum percentage of boys (32.1%) had a DMFT score of 4-8 while among the girls the maximum percentage (44.8%) had a DMFT score of 1-3. The remaining 28.6% of boys had a DMFT of 1-3 while 3.6% had a DMFT of 9-16.

The rest 20.7% of girls had a DMFT of 4-8 while 3.4% had a DMFT of 9-16. The maximum number of 15 yr olds in both the rural & urban areas had a DMFT between 1-3 followed by 4-8.

The mean number of teeth in the mouths of the 15 yr boys in the rural area was 28.0 while the girls had 27.9.

In the urban area the boys had a mean number of 27.8 teeth while the girls had 28.00.

The mean DMFT for the rural boys was 2.1 of which 1.9 were decayed, none missing (due to caries) and 0.2 filled.

Similarly the mean DMFT for rural girls was higher at 2.3 of which 2.1 was decayed, none missing and 0.2 filled.

The mean DMFT for the 15 yr urban boys was 2.5 of which 2.0 was decayed, 0.1 missing and 0.4 filled.

Similarly the mean DMFT for the urban girls was lower at 2.1 of which 1.9 were carious, none missing and 0.2 filled.

While among the 15 yr boys, the mean DMFT was higher in the urban (2.5) that the rural areas (2.1), among the girls the mean DMFT was higher in the rural areas (2.3) as compared to the urban area (2.1).

It is pertinent to note that the treatment component among the 15 yr olds is more than in the younger age groups. Almost all the treatment is in the form of fillings.

This suggests that a greater number sought treatment early & where the tooth could be treated by placing a filling

35-44 yrs

In the 35-44 yr age group the percentage of males and females with D, M or F teeth was higher in the urban area (81.5%, 90.6%) as compared to the rural area (79.4, 83.3%)

In the rural area maximum percentage of 35-44 year males (36.4%) had a DMFT score between 1-3. This was followed by (32.7%) with a score of 4-8 (7.5%) with a score of 9-16 and 2.8% with a score of 17-24. Among the 35-44 yr rural females, a maximum percentage (29.6%) had a DMFT score of 4-8, followed by 25.9% with a score of 9-16, 19.4% with a score of 1-3, 6.5% with a score of 17-24 and 0.9% each with a score of 25-28 and 29 or more respectively.

In the urban area maximum number of 35-44 yr males (37.0%) & females (50%) had a DMFT score between 4-8. This was followed by those with a DMFT scores of 9-16 (22.2%), DMFT 1-3 (18.5%) and DMFT score 17-24 (3.7%). Similarly among the 35-44 yr urban females, most had a DMFT score of 4-8 (50%), followed by 9-16 (20%), 17-24 (13.3%) and 1-3 (6.7%).

In the 35-44 yr age group, in the rural area the greatest of individuals had a DMFT score of 4-8 followed by those with a score of 1-3. In the urban area, a majority of the males and females had a DMFT score of 4-8, followed by those with a score of 9-16.

The mean number of teeth present in the mouths of the rural males was 30.1 and rural females 28.5.

In the urban males the mean number of teeth was 28.3 while urban females had 27.8

The mean DMFT for the 35-44 yr rural males was 4.8 of which 2.6 were decayed, 1.9 missing and 0.3 filled.

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

Decayed, Missing, Filled Teeth		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	*210*	107	106	*213*	107	104	*211*	107	108	*215*	101	106	*207*
Mean no. of teeth present (mnt/MNT)		20.0	20.0	*20.0*	27.9	27.9	*27.9*	28.0	27.9	*28.0*	30.1	28.5	*29.3*	17.1	16.4	*16.8*
Mean dmft and Mean DMFT		6.0	6.1	*6.1*	1.8	1.8	*1.8*	2.1	2.3	*2.2*	4.8	8.5	*6.7*	18.4	19.0	*18.7*
Mean no. of Decayed teeth (dt/DT)		6.0	6.1	*6.1*	1.7	1.7	*1.7*	1.9	2.1	*2.0*	2.6	4.2	*3.4*	3.5	3.4	*3.5*
Mean no. of Missing teeth (mt/MT)		0.0	0.0	*0.0*	0.1	0.0	*0.1*	0.0	0.0	*0.0*	1.9	3.5	*2.7*	14.9	15.6	*15.3*
Mean no. of Filled teeth (ft/FT)		0.0	0.1	*0.1*	0.0	0.0	*0.0*	0.2	0.2	*0.2*	0.3	0.9	*0.6*	0.0	0.0	*0.0*
SIC Index		11.9	11.6	*11.8*	4.1	4.2	*4.2*	5.0	4.9	*5.0*	10.3	17.3	*13.8*	30.1	30.2	*30.2*
No. of subjects edentulous		0	0	*0*	0	0	*0*	0	0	*0*	0	1	*1*	15	11	*26*
State Urban	n=	28	28	*56*	27	27	*54*	28	29	*57*	27	30	*57*	31	26	*57*
Mean no. of teeth present (mnt/MNT)		20.0	20.0	*20.0*	28.0	28.0	*28.0*	27.8	28.0	*27.9*	28.3	27.8	*28.1*	19.5	15.6	*17.6*
Mean dmft and Mean DMFT		5.7	4.4	*5.1*	2.1	1.3	*1.7*	2.5	2.1	*2.3*	8.0	9.6	*8.8*	17.7	20.9	*19.3*
Mean no. of Decayed teeth (dt/DT)		5.7	4.4	*5.1*	1.5	1.2	*1.4*	2.0	1.9	*2.0*	3.1	4.7	*3.9*	4.5	4.4	*4.5*
Mean no. of Missing teeth (mt/MT)		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.1	0.0	*0.1*	3.7	4.2	*4.0*	12.5	16.4	*14.5*
Mean no. of Filled teeth (ft/FT)		0.0	0.0	*0.0*	0.6	0.0	*0.3*	0.4	0.2	*0.3*	1.1	0.7	*0.9*	0.8	0.1	*0.5*
SIC Index		11.6	7.7	*9.7*	4.7	3.6	*4.2*	5.4	4.9	*5.2*	14.8	18.4	*16.6*	29.1	31.0	*30.1*
No. of subjects edentulous		0	0	*0*	0	0	*0*	0	0	*0*	0	0	*0*	3	2	*5*
State Total	n=	130	136	*266*	134	133	*267*	135	133	*268*	134	138	*272*	132	132	*264*
Mean no. of teeth present (mnt/MNT)		20.0	20.0	*20.0*	28.0	27.9	*28.0*	27.9	27.9	*27.9*	29.9	28.4	*29.2*	17.5	16.3	*16.9*
Mean dmft and Mean DMFT		5.9	5.8	*5.9*	1.8	1.7	*1.8*	2.2	2.2	*2.2*	5.3	8.7	*7.0*	18.3	19.3	*18.8*
Mean no. of Decayed teeth (dt/DT)		5.9	5.8	*5.9*	1.7	1.6	*1.7*	1.9	2.0	*2.0*	2.7	4.3	*3.5*	3.6	3.5	*3.6*
Mean no. of Missing teeth (mt/MT)		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.1	0.0	*0.1*	2.1	3.6	*2.9*	14.5	15.7	*15.1*
Mean no. of Filled teeth (ft/FT)		0.0	0.0	*0.0*	0.1	0.0	*0.1*	0.2	0.2	*0.2*	0.4	0.8	*0.6*	0.2	0.0	*0.1*
SIC Index		11.9	10.9	*11.4*	4.2	4.1	*4.2*	5.1	5.0	*5.1*	11.6	17.6	*14.6*	29.9	30.4	*30.2*
No. of subjects edentulous		0	0	*0*	0	0	*0*	0	0	*0*	0	1	*1*	18	13	*31*

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

For the 35-44 yr rural females the mean DMFT scores were significantly higher at 8.5 of which 4.2 were decayed, 3.5 missing and 0.9 filled.

The mean DMFT for the 35-44 yr urban males was high at 8.0 of which 4.7 were decayed, 4.2 missing and 0.7 filled.

The mean DMFT for the 35-44 yr old males & females was higher in the urban area (8.0 & 9.6) than in the rural area (4.8 and 8.5).

The mean DMFT in both the rural and urban areas was higher for females (8.5 and 9.6) than males (4.8 and 8.0).

The decayed, missing and filled components were all higher in the urban area as compared to the rural area, except the filled component which was higher among the rural females (0.9) when compared to the urban females (0.7).

The treatment component (Missing, extracted because of decaying and Filled) were higher in the urban area than rural area suggesting that a greater number of people in this age group sought treatment.

However the treatment component breakdown suggests that a greater number of extracted teeth as compared to filled teeth.

Thus may be attributed to individuals presenting or treatment only at the advanced stage of the problem when the only plausible treatment alternative that remains is an extraction resulting in a higher missing component.

65-74 yrs

In the 65-74 yr age group the percentage of males & females with a higher number of D, M or Filled teeth was higher in the urban area (96.8% & 81.5%) as compared to the rural area (67.6% and 71.3%).

In the rural area among the 65-74 yr males most had a DMFT score of 4-8 (14.7%) followed by DMFT scores of 1-3 and 9-16 (13.7% each). DMFT score 17-24 (10.8%) DMFT score 29 or more (7.8%) and DMFT score 25-28 (6.9%). Among the rural females, most had a DMFT score of 1-3 (20.4%) followed by those with a DMFT score of 17-24 (14.8%) DMFT scores 4-8 and 29 or more (11.1% each) DMFT value 9-16 (8.3%) and DMFT value 25-28 (7.4%)

Among the 65-74 yr urban males most (35.5%) had a DMFT score 9-16 followed by a DMFT score of 4-8 (16.1%), DMFT scores of 1-3, 17-24 and 29 or more (12.9% each) and DMFT value 25-28 (6.5%). Among the 65-74 yr urban females or maximum % (25.9%) had a DMFT score of 29 or more, followed by DMFT score of 17-24 (18.5%) DMFT scores of 1-3, 4-8, 9-16 (11.1% each) and DMFT value 25-28 (7.4%).

The mean number of teeth present in the mouths of the rural males was 17.1 and rural females it was 16.4.

The mean number of teeth present in the mouths of the urban males was 19.5 and urban females it was 15.6.

The mean DMFT for the 65-74 yr rural males was 18.4 of which 3.5 were decayed 14.9 missing (extracted due to D) and none filled.

For the 65-74 yr rural females the mean DMFT was 19.0, of which 3.4 were decayed 15.6 missing and none filled.

The mean DMFT for the 65-77 yr urban males was 17.7 of which 4.5 were decayed, 12.5 missing (extracted due to D) and 0.8 filled.

For the 65-74 yr urban females the mean DMFT was 10.9 of which 4.4 were decayed, 16.4 missing (extracted due to D) and 0.1 filled.

The mean DMFT in the 65-74 yr males was higher in the rural area (18.4) as compared to the urban area while for the 65-74 yr. Females, it was higher in the urban area (20.9) than rural area (19.0).

In both the rural and urban area the mean DMFT was higher for females (19.0 and 20.9) than males (18.4 and 17.7).

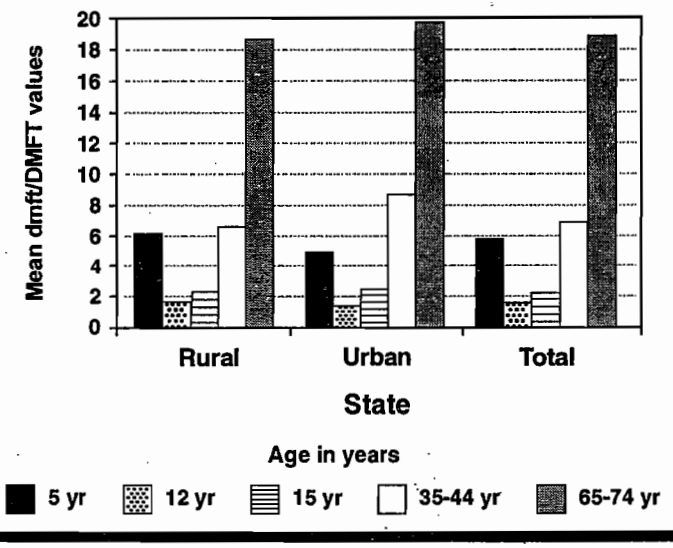
The decayed; missing and filled components were all higher in the urban area as compared to the rural area, except the missing component (extracted because of decay) which was higher in the rural (14.9) as compared to the urban (12.5)

The missing component among 65-74 yr females was higher in the urban area (16.4) as compared to the rural area (15.6)

The filled component was higher among the 65-74 urban males (0.8) and urban females (0.1) when compared to the rural area where none received dental fillings.

This suggests that 65-74 yr old males & females in both the urban & rural areas presented for treatment at a very advanced stage of the disease which is reflected in only a very small component of filled teeth in the urban area & very large number of missing (extracted) teeth in both the urban & rural areas

Fig 6.02. Mean dmft/DMFT in Goa



Or giving only a very small number of teeth the chance of being salvaged with a filling while for a very large component of teeth the only treatment alternative that remained was an extraction thus contributing to the missing component.

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

Missing Teeth		12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	107	106	*213*	107	104	*211*	107	108	*215*	101	106	*207*
Mean no. of teeth missing due to caries		0.1	0.0	*0.1*	0.0	0.0	*0.0*	0.9	1.9	*1.4*	5.8	6.5	*6.2*
Mean no. of teeth missing due to other reasons		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.9	1.6	*1.3*	9.1	9.1	*9.1*
State Urban	n=	27	27	*54*	28	29	*57*	27	30	*57*	31	26	*57*
Mean no. of teeth missing due to caries		0.0	0.0	*0.0*	0.1	0.0	*0.1*	1.9	2.5	*2.2*	9.0	10.6	*9.8*
Mean no. of teeth missing due to other reasons		0.0	0.0	*0.0*	0.1	0.0	*0.1*	1.9	1.7	*1.8*	3.5	5.9	*4.7*
State Total	n=	134	133	*267*	135	133	*268*	134	138	*272*	132	132	*264*
Mean no. of teeth missing due to caries		0.0	0.0	*0.0*	0.1	0.0	*0.1*	1.1	2.0	*1.6*	6.4	7.1	*6.8*
Mean no. of teeth missing due to other reasons		0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.1	1.6	*1.4*	8.1	8.6	*8.4*

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

6.1.2. Root caries

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

The Root Caries, does not appear in children and young adults. Therefore the data on root caries is presented only for the two age groups of 35-44 years and 65-74 year.

On examination, it was noted that in the 35-44 year age group 28% males and 40.7% females in the rural area and 33.3% males and 46.7% females in the rural area had evidence of root caries. Females in this age group had more root caries than males.

This finding was greater in the 65-74 year age group where 50% males na 48.1% females in the rural area had rood caries and 54.8 males and 51.9% females in the urban area had root caries. The males had a marginally greater percentage of root caries than the females.

The prevalence of root caries seemed to be higher in the urban area than the rural area. However, none of the subjects in both the urban and rural area in either of the age groups had root filings as treatment for root caries.

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

Root Caries		35-44 years			65-74 years		
		M	F	T	M	F	T
State Rural	n=	107	108	*215*	102	108	*210*
% Subjects with Root caries		28.0	40.7	*34.4*	50.0	48.1	*49.1*
Mean nos of teeth with Root Caries		0.9	1.6	*1.3*	2.7	2.4	*2.6*
% Subjects with Root fillings		0.0	0.0	*0.0*	0.0	0.0	*0.0*
Mean nos of teeth with Root fillings		0.0	0.0	*0.0*	0.0	0.0	*0.0*
State Urban	n=	27	30	*57*	31	27	*58*
% Subjects with Root caries		33.3	46.7	*40.0*	54.8	51.9	*53.4*
Mean nos of teeth with Root Caries		0.6	2.0	*1.3*	2.7	2.9	*2.8*
% Subjects with Root fillings		0.0	0.0	*0.0*	0.0	0.0	*0.0*
Mean nos of teeth with Root fillings		0.0	0.0	*0.0*	0.0	0.0	*0.0*
State Total	n=	134	138	*272*	133	135	*268*
% Subjects with Root caries		28.9	41.7	*35.3*	50.9	48.7	*49.8*
Mean nos of teeth with Root Caries		0.9	1.7	*1.3*	2.7	2.5	*2.6*
% Subjects with Root fillings		0.0	0.0	*0.0*	0.0	0.0	*0.0*
Mean nos of teeth with Root fillings		0.0	0.0	*0.0*	0.0	0.0	*0.0*

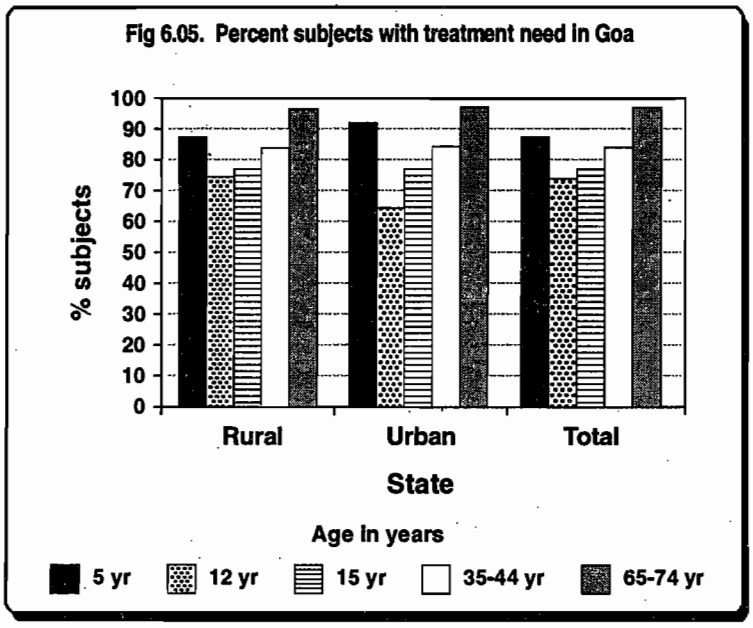
6.1.3 Treatment need

Table 6.05 Fig. 6.05 present the percent subjects requiring preventive and treatment care by type of treatment needed, and Table 6.06 & Fig. 6.06 present 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.

