Journal of International Oral Health 2016; 8(2):202-204

Received: 14th July 2015 Accepted: 28th October 2015 Conflict of Interest: None

Source of Support: Nil

Original Research

Assessment of Oral Hygiene, Tooth Brushing Habits, and Mucosal Changes of Non-Institutionalized and Institutionalized Psychiatric Patients in a Tertiary Rehabilitation Center in Bengaluru: A Comparative Study

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How to cite the article:

Nandaprasad S, Sharma N, Reddy Y, Gowda M, Chaitanya BV, Nonitha S. Assessment of oral hygiene, tooth brushing habits, and mucosal changes of non-institutionalized and institutionalized psychiatric patients in a tertiary rehabilitation center in Bengaluru: A comparative study. J Int Oral Health 2016;8(2):202-204.

Abstract:

Background: The study was carried out to estimate the oral hygiene status (decayed, missing, filled index [DMFT], and oral hygiene index simplified [OHI-S]), tooth brushing habits, and mucosal changes if any of institutionalized and non-institutionalized patients. Furthermore, comparison of the differences in the level of oral hygiene and mucosal changes in both groups was carried out.

Materials and Methods: The study consisted 200 psychiatric patients, out of which 100 were institutionalized in a tertiary rehabilitation center in Bangalore, and 100 were non-institutionalized. Clearance was obtained from the ethical committee, and individual consent was taken. Following this, a complete oral examination was done, and the OHI-S and DMFT were evaluated. The mucosa was examined overall with respect to the following sites: Buccal mucosa, tongue labial mucosa, floor of the mouth, and palate for mucosal changes if any. A history of tooth brushing habits was recorded from each patient.

Results: Among the 200 patients evaluated, patients diagnosed and being treated for clinical depression, schizophrenia, substance abuse, and bipolar disorders were considered for the study. The mean DMFT index was calculated to be 4.820 in institutionalized and 5.960 in non-institutionalized subjects. The mean of OHI-S was calculated to be 1.651 in institutionalized patients and 2.220 in non-institutionalized patients. There were no significant mucosal changes observed in both the classes. We also found better oral hygiene practices in the case of institutionalized patients.

Conclusion: In this study, we observed a significant increase in DMFT index in non-institutionalized patients. The OHI-S index was also found to be significant in non-institutionalized subjects. This significant increase in the parameters could be attributed to an overall care and maintenance of all aspects of the patient's health in an institution, as compared to those patients who are non-institutionalized, whose basic hygiene is often neglected.

Key Words: Institutionalized, oral hygiene, psychiatric

Introduction

Oral health is not just about having healthy teeth it is a "standard of health of the oral and related tissues which enables an individual to eat, speak, and socialize without active disease, discomfort, or embarrassment and which contributes to general well-being."[1]

The interaction of mental health and physical well-being is well-established. However, few studies have investigated the prevalence of oral diseases among psychiatric patients. Markette *et al.*, 1975 stated that the dental needs of mentally ill people are similar in type to those in the general population. However, there is some evidence that patients suffering from mental illness are more vulnerable to dental neglect and poor oral health.[2]

The two major diseases which have been found to affect the oral cavity are dental caries (tooth decay) and periodontal disease (gum disease). Dental caries is a slow infective process, which potentially destroys all exposed tooth surfaces over a period of time. This process is caused due to the microorganisms which produce acid which colonizes dental plaque, the soft layer which accumulates on the tooth surface. Dental plaque is a key factor in the initiation of periodontal disease. Daily oral hygiene practices such as tooth brushing with the help of toothpaste containing fluoride aids in the removal of plaque which plays an important part in maintaining oral health.

There are several factors that contribute to poor oral health in patients with psychiatric disorders. These include saliva reducing medications being taken, poor diet, and apathetic nature of many psychiatric patients.[3] The most

common side effect of the psychotherapeutic medications is the reduction in salivary secretions, leading to a wide array of oral diseases.[4-7] Sialorrhea, dysphagia, sialadenitis, dysgeusia, stomatitis, gingivitis, glossitis, tongue edema, discolored tongue, and bruxism are other complications reported.[8,9] Studies on psychiatric patients have shown a relatively high frequency of non-compliance with oral health practices, which represent a major problem in dental care for psychiatric patients.[10] Studies conducted on these groups have indicated that the oral health of psychiatric patients is poor and have larger treatment needs.

Materials and Methods

Source of data

The study consisted of the psychiatric institutionalized patients admitted to Spandana Healthcare, Bengaluru. The outpatients visiting the healthcare facility were evaluated separately.

Eligibility criteria

- 200 patients hospitalized and visiting between August 2014 and October 2014 were evaluated for participation
- All age groups were evaluated
- Patients who showed stability in the facility over a period of 2-month.

Exclusion criteria

Patients with serious somatic illness, severe disability, dementia, intellectual disability, uncooperative, and aggressive patients were excluded from the study.

Sample size

A total of 200 patients were evaluated, out of which 100 were the institutionalized patients admitted to the facility while 100 were the outpatients undergoing treatment in the rehabilitation center.

