

Dental Caries and Periodontal Status of Mentally Handicapped Institutionalized Children

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ABSTRACT

Background: Dental caries and periodontal disease are the most prevalent dental disease among mentally retarded children worldwide.

Aims and Objectives: A study was carried out in Jodhpur city of Rajasthan state of India to assess the Dental caries and periodontal Status of Mentally handicapped attending special schools children in Jodhpur city.

Materials and Methods: A cross-sectional descriptive survey was conducted in 80 mentally handicapped subjects, attending a Special Needs school in Jodhpur City. Dental caries and

Periodontal Status were recorded following the WHO basic oral health survey.

Results: None of the subject had healthy periodontal status, dental caries was found in 79.2% of the subjects, Lymphadenopathy was observed in highest number of subjects 55 (76.3%).

Conclusion: Health professionals should therefore be aware of the impact of mental illness and its treatment on oral health, Health personnel should receive training to support and provide all possible services to this population.

Keywords: Dental caries, Institutionalized, Mentally handicapped, Oral hygiene, Oral health services

INTRODUCTION

Mental retardation has been defined by the American Association of Mental Deficiency (AAMD) as a deficiency in theoretical intelligence that is congenital or acquired in early life. The AAMD classifies retardation into four categories according to intelligence quotient (IQ): mild, moderate, severe or profound retardation. An individual is classified as having mild mental retardation if his or her IQ score is 50-55 to about 70; moderate retardation, IQ 35-40 to 50; severe retardation, IQ 20-25 to 35; and profound retardation, IQ below 20-25 [1].

It is estimated that there are about 500 million people with disabilities worldwide [2]. The recent NSSO report suggests that the number of disabled persons in the country is estimated to be 18.49 million, accounting for about 1.8% of the total population, while the mentally retarded population amounted to 0.44 million individuals [3].

Literature on the dental management of handicapped subjects is scarce compared with that of the normal child. Until recent years, the management of handicapped subjects was not even mentioned in the undergraduate curriculum of most dental schools in different parts of the world. Developmental disabilities can develop due to a variety of conditions which include cerebral palsy, Down's syndrome, mental retardation, autism, seizure disorders, hearing and visual impairments, congenital defects, and even social or intellectual deprivation [4].

Oral health contributes to the general health, self esteem and quality of life of an individual. Many published studies have reported relatively poor oral hygiene and high levels of periodontal disease in mentally challenged children [5,6] and in a questionnaire survey, Randell et al., found that children with Down's syndrome had poorer dental health practices than normal children do [7]. Dental caries is the most prevalent disease among mentally retarded children worldwide and dental treatment is the greatest unattended health need of the disabled [8]. Some of the most important reasons may be inadequate sessions, socioeconomic status, underestimation of treatment need or pain, communication problems and bad cooperation [8-12].

Although, numerous studies have documented the oral health status of the children with special oral health care needs, but in a developing country like India further research in this field is required. Keeping all the above mentioned statements this study

was carried out in Jodhpur city of Rajasthan state of India to assess the Dental caries and periodontal Status of Mentally handicapped attending special schoolchildren in Jodhpur, India.

MATERIALS AND METHODS

A cross-sectional descriptive single blinded study was conducted in 80 mentally handicapped subjects, aged 8-30 years, attending a Special Needs school in Jodhpur City. Children and adolescents who were present at school on the days of the survey were included in the study.

Inclusion criteria

- Should be present on the day of examination
- Guardian did not permit

Exclusion criteria

- Detrimental systemic disorders like cardiac defects
- Uncooperative child

Six subjects were absent, two did not cooperate. The final sample thus consisted of 72 mentally retarded subjects. Informed consent of the parents or guardians and school authorities was obtained before the subjects were included in the study. The study was approved by the Ethical Committee of Vyas Dental College and Hospital, Jodhpur, India.

Prior to the dental examination, children were made to sit on a comfortable chair in a well illuminated airy room, demographic information was recorded for each subject: age, gender and education and income of parents. Clinical assessment for Dental caries and Periodontal Status (Community Periodontal Index and Loss of Attachment CPI-LOA) was done by following the WHO basic oral health survey using a WHO probe [Table/Fig-1]. The two examiners were trained and calibrated by senior staff in the department of public health dentistry before starting the study. The inter-examiner variability was tested and the weighted kappa statistic was (.80).