5 yrs

Treatment need among the 5 yr olds was higher for both boys (92.9%) and girls (89.3%) in the urban area as compared to boys (85.3%) and girls (88.9%) in the rural area.



Of the 85.3% 5 yr boys in the rural area who needed treatment 83.3% needed fillings of one or more surfaces 37.3% needed pulp care, 18.6 needed extractions and only 1% needed preventive care & fissure sealant.

88.9% of the 5 yr girls in the rural area needed treatment of which 85.5% need filling of one or more surfaces, 50.9% needed pulp care, 21.3% needed extractions, 5.6% needed preventive care & fissure sealant, 1.5% need a crown or veneer.

In the rural area, the greatest need was for one or more surface restoration which was higher among males (83.3%) than females (81.5%)

There was also a great need for pulp care and extraction which in contrast was higher in females (50.9%, 21.3%) as compared to males (37.3% & 18.6%).

A few needed preventive care and fissure sealant, crown or veneer.

Similarly in the urban area, the greatest need was for one or more surface restoration which was higher among males (89.3%) than females (82.1%)

In contrast the need for pulp care and extraction was higher in females (53.6%, 14.3%) as compared to males (39.3% & 3.6%).

None in the urban area needed preventive care or fissure sealant, crown or veneer or any other care.

The 5 yr old boys in the rural area had an average of 6 teeth that needed treatment of which an average of 6 teeth that needed treatment of which an average of 4.2 teeth needed fillings of one or more surfaces 1.3 needed pulp care & 0.4 teeth needed extractions.

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

Treatment Need		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	*210*	107	106	*213*	107	104	*211*	107	108	*215*	102	108	*210*
Treatment needed		85.3	88.9	*87.1*	76.6	73.6	*75.1*	74.8	79.8	*77.3*	81.3	87.0	*84.2*	96.1	96.3	*96.2*
Preventive care & fissure sealant		1.0	5.6	*3.3*	33.6	39.6	*36.6*	36.4	38.5	*37.5*	9.3	2.8	*6.1*	0.0	0.0	*0.0*
Filling one or more surfaces		83.3	81.5	*82.4*	32.7	42.5	*37.6*	57.9	52.9	*55.4*	52.3	59.3	*55.8*	15.7	16.7	*16.2*
Crown & Veneer		0.0	1.9	*1.0*	0.9	0.9	*0.9*	0.0	1.9	*1.0*	0.9	1.9	*1.4*	0.0	0.0	*0.0*
Pulp care		37.3	50.9	*44.1*	15.0	15.1	*15.1*	18.7	29.8	*24.3*	21.5	21.3	*21.4*	4.9	1.9	*3.4*
Extraction		18.6	21.3	*20.0*	43.9	30.2	*37.1*	22.4	26.9	*24.7*	47.7	51.9	*49.8*	67.6	77.8	*72.7*
Need for other care		0.0	0.0	*0.0*	3.7	2.8	*3.3*	0.9	5.8	*3.4*	49.5	60.2	*54.9*	89.2	91.7	*90.5*
State Urban	n=	28	28	*56*	27	27	*54*	28	29	*57*	27	30	*57*	31	27	*58*
Treatment needed		92.9	89.3	*91.1*	66.7	63.0	*64.9*	75.0	79.3	*77.2*	81.5	86.7	*84.1*	100.0	92.6	*96.3*
Preventive care & fissure sealant		0.0	0.0	*0.0*	25.9	37.0	*31.5*	32.1	27.6	*29.9*	7.4	10.0	*8.7*	0.0	0.0	*0.0*
Filling one or more surfaces		89.3	82.1	*85.7*	18.5	25.9	*22.2*	46.4	62.1	*54.3*	59.3	63.3	*61.3*	29.0	18.5	*23.8*
Crown & Veneer		0.0	0.0	*0.0*	3.7	0.0	*1.9*	3.6	0.0	*1.8*	7.4	0.0	*3.7*	0.0	0.0	*0.0*
Pulp care		39.3	53.6	*46.5*	7.4	14.8	*11.1*	32.1	17.2	*24.7*	14.8	26.7	*20.8*	16.1	3.7	*9.9*
Extraction		3.6	14.3	*9.0*	44.4	22.2	*33.3*	35.7	24.1	*29.9*	63.0	66.7	*64.9*	67.7	74.1	*70.9*
Need for other care		0.0	0.0	*0.0*	0.0	3.7	*1.9*	17.9	3.4	*10.7*	70.4	70.0	*70.2*	96.8	92.6	*94.7*
State Total	n=	130	136	*266*	134	133	*267*	135	133	*268*	134	138	*272*	133	135	*268*
Treatment needed		86.5	89.0	*87.8*	75.1	71.9	*73.5*	74.8	79.7	*77.3*	81.3	87.0	*84.2*	96.8	95.7	*96.3*
Preventive care & fissure sealant		0.8	4.7	*2.8*	32.5	39.2	*35.9*	35.8	36.6	*36.2*	9.0	4.0	*6.5*	0.0	0.0	*0.0*
Filling one or more surfaces		84.3	81.6	*83.0*	30.5	39.9	*35.2*	56.1	54.4	*55.3*	53.4	59.9	*56.7*	18.1	17.0	*17.6*
Crown & Veneer		0.0	1.6	*0.8*	1.4	0.8	*1.1*	0.6	1.6	*1.1*	1.9	1.5	*1.7*	0.0	0.0	*0.0*
Pulp care		37.6	51.3	*44.5*	13.8	15.1	*14.5*	20.8	27.7	*24.3*	20.5	22.2	*21.4*	6.9	2.1	*4.5*
Extraction		16.1	20.2	*18.2*	44.0	28.9	*36.5*	24.5	26.5	*25.5*	50.0	54.3	*52.2*	67.7	77.2	*72.5*
Need for other care		0.0	0.0	*0.0*	3.2	3.0	*3.1*	3.6	5.4	*4.5*	52.8	61.8	*57.3*	90.6	91.8	*91.2*

Similarly 5 yr old girls in the rural area had an average of 6.2 teeth that needed dental treatment of which 4.0 teeth needed fillings of one or more surfaces, 1.6 teeth needed pulp care, 0.5 teeth needed extractions and 0.1 teeth needed preventive care / fissure sealant.

The 5 yr old boys in the urban area had an average of 5.7 teeth that needed dental treatment of which an average of 4.0 teeth needed fillings of one or more surfaces, 1.5 teeth needed pulp care & 0.2 teeth needed extractions.

The 5 yr old girls in the urban area had an average of 4.3 teeth that needed dental treatment of which 2.8 teeth needed fillings of one or more surfaces, 1.3 teeth needed pulp care & 0.2 teeth needed extractions.

Similar to the pattern in the rural area in the urban area among both the 5 yr boys & girls of the teeth that needed treatment most required fillings (4.0 & 2.8), followed by pulp care (1.5 & 1.3) and extractions (0.2 & 0.2).

12 yrs

In contrast to the 5 yr olds, the 12 yr old boys (76.6%) and girls (73.6%) in the rural area had greater treatment need than the boys (66.7%) and girls (63.0%) in the urban area.

Of the 76.6% of 12 yr boys in the rural area who needed treatment 43.9% needed extractions, 33.6% needed preventive care and fissure sealants 32.7% needed fillings of one or more surfaces 15% needed pulp care, 0.9% needed crown & veneer and 3.7%needed other care.

Of the 73.6% 12 yr girls in the rural area who needed dental treatment 42.5% needed fillings of one or more surfaces, 39.6% needed preventive care and fissure sealants, 30.2% required extractions, 15.1% needed pulp care, 0.9% needed crown & veneer and 2.8% needed other care.

In the rural area the greatest treatment need among boys was for extractions, while among the girls the greatest need was for fillings of one or more surfaces.

This was followed by the need of preventive care & fissure sealants among both boys and girls.

Of the 66.7% 12 yr boys in the urban area needing dental treatment 44.4% needed extractions, 25.9% needed preventive care and fissure sealants, 18.5% needed filling for one or more surfaces, 7.4% needed pulp care and 3.7%needed crowns or veneers

Of the 63.0% 12 yr girls in the urban needing dental treatment 37.0% needed preventive care & fissure sealants, 25.9% needed fillings for one or more surfaces, 22.2% needed extractions and 14.8% needed pulp care.

12 yr boys in the urban area had a larger component of the very advances stage of dental decay where double the number of teeth (44.4%) were condemned to the extraction forcep as compared to the 12 yr girls in the urban area (22.2%).

The 12 yr old boys in the rural area had on an average 2.6 teeth that needed dental treatment, of which 0.9 teeth needed extractions, 0.7 teeth needed preventive care / fissure sealant fillings of one or more surfaces, 0.2 teeth needed pulp care and 0.1 needed other care.

The 12 yr old girls in the rural area had an average of 2.5 teeth that needed dental treatment of which 0.8 teeth needed fillings of one or more surfaces 0.7 teeth needed preventive care / fissure sealant & extraction and 0.2 teeth needed pulp care.

In the rural area among both the 12 yr old boys & girls , the mean no. of teeth needing Preventive care / fissure sealants, fillings of one or more surfaces and extractions was approximately the same. (Between 0.7 to 0.9 teeth on an average)

The 12 yr old boys in the urban area had aon an average 2.1 teeth that required dental treatment of which 1.3 teeth needed extraction, 0.3 teeth needed preventive care / fissure sealant and filling of one or more surfaces and 0.1 teeth needed pulp care.

The 12 yr old girls in the urban area had an average of 1.7 teeth that needed dental treatment of which a mean of 0.5 teeth needed preventive care / fissure sealant fillings of one or more surfaces and extractions, 0.2 teeth needed pulp care.

In the urban area among the 12 yr old boys of the teeth that needed treatment most needed extractions (1.7) while among the girls an equal no. of teeth (0.5) needed preventive care / fissure sealants, fillings of one or more surfaces and extractions.

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

Treatment Need		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	*210*	107	106	*213*	107	104	*211*	107	108	*215*	101	106	*207*
Treatment needed		6.0	6.2	*6.1*	2.6	2.5	*2.6*	2.8	3.3	*3.1*	4.5	7.5	*6.0*	18.7	19.9	*19.3*
Preventive care/ fissure sealant		0.0	0.1	*0.1*	0.7	0.7	*0.7*	0.8	0.9	*0.9*	0.1	0.1	*0.1*	0.0	0.0	*0.0*
Filling one or more surfaces		4.2	4.0	*4.1*	0.7	0.8	*0.8*	1.3	1.2	*1.3*	1.1	1.8	*1.5*	0.2	0.4	*0.3*
Crown/ Veneer		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Pulp care		1.3	1.6	*1.5*	0.2	0.2	*0.2*	0.3	0.4	*0.4*	0.3	0.3	*0.3*	0.1	0.0	*0.1*
Extraction		0.4	0.5	*0.5*	0.9	0.7	*0.8*	0.4	0.5	*0.5*	1.3	2.3	*1.8*	5.3	6.0	*5.7*
Need for other care		0.0	0.0	*0.0*	0.1	0.0	*0.1*	0.0	0.2	*0.1*	1.6	3.1	*2.4*	13.2	13.6	*13.4*
State Urban	n=	28	28	*56*	27	27	*54*	28	29	*57*	27	30	*57*	31	26	*57*
Treatment needed		5.7	4.3	*5.0*	2.1	1.7	*1.9*	2.9	2.5	*2.7*	6.4	8.4	*7.4*	16.5	20.3	*18.4*
Preventive care/ fissure sealant		0.0	0.0	*0.0*	0.3	0.5	*0.4*	0.6	0.4	*0.5*	0.1	0.1	*0.1*	0.0	0.0	*0.0*
Filling one or more surfaces		4.0	2.8	*3.4*	0.3	0.5	*0.4*	1.1	1.4	*1.3*	1.5	1.8	*1.7*	0.7	0.3	*0.5*
Crown/ Veneer		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.1	0.0	*0.1*	0.0	0.0	*0.0*
Pulp care		1.5	1.3	*1.4*	0.1	0.2	*0.2*	0.4	0.2	*0.3*	0.2	0.4	*0.3*	0.2	0.0	*0.1*
Extraction		0.2	0.2	*0.2*	1.3	0.5	*0.9*	0.5	0.3	*0.4*	1.4	2.5	*2.0*	5.3	5.7	*5.5*
Need for other care		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.2	0.0	*0.1*	3.0	3.5	*3.3*	10.4	14.2	*12.3*
State Total	n=	130	136	*266*	134	133	*267*	135	133	*268*	134	138	*272*	132	132	*264*
Treatment needed		5.9	5.9	*5.9*	2.6	2.4	*2.5*	2.8	3.1	*3.0*	4.8	7.7	*6.3*	18.3	20.0	*19.2*
Preventive care/ fissure sealant		0.0	0.1	*0.1*	0.7	0.7	*0.7*	0.8	0.9	*0.9*	0.1	0.1	*0.1*	0.0	0.0	*0.0*
Filling one or more surfaces		4.2	3.8	*4.0*	0.6	0.7	*0.7*	1.3	1.3	*1.3*	1.1	1.8	*1.5*	0.3	0.4	*0.4*
Crown/ Veneer		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Pulp care		1.3	1.6	*1.5*	0.2	0.2	*0.2*	0.3	0.4	*0.4*	0.3	0.3	*0.3*	0.1	0.0	*0.1*
Extraction		0.4	0.5	*0.5*	1.0	0.7	*0.9*	0.4	0.5	*0.5*	1.3	2.3	*1.8*	5.3	5.9	*5.6*
Need for other care		0.0	0.0	*0.0*	0.1	0.0	*0.1*	0.0	0.2	*0.1*	1.8	3.1	*2.5*	12.7	13.7	*13.2*

15 yrs

In the 15 yr age group, the treatment need among boys was marginally higher in urban area (75.0%) as compared to the urban area (74.8%)

In contrast the treatment need among the girls was marginally higher in the rural area (79.8%) as compared to the urban area (79.3%).

Of the 15 yr boys in the rural area who required dental treatment, 57.9% needed fillings for one or more surfaces, 36.4% needed preventive care and fissure sealants, 22.4% required extractions, 18.7% needed pulp care & 0.9% needed other care.

Of the 15 yr girls who needed dental treatment in the rural area 52.9% needed fillings for one or more surfaces, 38.5% needed preventive care & fissure sealants, 29.8% needed pulp care, 26.9% needed extractions, 1.9% needed crowns or veneers and 5.8% needed other care.

Fillings of one or more surfaces was the greatest type of treatment need for both the 15 yr old boys and girls in the rural area.

75% of the 15 yr boys in the urban area needed dental treatment of which 46.4% needed fillings of one or more surfaces. 35.7% needed extractions, 32.1% needed pulp care; 32.1% also needed preventive care & fissure sealants, 3.6% needed crowns or veneer and 17.9% needed other care.

Among the 79.3% 15 year girls in the urban area who needed dental treatment, 62.1% needed filling for one or more surfaces, 27.6% needed preventive care and fissure sealants, 24.1% needed extractions, 17.2% needed pulp and 3.4% needed other care.

In the urban area the greatest type of treatment needed by both the 15 yr old boys and girls was for fillings of one or more surfaces (46.4% and 62.1%).

In the urban area the need for pulp care & extractions (32.1% & 35.7%) was higher among the boys than the girls (17.2% and 24.1%).

The 15 yr old boys in the rural area had an average of 2.8 teeth that needed dental treatment of which 1.3 teeth needed dental treatment of which 1.3 teeth needed filling of one or more surfaces, 0.8 needed preventive care / fissure sealant, 0.4 needed extraction and 0.3 needed pulp care.

Similarly among the 15 yr old girls in the rural area 3.3 teeth needed dental treatment of which 1.2 teeth needed filling of one or more surfaces, 0.9 teeth needed preventive care / fissure sealant, 0.5 teeth needed extraction, 0.4 teeth needed pulp care and 0.2 teeth had need for other care.

In the rural area, among both the 15 yr old boys & girls of the teeth that needed treatment, most needed filling of one or more surfaces (1.3 & 1.2) followed by preventive care / fissure sealant (0.8 & 0.9)

The 15 yr old boys in the urban area had an average of 2.9 teeth that needed dental treatment of which 1.1 teeth needed filling of one or more surfaces, 0.6 teeth needed preventive care / fissure sealant, 0.5 teeth needed extraction, 0.4 teeth needed pulp care and 0.2 needed other care.

