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Original Article

Oral Health Status of Institutionalized Leprosy Patients in Kerala

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This study has been undertaken to evaluate the oral health status of treated institutionalised leprosy patients in Kerala. A cross sectional descriptive study was conducted in 750 institutionalized treated leprosy patients residing in 6 different leprosy care centres (three government sanatoria and three non governmental leprosy institutions) in Kerala. Treated leprosy afflicted persons (LAPs) who provided consent to participate in the study were included. The oral health status was assessed by clinical examination and findings were recorded using WHO Oral Health Assessment Form (1997). Among 750 leprosy patients examined, 393 were males and 357 were females. The prevalence of oral mucosal lesions was 57 (7.6%). Oral Candidiasis 18 (2.4%) was the most prevalent oral mucosal lesion followed by palatal ulceration 12(1.6%). The proportion of persons having extra oral lesions was 531(70.8%). Temporo-mandibular-joint (TMJ) disorders were present in 352 (47%) subjects. Periodontal status of the subjects were poor, 570 **(76.8%) subjects were having** calculus or pockets. Majority of the subjects 411(54.8%) had periodontal pocket of 4mm or more. 581 (76.8%) subjects had

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attachment loss. These subjects had a prevalence of 459 (61.2%) for dental caries. The treatment needs of the population were high, i.e. 73.6% needed filling, 70.4% required extraction, 92.6% required prostheses and 0.8% required crown. Dental caries, periodontal disease, oral mucosal lesions, and TMJ problems were prevalent in these institutionalized leprosy patients. After the comparison with National Oral Health data, it was observed that only the missing teeth and DMFT were higher in this institutionalized population of leprosy afflicted persons (LAPs), otherwise oral health conditions as such are not good in this age groups in general population as well as LAPs. The prosthetic needs of this community appear to be largely unmet, which requires timely intervention. Oral health problems of such leprosy afflicted persons, already treated for leprosy but living in institutions due to social reasons, can be minimised by appropriate interventions such as oral health education and oral health care programmes organized on a regular basis.

Keywords : Leprosy, Oral Health Status, Dental caries, Periodontal disease

Introduction

Leprosy is a chronic infectious granulomatous disease that mainly affects the skin, peripheral nerves and the mucous membranes (Kustner et al 2006, Rawlani et al 2008). *Mycobacterium leprae* is the main etiological agent for this dreaded disease. Leprosy disease has been known to man since time immemorial (Bhat and Prakash 2012). The infectivity is much low for this organism and frequent exposures are needed for contracting clinical disease. (Rawlani et al 2008). This mycobacterium has a preference for peripheral tissue, as it appears to survive better at a temperature close to 30°C rather than 37°C. Hence it affects the skin, peripheral nerves, and themucosa of the upper airways. (Rawlani et al 2011).

Leprosy manifests as a clinical spectrum ranging from the tuberculoid form (TT), with lesions that are often self-healing, to the more disseminated and progressive lepromatous form (LL) (Motta et al 2011). Moller-Christensen et al (1952) and Scheepers et al (1993) described a triad of lesions pathognomic for leprosy, known as Facial leprosa. Manifestations include atrophy of anterior nasal spine, atrophy and recession of the alveolar processes of the premaxilla, and endonasal inflammatory changes, constituting a characteristic syndrome within this disease. (Rawlani et al 2011).

Leprosy may have relevance to dentistry because it often has oro-facial manifestations (Costa et al 2003). These include intra-oral nodules on the palate, dorsum of tongue, lips and pharynx and skeletal changes which can cause destruction of the alveolar pre-maxillary process associated with loss or loosening of the maxillary incisors (Motta et al 2008).

According to the reports of various authors, involvement of oral mucosa in leprosy is considered to be of great epidemiological significance as this, along with nasal mucosal involvement, may constitute an important source of transmission of bacilli (Pallagatti et al 2012). Studies reported that people affected by leprosy had significantly worst quality of life scores as well as lower physical and psychological domain scores compared with the general population (Tsutsumia et al 2007, Bello et al 2013). Further, inter-relationship between oral and general health has been well emphasized. Good oral health is essential to improve QOL of life in the afflicted patients (Feng et al 2014). Therefore, it is very important to study the dental condition of people with leprosy, in order to improve their quality of life.