RESULTS

There were 80 study subjects out of whom 72 subjects participated in the study, eight were either absent or were not interested in participating in the study. Thirty two subjects were below 15 years of age and 40 were above the age of 15 and the maximum age of the subject was 29 years [Table/Fig-2]. Fifty seven (79.2.00%)

of the individuals were affected with dental caries, 15 (20.8%) didn't had dental caries at all [Table/Fig-3]. None of the subject had healthy periodontal status and no subject had the score 4 (Periodontal Pocket More Than 6 mm), 39 (54.2%) had score 2 i.e. Calculus according to CPI & LOA index WHO basic oral health survey 1997 [Table/Fig-4]. Sialorrhoea was observed in only two study subjects where as Lymphadenopathy was observed in highest number of subjects [Table/Fig-5]. Abnormal speech, Bitten fingernail was also observed among the subjects as these individuals were more nervous.

Scoring	Criterion for CPI
0	Healthy
1	Bleeding On Probing
2	Calculus detected, but all the black band visible
3	Pocket 4-5 (gingival margin within black band visible)
4	Pocket 6mm or more (Black band not visible)
X	Excluded sextant
9	Not recorded

Scoring	Criterion for LOA
0	Loss of attachment 0-3mm (CEJ not visible & CPI score 0-3 If the CEJ is not visible & the CPI score is 4, or if the CEJ is visible)
1	Loss of attachment is 4-5mm (CEJ within the black band)
2	Loss of attachment is 6-8mm (CEJ between the upper limit of the black band & the 8-5mm)
3	Loss of attachment 9-12mm (CEJ between the 8.5mm & 11.5mm rings)
4	Loss of attachment 12mm or more
X	Excluded sextant (Less than two teeth present)
9	Not recorded (CEJ neither visible nor detectable)

[Table/Fig-1]: Community Periodontal Index & Loss of Attachment (CPI- LOA)

Age groups	Number of samples	
Below 15 years	32	Males 15 Females 17
More than 15 years	40	Male 22 Female 18

[Table/Fig-2]: Age wise distribution of the individuals

Age groups	No caries	Number of caries teeth				Total
		1	2	3	4	
Below 15 years	8	5	6	8	5	32 (44.4%)
More than 15 years	7	8	12	6	7	40 (55.5%)
Total	15 (20.8%)	13 (18.1%)	18 (25%)	14 (19.4%)	12 (16.6%)	72

[Table/Fig-3]: Age wise distribution of carious teeth in mentally handicapped (72 patients)

Age groups	Score 0 (Healthy)	Score 1 (Bleeding)	Score 2 (Calculus)	Score 3 (Periodontal Pocket 4-5 mm)	Score 4 (Periodontal Pocket More Than 6 mm)
Below 15 years	0	12 (37.5%)	20 (62.5%)	NA	NA
More than 15 years	0	11 (27.5%)	19 (47.5%)	10 (25%)	0
Total	0	23 (31.9%)	39 (54.2%)	10 (13.5%)	0

[Table/Fig-4]: Age wise periodontal status of mentally handicapped (72 Patients)

DISCUSSION

Oral symptoms may be the first or only manifestation of a mental health problem e.g. facial pain, preoccupation with dentures, excessive palatal erosion or self-inflicted injury. Oral manifestations of bulimia nervosa can develop within six months of onset [13] and enamel erosion is reported in sufferers of both anorexia and bulimia [14]. Burning mouth syndrome includes anxiety and depression as an aetiological factors [15].

Abnormality	Number of Subjects Affected
Flat nasal bridge	14 (19.4%)
High arched palate	18 (25%)
Malocclusion	45 (62.5%)
Delayed eruption	35 (48.6%)
Abnormal TMJ movement	10 (13.8%)
Macroglossia	8 (11.1%)
Lymphadenopathy	55 (76.3%)
Sialorrhoea	2 (2.7%)

[Table/Fig-5]: Dentofacial abnormalities among the mentally handicapped (72)

Adequate maintenance of the oral cavity in most individuals is dependent on effective brushing and this in the mentally handicapped people is a tough task and also the natural cleansing by the oral musculature may be impaired. The poor oral hygiene leads to periodontal problems and dental caries. In the study decayed teeth were seen in 79.2% of the individuals. Similar results of increased caries in mentally challenged have also been reported by Gupta et al., [16] and Bhavsar et al., [17].

Most studies assessing oral health status among people with mentally handicapped subjects reported poor periodontal status [18-21] which is in accordance with the findings of this study, in the present study the maximum number of study subjects were reported to have calculus 39 (54.2%) followed by bleeding 23 (31.9%) which is due to improper cleaning of teeth, maximum number of the subjects didn't used tooth brush to clean their teeth while 25% of the subjects were found to have periodontal pocket of 4-5mm.