The 15 yr old girls in the urban area had an average of 2.5 teeth that needed dental treatment of which 1.4 teeth needed filling of one or more surfaces, 0.4 teeth needed preventive care / fissure sealant 0.3 teeth needed extraction and 0.2 teeth needed pulp care.

Similar to the needs of the 15 yr olds in the rural area, of the mean no. of teeth among the 15 yr old boys & girls that needed treatment, most needed filling (1.1 & 1.4) followed by preventive care / fissure sealant (0.6 & 0.4).

35-44 yrs

In the 35-44 yr age group, the treatment needed among the males was marginally higher in the urban area (79.8%) as compared to the rural area (79.3%)

In contrast the treatment need among the females was marginally higher in the rural area (87.0%) as compared to the urban area (86.7%)

Among the (81.3%) 35-44 yr rural males who needed dental treatment the greatest need was for fillings of one or more surfaces (52.3%) followed by extractions (47.7%) pulp care (21.5%) preventive care and fissure sealants (9.3%) and crowns & veneers (0.5%). 49.5% of these 35-44 yr also had a need for other care which included dental prosthesis.

87.0% of the 35-44 yr old females in the rural area needed dental treatment of which 59.3% needed filling of one or more surfaces, 51.9% needed extractions, 21.9% needed pulp care, 2.8% needed preventive care & fissure sealant and 1.9% needed crown or veneer. 60.2% also needed other care like dental prosthesis.

81.5% of the 35-44 yr old urban males needed dental treatment of which 63% needed extractions, 59.3% needed fillings of one or more surfaces, 14.8% needed pulp care and 7.4% needed pulp care and crowns and veneers each.

70.4% also needed other care like dental prosthesis.

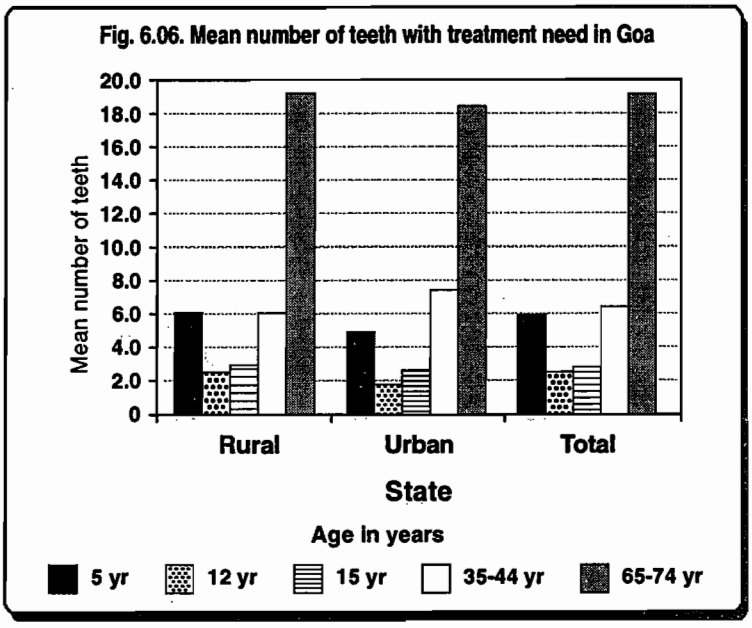
Of the 86.7%, 35-44 yr old urban females who needed dental treatment, 66.7% needed extractions, 63.3% needed fillings of one or more surfaces, 26.7% needed pulp care and 10% needed preventive care & fissure sealants.

70.0% also had need of other care like dental prosthesis.

Among the 35-44 yr olds in the rural area the greatest type of treatment need among both the males & females was fillings of one or more surfaces (52.3% & 59.3%) followed by the need for extractions (47.7% & 51.9%).

Extractions were the greatest treatment need among the 35-44 yr old males & females in the urban area (63.0% & 66.7%). This was followed by the need for fillings of one or more surfaces (59.3% & 63.3%) & pulp care (14.8% & 26.7%).

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



The need for fillings of one or more surfaces and extractions was higher among the females as compared to 35-44 yr males in both the rural and urban areas of Goa.

The 35-44 yr old males in the rural area had an average of 4.5 teeth that needed treatment of which 1.3 teeth needed extraction, 1.1 needed filling of one or more surfaces, 0.3 needed pulp care.

An average of 1.6 teeth also needed other care, which included dental prosthesis.

The 35-44 yr old females in the rural area had an average of 7.5 teeth that needed dental treatment of which 2.3 teeth needed extraction, 1.8 teeth needed fillings, 0.3 teeth needed pulp care.

An average of 3.1 teeth also needed other care, which included dental prosthesis.

Among the 35 – 44 yr old males & females in the rural area, of the teeth that needed treatment, most (1.6 & 3.1) needed replacement (prosthesis). This was in keeping with the higher no. of teeth that needed extraction (1.3 & 2.3) when compared to the younger age groups. [5 yrs (0.4 & 0.5),12 yrs (0.9 & 0.7) and 15 yrs (0.4 & 0.5)]. The pre existing edentulous space from previous extraction would also add up of teeth needing extraction followed (1.3 & 2.3)

The 35-44 yr old urban males had an average of 6.4 teeth that needed treatment of which 1.5 teeth needed fillings, 1.4 teeth needed extraction, 0.2 teeth needed pulp care and 0.1 teeth needed a crown / veneer.

An average of 3.0 teeth needed other care like a prosthesis.

The 35-44 yr old females in the urban area had an average teeth that needed treatment of which 2.5 needed extraction, 1.8 teeth needed fillings, 0.4 teeth needed pulp care.

A high no. of teeth (3.5) needed other care like dental prosthesis.

Similar to the findings in the rural area, of the teeth that needed treatment among the 35-44 yr old males & females in the urban area, most needed prosthetic replacement (3.0 & 3.5). This need was even higher that the need in the rural area (1.6 & 3.1).

This was in keeping with the higher no. of teeth that needed extraction (1.4 & 2.50 as compared to the younger age groups [5 yr (0.2 & 0.2) 12 yrs (1.3 & 0.5) 15 yrs (0.5 & 0.3)].

The pre-existing edentulous spaces because of previous extractions would also add up.

Overall the mean no. of teeth needing treatment was higher in the urban area (6.4 & 8.4) as compared to the rural area (4.5 & 7.5).

This need was uniformly reflected in all areas whether it was the need for filling [urban (1.5 & 1.8) rural (1.1 & 1.8)] extraction [Urban (1.4 & 2.5) Rural (1.3 & 2.3) or other care (prosthetic need) [Urban (3.0 & 3.5) Rural (1.6 & 3.1)].

65-74 yrs

Treatment need among the 65-74 yr old males & females was higher in the urban area (100% & 92.6%) as compared to the rural area (96.1% & 96.3%)

Of the 96.1% 65-74 yr rural males, 67.6% needed extractions, 15.7% needed fillings of one or more surfaces and 4.9% needed pulp care.

89.2% also needed other care like dental prosthesis.

96.3% of 65-74 yr rural females needed dental treatment of which 77.8% needed extractions, 16.7% needed fillings of one or more surfaces and 1.9% needed pulp care.

91.7% also had need for other care which included dental prosthesis.

The greatest type of treatment needed by both the 65-74 yr males and females in the rural area was extractions (67.6% & 77.8%) followed by filling of one or more surfaces (15.7% & 16.7%)

All the 65-77 yr old males (100%) in the urban area who needed dental treatment of which 67.7% needed extractions, 29.0% needed fillings of one or more surfaces and 16.1% needed pulp care.

96.8% needed other care most of which was for dental prosthesis.

Of the 92.6% of 65-74 yr old females in the urban area who needed dental treatment 74.1% needed extractions, 18.5% needed fillings of one or more surfaces & 3.7% needed pulp care.

92.6% also had need for other care like dental prosthesis.

Dental extractions were also the greatest need among the 65-74 yr old males & females in the urban area (67.7% & 74.1%) followed by fillings of one or more surfaces (29.0% & 18.5%).

This was similar in the needs in the rural area.

The need for dental extractions was higher among females in both the rural & urban areas (77.8% & 74.1%) area as compares to males (67.6% & 67.7%).

Similarly in the rural area the need for filling of one or more surfaces was marginally higher among the 65-74 yr old females (16.7%) as compared to males (15.7%).

However in the urban area the need for filling of one or more surfaces was higher among the 65-74 yr old males (29.0%) as compared to females (18.5%).

The 65-74 yr old rural males had an average of 18.7 teeth that needed treatment of which 13.2 teeth that needed treatment of which 13.2 teeth needed other care which was basically prosthetic need. This was followed by the 5.3 teeth that needed to be extracted, 0.2 teeth that needed a filling and 0.1 teeth that needed pulp care.

The 65-44 yr old rural females had an average of 19.9 teeth that needed treatment of which 13.6 teeth needed other care which was basically prosthetic need. This was followed by the 6.0 teeth that needed to be extracted & o.4 teeth that needed to be filled.

Among both the 65-74 yr old males & females in the rural area of the teeth that needed treatment, most (13.2 & 13.6) needed replacement (prosthesis), followed by extractions (5.3 & 6.0) and fillings (0.2 & 0.4).

Whether prosthetic replacement, extraction or fillings the need was marginally higher among females than males.

The very high number of teeth needing replacement (prosthesis) in this age group was reflected by the high number of teeth needing extraction (5.3 & 6.0) plus the cumulative score of the numerous pre-existing edentulous areas from previous extractions (extraction was still the treatment of choice till about 20 yrs back in Goa.)

The 65-44 yr old males in the urban area had an average of 16.5 teeth that needed treatment of which 10.4 teeth needed other care which was in essence prosthetic need. This was followed by 5.3 teeth which needed extraction, 0.7 teeth that needed filling & 0.2 teeth that needed pulp care.

The 65-74 yr old females in the urban area had an average of 20.3 teeth that needed treatment, of which 14.2 teeth needed other care which was basically prosthetic need, followed by 5.7 teeth that needed extraction & 0.3 teeth that needed a filling.

Very similar to the findings in the rural area, among both the 65-74 yr old males & females in the urban area, of the teeth that needed dental treatment most (10.4 & 14.2) needed other care which was essentially the need for dental prosthesis followed by the need for extraction (5.3 & 5.7) and fillings (0.7 & 0.3) and like in the rural area, it was in keeping with the higher no. of teeth needing extraction (5.3 & 5.7) plus the cumulative score of the many pre-existing edentulous spaces from previous extractions.

It may be noted that extractions was the treatment of choice till about 20 yr back, which may explain the higher numbers of teeth requiring prosthetic replacement.

Among the 65-74 yr old in the urban area while the need for fillings was greater among males (0.7) than females (0.3), the need for extractions and prosthetic replacement was higher among the females (5.7 & 14.2) as compared to males (5.3 & 10.4)

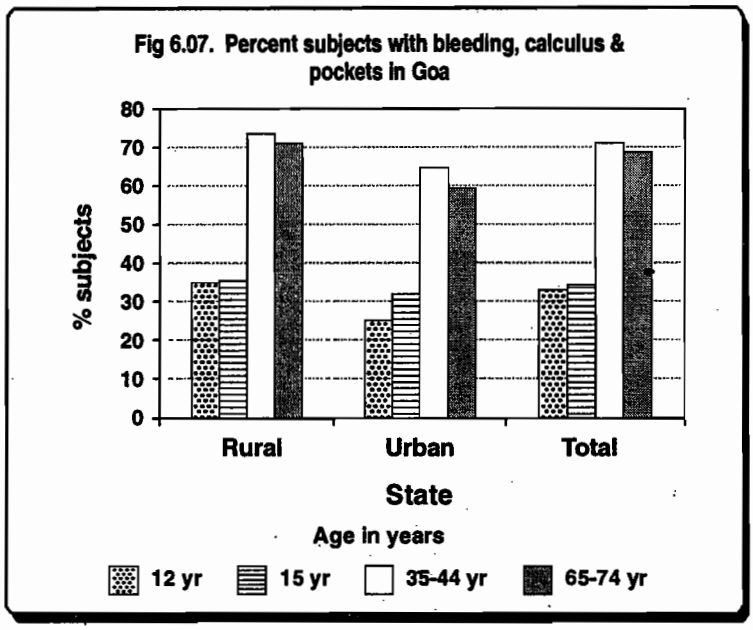
Over all in this age group among males, the treatment need was greater in the rural (18.7) than urban (16.5) area, while among the females, the treatment need was higher in the urban area (20.3) as compares to the rural area (19.9).

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 & Fig. 6.07 present the percentage of subjects with periodontal disease (bleeding, calculus and pockets) by level of severity, listed by a) individual variables (bleeding, calculus and pocket depth), and b) each variable taken in combination with the higher variables (bleeding or higher, calculus or higher, pockets 4-5 mm or higher, and pockets 6 mm only). The percentage of subjects with bleeding, calculus and/or pockets, indicating the presence of periodontal disease in a subject, equals the total of the figures under b) above. Table 6.08 & Fig. 6.08 present the mean number of teeth with bleeding, calculus and pockets. WHO recommends recording only bleeding and calculus in 5 and 12 year old subjects and this has been considered during field examinations and in course of this report.



In the 5yr age group, none of the rural as well as urban males or females had bleeding, calculus or pockets.

In the 12 yr. age group, 39.3% of the rural males had calculus, and 30.2% of the rural females had calculus.

Similarly, 22.2% of the 12 yr. old urban males had calculus and 29.6% of the 12 yr old urban females had calculus deposits. In the 12 yr. old rural males a mean of 0.9 sextants had calculus and 0.7 sextants in 12 yr. old rural females had calculus.

Similarly, 12 yr. old urban males had an average of 0.5 sextants with calculus and 12 yr. old urban females had an average of 0.4 sextants with calculus.

Among the 15 yr. age group, 39.6% rural males had bleeding and /or calculus and/or pockets of which 38.7% had calculus and 0.9% had shallow pockets.

31.7% of the 15 yr. old rural females had bleeding and / or calculus and / or pockets of which 1.0% had bleeding and 30.8% had calculus.

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

Periodontal disease		12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	107	106	213	106	104	210	106	107	213	74	73	147
With bleeding,calculus, or pockets		39.3	30.2	34.8	39.6	31.7	35.7	75.5	71.0	73.3	77.0	64.4	71.0
with bleeding		0.9	0.0	0.5	2.8	1.9	2.4	0.9	0.9	0.9	1.4	1.4	1.4
with calculus		39.3	30.2	34.8	38.7	30.8	34.8	71.7	69.2	70.5	73.0	63.0	68.0
with pockets 4-5 mm		NA	NA	NA	0.9	0.0	0.5	10.4	15.0	12.7	12.2	6.8	9.5
with pockets 6 mm		NA	NA	NA	0.0	0.0	0.0	0.9	0.9	0.9	2.7	1.4	2.1
with bleeding or higher		0.9	0.0	0.5	2.8	1.9	2.4	0.9	0.9	0.9	1.4	1.4	1.4
with calculus or higher		38.3	30.2	34.3	36.8	29.8	33.3	70.8	68.2	69.5	71.6	61.6	66.6
with pockets 4-5 mm or higher		NA	NA	NA	0.0	0.0	0.0	3.8	1.9	2.9	2.7	1.4	2.1
with pockets 6mm		NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	1.4	0.0	0.7
State Urban	n=	27	27	54	28	29	57	27	30	57	29	21	50
With bleeding,calculus, or pockets		22.2	29.6	25.9	39.3	24.1	31.7	55.6	73.3	64.5	62.1	57.1	59.6
with bleeding		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 calculus		22.2	29.6	25.9	39.3	24.1	31.7	48.1	66.7	57.4	58.6	52.4	55.5
with pockets 4-5 mm		NA	NA	NA	0.0	0.0	0.0	11.1	13.3	12.2	3.4	4.8	4.1
with pockets 6 mm		NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	3.4	0.0	1.7
with bleeding 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
with calculus or higher		22.2	29.6	25.9	39.3	24.1	31.7	48.1	66.7	57.4	58.6	52.4	55.5
with pockets 4-5 mm or higher		NA	NA	NA	0.0	0.0	0.0	7.4	6.7	7.1	3.4	4.8	4.1
with pockets 6mm		NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total	n=	134	133	267	134	133	267	133	137	270	103	94	197
With bleeding,calculus, or pockets		36.6	30.1	33.4	39.6	30.5	35.1	72.4	71.4	71.9	73.7	63.1	68.4
with bleeding		0.8	0.0	0.4	2.4	1.6	2.0	0.8	0.8	0.8	1.1	1.1	1.1
with calculus		36.6	30.1	33.4	38.8	29.7	34.3	68.0	68.7	68.4	69.8	61.2	65.5
with pockets 4-5 mm		NA	NA	NA	0.8	0.0	0.4	10.5	14.7	12.6	10.2	6.5	8.4
with pockets 6 mm		NA	NA	NA	0.0	0.0	0.0	0.8	0.8	0.8	2.9	1.1	2.0
with bleeding or higher		0.8	0.0	0.4	2.4	1.6	2.0	0.8	0.8	0.8	1.1	1.1	1.1
with calculus or higher		35.8	30.1	33.0	37.2	28.9	33.1	67.2	68.0	67.6	68.7	60.0	64.4
with pockets 4-5 mm or higher		NA	NA	NA	0.0	0.0	0.0	4.3	2.7	3.5	2.9	2.0	2.5
with pockets 6mm		NA	NA	NA	0.0	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.6

Of the 15 yr. old urban males 39.3% had calculus and 24.1 % urban females had calculus.