There are reports that oral infections especially dental and periodontal infections could be exacerbating factors for leprosy reactions and dental treatment may improve the care for people affected by leprosy and help to prevent disability caused by leprosy (Motta et al 2011). According to certain studies; the dental and periodontal status of patients with leprosy has not been studied adequately (Rawlani et al 2011).

Knowing oral health status and treatment needs can lead to development of tailored preventive programme(s) that can effectively reduce oral disease burden and improve oral health related quality of life. Treated leprosy patients also require special attention related to oral health to avoid late complications like leprosy reactions and to restore their dental and periodontal health. While institutionalized leprosy afflicted persons form a very small proportion of total leprosy cases, they are important because of most of them being socially marginalized persons and their oral health needs can be met by developing and implementing organized services for these institutions. Hence this study was conducted to evaluate oral health status of institutionalized leprosy patients in Kerala.

Materials and Methods

This cross sectional descriptive study was carried out at Yenepoya Dental College to evaluate the oral health status of institutionalized treated leprosy afflicted persons (LAPs) who were permanent residents of various Leprosy care institutions of Kerala and were possibly ostracized by the society. The study population comprised of 750 treated institutionalized leprosy afflicted persons residing in six different leprosy care centres situated in Kerala, who met the inclusion criteria. These six leprosy care centres included Govt. Leprosy Sanatorium, Nooranadu, St. Johns Hospital & Leprosy Care Centre, Trivandrum, Poor Leprosy hospital, Green Gardens Cherthala, Alappuzha, St. Damien Leprosy Care Centre, Thrissur, Govt. Leprosy Sanatorium, Koratti, Thrissur and Govt. Leprosy Sanatorium, Chevayoor, Calicut.

Inclusion Criteria and Clinical Examination: Individuals affected with leprosy and had undergone treatment, who provided consent to participate in the study, and were residing in the institution for leprosy on the days of examination were included. Ethical Clearance was obtained (Yenepoya University - YUEC 141/3/12/12). The examination was carried over a period of 2 months i.e. May 2014 - June 2014. The oral status was assessed by clinical examination and findings were recorded using WHO Oral Health Assessment Form (1997). Extra oral examination, intra-oral examination, TMJ examination, dental and periodontal condition, treatment needs were evaluated entirely based on WHO criteria (1997). Clinical oral examination was carried out by the investigator (a student of *Masters Degree in Public Health Dentistry). Findings were recorded with the help of two colleagues (students of **Masters in Paediatric Dentistry and **Masters in Public Health Dentistry). The examination was carried out in broad day light by making the subjects sit on a chair or in case of non-ambulatory subjects by lying down on bed. Informed consent was obtained prior to examination from the subjects.

Statistical Analysis : The data was fed into SPSS-18 software for analysis. The results were tabulated in the form of frequency distribution tables.

Results

There were more males 393 (52.4%) in the study population than females 357 (47.6%) (Fig. 1). The subjects were stratified in to three age groups of 25-50 years, 51-75 years, and 76-100 years (Fig. 2). Among the 750 subjects, 447 (59.6%) were unemployed; the overall prevalence of bad