This diverse and changing population experiences similar oral and dental problems, and barriers to oral health as the general population. Whether institutionalized or in the community, they are entitled to the same standards of care as the rest of the community [22,23]. There is a complex interrelationship between socio-economic factors, illness, its treatment and oral health. Cost and fear are the most commonly cited barriers to dental care [24]. Illness, whether physical or mental may lead to deterioration in self-care, and oral care may already have a low priority. Risk factors are inter-related and are often barriers to oral health. It is important to ensure that individuals have sufficient information and support in order to live independent lives including oral self care and access to appropriate dental care services.

It was observed that three subjects had the habit to consume tobacco (chewable form) as stated by the warden of the institute, it was stated that steps are being taken and one of the subject had already stopped the habit. This habit it very rapidly developed from the peers, same is the condition in this study seeing the things the institute authorities started tobacco counseling of the subjects so that no other subject develop the habit.

Many dentofacial anomalies were also observed such as high arched palate, malocclusion, delayed eruption of teeth, macroglossia and abnormal TMJ movements all these factors collectively leads to poor periodontal health and a cause of dental caries. Lymphadenopathy was observed in 76.3% of the subjects followed by Malocclusion (62.5%), these results are similar to the results of Mary E. Dávila [25]. Griffiths J [24] showed 44.3% of malocclusion. Abnormal TMJ movement was observed in 13.8% of the subjects whereas in the study carried out by Bhowate R et al., [26]. 35.7% of the subjects had abnormal TMJ movements it may be due to hypotonia and hyperextensibility of joints uncoordinated and uncontrolled movements of jaw [27].

Factors which influence oral health mitigate against self care and affect routine access and provision of oral care include:

1. Type, severity and stage of mental illness.
2. Client's mood, motivation and self-esteem.
3. Lack of personal perception of oral health problems.
4. Client's habits, life-style and ability to sustain self-care and dental attendance.

5. Environmental factors which mitigate against preservation of self-care.
6. Socio-economic factors which limit choices for healthy living
7. Language and culture.
8. Lack of information on how to access information or dental services.
9. Oral side-effects of medication in particular the impact of xerostomia (dry mouth).
10. Attitudes to oral care and knowledge of health professionals and health care workers.
11. Dental team's attitudes and knowledge of mental health problems.
12. Local dental personnel unable or unwilling to provide adequate dental care.

Health promotion programmes developed in partnership with health, social and voluntary agencies should be client centered, tailored to meet their needs and with equal access [28]. It is reported that people with mental illness are often excluded from health promotion activities as they are perceived to be a nuisance [24]. The common risk factor approach with the dental team linking in to preventive programmes for promoting health is likely to be more effective, e.g.

- To promote good mental health (information on accessing services including dental services)
- To promote healthy eating including reduction of dietary sugars (dental decay)
- Smoking cessation policies (periodontal disease and oral cancer)
- Decrease alcohol intake (oral cancer, dental erosion)

All health personnel should receive training to support the concept of primary oral health care. For the dental team, training must include a wider knowledge and understanding of the major diagnostic conditions and the potential impact of mental illness and its treatment on oral health. With rapid advances in drug treatments, the dental profession needs to be updated on the pharmacological risks to oral health and the complexity of interactions of drugs used in dentistry [29]. Improved communication skills, behavioural management techniques, an understanding of the organization of mental health services and roles of mental health professionals will facilitate multidisciplinary care, networking and lead to improvements in the quality of dental services for this client group.

CONCLUSION

People with mental health problems are entitled to the same standards of care as the rest of the population. Oral health has a significant impact on holistic health. Health professionals should therefore be aware of the impact of mental illness and its treatment on oral health. Guidelines which address the needs of this diverse group must be non-discriminatory in practice and based on the principles of choice and equity of access to oral health care, information and services regardless of illness, financial or other personal constraints. Above all, they must focus on the demands and needs of such people.

RECOMMENDATIONS

General and oral health of these special group children has always been neglected, steps should be taken to provide basic medical and dental care facilities. More of such studies should be carried

out so that the problem which these children are facing can be brought into limelight and they can be met with seriousness. Dental facilities such as oral prophylaxis, periodic screening for dental caries, restoration for decayed teeth should be provided regularly. Special oral health programs to motivate and educate the children and their guardians should be carried out at regular intervals.

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