The Professional Medical Journal
www.theprofesional.com

ORIGINAL PROF-2467

PREVALENCE OF DENTAL CARIES;

PATIENTS ATTENDING OUT PATIENT DEPARTMENT OF ISRA DENTAL COLLEGE HOSPITAL

Dr. Amtul Qayoom Shams Kazi[1], Dr. Waqas Iqbal[2], Dr. Saeed Sattar Shaikh[3]

1. BDS, Msc Oral Pathology
   Assistant Professor
   Department of Oral Pathology,
   Isra Dental College & Hospital,
   Hyderabad Sindh
2. BDS, (MDS Oral Pathology)
   Lecturer
   Department of Oral Pathology,
   Isra Dental College & Hospital,
   Hyderabad Sindh
3. MBBS, M.Phil.
   Assistant Professor
   Department of Pathology
   Al-Tibri Medical College & Hospital,
   Isra University Karachi Campus
   Sindh

Correspondence Address:
Dr. Saeed Sattar Shaikh
MBBS, M.Phil (Path)
Assistant Professor
Department of Pathology
Al-Tibri Medical College & Hospital,
Isra University Karachi Campus,
Sindh
amazingdoctor33@hotmail.com

Article received on:
15/03/2014
Accepted for Publication:
25/05/2014
Received after proof reading:
16/08/2014

ABSTRACT: Objective: Prevalence of dental caries among patients attended Isra Dental College OPD. **Setting/ Methodology:** A total of 1037 patients with dental carries were recruited from the outpatient clinic of the Department of Dentistry Isra University Hospital, Hyderabad. All 1037 patients who were affected by Dental caries were included in the analysis. Research period was from January 2013 to December 2013. Local ethical committee approval was obtained before the trial started from the local research ethical committee, Isra University Hospital and all patients gave written informed consent. Written information about the study was given to each patient before attending the clinic. All participants of the study had undergone careful clinical evaluation including a full medical history and clinical examination to confirm the diagnosis of dental caries. Determination of whether the patient fulfils the inclusion / exclusion criteria; written, witnessed informed consent was obtained and a copy given to the patient. They were assured that they can withdraw from the study, at any time, without being required to state a reason and this would not affect their future management. **Duration:** January to December 2013. **Sample Size:** At confidence level 1 and precision 0.1; calculated sample size was 1037. **Study Design:** Cross Sectional Study. **Sampling Technique:** Non-Probability Sampling Technique. **Inclusion Criteria:** Patients of ages 11-70 years participated as a study inhabitants were included. **Exclusion Criteria:** Chronic debilitating disease (carcinoma, tuberculosis and diabetes). Prolong steroid therapy (more than one month). BMI less than 18 (Before gathering information BMI was computed from several patients by scaling via height and weight scale). **Results:** The mean age of the participants was 28 years and ranged between 0 and 60 years; the majority of the participants were Male, 60% (n=600), while 40% (n=400) were female. The entire population (n=1000) was invited to participate in the quality evaluation of dental restorations in the hospital. However, only those patients who had been willing to participate in the evaluation were included. As mentioned above, a total of 1000 out of 1037 patients had agreed in this specific evaluation. A tooth was recorded as "decayed" if it was presented with deteriorated and discolored condition or it had a presentably softened floor or created an ecological imbalance in the equilibrium between tooth, minerals and oral bio-films (plaque). The result of conducted study depicts that Mean DMFT is higher in males i.e 0.99 and in females its 1. The present study confirmed the findings comparing to previous studies by stating that DMFT keeps on increasing as the age increases. The mean DMFT in age 11-20 is 0.005, 21-40 is 0.003 and 40-60 is 0.001. However, the findings of the current study cannot be generalized because selective nature of inhabitants. **Conclusions:** Therefore it's the responsibility of family dentist to educate patients about available treatment options and their expected outcomes. The research has evaluated the dental caries risk profile in the adult population and the caries-related factors which can contribute to the risk which were identified. The core reason for this unacceptable rating of such restorations was recurrent level of dental caries.

