ORIGINAL ARTICLES

CARIES INDEX AND ORAL HYGIENE HABITS OF PATIENTS REPORTING AT A TEACHING HOSPITAL

Syed Muzammil Hussain, Manzoor Ahmed Manzoor*

No. 11 Dental Unit PAF Base Lahore, *Armed Forces Institute of Dentistry, Rawalpindi

ABSTRACT

Objective: Study was conducted to determine caries index and oral hygiene habits of patients reporting at a teaching hospital.

Study Design: Cross sectional comparative study.

Place and Duration of Study: Outpatient department of Armed Forces Institute of Dentistry Rawalpindi from January to December 2005.

Patients and Methods: A total 500 subjects were interviewed with a self administered questionnaire both in English and Urdu. Participants, fulfilling the inclusion criteria were recruited by non-probability convenience sampling technique. Oral examination was carried out and decayed, missing and filled teeth were recorded on a proforma.

Results: People who were using no oral hygiene measure had mean delayed missing and filling teeth (DMFT) of 6.63 (SD = 3.86). Those using miswak/dandasa had mean DMFT 6.42 (SD = 3.62). Tooth brush users had mean DMFT 5.36 (SD = 3.81). Average DMFT was significantly lower in tooth brush users as compared to other two groups ($p < 0.001$).

Conclusion: Caries index of patients observing no oral hygiene measure was comparable to miswak/dandasa group and greater than individuals using tooth brush for oral hygiene.

Keywords: Caries, DMFT, Oral health, Oral hygiene habit, Tooth brushing.

INTRODUCTION

Dental caries is the most common chronic disease in the world. It is a major dental disease affecting the lives of a large population of the inhabitants of this world[1]. Caries is a controllable process however, in the absence of control, lesions cannot only form, but can also progress until the tooth is destroyed. Caries is the predominant cause of tooth loss in all ages[2]. Its a multi factorial disease in which bacterial factors like Streptococcus mutans and host factors like hereditary, tooth surface, reduced quantity and quality of saliva, immunological factors, frequent consumption of sugar and lack of oral hygiene are involved[3]. Present study will focus only on oral hygiene measures and its relation to dental caries. Poor oral hygiene is one of the risk factor for the development of caries. It can be prevented by improving oral hygiene by using brushing with fluoride tooth paste, flossing and rinsing with mouth wash[4].Oral hygiene measures have been practiced by different populations and cultures in a different way around the world. In various parts of the world where tooth brushing is uncommon or not possible, practice of tooth cleaning by chewing stick (miswak) has been commonly observed[5]. Miswak commonly obtained from Arak and Neem tree contains fluorides, silica, sulfur, vitamin c, chloride and sterol. Its beneficial effects are mostly related to its chemical composition[6].

Pakistan is a developing country and social services are in the process of development. In Pakistan caries is on the rise. The DMFT (decayed, missing and filled teeth) index of 12 years old has increased from 1.2 in 1988 to 1.6 at present[1]. Status of oral health is not yet fully explored. Only few studies on oral dental problems and fluoride contents in drinking water have been carried out in Pakistan on a large scale. Iqbal MP and Ram M in a study concluded that

Correspondence: Sqn/Ldr Syed Muzammil Hussain, No. 11 Dental Unit PAF Base Lahore.
Email: muzammil_smh@hotmail.com
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general oral health is relatively good when compared with other studies[7]. National health survey 1990-94 of Pakistan shows that of all the people having carious lesion in low socioeconomic group only 16% seek dental care[1]. People from low socioeconomic group do not go to dentist for conservative treatment[8].