75.5% of 35-44 yr. old rural males had bleeding and / or calculus and / or pockets of which 58.5% had calculus, 9.4% had shallow pockets and 0.9% had deep pockets.

Similarly, 71.0% of 35-44 yr. old rural females had bleeding and / or calculus and / or pockets of which 51.4% had calculus, 12.1 % had shallow pockets and 0.9% had deep pockets.

Of the 35-44 yr. old urban males, 55.6% had bleeding and / or calculus and / or pockets of which 44.4% had calculus and 11.1% had shallow pockets.

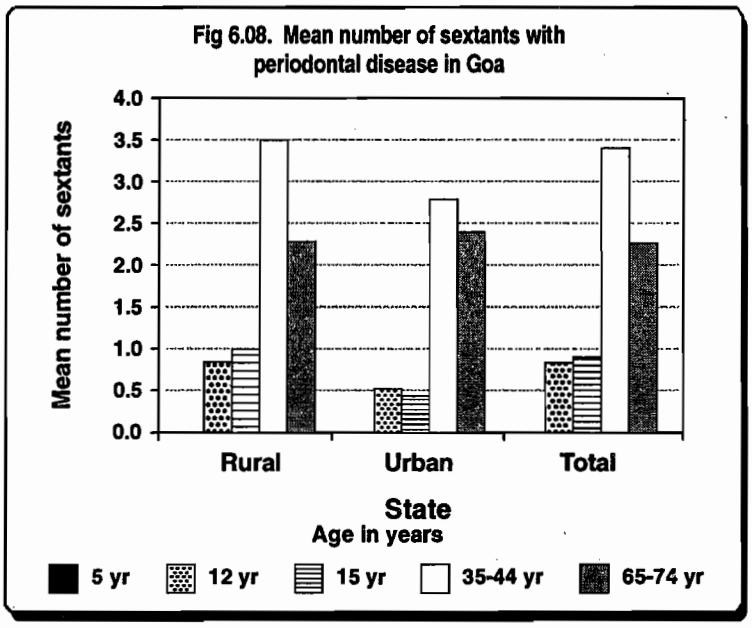
Among the 35-44 yr. old urban females 73.3% had bleeding and / or calculus and / or pockets of which 56.7% had calculus and 10.0% had shallow pockets.

In the 65-74 yr. age group 77.0% of rural males had bleeding and / or calculus and / or pockets of which 41.9% had calculus, 8.1% had shallow pockets and 1.4% had deep pockets.

64.4% of the 65-74 yr old rural females had bleeding and / or calculus and / or pockets of which 39.7% had calculus and 5.5 % had shallow pockets.

62.1% of the 65-74 yr. old urban males had bleeding and / or calculus and / or pockets of which 51.7% had calculus and 3.4% had deep pockets.

57% of the 65-74 yr. old urban females had bleeding and / or calculus and / or pockets of which 47.6% had calculus and 4.8% had shallow pockets.



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, i.e., sextants with bleeding, calculus and/ or pockets was highest in 35-44 year old subjects (4.8) followed by the 15 year old subjects (2.9). The mean number of sextants with bleeding was the highest in the lower age groups of 5, 12 and 15 years and ranged from 0.3 to 1.8 teeth. In the higher age groups of 35-44 years and 65-74 years, the mean number of sextants was highest followed by bleeding and pockets (4-5 mm). The mean number of sextants with pockets of depth 4-5 mm and 6 mm was the lowest in the higher age groups.

In the 15 yr. old rural males, 0.1 sextants had bleeding and 1.2 sextants had calculus.

The 15 yr. old rural females had a mean of 0.6 sextants with calculus.

The 15 yr. old rural males had a average of 0.6 sextants with calculus.

Similarly in 15 yr. old urban females 0.2 sextants had calculus.

Of the 35-44 yr. old rural males an average of 3.2 sextants had calculus and 0.2 sextants had pockets (4-5 mm).

Similarly, of the 35-44 yr. old rural females an average of 3.0 sextants had calculus and 0.3 sextants had pockets (4-5 mm)

Of the 35-44 yr. old urban males a mean of 2.0 sextants had calculus and 0.3 sextants had pockets (4-5 mm)

Similarly, the 35-44 yr. old urban females had on an average 2.9 sextants with calculus, and 0.3 sextants with pockets (4-5 mm).

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

Periodontal Disease		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	*210*	107	106	*213*	107	104	*211*	107	108	*215*	102	108	*210*
Mean no. of healthy sextants		6.0	5.9	*6.0*	5.1	5.3	*5.2*	4.7	5.3	*5.0*	2.3	2.1	*2.2*	0.0	0.2	*0.1*
With bleeding, calculus, pockets		0.0	0.0	*0.0*	0.9	0.7	*0.8*	1.2	0.7	*1.0*	3.5	3.4	*3.5*	2.5	2.1	*2.3*
with bleeding		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 calculus		0.0	0.0	*0.0*	0.9	0.7	*0.8*	1.1	0.6	*0.9*	3.2	3.0	*3.1*	2.2	1.9	*2.1*
with pockets(4-5 mm)		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.2	0.3	*0.3*	0.3	0.1	*0.2*
with pockets (6mm 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*
Excluded sextants		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.2	*0.1*	1.3	1.4	*1.4*
Not recorded		0.0	0.1	*0.1*	0.0	0.0	*0.0*	0.1	0.0	*0.1*	0.2	0.3	*0.3*	2.1	2.3	*2.2*
State Urban	n=	28	28	*56*	27	27	*54*	28	29	*57*	27	30	*57*	31	27	*58*
Mean no. of healthy sextants		5.7	6.0	*5.9*	5.5	5.5	*5.5*	5.4	5.8	*5.6*	3.4	2.3	*2.9*	0.4	0.2	*0.3*
With bleeding, calculus, pockets		0.0	0.0	*0.0*	0.5	0.4	*0.5*	0.6	0.2	*0.4*	2.3	3.3	*2.8*	3.0	1.7	*2.4*
with bleeding		0.0	0.0	*0.0*	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 calculus		0.0	0.0	*0.0*	0.5	0.4	*0.5*	0.6	0.2	*0.4*	2.0	2.9	*2.5*	2.8	1.4	*2.1*
with pockets(4-5 mm)		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.3	0.3	*0.3*	0.2	0.2	*0.2*
with pockets (6mm 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*
Excluded sextants		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.3	0.3	*0.3*	2.1	2.6	*2.4*
Not recorded		0.3	0.0	*0.2*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.2	*0.1*	0.5	1.5	*1.0*
State Total	n=	130	136	*266*	134	133	*267*	135	133	*268*	134	138	*272*	133	135	*268*
Mean no. of healthy sextants		5.9	5.9	*5.9*	5.2	5.3	*5.3*	4.8	5.4	*5.1*	2.4	2.2	*2.3*	0.1	0.2	*0.2*
With bleeding, calculus, pockets		0.0	0.0	*0.0*	0.8	0.7	*0.8*	1.1	0.6	*0.9*	3.3	3.4	*3.4*	2.6	2.0	*2.3*
with bleeding		0.0	0.0	*0.0*	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 calculus		0.0	0.0	*0.0*	0.8	0.7	*0.8*	1.1	0.6	*0.9*	3.0	3.0	*3.0*	2.3	1.9	*2.1*
with pockets(4-5 mm)		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.3	0.3	*0.3*	0.3	0.1	*0.2*
with pockets (6mm 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*
Excluded sextants		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.1	0.2	*0.2*	1.4	1.6	*1.5*
Not recorded		0.1	0.1	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.2	0.2	*0.2*	1.8	2.2	*2.0*

Of the 65-74 yr. old rural males, on an average 2.2 sextants has calculus and 0.3 sextants has pockets (4-5 mm).

Similarly, of the 65-74 yr. old rural females, a mean of 1.9 sextants has calculus and 0.1 sextants had pockets (4-5 mm).

The 65-74 yr. old urban males had a mean of 2.8 sextants with calculus and 0.2 sextants with pockets (4-5 mm)

Similarly, the 65-74 yr. old urban females had a mean of 1.4 sextants with calculus and 0.2 sextants with pockets (4-5 mm).

6.2.2. Loss of attachment

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

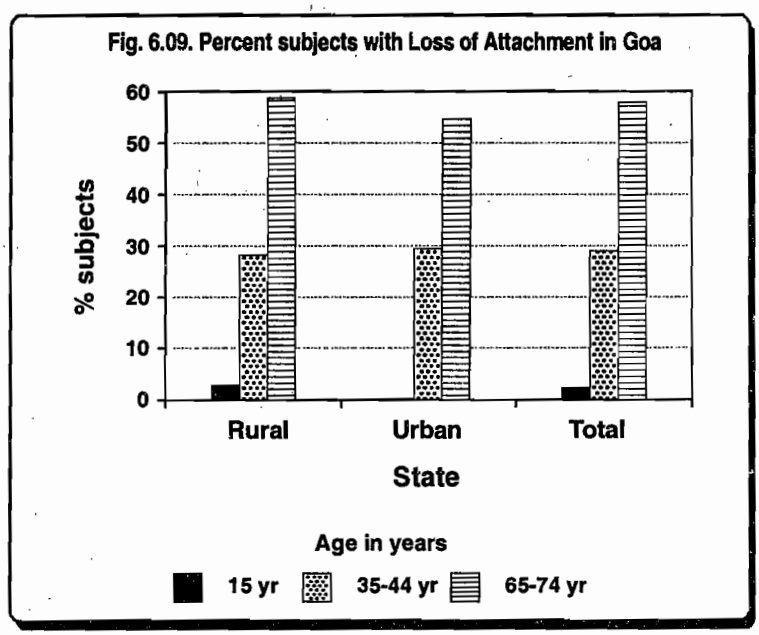
The destructive and degenerative nature of the periodontal disease was assessed, in addition to the CPI scores, with the measurement of Loss of Attachment for 15 year, 35-44 year and 65-74 year age groups only. The CPI Probe was used to measure pocket depth.

In the 35-44 yr. age group, 32.3% rural males had loss of attachment of which 26.2% had loss of attachment of 4-5 mm and 3.1% had loss of attachment of 6-8 mm.

Among the 35-44 yr. old rural females 25.8% had loss of attachment of which 19.7% had loss of attachment of 4-5 mm and 1.5% had loss of attachment of 6-8 mm.

Of the 35-44 yr. old urban males, 25.0% had loss of attachment of 4-5 mm.

34.8% of the 35-44 yr. old urban females had loss of attachment of 4-5 mm.



In the 65-74 yr. age group. 66.0% rural males had loss of attachment of which 34.0 % had loss of attachment of 4-5 mm and 16.0% had loss of attachment of 6-8 mm.

Of the 65-74 yr. old rural females, 52.9% had loss of attachment of which 27.5% had loss of attachment of 4-5 mm and 7.8% had loss of attachment of 6-8 mm.

All (60.9%) of the 65-74 yr. old urban males reported loss of attachment of 4-5 mm.

47.4% of the 65-74 yr. old urban females had loss of attachment of 4-5 mm.

The 15 yr. rural males had on an average 1.2 sextants with evidence of loss of attachment of which 0.1 sextants has loss of attachment of 4-5mm and 1.1 sextants had loss of attachment of 6-8 mm

The 15 yr. rural females had a mean of 0.7 sextants with loss of attachment out of which 0.6 sextants has loss of attachment of 6-8 mm

In the 15 yr. urban males, mean number of sextants with loss of attachment was 0.6 all of which 0.6 sextants had loss of attachment of 6-8 mm.

The 15 yr. urban females had on an average 0.2 sextants all of which showed evidence of loss of attachment of 6-8 mm.

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

Loss of Attachment (LOA)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	n=	64	62	126	65	66	131	50	51	101
With loss of attachment		3.1	3.2	3.2	32.3	25.8	29.1	66.0	52.9	59.5
with LOA 4-5 mm only		0.0	0.0	0.0	29.2	22.7	26.0	50.0	45.1	47.6
with LOA 4-5 mm &/or 6-8 mm		3.1	3.2	3.2	3.1	3.0	3.1	16.0	7.8	11.9
with LOA 4-5 mm &/or 6-8 mm & 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with LOA 4-5 mm, 6-8 mm, 9-11 mm &/or 12 mm or higher		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Urban	n=	20	23	43	20	23	43	23	19	42
With loss of attachment		0.0	0.0	0.0	25.0	34.8	29.9	60.9	47.4	54.2
with LOA 4-5 mm only		0.0	0.0	0.0	25.0	34.8	29.9	60.9	47.4	54.2
with LOA 4-5 mm &/or 6-8 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with LOA 4-5 mm &/or 6-8 mm & 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with LOA 4-5 mm, 6-8 mm, 9-11 mm &/or 12 mm or higher		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total	n=	84	85	169	85	89	174	73	70	143
With loss of attachment		2.5	2.5	2.5	31.0	27.6	29.3	64.7	51.8	58.3
with LOA 4-5 mm only		0.0	0.0	0.0	28.5	25.2	26.9	52.7	45.6	49.2
with LOA 4-5 mm &/or 6-8 mm		2.5	2.5	2.5	2.5	2.4	2.5	12.0	6.2	9.1
with LOA 4-5 mm &/or 6-8 mm & 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with LOA 4-5 mm, 6-8 mm, 9-11 mm &/or 12 mm or higher		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

In the 35-44 yr. age group, rural males had a mean of 3.5 sextants with loss of attachment of which 3.2 sextants had loss of attachment of 6-8 mm and 0.2 sextants had loss of attachment of 9-11 mm.

The 35-44 yr. old rural females reported a mean of 3.4 sextants out of which 3.0 sextants had loss of attachment of 6-8 mm and 0.3 sextants had loss of attachment of 9-11 mm.

The 35-44 yr. old urban males had on an average 2.3 sextants with loss of attachment of which 2.0 sextants showed loss of attachment of 6-8 mm and 0.3 sextants showed loss of attachment of 9-11 mm.

The 35-44 yr. old urban females had a mean of 3.3 sextants with loss of attachment of which 2.9 sextants had loss of attachment of 6-8 mm and 0.3 sextants had loss of attachment of 9-11 mm.

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

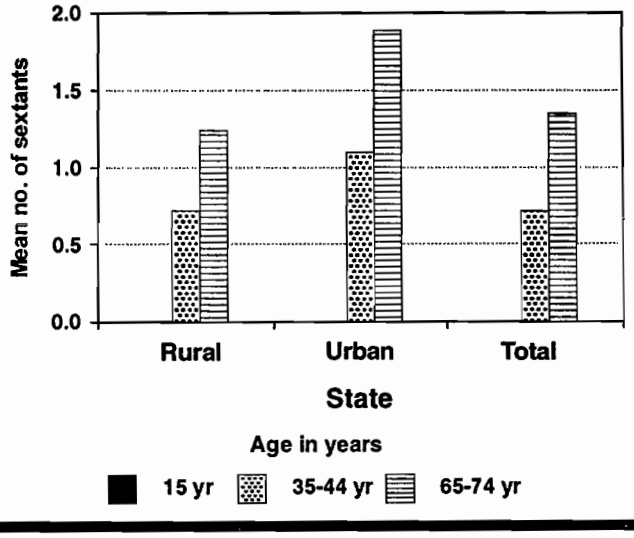


Table 6.10 Mean no. of sextants with loss of attachment by age, sex, and geographical area. **State : Goa**

Loss of Attachment (LOA)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	n=	107	104	211	107	108	215	102	108	210
With no loss of attachment (0-3 mm)		3.6	3.5	3.6	2.7	2.9	2.8	0.1	0.1	0.1
With loss of attachment		0.0	0.0	0.0	0.8	0.5	0.7	1.3	1.2	1.3
with loss of attachment 4-5 mm		0.0	0.0	0.0	0.8	0.5	0.7	1.1	1.1	1.1
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with loss of attachment 12 mm or more		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	0.1	0.1	1.2	1.3	1.3
Not recorded		2.4	2.4	2.4	2.4	2.5	2.5	3.4	3.4	3.4
State Urban	n=	28	29	57	27	30	57	31	27	58
With no loss of attachment (0-3 mm)		4.3	4.8	4.6	3.3	3.1	3.2	0.0	0.2	0.1
With loss of attachment		0.0	0.0	0.0	0.9	1.2	1.1	2.4	1.4	1.9
with loss of attachment 4-5 mm		0.0	0.0	0.0	0.9	1.2	1.1	2.4	1.4	1.9
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with loss of attachment 12 mm or more		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	0.3	0.3	0.3	2.1	2.6	2.4
Not recorded		1.7	1.2	1.5	1.6	1.4	1.5	1.5	1.8	1.7
State Total	n=	135	133	268	134	138	272	133	135	268
With no loss of attachment (0-3 mm)		3.7	3.8	3.8	2.8	2.9	2.9	0.1	0.2	0.2
With loss of attachment		0.0	0.0	0.0	0.8	0.6	0.7	1.5	1.2	1.4
with loss of attachment 4-5 mm		0.0	0.0	0.0	0.8	0.6	0.7	1.3	1.2	1.3
with loss of attachment 6-8 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.2
with loss of attachment 9-11 mm		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
with loss of attachment 12 mm or more		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	0.1	0.1	0.1	1.4	1.5	1.5
Not recorded		2.3	2.2	2.3	2.3	2.3	2.3	3.0	3.1	3.1

Of the 65-74 yr. old rural males, a mean of 2.5 sextants reported loss of attachment of which 2.2 sextants had loss of attachment of 6-8 mm and 0.3 sextants had loss of attachment of 9-11 mm.