Article Citation: Kazi AQS, Iqbal W, Shaikh SS. Prevalence of dental caries; patients attending out patient department of Isra Dental College Hospital. Professional Med J 2014;21(4): 750-754.

INTRODUCTION

Dental caries is undoubtedly one of the major oral problems which have grown rapidly throughout the world and which has caused a huge impact on the life of several individuals[1]. Cavity and tooth decay are also a form of dental caries, in which food sugar converts via bacterial process, left on the teeth to acid that demineralizes hard tooth

construction. As mineral contents of teeth are sensitive therefore, lactic acid is considered as a key source to high acidity. Tooth is in constant state of demineralization and remineriliza tion among tooth and saliva[2]. Dental caries can also take place due to the process of de-mineralization and re-mineralization, which can take place frequently during the day. This process can lead to caries lesions or even create a repair and reversal of a lesion. The lesion starts to develop and is formed beneath the contact area between the teeth and the oral structure[3]. Caries on an occlusal surface are also called a localized phenomenon that has been formed in pit and fissure.

According to a global research conducted in 2001, more than one-thirds of the people aged 50 years or above had lost at least one tooth due to dental caries. The dental caries incidence in adults has been detrimental because of several environmental factors[4].

91% of 12 year old children in Herzegovina, 62-90%in developed and developing countries, Adults ranges 62% in Bagdad including 63.4% in India are affected with the Dental Caries[5]. Age is a primary factor of prevalence which has increased in Dental caries and it could be due to exercise of denture or transfer from compound to simple sugar and poor oral hygiene. Appearance of caries is extremely variable whereas risk factors and growth stages are parallel. (NHANES) National Health and Nutrition Examination Survey United States (1999-2004) shows that there is a turn down in dental caries from 90% in 1970's whereas, occurrence is still high around 92% which is even higher in developing countries more than 95%. In Pakistan, several studies have revealed that many elderly people have kept their own natural teeth safe and intact. Whelton (2004) has reviewed several studies on dental caries which have focused on risk of caries in adults. It might be concluded that caries issue increases with old age and even in adults who have prevented the carries problem for quite a long time. Data collection on the incidence and progression of root caries has been carried out in an age-related study design which is very important in determining the lifetime pattern of caries. Underdeveloped countries across the world are trying their best to fight against caries and almost 70% of the countries across the world have been successful in achieving the motive of WHO goal of decayed, missing and filling teeth index[6]. But still the caries prevalence has been increasing to a huge extent in developing countries across the world. According to the WHO global data, there has been an upward trend in DMFT from 1.6 to 10.4 in the last 50 years[7]. A cross sectional research in India has indicated a mean DMFT of 2.41 in school children who are in the range of the age of 13-15. Almost 94% of the primary school children in Riyadh, KSA have been found to be suffering from dental caries. Simultaneously, a recent study in Tehran has revealed that the DMFT index has dropped from 1.6 to 0.7[8].

There was a research which was conducted by Khan, A (a representative of WHO path finder). The research showed that there has been a marginal increase in DMFT in 12 years old children from 1.2 in 1990 to 1.38 in 2004. But in older age groups of 35-45 years, the DMFT score reaches to almost 17.73 and has been found to be extremely high due to a significant component of teeth missing due to dental caries. (9) Most of the caries in children have remained untreated and more than 90% of the treatment has been done with extraction of teeth.

Objective of the Study

Prevalence of dental caries among patients attended Isra Dental College OPD.

MATERIALS AND METHODS

A total of 1037 patients with dental carries were recruited from the outpatient clinic of the Department of Dentistry Isra University Hospital, Hyderabad. All 1037 patients who were affected by Dental caries were included in the analysis. Research period was from January 2013 to December 2013.

Local ethical committee approval was obtained before the trial started from the local research

ethical committee, Isra University Hospital and all patients gave written informed consent. Written information about the study was given to each patient before attending the clinic. All participants of the study had undergone careful clinical evaluation including a full medical history and clinical examination to confirm the diagnosis of dental caries. Determination of whether the patient fulfils the inclusion / exclusion criteria; written, witnessed informed consent was obtained and a copy given to the patient. They were assured that they can withdraw from the study, at any time, without being required to state a reason and this would not affect their future management.