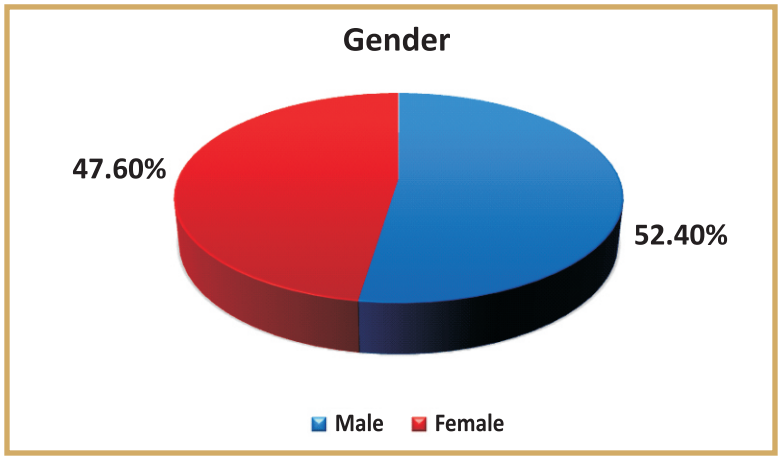

Fig. 1 : Distribution of study subjects according to gender

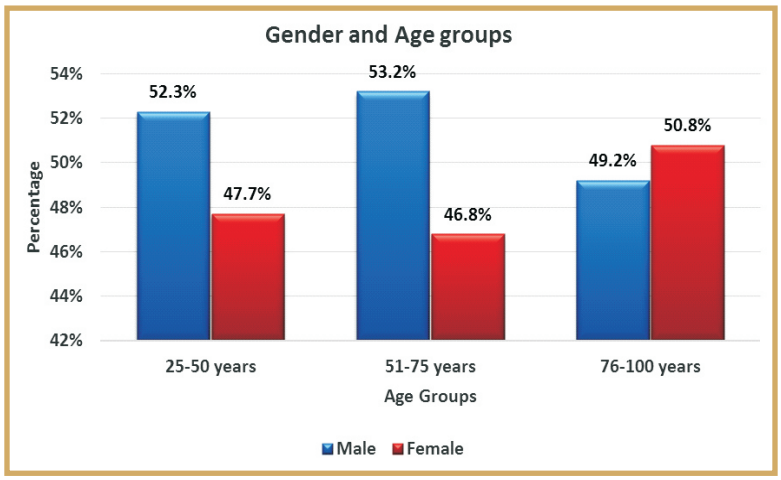

Fig. 2 : Distribution of study subjects according to gender by age categories

social habits in the population was 36.1% with the majority being male subjects (22.8%). Usage of tobacco products was prevalent amongst 204 (27.2%) subjects. Consumption of alcohol was prevalent only in 24 (3.2%) males and 43 (5.73%) of male subjects had habit of smoking.

As per the recordings based on WHO (1997), there were 352 (47%) subjects with TMJ signs. The proportion of population having extra oral lesions was 70.8%. 465 (62%) of the subjects had ulceration of limbs, 66 (8.8%) subjects had ulceration of nose and cheeks (Table 1). The prevalence of oral mucosal lesions were 57 (7.6%), again more prevalence were for males (8.9%) compared to females (6.1%). Oral lesions included; oral Candidiasis 18 (2.4%), mucosal ulceration 12 (1.6%), geographic tongue 9(1.2%), leukoplakia 3 (0.4%) and acute necrotizing

Table 1 : Number and percentage of subjects with Temperomandibular joint symptoms like clicking, tenderness on palpation and reduced jaw mobility and with extra-oral lesions

TMJ SIGNS	NUMBER (%)
TMJ signs present	352(47%)
Clicking	216(28.8%)
Tenderness	96(12.8%)
Reduced jaw mobility	40(5.3%)
EXTRA ORAL LESIONS	**NUMBER (%)**
Normal extra oral appearance	219(29.2%)
Ulceration, Sores, Erosions, Fissures (Head, neck, limbs)	465(62.0%)
Ulceration, Sores, Erosions, Fissures (Nose, Cheeks)	66(8.8%)

Table 2 : Gender wise distribution of oral mucosal lesions in LAPs studied

Oral mucosal Lesion	Sex		Total
	Male	Female	
No Abnormal Condition	358(51.7%)	335(48.3%)	693(92.4%)
Leukoplakia	3(100.0%)	0	3(0.4%)
Ulceration	9(75.0%)	3(25.0%)	12(1.6%)
Acute Necrotizing Gingivitis	5(83.3%)	1(16.7%)	6(0.8%)
Candidiasis	7(38.9%)	11(61.1%)	18(2.4%)
Abscess	5(55.6%)	4(44.4%)	9(1.2%)
Geographic Tongue	6(66.7%)	3(33.3%)	9(1.2%)
Total	393(52.4%)	357(47.6%)	750(100.0%)

gingivitis among 6(0.8%) subjects. Leukoplakia was seen only in males. Acute necrotizing gingivitis was more prevalent among males. Amongst female subjects, Candidiasis was the most common lesion. (Table 2).