Among the 65-74 yr. old rural females an average of 2.1 sextants had loss of attachment of which 1.9 sextants had loss of attachment of 6-8 mm and 0.1 sextants had loss of attachment of 9-11 mm.

In the 65-74 yr. old urban males, the mean number of sextants with evidence of loss of attachment was 3.0 of which 2.8 sextants had loss of attachment of 6-8 mm and 0.2 sextants had loss of attachment of 9-11 mm.

The 65-74 yr. old urban females had a mean of 1.7 sextants with loss of attachment of which 1.4 sextants had loss of attachment of 6-8 mm and 0.2 sextants had loss of attachment of 9-11 mm.

6.3. MALOCCLUSION STATUS

Table 6.11 & Fig. 6.11 present the malocclusion status of subjects measured by DAI scores. The highest age group of 65-74 years is excluded.

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

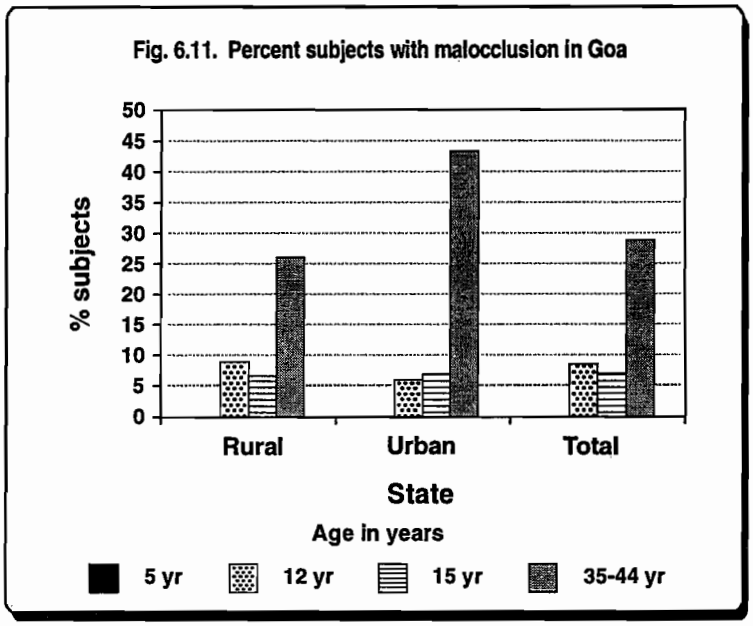
In calculating percent subjects with malocclusion, only those subjects with a DAI score of 26 or higher were included.

No significant malocclusion was reported in the age group of 5 years where only primary teeth are present.

12 yrs

Among the 12 years old boys in the rural area 88.8% had no or minor malocclusion (DAI <25), 8.4% had definite malocclusion (DAI 26-30) and 2.8% had severe malocclusion (DAI 31-35)

93.4% of the 12 year old girls in the rural area had no or minor malocclusion (DAI <25), 4.7% had definite malocclusion (DAI 26-30) and 1.9% had severe malocclusion (DAI 31-35)



In the urban area 92.6% of the 12 yr old boys had no or minor malocclusion (DAI <25) and 7.4% had definite malocclusion (DAI 26-30). None had severe or very severe malocclusion.

96.3% of the 12 year old girls in the urban area had no or minor malocclusion (DAI, 25), while 3.7% had definite malocclusion (DAI 26-30). None had severe or very severe malocclusion.

15 yrs

Of the 15 yr old males in the rural area, 92.5% had no or minor malocclusion (DAI, 25), while 5.6% had definite malocclusion (DAI 26-30), 0.9% had severe malocclusion (DAI 31-35) and 0.9% had very severe malocclusion (DAI 36 or more).

Among the 15 yr old females in the rural area 94.2% had no or minor malocclusion (DAI ,25), 4.8% had definite malocclusion (DAI 26-30) and 10% had very severe malocclusion (DAI 36 or more).

In the urban area 85.7% of the 15 yr boys had no or minor malocclusion (DAI , 25), 10.7% had definite malocclusion (DAI 26-30) and 3.6% had severe malocclusion (DAI 31-35). None had very severe malocclusion.

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

Malocclusion (DAI Score)		5 years			12 years			15 years			35-44 years		
		M	F	T	M	F	T	M	F	T	M	F	T
State Rural	**n=**	**102**	**108**	***210***	**107**	**106**	***213***	**107**	**104**	***211***	**107**	**108**	***215***
None or minor malocclusion (<25)		100.0	100.0	***100.0***	88.8	93.4	***91.1***	92.5	94.2	***93.4***	77.6	70.4	***74.0***
Malocclusion present		0.0	0.0	***0.0***	11.2	6.6	***8.9***	7.5	5.8	***6.7***	22.4	29.6	***26.0***
Definite (26 -30)		0.0	0.0	***0.0***	8.4	4.7	***6.6***	5.6	4.8	***5.2***	6.5	11.1	***8.8***
Severe (31 - 15)		0.0	0.0	***0.0***	2.8	1.9	***2.4***	0.9	0.0	***0.5***	5.6	6.5	***6.1***
V Severe (36 or more)		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.9	1.0	***1.0***	10.3	12	***11.2***
State Urban	**n=**	**28**	**28**	***56***	**27**	**27**	***54***	**28**	**29**	***57***	**27**	**30**	***57***
None or minor malocclusion (<25)		100.0	100.0	***100.0***	92.6	96.3	***94.5***	85.7	100	***92.9***	59.3	53.3	***56.3***
Malocclusion present		0.0	0.0	***0.0***	7.4	3.7	***5.6***	14.3	0.0	***7.2***	40.7	46.7	***43.7***
Definite (26 -30)		0.0	0.0	***0.0***	7.4	3.7	***5.6***	10.7	0.0	***5.4***	11.1	13.3	***12.2***
Severe (31 - 15)		0.0	0.0	***0.0***	0.0	0.0	***0.0***	3.6	0.0	***1.8***	18.5	20	***19.3***
V Severe (36 or more)		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	11.1	13.3	***12.2***
State Total	**n=**	**130**	**136**	***266***	**134**	**133**	***267***	**135**	**133**	***268***	**134**	**138**	***272***
None or minor malocclusion (<25)		100.0	100.0	***100.0***	89.4	93.8	***91.6***	91.4	95.2	***93.3***	74.7	67.5	***71.1***
Malocclusion present		0.0	0.0	***0.0***	10.6	6.2	***8.4***	8.6	4.8	***6.7***	25.3	32.5	***28.9***
Definite (26 -30)		0.0	0.0	***0.0***	8.3	4.6	***6.5***	6.4	4.0	***5.2***	7.2	11.5	***9.4***
Severe (31 - 15)		0.0	0.0	***0.0***	2.4	1.6	***2.0***	1.4	0.0	***0.7***	7.6	8.7	***8.2***
V Severe (36 or more)		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.8	0.8	***0.8***	10.4	12.3	***11.4***

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

None of the 15 yr old females in the urban are had any evidence of malocclusion.

(All had a DAI score of < 25).

35-44 yrs

Of the 35-44 yr old males in the rural area 77.6% had no or minor malocclusion (DAI < 25), 6.5% had definite malocclusion (DAI 26-30), 5.6% had severe malocclusion (DAI 31-35) and 10.3% had very severe malocclusion (DAI 36 or more).

70.4% of 35-44 yr old females in the rural area had no or minor malocclusion (DAI < 25), 11.5% had definite malocclusion (DAI 26-30), 6.5% had sever malocclusion (DAI 31-35) and 12.0% had severe malocclusion (DAI 36 or more).

In the urban area 59.3% of the 35-44 yr old males nor or minor malocclusion (DAI <25), 11.1% had definite malocclusion (DAI 26-30), 18.5% had severe malocclusion (DAI 31-35) and 11.1% had very severe malocclusion (DAI 36 or more).

53.3% of the 35-44 yr old females in the urban area had no or minor malocclusion (DAI < 25), 13.3% had definite malocclusion (DAI 26-30), 20.2% had severe malocclusion (DAI 31-35) and 13.3% had very severe malocclusion (DAI 36 or more).

Over all it was evident from the data that the presence of malocclusion appeared to increase with age and was maximum & most severe in the 35-44 year old males & females in both the rural & urban areas.

6.4. ORAL CANCER & ORAL MUCOSAL LESIONS

Table 6.12 and Figure 6.12 present the numbers of subjects with oral cancer and other oral mucosal lesions and Table 6.13 and Figure 6.13 present the number of lesions by their location in the mouth of affected subjects.

Except for detecting ulcerations in 1% of 5 years old age group, no other mucosal lesions were detected in 12 and 15 year age groups in rural and urban areas.

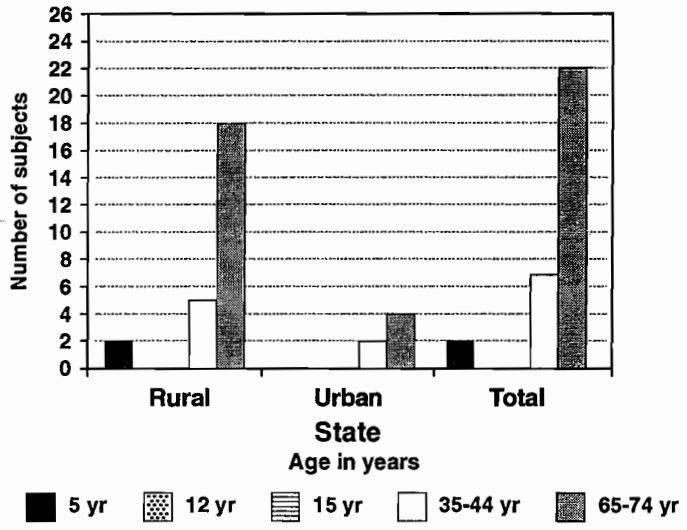
Almost all recorded oral mucosal lesions were mainly observed in age group of 65-74 years, followed by 35-44 age group. Leukoplakia / lichen planus and ulceration were the oral mucosal lesions detected.

In rural areas leukoplakia / lichen planus was the main lesion recorded only among 0.9% of men in age group of 35-44 years and among 3% of men and 7.5% women of 65-74 year age groups. About 1% of men and equal percentage of women in these two age groups had ulcerations.

In urban areas leukoplakia / lichen planus was detected in 3.7 % of men in age groups of 35-44 years and almost three times higher (12.9%) among men in age group of 65-74 years.

Ulcerations were recorded in 3.7% of men of 35-44 year age group.

Fig 6.12 Number of subjects with oral mucosal conditions in Goa



Over all highest percentage (9.6%) of leukoplakia / lichen planus lesion was recorded among women of older age group of 65-74 years followed by among men (7.2%) of the same age group.

In rural areas the most common lesion recorded was leukoplakia (7 males and 10 females) and almost all leukoplakias were located on commissures and buccal mucosa. One leukoplakia was recorded as hard palate. Leukoplakia among bidi smokers generally occur on commissures and buccal mucosa.

Lichen planus was recorded in one rural woman and was located on buccal mucosa.

Ulcerations were recorded among three men and two women and three of these lesion were located on lips and one each on buccal mucosa and floor of the mouth.

Lesion under other category were recorded on palate of three males and three females. And these lesions could be smoker's palate, palatal erythema or palatal erythema with papillary hyperplasia. [Please confirm this from raw data] These are bidi smoking associated lesion.

One male and one female had lesion on tongue which was grouped under other category. This lesion could be localized atrophy of tongue papillae on dorsal surface of tongue [Please confirm this from raw data] which is again bidi associated lesion.

Table 6.12 Numbers of subjects with oral mucosal lesions and type of lesions by age, sex and geographical area. **State : Goa**

Oral Mucosal Lesions		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	**n=**	**102**	**108**	***210***	**107**	**106**	***213***	**107**	**104**	***211***	**107**	**108**	***215***	**101**	**106**	***207***
Oral mucosal lesions		1	1	***2***	0	0	***0***	0	0	***0***	3	2	***5***	6	12	***18***
Oral Cancer		0	1	***1***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Leukoplakia		0	0	***0***	0	0	***0***	0	0	***0***	1	0	***1***	3	7	***10***
Lichen planus		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	1	***1***
Ulceration		1	0	***1***	0	0	***0***	0	0	***0***	1	1	***2***	1	1	***2***
ANUG		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Candidiasis		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Abscess		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Any other condition		0	0	***0***	0	0	***0***	0	0	***0***	1	1	***2***	3	5	***8***
State Urban	**n=**	**28**	**28**	***56***	**27**	**27**	***54***	**28**	**29**	***57***	**27**	**30**	***57***	**31**	**26**	***57***
Oral mucosal lesions		0	0	***0***	0	0	***0***	0	0	***0***	2	0	***2***	4	0	***4***
Oral Cancer		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Leukoplakia		0	0	***0***	0	0	***0***	0	0	***0***	1	0	***1***	3	0	***3***
Lichen planus		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	1	0	***1***
Ulceration		0	0	***0***	0	0	***0***	0	0	***0***	1	0	***1***	0	0	***0***
ANUG		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Candidiasis		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Abscess		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Any other condition		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
State Total	**n=**	**130**	**136**	***266***	**134**	**133**	***267***	**135**	**133**	***268***	**134**	**138**	***272***	**132**	**132**	***264***
Oral mucosal lesions		1	1	***2***	0	0	***0***	0	0	***0***	5	2	***7***	10	12	***22***
Oral Cancer		0	1	***1***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Leukoplakia		0	0	***0***	0	0	***0***	0	0	***0***	2	0	***2***	6	7	***13***
Lichen planus		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	1	1	***2***
Ulceration		1	0	***1***	0	0	***0***	0	0	***0***	2	1	***3***	1	1	***2***
ANUG		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Candidiasis		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Abscess		0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***	0	0	***0***
Any other condition		0	0	***0***	0	0	***0***	0	0	***0***	1	1	***2***	3	5	***8***

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

Location	Oral Mucosal Condition																	
	Oral Cancer		Leuko-plakia		Lichen Planus		Ulceration		ANUG		Candi-diasis		Abscess		Others		Total over Locations	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
State Rural																		
Vermilion Border	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Commissures	0	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	**4**	**3**
Lips	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	**2**	**1**
Sulci	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Buccal mucosa	0	0	3	6	0	1	1	0	0	0	0	0	0	0	0	1	**4**	**8**
Floor of mouth	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	**0**	**1**
Tongue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	**1**	**2**
Hard/Soft palate	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	3	**3**	**4**
Alv ridges/ Gingiva	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**0**	**1**
Rural Total	**0**	**0**	**7**	**10**	**0**	**1**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**7**	**14**	**20**
State Urban																		
Vermilion Border	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Commissures	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**	**0**
Lips	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Sulci	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Buccal mucosa	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	**3**	**0**
Floor of mouth	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	**1**	**0**
Tongue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Hard/Soft palate	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Alv ridges/ Gingiva	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Urban Total	**0**	**0**	**6**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**
State Total																		
Vermilion Border	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Commissures	0	0	7	3	0	0	0	0	0	0	0	0	0	0	0	0	**7**	**3**
Lips	0	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	**2**	**1**
Sulci	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**	**0**
Buccal mucosa	0	0	5	6	1	1	1	0	0	0	0	0	0	0	0	1	**7**	**8**
Floor of mouth	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**	**1**
Tongue	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	**1**	**2**
Hard/Soft palate	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	3	**3**	**4**
Alv ridges/ Gingiva	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	**0**	**1**
State Total	**0**	**0**	**13**	**10**	**1**	**1**	**3**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**7**	**21**	**20**

In urban areas leukoplakia was again most common recorded lesion and was present in 6 urban men and five urban women. All these lesions were recorded on commissures and buccal mucosa.

One female had lichen planus which was located on buccal mucosa

6.5. DENTAL FLUOROSIS STATUS

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

There was no evidence of fluorosis in any of the age group, that is, 5 years, 12 years, 35-44 years, 65-74 years in either the rural or urban areas of Goa.