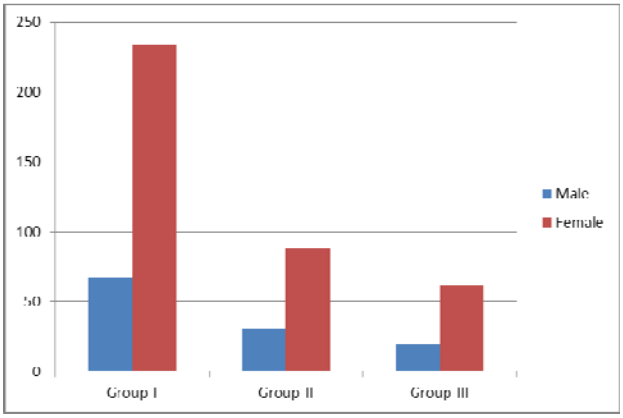

Figure-1: Comparison of gender between the groups.

There is a paucity of data on caries index of people observing different oral hygiene measures. Present study was designed to determine the caries index and oral hygiene habits of patients reporting at a teaching hospital. It will provide base line information and will help in dental diseases management protocol through prevention and patient education for better dental health care.

PATIENTS AND MEDTHODS

This cross sectional comparative study was carried out at Armed Forces Institute of Dentistry Rawalpindi from Jan to Dec 2005. The following criteria were used to enroll patients in the study.

Patients aged between 18-50 years, patients of both genders, healthy/medically fit individuals who were not taking any medication or were without any ailment were included in the study.

Where as edentulous patients, mentally retarded individuals, patients having gross dental anomalies, patients having malocclusion and patients not willing to take part in the study were not included in the study.

This study was carried out in outpatient department. A questionnaire both in english and urdu languages were given to the patients to mention their particulars as well as oral hygiene habits. Patients completed the questionnaire and returned it at the same day. Under full illumination oral examination was carried out while patient seated on dental chair. Separate set of examination instruments was used for every patient. Decayed, missing and filled teeth were recorded for every patient on a proforma. Patients were grouped as:-

Group I: Tooth brushing with paste twice/once a day, dental flossing and regular dental checkups.
Group II: Using miswak/dandasa and dental visits off and on.
Group III: Observing no oral hygiene measure and no dental visits.

Computer package SPSS version 10 was used for data analysis. Descriptive statistics were used to describe the results. Kruskal-Wallis H test was applied for the comparison of DMFT score between the groups. p-value < 0.05 was considered as significant.

RESULTS

Total 500 subjects were included in the study and divided into three groups according to oral hygiene habits. There were 301 (60.2%) subjects in group-I, 119 (23.8%) subjects in group-II and 80 (16%) subjects in group-III. There were 22.2% males in group-I, 26% males in group-II and 23.8% males in group-III ($p = 0.708$). (Figure-1) Average age in group-I was 47.6 ± 8.3 years, in group-II 45.9 ± 9.5 years and in group-III 48.5 ± 6.8 years ($p = 0.074$).

Average DMFT score was significantly lower in group-I as compared to group-II and group-III ($p < 0.001$). (Table-1)

Regarding dental checkup frequency 50.6% of subjects told that they had never gone to a dentist for routine examination. 45.8% reported that they had been visiting dentist once a year.

Only 3.6% of subjects were visiting dental surgeon twice a year.

DISCUSSION

Results of present study showed that patients were familiar with use of miswak and tooth brushing with tooth paste for cleaning of their teeth. Other studies have also shown that toothbrush and tooth paste are the most commonly used oral hygiene measures[9]. Sixteen percent of subjects told that they do not observe any type of oral hygiene measures. In brush user group most of the patients (62.4%) were brushing their teeth once a day mostly before the breakfast. DMFT score was high in subjects with no oral hygiene and subjects using miswak/dandasa. People using tooth brush as oral hygiene habit once or twice in a day had lower DMFT index as compared to miswak/dandasa users and subjects with no oral hygiene measures.