Other significant extra oral findings observed other than those included in WHO Performa recording included, depressed nasal bridge [468(62.5%)], Machrochelia of lips [80(10.67%)], hypo pigmented facial cutaneous macules [322 (43%)] and facial nerve paralysis [9(1.2%)].

Periodontal status was assessed using Community Periodontal Index (CPI). 195 (26%) subjects had the highest CPI score of code 4 (deep pocket), 216 (28.8%) subjects had highest score of code 3, and 165 (22%) subjects had highest score of code 2 (Table 3). In the present study, 174 (23.2%) subjects were completely edentulous, hence the sextants were excluded (Table 4). When the periodontal status, according to loss of attachment was assessed, it was observed that the highest proportion (213 (28.4%)) were the subjects with loss of attachment of 0 - 3 mm was recorded. It was observed that 153 (20.4%) subjects had loss of attachment of 4 - 5 mm, 183 (24.4%) subjects had loss of attachment of 6 - 8 mm, 27 (3.6%) subjects had loss of attachment of 9 - 11 mm, and 174 (23.2%) subjects had excluded

Table 3 : Distribution of study subjects according to highest Community Periodontal Index (CPI) Scores

Highest CPI score	Number (%)
CODE 0 -Healthy	0 (0%)
CODE 1- Bleeding	0 (0%)
CODE 2- Calculus	165 (22.0%)
CODE 3- Pocket 4-5mm	216 (28.8%)
CODE 4- Pocket 6mm or more	195 (26.0%)
CODE 5-Excluded Sextant	174 (23.2%)
Total	750 (100.0%)

Table 4 : Number and percentage of subjects with loss of attachment by highest score

Highest LOA Score	Number (%)
Loss of attachment 0-3mm	213(28.4%)
Loss of attachment 4-5mm	153(20.4%)
Loss of attachment 6-8mm	183(24.4%)
Loss of attachment 9-11mm	27(3.6%)
Loss of attachment 12mm or more	0(0%)
Excluded Sextant	174(23.2%)
Total	750(100.0%)

Table 5 : Age-wise distribution of subjects with and without dental caries

Caries Prevalence	Age Groups			Total
	25-50 years	51-75 years	76-100 years	
Subjects without Caries	48(16.5%)	198(68.0%)	45(15.5%)	291(38.8%)
Subjects with Caries	84(18.3%)	300(65.3%)	75(16.3%)	459(61.2%)
Total	132(17.6%)	498(66.4%)	120(16.0%)	750(100%)

sextants (Table 4). In case of caries experience in study population, it was observed that 459 (61.2%) subjects were affected with dental caries. Age wise distribution of subjects with dental caries experience showed that 300 (65.3%) subjects of the age group 51 - 75 years had most caries experience (Table 5). Among the study population, 165 (22%) subjects had root surface caries.

When the treatment needs of the population was assessed, 453 (60.4%) subjects required one surface filling, 99 (13.2%) subjects required two or more surface filling, 6 (0.8%) subjects required crown, 6 (0.8%) subjects required pulp care restoration, 528 (70.4%) subjects required extraction, 174 (23.2%) subject's required complete denture, 521(69.4%) subjects required removable partial denture. (Table 6). When the

Table 6 : Number and percentage of subjects requiring preventive or caries-arresting care, sealant, surface filling, crown, veneer or laminate, pulp care and restoration, extraction or other treatment

Treatment	Number (%)
No. of subjects requiring One Surface Filling	453 (60.4)
No. of subjects requiring Two or more Surface Fillings	99 (13.2%)
No. of subjects requiring Crown	6 (0.8%)
No. of subjects requiring Veneer or Laminate	0 (0%)
No. of subjects requiring Pulp Care	6 (0.8%)
No. of subjects requiring Extraction	528 (70.4%)
No. of subjects requiring Complete Denture	174 (23.2%)
No. of subjects requiring Removable Partial Denture	521(69.4%)