Fig. 6.14. Percent subjects with fluorosis in Goa

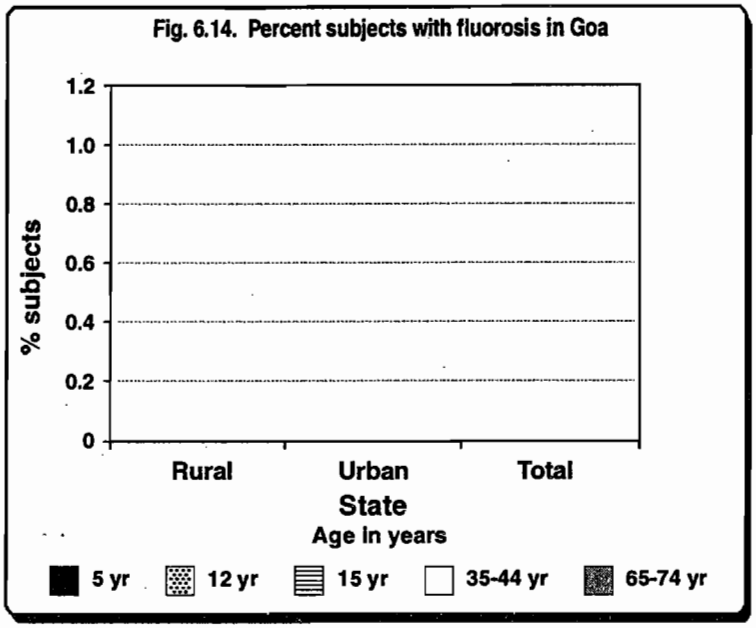


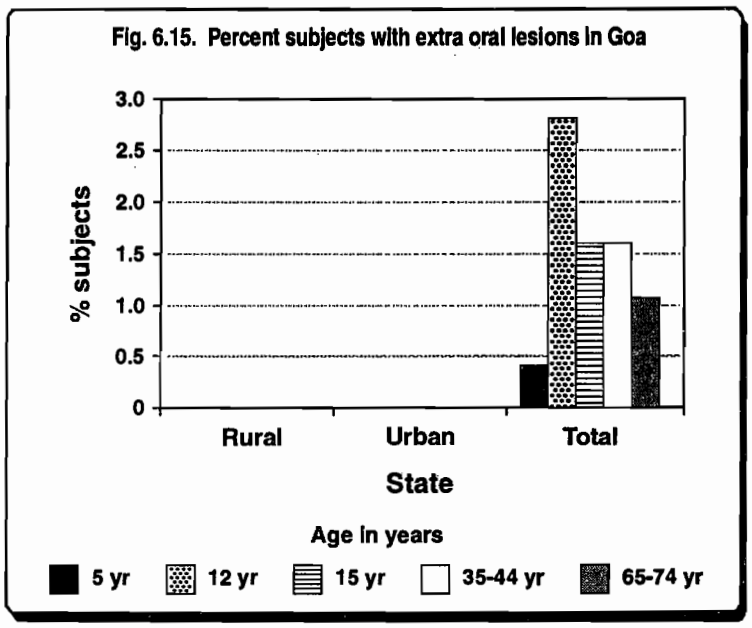
Table 6.14 Percent distribution of subjects with severity of dental fluorosis by age, sex and geographical area. **State : Goa**

Dental Fluorosis		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	4	5	9	105	105	210	106	103	209	99	104	203	50	41	91
With Fluorosis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Questionable		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V Mild & Mild		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moderate		0.0	0.0	0.0	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		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Urban	n=	2	2	4	27	27	54	28	29	57	26	30	56	22	8	30
With Fluorosis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Questionable		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V Mild & Mild		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moderate		0.0	0.0	0.0	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		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total	n=	6	7	13	132	132	264	134	132	266	125	134	259	72	49	121
With Fluorosis		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Questionable		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
V Mild & Mild		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Moderate		0.0	0.0	0.0	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		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

6.6. OTHER LESIONS

6.6.1 Extra oral lesions

Table 6.15 and Fig. 6.15 present the percent subjects with extra oral lesions by type of lesions. There was an even but low prevalence of extra oral lesions across age groups.



6.6.2 T M joint symptoms and signs

Table 6.16 and Fig. 6.16 present the percent subjects with temporomandibular joint (TM Joint) symptoms and signs.

None of the 5 year boys in the rural area had signs, and symptoms associated with the TMJ. Of the 5 year girls in the rural area only 0.9% reported symptoms associated with the TMJ.

One examination clicking, tenderness and reduced jaw mobility was also evident in 0.9% of the 5 year old girls.

None of the 5 year old boys or girls in the urban area had any signs or symptoms associated with the TMJ.

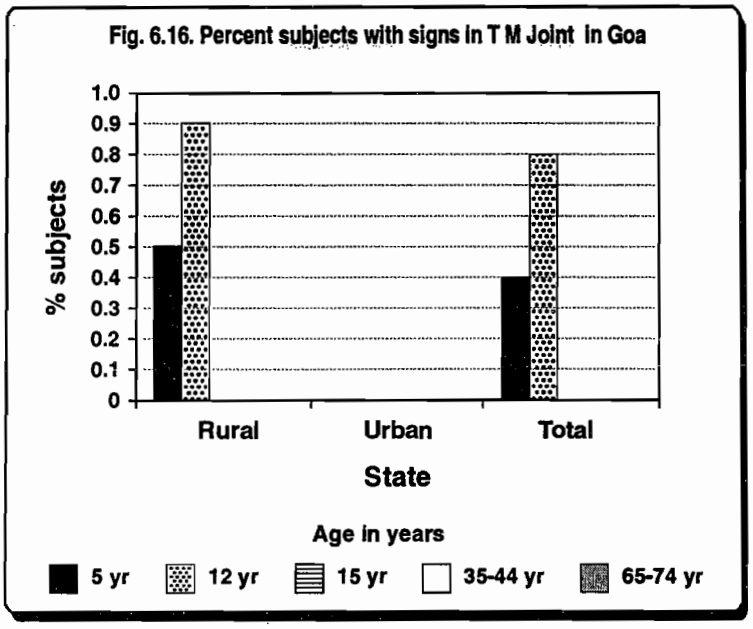


Table 6.15 Percent distribution of subjects with extra oral lesions by age, sex and geographical area. **State : Goa**

Extra Oral Lesions		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	210	107	106	213	107	104	211	107	108	215	101	106	207
Ulceration,sores,erosions,fissures		0.0	0.9	0.5	4.7	1.9	3.3	2.8	1.0	1.9	2.8	0.9	1.9	1.0	0.9	1.0
head, neck, limbs		0.0	0.9	0.5	4.7	1.9	3.3	1.9	0.0	1.0	1.9	0.0	1.0	1.0	0.9	1.0
nose, cheeks, chin		0.0	0.9	0.5	0.9	1.9	1.4	0.0	0.0	0.0	0.9	0.0	0.5	0.0	0.0	0.0
commissures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
vermilion border		0.0	0.0	0.0	2.8	0.0	1.4	0.9	0.0	0.5	0.9	0.0	0.5	1.0	0.9	1.0
Cancrum oris		0.0	0.0	0.0	0.9	0.0	0.5	0.9	0.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.9	1.0	1.0	0.9	0.0	0.5	0.0	0.0	0.0
Other swellings of face & jaws		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Urban		28	28	56	27	27	54	28	29	57	27	30	57	31	26	57
Ulceration,sores,erosions,fissures	n=	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	1.9
head, neck, limbs		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
nose, cheeks, chin		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
commissures		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
vermilion border		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.8	1.9
Other swellings of face & jaws		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
State Total		130	136	266	134	133	267	135	133	268	134	138	272	132	132	264
With extra oral lesions		0.0	0.8	0.4	4.0	1.6	2.8	2.4	0.8	1.6	2.4	0.8	1.6	0.8	1.4	1.1
Ulceration,sores,erosions,fissures	n=	0.0	0.8	0.4	4.0	1.6	2.8	1.6	0.0	0.8	1.6	0.0	0.8	0.8	0.8	0.8
head, neck, limbs		0.0	0.8	0.4	0.8	1.6	1.2	0.0	0.0	0.0	0.8	0.0	0.4	0.0	0.0	0.0
nose, cheeks, chin		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
commissures		0.0	0.0	0.0	2.4	0.0	1.2	0.8	0.0	0.4	0.8	0.0	0.4	0.8	0.8	0.8
vermilion border		0.0	0.0	0.0	0.8	0.0	0.4	0.8	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Cancrum oris		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Abnormalities of upper & lower lips		0.0	0.0	0.0	0.0	0.0	0.0	0.8	0.8	0.8	0.8	0.0	0.4	0.0	0.6	0.3
Enlarged lymph nodes(head & neck)		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

12 years

Among the 12 year old in the rural area, 0.9% boys and 0.9% reported symptoms associated with TMJ.

They complained of symptoms none of the boys or girls had any evidence of clicking, tenderness or mobility associated with the TMJ.

Only 3.7% of the 12 year old boys in the urban area had clicking on opening and closing the jaws.

There was no tenderness or reduced jaw mobility,

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

T M Joints Assessment		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	*n=*	**102**	**108**	***210***	**107**	**106**	***213***	**107**	**104**	***211***	**107**	**108**	***215***	**101**	**106**	***207***
Symptoms present		0.0	0.9	***0.5***	0.9	0.9	***0.9***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Signs present		0.0	0.9	***0.5***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	7.5	7.4	***7.5***	4.0	4.7	***4.4***
Clicking		0.0	0.9	***0.5***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	5.6	3.7	***4.7***	4.0	2.8	***3.4***
Tenderness		0.0	0.9	***0.5***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	1.9	3.7	***2.8***	0.0	0.0	***0.0***
Reduced jaw mobility		0.0	0.9	***0.5***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	1.9	***1.0***
State Urban	*n=*	**28**	**28**	***56***	**27**	**27**	***54***	**28**	**29**	***57***	**27**	**30**	***57***	**31**	**26**	***57***
Symptoms present		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Signs present		0.0	0.0	***0.0***	3.7	0.0	***1.9***	3.6	3.4	***3.5***	3.7	3.3	***3.5***	0.0	7.7	***3.9***
Clicking		0.0	0.0	***0.0***	3.7	0.0	***1.9***	3.6	3.4	***3.5***	3.7	0.0	***1.9***	0.0	0.0	***0.0***
Tenderness		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	3.3	***1.7***	0.0	7.7	***3.9***
Reduced jaw mobility		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
State Total	*n=*	**130**	**136**	***266***	**134**	**133**	***267***	**135**	**133**	***268***	**134**	**138**	***272***	**132**	**132**	***264***
Symptoms present		0.0	0.8	***0.4***	0.8	0.8	***0.8***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Signs present		0.0	0.8	***0.4***	0.6	0.0	***0.3***	0.6	0.6	***0.6***	6.9	6.7	***6.8***	3.2	5.2	***4.2***
Clicking		0.0	0.8	***0.4***	0.6	0.0	***0.3***	0.6	0.6	***0.6***	5.3	3.1	***4.2***	3.2	2.4	***2.8***
Tenderness		0.0	0.8	***0.4***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	1.6	3.6	***2.6***	0.0	1.2	***0.6***
Reduced jaw mobility		0.0	0.8	***0.4***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	1.6	***0.8***

None of the 12 year old girls reported any evidence of clicking, tenderness or reduced jaw mobility.

15 years

None of the 15 year old boys and girls in the rural area reported symptoms or evidence of clicking, tenderness and reduced jaw mobility.

In the urban area none of the 15 year olds reported symptoms, tenderness or reduced mobility associated with TMJ.

However, 13.6% boys and 3.4% girls had evidence of clicking on opening and closing their jaws.

35-44 years

None of the 35-44 year old males or females reported symptoms associated with the TMJ.

While 5.6% males and 3.7% females had evidence of clicking, 1.9% males and 3.7% females had tenderness. None of the males or females had reduced jaw mobility.

As in the rural area none of the 35-44 year old males and females in the urban area complained of symptoms associated with the TMJ.

While 3.7% of males had evidence of clicking on opening and closing the jaw, none had tenderness or reduced jaw mobility.

None of 35-44 year old females in the urban area had clicking or reduced jaw mobility, however 3.3% said that they experienced tenderness while opening and closing their jaws

65-74 years

One of the male sand females in the 65-74 year old age group in the rural area complained of symptoms associated with the TMJ.

4.0% males and 2.8% females had evidence of clicking while 1.9% females had evidence of reduced jaw mobility.

While none of the 65-74 year males had evidence of tenderness and reduced jaw mobility, none of the 65-74 year old females had evidence of tenderness associated with the TMJ.

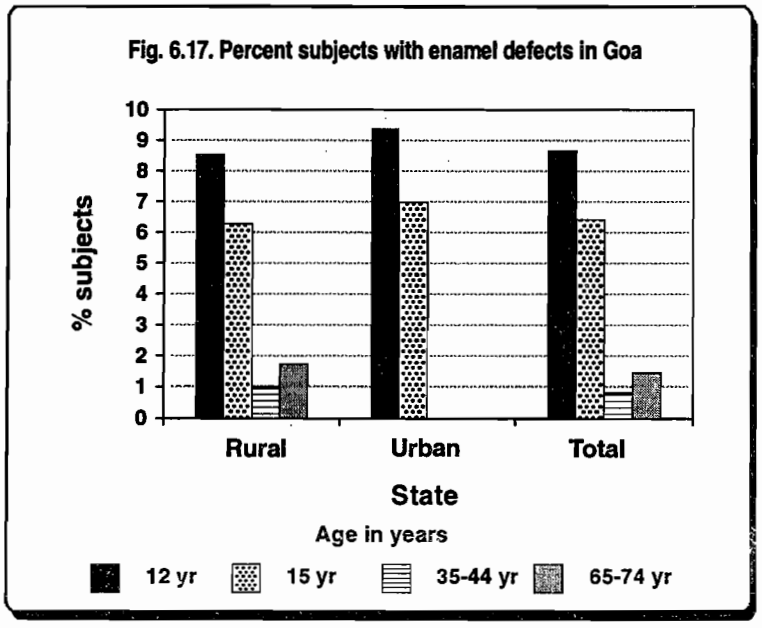
In the urban area none of the 65-74 year old males or females of tenderness associated with the TMJ.

In the urban area none of the 65-74 year old males or females complained of pain associated with the TMJ.

While none of the males had evidence of clicking, tenderness or reduced mobility, 17.7% of the 65-74 year old females had tenderness associated with the TMJ none had clicking or reduced jaw mobility.

6.6.3 Enamel defects (opacities, hypoplasia)

Table 6.17 & Fig. 6.17 present the percent 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.



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 year was excluded from examination.

12 Years

10.4% of the 12 year old males in the rural area had teeth with enamel defects of which 8.5% had demarcated opacities while 3.8% had hypoplastic defects. 6.7% of the 12 year old females had enamel defects all of which had demarcated opacities

In the urban area 11.1% 12 year old males and 7.4% 12 year old females had teeth with enamel defects all of which were demarcated opacities.

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

Enamel Opacities/Hypoplasia		12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	106	105	*211*	106	104	*210*	103	105	*208*	64	56	*120*
With enamel defects		10.4	6.7	*8.6*	7.5	4.8	*6.2*	1.9	0.0	*1.0*	1.6	1.8	*1.7*
with demarcated opacity		8.5	6.7	*7.6*	7.5	2.9	*5.2*	1.0	0.0	*0.5*	0.0	0.0	*0.0*
with diffuse opacity		0.0	0.0	*0.0*	0.0	1.0	*0.5*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with hypoplasia		3.8	0.0	*1.9*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with other defects		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with combinations of opacities and hypoplasia		0.0	0.0	*0.0*	0.0	1.0	*0.5*	1.0	0.0	*0.5*	0.0	0.0	*0.0*
with all three conditions		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.6	1.8	*1.7*
State Urban	n=	27	27	*54*	28	29	*57*	27	30	*57*	23	10	*33*
With enamel defects		11.1	7.4	*9.3*	7.1	6.9	*7.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with demarcated opacity		11.1	7.4	*9.3*	7.1	3.4	*5.3*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with diffuse opacity		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 hypoplasia		0.0	0.0	*0.0*	0.0	3.4	*1.7*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with other defects		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with combinations of opacities and hypoplasia		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with all three conditions		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
State Total	n=	133	132	*265*	134	133	*267*	130	135	*265*	87	66	*153*
With enamel defects		10.5	6.8	*8.7*	7.5	5.2	*6.4*	1.6	0.0	*0.8*	1.2	1.6	*1.4*
with demarcated opacity		8.9	6.8	*7.9*	7.5	3.0	*5.3*	0.8	0.0	*0.4*	0.0	0.0	*0.0*
with diffuse opacity		0.0	0.0	*0.0*	0.0	0.8	*0.4*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with hypoplasia		3.2	0.0	*1.6*	0.0	0.6	*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	0.0	*0.0*	0.0	0.0	*0.0*
with combinations of opacities and hypoplasia		0.0	0.0	*0.0*	0.0	0.8	*0.4*	0.8	0.0	*0.4*	0.0	0.0	*0.0*
with all three conditions		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.2	1.6	*1.4*

15 years

In the rural areas of the 7.5%, 15 year old males had teeth with enamel defects all of which were demarcated opacities.

4.8% of the 15 year females in the rural area also had teeth with enamel defects, 2.9 % of which had demarcated opacities, 1% had diffused opacities and 1% had a combination of opacities and hyperplasia.

Among the 15 year olds in the urban area 7.1% males had teeth enamel defects all of which were demarcated opacities.