Duration

January to December 2013

Sample Size

At confidence level 1 and precision 0.1; calculated sample size was 1037.

Study Design

Cross Sectional Study.

Sampling Technique

Non-Probability Sampling Technique.

Inclusion Criteria

Patients of ages 11-70 years participated as a study inhabitants were included.

Exclusion Criteria

- Chronic debilitating disease (carcinoma, tuberculosis and diabetes)
- Prolong steroid therapy (more than one month)
- BMI less than 18 (Before gathering information BMI was computed from several patients by scaling via height and weight scale).

RESULTS

The information was formed regarding the biological data and DMFT score of the patients who had been affected by Dental caries was included in the analysis of DIIOHS. Specific Information regarding age, sex and morphology and incidence of lesions was obtained. All adult patients were visiting the Dental Clinic which was located at the faculty of department of dentistry Isra university hospital, Hyderabad. The mean age of the participants was 28 years and ranged between 0 and 60 years; the majority of the participants were Male, 60% (n=600), while 40% (n=400) were female. The entire population (n=1000) was invited to participate in the quality evaluation of dental restorations in the hospital. However, only those patients who had been willing to participate in the evaluation were included. As mentioned above, a total of 1000 out of 1037 patients had agreed in this specific evaluation.

A tooth was recorded as “decayed” if it was presented with deteriorated and discolored condition or it had a presentably softened floor or created an ecological imbalance in the equilibrium between tooth, minerals and oral bio-films (plaque). The bio-film was characterized by microbial activity which had further resulted in fluctuations resulting in plaque pH. This was defined as a result of both bacterial acid production and buffering action from the human saliva and the surrounding tooth structure of the mouth. However, the dentition status of the teeth was not entered in the records. A tooth was recorded as “missing” due to dental caries only if it had been extracted because of caries, an imbalanced surface or rather a dynamic equilibrium with its surrounding environment. Teeth which have not been avulsed or have not undergone under any extraction for orthodontic purpose or impacted due to other reasons were not in the research.

Though restorative treatment could be essential and very important for removing the pathological tissue and also restoring form but it will never appear to have any prolonged effect on the salivary populations of the people.

A tooth was said to be filled when it had been presented with an inadequate restoration which had no defective or decayed areas around it and were portraying permanently crowned tooth with significant marginal adaption and sufficient

coverage for the teeth and were treated with a permanent coronal restoration process.

The result of conducted study depicts that Mean DMFT is higher in males i.e 0.99 and in females its 1.

The present study confirmed the finings comparing to previous studies by stating that DMFT keeps on increasing as the age increases. The mean DMFT in age 11-20 is 0.005, 21-40 is 0.003 and 40-60 is 0.001.

However, the findings of the current study cannot be generalized because selective nature of inhabitants.

Gender	N	%
Male	600	60%
Female	400	40%

Table-I. Gender and Age Distribution of Dental Caries

Mean DMFT score in different sex groups		
Sex		
	Male	Female
Total cases	600	400
DMFT score	0.99	1
	SD±0.045	SD±0.057

Mean DMFT score in different age groups		
Age Group	No. of Patients	DMFT Score
11-20 years	180	0.005
21-40 years	550	0.001
41-60 years	270	0.003
Total	1000	0.009

DISCUSSION

Oral health can be regarded as an evidence of health and well being of a human being[10].The oral health of humans across the world, specifically the developed world, has been improving to a huge extent. However, in underdeveloped countries such as Pakistan, oral health has been a huge cause for concern and dental caries has been a very important agenda in this regard. There have been very limited researches made on this essential topic and the only reliable source of nation on this subject is WHO path finder surveys[11]. Because this study has been conducted in an infrequent manner, there is a massive need for regional studies to monitor changes in oral health of countries.