Table 7 : Number and Percentage of subjects with missing incisors, canines and premolars

Missing Teeth	Maxillary Arch	Mandibular Arch
Without missing teeth	261 (34.8%)	252 (33.6%)
With Missing Teeth	489 (65.2%)	498 (66.4%)
Mean (SD)	4.5360 (4.02)	4.63 (4.28)

Table 8 : Comparison with published data for Kerala from National Oral Health survey Databases (2002-2003) for 65-74 year age group

Clinical oral findings	Number (%) from our study	Published data for Kerala from national oral health survey databases (2002-2003) for 65-74 year age group
Caries prevalence	61.2	85%
With bleeding, calculus, or pockets	76.8%	79.9%
Mean no: of missing teeth	15.59	8.8
Mean DMFT	19.54	10.5
% Subjects with root caries	22%	25.1%
With loss of attachment	76.8%	69.5%
Oral mucosal lesions present	7.6%	8.4%

distribution of subjects with missing incisors, canines, and premolars was assessed, (65.2%) subjects had missing teeth in maxillary arch. In the mandibular arch; 498(66.4%) subjects had missing incisors, canines and premolars (Table 7).

Discussion

Leprosy is known to be a crippling disease. Despite the advances in medical field, global prevalence of leprosy is still high in certain regions like Brazil, India, Africa etc. According to official

reports received from 138 countries from all WHO regions, the global registered prevalence of leprosy at the end of 2015 was 176176 cases (0.18 cases per 10 000 people). The number of new cases reported globally in 2015 was 211 973 (0.21 new cases per 10 000 people). Only three countries reported more than 10 000 cases in 2015 - India, Brazil, and Indonesia. With 127,326 new cases, India accounted for 60% of the global new cases (WHO 2017). A total of 127334 new cases were detected during the year 2015-16, which gives Annual New Case Detection Rate (ANCDR) of 9.71 per 100,000 populations, as against 125785 cases in 2014-15. A total of 86028 leprosy cases were on record as on 1st April 2016, giving a Prevalence Rate (PR) of 0.66 per 10,000 populations, as against 88833 cases in 1st April 2015. Detailed information on new leprosy cases detected during 2015-16 indicates the proportion of MB (51.27%), Female (38.33%), Child (8.94%), According to current reports 34 States/UTs of India had already achieved the level of elimination i.e. PR less than 1 case per 10,000 population and Kerala is included in this list. (NLEP-Progress Report for the year 2015-2016).

There is paucity of literature on studies on oral health among institutionalized leprosy patients / leprosy afflicted persons. The study population consisted of 750 treated institutionalized leprosy patients residing in six different leprosy care centres in Kerala. Leprosy reactions are a serious problem during the course of leprosy since they may be responsible for much of the permanentnerve damage, thus leading to disability and deformities. As studies have reported that presence of leprosy reaction episodes might be associated with dental and periodontal infection (Motta et al 2011), hence oral hygiene of treated leprosy patients needs attention.

Majority of the study subjects in our study were males than compared to females. This is in accordance with the study conducted by Taheri et al (2012) and Martins et al (2007), where males showed higher prevalence. According to Khandapani and Mishra (2010), the excess number of cases in males than in females has been attributed to their greater mobility and increased opportunities for contact in many populations. Majority of study subjects (66.4%) belonged to 51- 75 years of age groups.

The occurrence of TMJ disorder (47%) was observed to be high in this population. This could be due to old age and higher prevalence of rheumatism in leprosy patients. Many studies have supported this finding. In a study by Khandapani and Mishra (2010), prevalence of rheumatism was 39.3% in leprosy cases.