6.9% females also had enamel defects 3.4% of which had demarcated opacities and 3.4% had hypoplastic defects

35-44 years

1.9% of the 35-44 year old males in the rural area had enamel defects, of which 1% had demarcated opacities and 1% had a combination of opacities and hypoplasia.

None of the 35-44 year olds males or females in the urban area had teeth enamel defects. Similarly, none of the 35-44 year old males or females in the urban area had teeth with enamel defects.

65-74 years

Of the 65-74 year olds who were examined in the rural are, 1.6% males and 1.8% females exhibited teeth with enamel defects which demarcated opacities, diffused opacities and hypoplastic areas.

In the urban area none of the 65-74 years old males or females had teeth with any kind of enamel defects

5 years

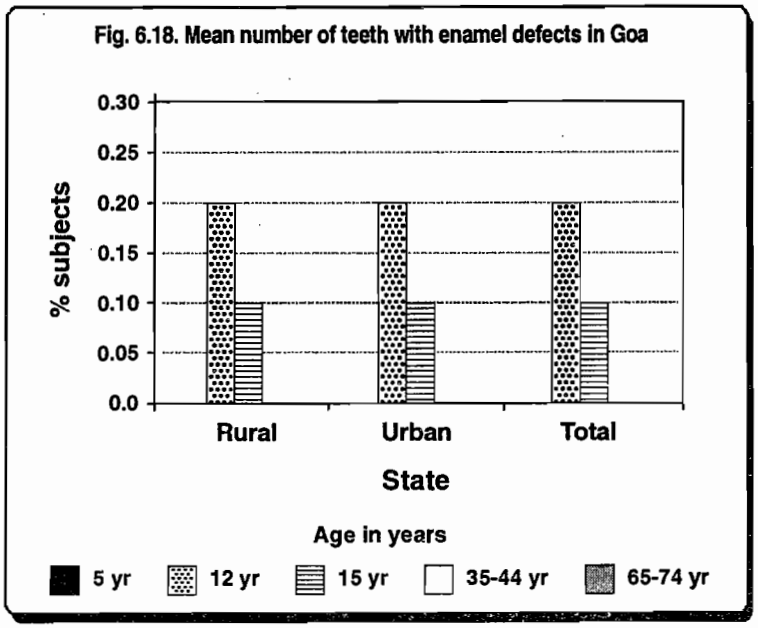
There were no teeth with enamel defects found among the 5 year old males or females in either the rural or urban areas.

12 years

Among the 12 year old males in the rural area, on an average, 0.2% teeth had enamel defects of which 0.1% teeth had demarcated opacities and 0.1% teeth had evidence of a hypoplastic defects.

Of the 12 years old females, on an average 0.1% teeth had evidence of an enamel defect which was a demarcated opacity.

Similarly, in the urban area on an average the 12 year old males had 0.3% teeth, the 12 year old females had 0.1% teeth with an enamel defect, which were demarcated opacities in both cases.



15 years

In the 15 year old males in the rural area had an average of 0.1% teeth with an enamel defect which was a demarcated opacity.

Of the 15 years old females in the rural area also had an average 0.1% teeth with an enamel defect.

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

Enamel opacities/Hypoplasia		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	*n=*	102	108	*210*	107	106	*213*	107	104	*211*	107	108	*215*	102	108	*210*
Mean no. of teeth with enamel defects		0.0	0.0	*0.0*	0.2	0.1	*0.2*	0.1	0.1	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with demarcated opacity		0.0	0.0	*0.0*	0.1	0.1	*0.1*	0.1	0.0	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with diffuse opacity		0.0	0.0	*0.0*	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 hypoplasia		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	*0.0*
with other defects		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with combinations of opacities and hypoplasia		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with all three conditions		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
State Urban	*n=*	28	28	*56*	27	27	*54*	28	29	*57*	27	30	*57*	31	27	*58*
Mean no. of teeth with enamel defects		0.0	0.0	*0.0*	0.3	0.1	*0.2*	0.1	0.1	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with demarcated opacity		0.0	0.0	*0.0*	0.3	0.1	*0.2*	0.1	0.0	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with diffuse opacity		0.0	0.0	*0.0*	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 hypoplasia		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with other defects		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with combinations of opacities and hypoplasia		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with all three conditions		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
State Total	*n=*	130	136	*266*	134	133	*267*	135	133	*268*	134	138	*272*	133	135	*268*
Mean no. of teeth with enamel defects		0.0	0.0	*0.0*	0.2	0.1	*0.2*	0.1	0.1	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with demarcated opacity		0.0	0.0	*0.0*	0.1	0.1	*0.1*	0.1	0.0	*0.1*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with diffuse opacity		0.0	0.0	*0.0*	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 hypoplasia		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	*0.0*
with other defects		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with combinations of opacities and hypoplasia		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
with all three conditions		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*

Similarly, in the urban area, the 15 year old males had had an average of 0.1% teeth, with an enamel defect which was a demarcated opacity.

The 15 year old females had an average of 0.1% teeth with enamel defect.

35-44 years

None of the 35-44 year old males or females in either the rural or urban areas had teeth with evidence of an enamel defect.

65-74 years

There were no teeth with enamel defect found among the 65-74 year old males or females in either the rural or urban areas.

National Oral Health Survey & Fluoride Mapping 2002-2003

GOA

DENTAL COUNCIL OF INDIA

Dental Council of India
New Delhi
2004

6.6.4. Prosthetic status

The prosthetic status was recorded for subjects 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).

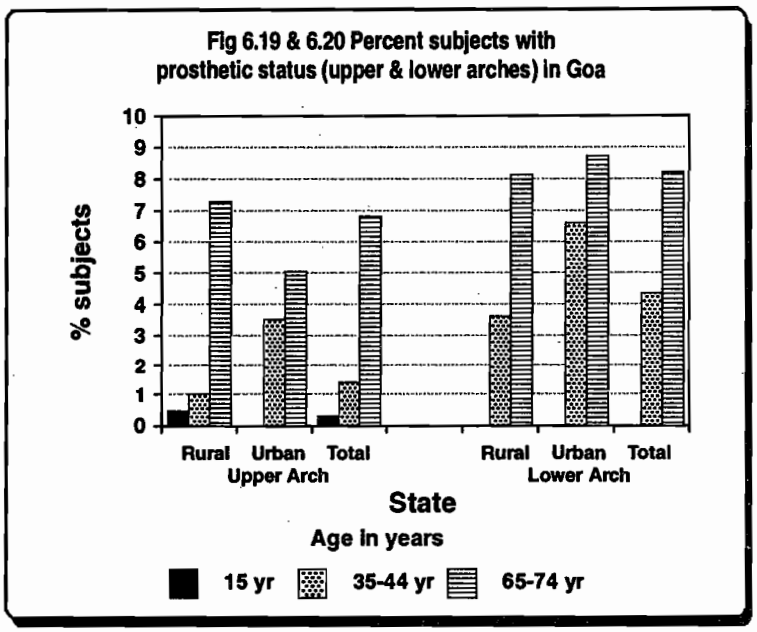


Table 6.19 and 6.20 and Fig. 6.19 and 6.20 present the percent subjects with prosthetic status of upper and lower dental arches respectively by type of prostheses. Table 6.21 presents the percent subjects wearing full mouth removable dentures.

None of the subject belonging to 15 years age group residing in rural and urban areas had any prosthesin in the upper jaw.

In the 35-44 age group, none of the urban males had upper prosthesis while only 2.8% of the rural males had upper prosthesis.

Comparing the urban and rural females belonging to same age group, it was noted that 13.3% of urban females had prosthesis, of which 10% had partial denture and 3.3% had bridges.

In the rural areas 4.6% of females had prosthesis, of which 0.9% had complete dentures and 2.8% had partial denture replacement, 0.9% had bridges.

In the 65-74 age group 6.5% of urban males had prosthesis replacement in the upper jaw, of which 3.2% had partial dentures and 3.2% had complete dentures. Whereas in the rural areas 8.8% of males had prosthesis replacement with 5.9% of replacement being complete dentures. When the females of the same age group were compared, it was observed that 11.1% of urban resident females had prosthesis replacement, while only 7.4% rural females had prosthesis.

When the 15 years old males subjects from urban and rural areas were compared with regards to prosthetic status, it was noted that none had any prosthetic replacement in the lower jaw. Where as 1% of 15 yr. females in the rural area had prosthesis.

3.7% of males in the age group of 35-44 yrs in the urban are had prosthetic replacement in the form of partial denture, while none of the males in the rural area had prosthesis. When females in age groups of 35-44 yrs were evaluated, 3.3% of urban females and 1.9% rural females had prosthetic replacement in lower jaws.

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

Prosthetic Status (Upper)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	n=	**107**	**104**	***211***	**107**	**108**	***215***	**102**	**108**	***210***
Prostheses present		0.0	1.0	***0.5***	0.0	1.9	***1.0***	8.8	5.6	***7.2***
Bridge or more than one bridge		0.0	1.0	***0.5***	0.0	0.9	***0.5***	0.0	0.0	***0.0***
Partial denture		0.0	0.0	***0.0***	0.0	0.9	***0.5***	4.9	0.9	***2.9***
Both Bridge and partial denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Full removal Denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	3.9	4.6	***4.3***
State Urban		**28**	**29**	***57***	**27**	**30**	***57***	**31**	**27**	***58***
Prostheses present		0.0	0.0	***0.0***	3.7	3.3	***3.5***	6.5	3.7	***5.1***
Bridge or more than one bridge		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Partial denture		0.0	0.0	***0.0***	3.7	3.3	***3.5***	3.2	3.7	***3.5***
Both Bridge and partial denture		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***	3.2	0.0	***1.6***
State Total	n=	**135**	**133**	***268***	**134**	**138**	***272***	**133**	**135**	***268***
Prostheses present		0.0	0.8	***0.4***	0.6	2.1	***1.4***	8.4	5.3	***6.9***
Bridge or more than one bridge		0.0	0.8	***0.4***	0.0	0.8	***0.4***	0.0	0.0	***0.0***
Partial denture		0.0	0.0	***0.0***	0.6	1.3	***1.0***	4.6	1.4	***3.0***
Both Bridge and partial denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Full removal Denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	3.8	3.9	***3.9***

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

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

Prosthetic Status (Lower)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	*n=*	**107**	**104**	***211***	**107**	**108**	***215***	**102**	**108**	***210***
With Prostheses present		0.0	0.0	***0.0***	2.8	4.6	***3.7***	8.8	7.4	***8.1***
Bridge or more than one bridge		0.0	0.0	***0.0***	1.9	0.9	***1.4***	0.0	0.0	***0.0***
Partial denture		0.0	0.0	***0.0***	0.9	2.8	***1.9***	2.9	1.9	***2.4***
Both Bridge and partial denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.9	***0.5***
Full removal Denture		0.0	0.0	***0.0***	0.0	0.9	***0.5***	5.9	4.6	***5.3***
State Urban	*n=*	**28**	**29**	***57***	**27**	**30**	***57***	**31**	**27**	***58***
With Prostheses present		0.0	0.0	***0.0***	0.0	13.3	***6.7***	6.5	11.1	***8.8***
Bridge or more than one bridge		0.0	0.0	***0.0***	0.0	3.3	***1.7***	0.0	0.0	***0.0***
Partial denture		0.0	0.0	***0.0***	0.0	10.0	***5.0***	3.2	7.4	***5.3***
Both Bridge and partial denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.0	***0.0***
Full removal Denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	3.2	3.7	***3.5***
State Total	*n=*	**135**	**133**	***268***	**134**	**138**	***272***	**133**	**135**	***268***
With Prostheses present		0.0	0.0	***0.0***	2.4	6.1	***4.3***	8.4	8.0	***8.2***
Bridge or more than one bridge		0.0	0.0	***0.0***	1.6	1.3	***1.5***	0.0	0.0	***0.0***
Partial denture		0.0	0.0	***0.0***	0.8	4.0	***2.4***	3.0	2.7	***2.9***
Both Bridge and partial denture		0.0	0.0	***0.0***	0.0	0.0	***0.0***	0.0	0.8	***0.4***
Full removal Denture		0.0	0.0	***0.0***	0.0	0.8	***0.4***	5.4	4.5	***5.0***

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

In the 65-74 yrs age group, 6.5% of urban males and 8.8% of rural males had prosthesis, while 3.7% of urban females and 5.6% of rural females had prosthetic replacement in the form of complete denture and partial denture. Majority (3.9% males and 4.6% females) of the subjects in rural area has complete denture prosthesis, while only 3.2% of males in urban males had complete dentures.

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

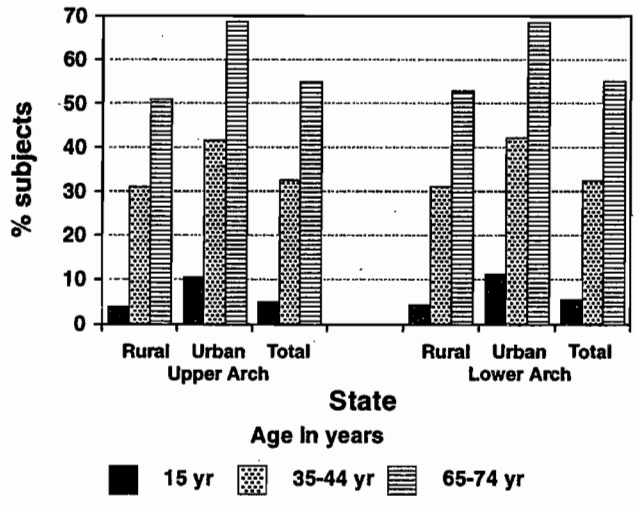
Prosthetic status (Full mouth removal dentures)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	n=	64	62	*126*	65	66	*131*	59	65	*124*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	5.1	7.7	*6.4*
State Urban	n=	20	23	*43*	20	23	*43*	23	20	*43*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	4.3	0.0	*2.2*
State Total	n=	84	85	*169*	85	89	*174*	82	85	*167*
% subjects with full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	4.9	6.3	*5.6*

6.6.5 Prosthetic need

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

Table 6.22 and Table 6.23 and Fig. 6.22 and 6.23 present the percent subjects with prosthetic need of upper and lower dental arches by type of prostheses needed. Table 6.24 presents the percent subjects who needed full mouth removable dentures.

Fig 6.22 & 6.23 Percent subjects with prosthetic need (upper & lower arches) in Goa



14.3% of 15 yr males in the urban area and 6.5% rural males of 15 yrs. had prosthetic need which was of the single unit type. The comparative analysis among 15 yr old males revealed that the demand for prosthesis was higher among urban males. Among the 15 yr. old females in the urban area 3.4% needed prosthesis, while only 1.9% of 15 yr rural females required prosthesis.

In the 35-44 yrs age group, 33.3% of urban males required prosthesis, of which 25.9% needed multiple units and 7.4% required single unit. While the prosthetic need among the rural males was 29%, of which 15% required multiple units, 13.1% required single unit and 0.9% required full prosthesis.

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

State : Goa

Prosthetic Need (Upper)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	n=	107	104	211	107	108	215	102	108	210
With Prosthetic need		7.5	1.9	4.7	29.0	32.4	30.7	50.0	54.6	52.3
Need for one unit prosthesis		6.5	1.9	4.2	13.1	7.4	10.3	2.9	1.9	2.4
Need for multi unit prosthesis		0.9	0.0	0.5	15.0	23.1	19.1	21.6	21.3	21.5
Need for combination of one and/or MUP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Need for full prosthesis		0.0	0.0	0.0	0.9	1.9	1.4	25.5	31.5	28.5
State Urban	n=	28	29	57	27	30	57	31	27	58
With Prosthetic need		17.9	3.4	10.7	33.3	50.0	41.7	67.7	70.4	69.1
Need for one unit prosthesis		14.3	3.4	8.9	7.4	6.7	7.1	6.5	0.0	3.3
Need for multi unit prosthesis		3.6	0.0	1.8	25.9	43.3	34.6	35.5	29.6	32.6
Need for combination of one and/or MUP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Need for full prosthesis		0.0	0.0	0.0	0.0	0.0	0.0	25.8	40.7	33.3
State Total	n=	135	133	268	134	138	272	133	135	268
With Prosthetic need		9.1	2.2	5.7	29.6	35.4	32.5	53.2	57.0	55.1
Need for one unit prosthesis		7.8	2.2	5.0	12.2	7.3	9.8	3.6	1.6	2.6
Need for multi unit prosthesis		1.4	0.0	0.7	16.6	26.5	21.6	24.1	22.6	23.4
Need for combination of one and/or MUP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Need for full prosthesis		0.0	0.0	0.0	0.8	1.5	1.2	25.5	32.9	29.2

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

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

Prosthetic Need (Lower)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural	n=	107	104	211	107	108	215	102	108	210
With Prosthetic need		10.3	8.7	9.5	30.8	42.6	36.7	48.0	53.7	50.9
Need for one unit prosthesis		7.5	8.7	8.1	12.1	14.8	13.5	2.9	4.6	3.8
Need for multi unit prosthesis		2.8	0.0	1.4	18.7	26.9	22.8	21.6	19.4	20.5
Need for combination of one and/or MUP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Need for full prosthesis		0.0	0.0	0.0	0.0	0.9	0.5	23.5	29.6	26.6
State Urban	n=	28	29	57	27	30	57	31	27	58
With Prosthetic need		28.6	13.8	21.2	37.0	53.3	45.2	61.3	66.7	64.0
Need for one unit prosthesis		25.0	13.8	19.4	11.1	13.3	12.2	3.2	0.0	1.6
Need for multi unit prosthesis		3.6	0.0	1.8	22.2	40.0	31.1	32.3	25.9	29.1
Need for combination of one and/or MUP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Need for full prosthesis		0.0	0.0	0.0	3.7	0.0	1.9	25.8	40.7	33.3
State Total	n=	135	133	268	134	138	272	133	135	268
With Prosthetic need		13.2	9.5	11.4	31.8	44.4	38.1	50.4	55.7	53.1
Need for one unit prosthesis		10.3	9.5	9.9	12.0	14.6	13.3	3.0	3.9	3.5
Need for multi unit prosthesis		2.9	0.0	1.5	19.2	29.1	24.2	23.5	20.4	22.0
Need for combination of one and/or MUP		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Need for full prosthesis		0.0	0.0	0.0	0.6	0.8	0.7	23.9	31.3	27.6

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

Among 35-44 yrs old females, 50% needed prosthesis in the urban area which was mostly (43.3%) of the multiple unit type. While 32.4% of rural females in the same age group needed prosthesis among which 23% required multiple prosthesis, 7.4 required single unit and 1.9% required full prosthesis.