The research has reflected less motivation and awareness of dental caries in Pakistan, making people more likely to run a high risk of developing caries. The caries-related factors which have been identified by the research can explain both the high caries prevalence in the study population and the probability of a high risk of developing caries[6]. Adequate action must be taken to modify these factors, on both a population and an individual level, to increase the percentage “chance of avoiding caries”. All the patients in the present study were informed of their estimated caries risk profile and were encouraged to improve their oral health[5].

The present study gives concrete evidence that the DMFT score has increased over time. The result has indicated that adults who are 60 years or higher have a DMFT score of 16.9. It also suggests that caries experience increases when people are aged 40 or above[10]. On the other hand, the DMFT score of middle and older age people were found to be very low as compared to other studies. It does give an indication that people in that age group have got more awareness than the elder age group. But, when compared to age group who are in the range of 10-30 years, the difference was not significantly large.

This finding cannot be generalized specifically due to the fact that the nature of the study population is highly selective. But the study does give concrete evidence of the need of treatment which is essential for population who has been affected by dental caries[4].

It has been reported that surfaces which were highlighted were kept in the restorations. Also, the research has proven that patients who had multiple restorations could run a high risk of developing dental caries. Quality of restorations may well deteriorate over time and it also influences and increases the risk of developing new dental caries and various other dental diseases. It could be possible that imperfect restoration margins and rough restoration surfaces, and faulty issues are retentive areas for plaque accumulation. Various inefficiencies such as inadequate cleaning, margins or fillings have been located in difficult areas of the teeth and they are a massive contributory factor[3]. The damage to the oral and dental structure is a common side-effect of the operative interventions which has substantial caries which increases the caries progression and there is a need for restorative treatment within the tooth[5]. The research has revealed that fillings might obscure the caries or make the caries negligible and this could result in a chance of further progression. Placing restoration cap will not stop caries and neither reduces the likelihood of caries development in the future.

CONCLUSIONS

Dental caries is one of the most widespread diseases across the world specifically in a third world country like Pakistan, which has been seen in our Out Patient Department. The research on Isra University Hospital has certainly given an idea regarding the clinical presentation of dental caries in the Department of Dentistry of this hospital. The research has certainly elaborated that this problem is much common in females as compare to males. Therefore it's the responsibility of family dentist to educate patients about available treatment options and their expected outcomes. The research has evaluated the dental caries risk profile in the adult population and the caries-related factors which can contribute to the risk which were identified. The core reason for this unacceptable rating of such restorations was recurrent level of dental caries.

REFERENCES

1. **Oral Health in Pakistan;** A situation analysis, 2004: Ministry of Health Pakistan: 15-19
2. Bosma, ML and Butler A (2010),**"The Effect of Brushing Time and Dentifrice Quantity on Fluoride Delivery in vivo and Enamel Surface".** Caries Res 2010;44:90-100.
3. Fontana, M (2006) **"Assessing patients' caries risk".** J Am Dent Assoc 2006;137:1231-1239.
4. Zukanovi, M (2007) **Caries risk assessment in Bosnian children using Cariogram computer model.** Int Dent J 2007; 57:177-183.
5. Whelton, H (2004) **Overview of the impact of changing global patterns of dental caries experience on caries clinical trials.** J Dent Res 2004;83:29-34.
6. Fédération Dentaire Internationale FDI (2000) **"Global goals for oral health in the year 2000"** Int Dent J 1982, Vol. 32:74-77.
7. Featherstone, JD (1999) **Prevention and reversal of dental caries: role of low level fluoride.** Community Dent Oral Epidemiol 1999;27:31-40.
8. Featherstone, JD (1999) **Prevention and reversal of dental caries: role of low level fluoride.** Community Dent Oral Epidemiol 1999;27:31-40.
9. WHO (1994), **"Report of a WHO Expert Committee on Oral Health Status and Fluoride Use".** World Health Organ Tech Rep Ser;846:1-37.
10. WHO (2007), **Oral health surveys - basic methods, 4th ed.** Geneva: World Health Organization.
11. Fejerskov, O (2004) **Changing paradigms in concepts on dental caries: consequences for oral health care.** Caries Res 2004;38:182-191.