It has been observed in many studies that lesions of leprosy occur more frequently in areas of the mouth with a lower surface temperature. The main oral cavity sites of leprosy include the gingiva in the anterior portion of the maxilla, the hard and soft palate, the uvula, and the tongue. Congestion, infiltration, formation of nodules, possible ulceration, atrophy and fibrosis are the usual sequence of pathologic changes (Ghosh et al 2010). Early manifestations of oral mucosa and tongue include granulomatous invasion, proliferation and leproma formation. Late manifestations include ulceration, scars and soft tissue defect. Lesions in lips may present as machrochelia followed by microstomia while uvula can exhibit intense fibrosis. The other oral findings seen in leprosy patients such as such as depapillated tongue, coated tongue, candidiasis, traumatic ulcer and leukoplakia do not demonstrate an association with leprosy (Martins et al 2007).

The prevalence of oral mucosal lesion in our study was 7.6%. This is similar to reported by Thirugnanasambandan et al (2011), who recor-

ded 6.39% prevalence of oral lesion in leprosy patients. The reduced number of patients exhibiting oral manifestations of leprosy is attributed to efficacy of multidrug therapy carried out in recent times. These lesions are common in the lepromatous form with the prevalence reported to range from 19-60% of the patients in the pre MDT era (Reichart 1976, Mukharjee et al 1979). There are reports which show that leprosy related lesions are now less frequent in patients (Martins et al 2007) undergoing treatment or being treated; probably due to response to multidrug therapy.

In the present study, it was observed that 2.4% subjects had oral candidiasis. In the study conducted by Martins et al (2007) prevalence of erythematous and chronic atrophic candidiasis were 7.84% and 9.8% respectively. Pereira De Souza et al (2013) showed 12.5% prevalence for candidiasis for subjects undergoing treatment. It was observed that 1.6% subjects had palatal ulceration. Martins et al (2007) had showed a prevalence of 6.86% for traumatic ulcer in his study. Thirugnanasambandan et al (2011) had showed 5.5% prevalence for palatal ulceration. Involvement of palate could be an oral manifestation of leprosy. But cannot be confirmed without definite histopathological evaluation.

In the current study, leukoplakia was seen in 0.4% subjects. This is in accordance with the study conducted by Rawlani et al (2011), where his group showed the prevalence of leukoplakia to be 1.2%. Geographic tongue showed a prevalence of 1.2% in our study. Thirugnanasambadan et al (2011) had shown 3.48% prevalence for patches on tongue. In contrary to this many other studies showed higher prevalence. According to Palagatti et al (2012), tongue involvement was seen in 17 - 25% of cases. Rawlani et al (2011) reported a prevalence of 6.25% for depapillated tongue. The prevalence of oral mucosal lesion was higher in males (8.9%) when compared females (6.1%). Scheepers et al (1993) reported the prevalence of oral lesion to be higher among males compared with females.

Periodontitis is a chronic inflammatory condition due to Gram-negative anaerobic bacteria predominantly resulting in the loss of alveolar bone and periodontal ligament. Periodontal disease is common in leprosy, and is characterized by frequent gingival bleeding, papillary hypertrophy of the gums, tooth loss, and area of hypoesthesia at the border of alveolar mucosa (Jacob Raja et al 2016). The periodontal status was assessed by Community Periodontal Index (CPI) and Loss of attachment. In our study 54.8% of the subjects had CPI score of code 4 (pocket 6 mm or more) and code 3 (pocket 4-5 mm). According to Souza et al (2009), Mild form of periodontitis is present even if there are one or more teeth with $\geq$ 3mm probing depth. In the same study, 80.8% of subjects had periodontitis. When the Periodontal status according to loss of attachment was assessed, 76.8% subjects had attachment loss. Jacob Raja et al (2016) showed a prevalence of 67.7% in their study.

In the case of caries experience in the study population, it was observed that 61.2% subjects were affected with dental caries. The findings are almost similar to caries prevalence of 73% obtained by Souza et al (2009) in their study on Brazilian leprosy patients. Jacob Raja et al (2016) showed a prevalence of 74.2% in their study. Among the study population, 22% subjects had root caries. This could be attributed due to gingival recession and old age of majority of patients.