When the 65-74 yrs old age group was evaluated. 67.7% of urban males required prosthesis, among which 35.5% required multiple units, 6.5% required single unit, 25.8% needed full prosthesis. 50% of rural males needed prosthesis with a distribution of 21.6% multiple units, 2.9% single unit and 25.5% requiring full prosthesis.

As regards to urban females of 65-74 yr age groups 70.4% needed prosthesis, among which the need for full prosthesis was 40.7%, and for multiple unit was 29.6%. The evaluation of rural females of the same age groups revealed that the prosthetic need was about 54.6%, among which 31.5% requiring full prosthesis, 21.3 needed multiple unit and 1.9% required single unit.

The prosthetic need for lower jaw among the 15 yr old urban males was 17.9% among which 14.3% needed single unit and 3.6% needed multiple units. 7.5% of 15 yr. old rural males needed prosthesis, of which 6.5% required single unit and 0.9 needed multiple units.

3.4% of urban females belonging to same age group required single unit prosthesis, while 1.9% of 15 yr old rural females required single unit prosthesis.

In the 35-44yr old age groups, 33.3% of urban males required prosthesis, with a distribution of 25.9% requiring multiple unit and 7.4% needing single unit. As regards to rural males of same age groups 29% needed prosthesis, of which 15% required multiple unit, 13% required single unit, and 0.9% required full prosthesis.

Among females of 35-44 yr. old age groups. 50% of urban females required prosthesis, among which 43.3% requiring multiple unit and 6.7 needing single unit. While the rural females belonging to same age group required 32.4% of prosthesis, of which 23.1% needed multiple unit and, 7.4% required single unit and 1.9% needed full prosthesis.

While evaluating the 65-74 yr age group, it was observed that 67.7% of urban males needed prosthesis. Among which 35.5 needed multiple unit, 6.5% required single unit and 25.8% required full prosthesis. When compared to rural males of same age group, 50% needed prosthesis, of which 21.6% needed multiple unit, 2.9% needed single unit, 25.5% required full prosthesis.

70.4% of the urban females belonging to 65-74 yrs age groups required prosthesis, among which 29.4% needed multiple unit and 40.7% required full prosthesis while 54.6% of rural females needed prosthesis, with a distribution of 21.3% requiring multiple units, 1.9% requiring single unit and 31.5% need full prosthesis.

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

Prosthetic need for full denture (upper & lower arch)		15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T
State Rural										
	n=	64	62	*126*	65	66	*131*	59	65	*124*
% subjects needing full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	33.9	46.2	*40.1*
State Urban										
	n=	20	23	*43*	20	23	*43*	23	20	*43*
% subjects needing full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	34.8	50.0	*42.4*
State Total										
	n=	84	85	*169*	85	89	*174*	82	85	*167*
% subjects needing full mouth removable dentures		0.0	0.0	*0.0*	0.0	0.0	*0.0*	34.1	46.9	*40.5*

6.6.6 Community need for immediate care and referrals

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

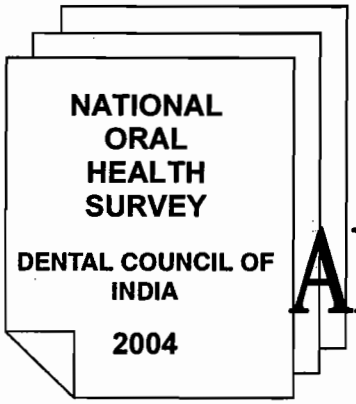
Of the 35-44 year old males in the rural area 1.9% needed referral, for the life threatening condition (0.9%) and other conditions (0.9%).

Similarly among the 65-74 year old males in the rural area, 1% needed referral for conditions other than life threatening conditions.

None of the 5 year, 12 year or 15 year olds in the rural area and the 5 year, 12 year or 35-44 year olds in the urban area had any pain or infection, life threatening condition or any other condition that warranted immediate care or a referral.

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

Need For Care & Referral		5 years			12 years			15 years			35-44 years			65-74 years		
		M	F	T	M	F	T	M	F	T	M	F	T	M	F	T
State Rural	n=	102	108	*210*	107	105	*212*	107	104	*211*	107	108	*215*	101	106	*207*
Life threatening condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.9	0.0	*0.5*	0.0	0.0	*0.0*
Pain or infection		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Other condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.9	0.0	*0.5*	1.0	0.0	*0.5*
Referral		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.9	0.0	*1.0*	1.0	0.0	*0.5*
State Urban	n=	28	28	*56*	27	26	*53*	28	29	*57*	27	30	*57*	31	26	*57*
Life threatening condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Pain or infection		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Other condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Referral		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
State Total	n=	130	136	*266*	134	131	*265*	135	133	*268*	134	138	*272*	132	132	*264*
Life threatening condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.8	0.0	*0.4*	0.0	0.0	*0.0*
Pain or infection		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*
Other condition		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.8	0.0	*0.4*	0.8	0.0	*0.4*
Referral		0.0	0.0	*0.0*	0.0	0.0	*0.0*	0.0	0.0	*0.0*	1.6	0.0	*0.8*	0.8	0.0	*0.4*



ANNEXURES

DENTAL COUNCIL OF INDIA

EXECUTIVE COMMITTEE

Dr. R K Bali
President
New Delhi

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

Dr. Anil Kohli
New Delhi

Dr. Ravindra Ratolikar,
Hyderabad

Dr. S. G. Damle
Mumbai

Dr. B. H. Sripathi Rao
Mangalore.

Dr. J. R. Sabharwal
New Delhi

Dr. S. P. Agarwal,
New Delhi

OUTGOING MEMBERS

Dr. Mahesh Verma, New Delhi.

Dr. V. Surindra Shetty, Mangalore.

Dr. B. Suresh Chandra, Mangalore.

SUPPORT STAFF

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

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

Mr. C.L. Bhatia

Mr. K. V. Abraham

Mr. P. K. De

Mr. Shiv Kumar

Mr. Praveen Kumar

Mr. S. S. Kanyal

Mr. Puneet Bansal

Mr. Anil Kumar

NOHS SECRETARIAT

Mrs. Sarita Verma

ANNEXURE - 1

CENTRAL SURVEY TEAM

Dr. R. K. Bali

Dr. V. B. Mathur

Prof. P. P. Talwar

Mr. H. B. Chanana

ANNEXURE - 2

TECHNICAL WORKING GROUP

Dr. R. K. Bali, President, DCI

Dr. V.B. Mathur

Dr. Shankar Aradhya

Dr. K.V.V. Prasad

Dr. M.B. Aswathnarayana

Prof. P.P. Talwar

Dr. Amrit Tiwari

LIST OF STATES, REGIONS WITHIN STATES AND SELECTED DISTRICTS

ANNEXURE - 3

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

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

ANNEXURE - 4

LIST OF PARTICIPATING DENTAL COLLEGES

1.	Regional Dental College, Guwahati, (Assam)
2.	Govt. Dental College & Hospital, Ahmedabad (Gujarat)
3.	Maulana Azad Dental College & Hospital, MAMC, Delhi
4.	B.R.S. Dental College & Hospital Panchkula (Haryana)
5.	Dental College, Rohtak (Haryana)
6.	H.P. Govt. Dental College, Shimla (H.P.)
7.	College of Dental Surgery, Kasturba Medical College, Mangalore (Karnataka)
8.	Govt. Dental College, Bangalore
9.	Bharati Vidyapeeth Dental College & Hospita, Pune
10.	Dental Wing, S.C.B. Medical College, Cuttak (Orissa)
11.	Mahatma Gandhi Dental College & Hospital, Pondicherry
12.	Faculty of Dental Science, C. S. M. S. S. University, Lucknow
13.	College of Dentistry, Indore (M.P)
14.	Sri Sai College of Dental Surgery, Vikarabad – 501 101 (R.R. Dist. – A.P.)
15.	Govt. Dental College, Thiruvananthapuram, Kerala
16.	Govt. Dental College, Calicut, Kerala
17.	Govt. Dental College, Kottayam. Kerala.

ANNEXURE - 5

REGIONAL COORDINATORS

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

NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

ANNEXURE - 6

TEAM MEMBERS (GOA)

S. No.	Name	Designation
1.	Dr. Ramesh B. Bhonsle	Team leader
2.	Dr. Vedesh Jhalmi	Team member
3.	Dr. Rajesh Gaonkar	Team member
4.	Dr. Steven Rodrigues	Supervisor
5.	Dr. (Mrs.) Muglikar	Training
6.	Dr. James Samuel	Back-up team
7.	Dr. Aquaviva Fernandes	Back-up team
8.	Dr. Kennedy Mascarenhas	Back-up team
9.	Dr. Diksha Kamat	Back-up team
10.	Dr. Pushpa Kumari	Back-up team
11.	Dr. Bilva Desai	Back-up team
12.	Dr. R. B. Bhonsle	Report writing
13.	Dr. Aquaviva Fernandes	Report writing
14.	Dr. Sandeep Lawande	Report writing
15.	Dr. Steven Rodrigues	Report writing
16.	Dr. Steven Rodrigues	State coordinator:

ANNEXURE - 7

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

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

DATE / तिथि [ ][ ][ ][ ][0][2] (DAY) (MONTH) (YEAR)

FORM NO. फार्म संख्या [1][0] (1-2)

STATE / राज्य [ ][ ] (6-7)

TEAM NO. दल संख्या (टीम) [ ][ ][ ] (3-5)

ZONE / क्षेत्र (ज़ोन) [ ][ ] (8-9)

DISTRICT / जिला [ ] (10)

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

VILLAGE CODE **R / U /** आर/यू **R = 1, U = 2** [1][2] (13) **R U**

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

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

NAME OF SPOUSE _____
पत्नी का नाम

ADDRESS OF THE HOUSEHOLD _____
घर का पता

_____

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

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

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

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

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*** ..... ***1*** अशिक्षित ***Primary*** ..... ***2*** प्राइमरी ***Middle*** ..... ***3*** मिडिल ***High School*** ..... ***4*** हाईस्कूल ***Graduate*** ..... ***5*** स्नातक ***Professional*** ..... ***6*** व्यवसायिक	(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.	**Socio-demographic cherecteristics of the individual**									
अ.	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			A S K E D	A S K E D				(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			B E	B E				(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			O	O				(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			T	T				(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			N O T	N O T				(90-94)

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

B. Abnormal Oral Habits

ब. मुख सम्बन्धी असामान्य आदतें

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

C. Eating Habits

स. खान–पान की आदतें

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

S. No./ क्रम सं.	Question / प्रश्न	Response / उत्तर	Code/कोड		5 Yrs. / 5 वर्ष	12 Yrs. / 12 वर्ष	15 Yrs. / 15 वर्ष	35-44 Yrs./ 35–44 वर्ष	65-74 Yrs./ 65–74 वर्ष	
35.	When were these sweet eaten ? / मीठा कब–कब खाया गया?	During Meals ..... भोजन के समय 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. Oral Hygiene Practices
द. मुख की सफाई

36.	How do you generally clean your teeth?/ सामान्यतः आप अपने दांत कैसे साफ करते हैं?	Finger/ उंगली से ..... 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*** ..... फ्लोराइड–युक्त ***Non-Fluoridated*** ..... फ्लोराइड–रहित ***Can't Say*** ..... कह नहीं सकता ***None***	***1*** ***2*** ***3*** ***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 ..... ***4-6 months/*** 4–6 माह ..... ***6 + months/*** ..... 6 से अधिक ***NA (Not using/ Brush)***	***1*** ***2*** ***3*** ***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*** ..... कभी नहीं ***Sometimes*** ..... कभी–कभी ***Always*** ..... सर्वदा	***1*** ***2*** ***3***							(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*** ..... डेन्टल फ्लॉश ***Interdental Brush*** ..... इन्टरडेन्टल ब्रुश ***Toothpicks*** ..... टूथ पिक्स ***Fluoride Mouthrinse*** ..... फ्लोराइड माउथरिन्स ***Other*** ..... ***Mouthwash/Rinse (Specify)*** अन्य माउथवाश / रिन्स लिखें ***None/*** कोई नहीं	***1*** ***2*** ***3*** ***4*** ***5*** ***6***							(165-184)

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

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

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

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

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

53.	*Do you smoke? /* क्या आप धूम्रपान करते हैं?	*No/* नहीं	1	In case NO go to Q. 61	ASKED TO BE					(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		NOT ASKED					(340-359)
		Hookah/ हुक्का	2							
		Cigars/ सिगार	3							
		Cigarettes/ सिगरेट	4							
		Bidis/ बिड़ी	5							
		Others (Specify)/ अन्य	6							

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

DENTAL COUNCIL OF INDIA, NEW DELHI

NATIONAL ORAL HEALTH SURVEY & FLUORIDE MAPPING

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

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

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

STATE | | | (6-7)

ZONE | | | (8-9)

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

DISTRICT | | (10)

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

CODE

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

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

NAME OF HEAD OF HOUSEHOLD Mr. / Mrs. _____

NAME OF SPOUSE _____

ADDRESS OF THE HOUSEHOLD _____

_____

EXAMINER _____ (NAME) (SIGN)

RECORDER _____ (NAME) (SIGN)

NAME OF INTERVIEWER _____ (NAME) (SIGN)

FIELD CHECKED BY _____ (NAME) (SIGN)

SCRUTINISED BY _____ (NAME) (SIGN)

CHECKED BY _____ (NAME) (SIGN)

WHO ORAL HEALTH ASSESSMENT FORM (1997)

GENERAL INFORMATION

Name .....

Date of birth (17) Year Month (20)

Age in years (21) (22)

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

Ethnic group (24)

Occupation (25)

Geographical location (26) (27)

Location type : (28)

1 = Urban
2 = Periurban
3 = Rural

OTHER DATA (specify and provide codes)

..... (29)

..... (30)

CONTRAINDICATION TO EXAMINATION

Reason..... (31)

..... 0 = No 1 = yes

CLINICAL ASSESSMENT

(32)

EXTRA-ORAL EXAMINATION

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

TEMPOROMANDIBULAR JOINT ASSESSSMENT

SYMPTOMS
0 = NO
1 = Yes
9 = Not recorded

(33)

SIGNS
0 = No
1 = Yes
9 = Not recorded

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

ORAL MUCOSA

CONDITION

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

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

LOCATION

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

ENAMEL OPACITIES/HYPOPLASIA

Permanent teeth

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

	14	13	12	11	21	22	23	24	
(43)	☐	☐	☐	☐	☐	☐	☐	☐	(50)
(51)	☐							☐	(52)
	46							36	

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

	17/16	11	26/27	
(54)	☐	☐	☐	(56)
(57)	☐	☐	☐	(59)
	47/46	31	36/37	

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

	17/16	11	26/27	
(60)	☐	☐	☐	(62)
(63)	☐	☐	☐	(65)
	47/46	31	36/37	

DENTITION STATUS AND TREATMENT NEED

Identification Number

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

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

Primary teeth Crown	Permanent teeh Crown	Permanent teeh Root	STATUS	TREATMENT
A	0	0	Sound	0 = None
B	1	1	Decayed	P = Preventive, caries arresting care
C	2	2	Filled, with decay	
D	3	3	Filled, no decay	F = Fissure sealant
E	4	-	Missing, as a result of caries	1 = One surface filling
				2 = Two or more surface fillings
-	5	-	Missing, any other reason	3 = Crown for any reason
F	6	-	Fissure sealant	4 = Veneer or laminate
G	7	7	Bridge abutment special crown or veneer/implant	5 = Pulp care and restoration
				6 = Extraction
-	8	8	Unerupted tooth, (Crown) / unexposed root	7 = Need for other care (specify).....
				8 = Need for other care (specify).....
T	T	-	Trauma (fracture)	
-	9	9	Not recorded	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