Difference in DMFT score may be explained by insufficient knowledge about proper method of using miswak and brush. Other factors like socioeconomic status, educational level and dietary pattern need to be addressed for relative comparison. Mirza et al highlighted huge differences among socioeconomic classes of Pakistan with regards to healthy eating habits, oral hygiene knowledge and practices[1]. Almas et al conducted a pilot study of oral health status among tooth brush and miswak users and found DMFT score of 6.5 ± 5.06 in brush users while miswak users showed mean DMFT of 14.2 ± 3.09[6]. Marked difference of DMFT in miswak users when compared to present study may be due to sample size which consisted of only 30 patients. In Pakistan most of the studies have been conducted on children and young adults. Ishaque M and Khan AA conducted a study in 12 and 15 years old children and found DMFT of 0.44 and 0.56[10]. In their study 87% of children were using brush to clean their teeth while in present study 60.2% of subjects were using brush to clean their teeth. Only 6% in 12 years and 1.3% in 15 years were using miswak. Three to 5% of children did not use any oral hygiene measure as compared to 16% in our study. They reported 79% to 85% children had never visited dental surgeon. In our sample 50.6% of subjects reported that they never visited a dentist. Iqbal MP and Ram M estimated mean DMFT of school going 12-15 years children in remote areas of Pakistan and found high decay component in low socioeconomic group. In low socioeconomic group only one child was brushing teeth daily[7]. Almas K and associates in a study concluded that 10% of intermediate school student and 17% from secondary school never clean their teeth. In their study only 24% of secondary school male students were using miswak but with an unspecific technique[11]. Bhambal et al compared the effects of miswak and tooth brush on plaque removal and found no significant difference between the two[5]. A study conducted in India showed that people using brush had DMFT index of 4.4 and those using miswak had index of 5.5[12]. Ali NS and others in a survey found 88% of subjects using tooth paste and 2.64% using miswak. In their study findings, reasons for avoiding dental visits were cost, time, fear and lack of perceived need[13]. In a study Wool et al found that people having frequent dental checkups had better oral health status and less number of decayed or missing teeth[14]. Oral hygiene practices are also prevalent in China. Tooth brushing is practiced habitually by most Chinese although small portion of elderly people

Table-1: Comparison of delayed missing and filling teeth (DMFT) scores between the study groups.

Oral hygiene habit	Decayed	Missing	Filled	DMFT (Mean ±SD)	*p*-value
Group-I (n=301)	3.02	1.52	0.83	5.36 ± 3.81	< 0.001
Group-II (n=119)	4.20	1.80	0.62	6.42 ± 3.62*	
Group-III (n=80)	4.03	1.84	0.76	6.63 ± 3.86*	

do not brush their teeth at all[15]. Darout IA and others assessed Sudanese population and found that periodontal status of miswak users was better than that of brush users. The efficacy of miswak used was comparable to or slightly better than that of tooth brush[16]. In contrary Almas et al in a study revealed that subjects using miswak had higher plaque and bleeding indices when compared to tooth brush users[6]. Norton MR and Addy M concluded that miswak user has higher plaque and gingival bleeding as compared to tooth brush users[17]. Yones and El Engebami found high incidence of gingival recession in Saudi children who were using miswak. They found most of the subjects were using miswak inadequately and with improper method[18]. High caries prevalence in miswak users in this study may be attributed to inadequate cleaning by miswak and fermentation of food particles in inter dental areas of oral cavity.

Khan AA and coworkers in a study reported that DMFT in adult population is 8.33 in 35-45 years age groups. This score has increased up to 18.39 in 65 or above age group[19]. A review of previous studies shows that these levels are static for almost two decades in adult population. The differences in caries experiences seen in the results for rural and urban areas are of particular interest in the available literature in the country. In rural areas caries was found to be more prevalent[20].

Present study has shown increased frequency of caries. Most of the caries had remained untreated. Reasons for this could be non-existence of preventive activities in oral health, lack of awareness, lack of affordability and low priority in national health program.

CONCLUSION

With limitation of this study it appears that generally caries index of the studied subjects is high. People observing no oral hygiene measure and those using miswak/dandasa have higher caries index compared to brush users.

Further research on larger scale is required to evaluate the effectiveness of oral hygiene habits and to compare the oral health status among socioeconomically deprived and population belonging to remote areas.

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