The prevalence of missing tooth component was higher (15.59). Nunez Marti et al (2004) in their study recorded a mean of 13.55 ± 9.65 for missing teeth. Severe granulomatous involvement of premaxilla, circumferential hypoplasia, shortening of

roots of maxillary and mandibular teeth, all the aforementioned factors can be attributed to increased tooth loss in anterior region. According to Wilson and Opie (2009), periodontal disease and mobility are main reasons for tooth loss. This can be attributed to greater prevalence of missing teeth in leprosy patients. Loosening of teeth is given as orofacial manifestation of Hansen's disease by Dhillon et al (2013). In our study, it is difficult to comment as what proportion of the problem was due to leprosy background.

Pocket depth and tooth loss were observed more in patients with leprosy. Serum IgG against *Porphyromonas gingivalis* was found to be lesser in patients with leprosy (Ohyama et al 2010). Greater prevalence of periodontitis and caries can also be attributed to the inability to maintain proper oral hygiene (Wilson and Opie 2009). This could be due to disability of hands like contracture of hands, mutilated finger and hence difficulty in controlling toothbrush, altered oral tissue sensitivity. Again food clearance will be affected due to poor masticator muscle control. Cumulative effect of all these could affect the oral health conditions.

When the treatment needs of the population was considered, 60.4% subjects required one surface filling, and 13.2% subjects required two or more surface filling. This is in accordance with the study conducted by Souza et al (2009) where 60.3% did not have their teeth filled. In a study conducted by Wilson and Opie (2009) treatment needs for oral disease were found in 60.6% of the individuals. From the prosthetic status observation, it can be seen that prosthetic need was largely unmet in the present study. 92.6% subjects needed prosthesis. According to Palagatti et al (2012), the prosthetic needs were high in the leprosy patients group, as there is larger number of patients with missing tooth due to poor dental and periodontal condition. Also prosthetic needs progressively increase as the age and duration of disease increases.

In a study by Dave and Bedi (2013) 70% of leprosy patients never visited dentist. 13% only attended for problems like tooth pain. For those who visited dentist, 8 out of 13 patients had tooth extraction making it most common treatment. Hence it can be concluded that this might be due reluctance from both the groups, i.e. leprosy patients and dentist to receive and render appropriate care respectively. All the above mentioned conditions have an explicit influence on daily performance in adult, in which proper intake of nutrients are worth mentioning.

We compared our results with published data (Table 8) on oral health of 65-74 year old individuals of Kerala from national oral health survey databases (Bali et al 2004). Since majority of our study subjects belonged to 51-75 year old [498 (66.4%)]; we compared our results with the index age group, 65-74 year olds. Although caries prevalence was low, prevalence of loss of attachment, mean DMFT, mean number of missing teeth were apparently higher in leprosy afflicted persons studied by us. Dental caries prevalence was low because of greater number of missing teeth in our study population. After this comparison with National Oral Health data, it can be concluded only the missing teeth and DMFT were higher in these population, otherwise oral health conditions as such are not good in this age group.

Our study is one of the pioneer studies examining oral health status of institutionalized leprosy patients in Kerala. We were able to examine a good number of patients and delineate their oral health problems. As the oral health care was largely neglected in this group, timely intervention from responsible authorities are needed. Limitations of our study included convenient sampling technique. Secondly our study subjects

were already treated. Less is known regarding the profile of leprosy patients of Kerala with active disease. So comparisons were not possible among treated and untreated cases. For out-patient work purposes in the field, WHO simplified the classification of patients into paucibacillary (PB) and multibacillary (MB). But in our study, patients were not classified as we were focusing more on oral health perspective, however, this aspect needs attention future studies. As we did not used any diagnostic procedures, clinical classification was beyond the scope of this study. More epidemiological studies should be conducted regarding the same.

Summary and Conclusion

The aim of the study present study was to evaluate oral health status of institutionalized LAPs in Kerala. Dental caries, periodontal disease, oral mucosal lesions, and TMJ problems were found to be prevalent in these institutionalized leprosy patients. The prosthetic needs of the community have largely been unmet, which needs timely intervention. The problems of the such institutionalized LAPs though are not significantly different than general population of that age group, can be tackled perhaps better due to their location. These can be minimised by appropriate interventions such as oral health education and oral health care programmes organized on a regular basis to improve their oral related quality of life.

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