Method of collection of data

Organizing the study

Ethical clearance was obtained from the Ethical Committee, Sri Rajiv Gandhi College of Dental Sciences, Bengaluru. Permission to conduct the study was obtained from the Director of Spandana Healthcare, Bengaluru.

Duration of the study

The study was carried out between August 2014 and October 2014.

Details of the study

The study group comprised of:

Group I: Inpatients admitted to Spandana healthcare

Group II: Outpatients undergoing treatment in Spandana healthcare.

Informed consent was obtained from each patient who was evaluated. Oral examinations were conducted in the psychiatric wards with a mirror, a probe and a transillumination lamp. The patients were made to sit on a chair near a window. The oral cavity was examined carefully to evaluate the lifetime caries experience estimated with the decayed, missing, filled index (DMFT) index, and oral hygiene with the oral hygiene index - simplified (OHI-S) and recorded by an endodontist. The buccal mucosa, labial mucosa, tongue, palate, and floor of mouth were evaluated for mucosal changes if any. A brief history was obtained from the patients regarding the tooth brushing habits, including the frequency, duration and technique applied. Similarly, the outpatients were evaluated in the outpatients department.

Statistical analysis

All the obtained data were entered in an excel spreadsheet. A comparative study was done using unpaired *t*-test.

The data obtained were recorded and transferred on an excel spreadsheet. The total score of DMFT index were calculated, along with the OHI-S index. A comparison was then carried out between both the institutionalized and non-institutionalized subjects.

Similarly, the OHI-S scores were calculated. After the scores for debris and calculus were recorded, the index values were calculated. For each individual, the debris scores are totaled and divided by the number of segments scored.

The same method was used to obtain the calculus index scores.

These values were tabulated for comparison purpose.

Results

The mean DMFT index was found to be 4.82 in institutionalized and 5.96 in non-institutionalized subjects, with a standard deviation (SD) of 2.73 in the first group and 3.39 in the second group. The two-tailed *P* value is 0.0096, considered very significant; $t = 2.616$ with 198° of freedom.

The mean of OHI-S score was found to be 1.651 in institutionalized patients and 2.220 in non-institutionalized patients with an SD of 1.202 in the first group and 1.339 in the second.

	Mean	SD	*t* value	*P* value
DMFT index				
Institutionalized	4.820	2.732	2.616	0.0096
Non-institutionalized	5.960	3.396		
OHI-S index				
Institutionalized	1.651	1.202	3.162	0.0018
Non-institutionalized	2.220	1.339		

SD: Standard division, DMFT: Decayed, missing, filled index, OHI-S: Oral hygiene index simplified

The two-tailed *P* value was found to be 0.0018, considered very significant; $t = 3.162$ with 198° of freedom.

On observing the tooth brushing habits, we found a greater frequency of tooth brushing in institutionalized patients, as compared to those taken care of at home. Furthermore, they were encouraged to rinse the mouth after meals by the caretakers of the facility, which could be another reason for a lower DMFT score. The technique of tooth brushing was found to be similar in both groups, i.e., horizontal scrub method.

No significant pathological mucosal changes were observed in both groups of patients.

Discussion

The OHI-S is a score that is used to evaluate the debris index and calculus index, using 6 reference teeth. Earlier, 12 reference teeth were used for the same purpose which was then renamed OHI-S. The index gives the extent of oral hygiene and cleanliness. The oral cleanliness is considered; "good" if the DI-S score is between 0.3 and 0.6; as "fair" when it is 0.7 - 1.8; or "poor" when the score is between 1.9 and 3.0. This relatively simple assessment is also reasonably reproducible.

The DMFT index, developed by Klein, Palmer, and Knutson is recommended by the World Health Organization for measuring and comparing the experience of dental caries in populations. The index expresses the mean number of DMFT in a group of individuals. It is an irreversible index, measuring the lifetime caries experience.

Indices used in this study showed a greater amount of neglect associated with the oral health in the non-institutionalized patients, as compared to those who have been admitted in an institution.

Most oral health professionals have limited experiences in providing care for people with psychiatric disorders (Waldman *et al*., 2002). The barriers exist in organization and financing of the care needed as well as in proposing strategies to enhance the delivery of appropriate treatment (Ridgely *et al*., 1990).

The subjects being taken care of at home require special attention, and oral hygiene is not given priority under such situations, due to various barriers to treatment, including social stigma.

Consultant psychiatrists may take action, first at the level of care for individual patients and second at a strategic planning level with the development of suitable dental services. For each patient, it is most important that oral health is a key element of their physical assessment. Urgent dental needs should be identified. Then, if necessary, expert advice should be obtained from the local dentist.

Institutionalized patients are provided with a better level of overall care. They are given easy access to dental facilities and hence are provided with better awareness regarding their dental health. The institution in which our subjects were examined had a dental wing within its premises, thereby providing easy access to dental treatment.

Conclusion

In conclusion, the results of our study revealed that the oral hygiene status of psychiatric institutionalized patients was better than the non-institutionalized patients. Families should be encouraged to pay attention to the oral hygiene of patients, apart from the overall health. Furthermore, admitting the subjects to an institution may have a better effect on the overall health of the person due to comprehensive treatment.

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