



Prevalence and Risk factors associated with dental caries in a Tertiary care hospital

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ABSTRACT

Certainly dental caries is one of the key oral problems developed quickly all over the world. The life of several people is highly affected by this problem. Due to dental caries, about one-third of the people having age 50 years or above had last one teeth according to a research conducted in 2001. This cross sectional study was therefore conducted at Department of dentistry Hayatabad medical Complex Peshawar for one year from January 2016 to December 2016 to determine the prevalence and risk factors associated with dental carries in a tertiary care hospital. 600 patient having dental problems were included in our study at Department of dentistry Hayatabad medical Complex Peshawar. The overall prevalence of dental carries observed in our study was 48% (n=288). There were more male (55%) participants as compared to female (45%). Mean DMFT value for male (0.97) was higher in male as compared to female (1). In the age wise group the mean DMFT in age 5-25 is 0.006, 26-45 is 0.002 and 46-65 is 0.004. Patient from urban area (55.14%) have high prevalence of dental caries as compared to rural area (38%). Patient with brushing have less prevalence (25) as compared to non-brushing (68.12%). Patient with two times brushing on daily basis have less prevalence (20%) of dental caries as compared to once daily brushing (25%) and occasional brushing (72.66%). Our study concludes that dental caries is highly prevalent in patients having dental problems. Our study also concludes that dental caries are more common in female as compared to male. Thus it's the duty of family dentist to alert patients about accessible therapeutic options and their probable results. Our study evaluates the possible risk factors for dental carries and observed significant association with these risk factors.

Keywords: Prevalence; risk factors; dental carries; DMFT

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INTRODUCTION

Certainly dental caries is one of the key oral problems developed quickly all over the world. The life of several people is highly affected by this problem. Dental caries is also present in the form of tooth decay and cavity, which cause demineralization of hard tooth due to acid production by fermentation of food sugar by bacteria on the surface of the teeth. The main source for acidity is lactic acid [1]. Amongst tooth and saliva there is stable condition of demineralization and remineralization [2]. De-mineralization and re-mineralization can cause dental caries and it happen mostly during day time. This De-mineralization and re-mineralization process can direct to caries lesions or can cause to repair of lesion caries. Between the teeth and the oral structure, beneath the contact area, lesion begins to grow [3]. Due to dental caries, about one-third of the people having age 50 years or above had last one teeth according to a research conducted in 2001. Several environmental factors are important in incidence of dental caries [4]. According to one of the study dental caries has affected 91% of 12 year old children in Herzegovina, 62-90% in developed and developing countries, 62% in Bagdad including 63.4% in India [5]. The main factor for the high prevalence of dental caries is age. This might be due to use of denture or change from

compound to simple sugar or poor hygiene of mouth. In one of the survey by National Health and Nutrition Examination at United States in 1999-2004 reported that there is decrease in the prevalence of dental caries from 90% in 1970 but however the prevalence is still higher than 92% and about 95% in developing countries. A previous study has reviewed many studies on the risk factors of dental caries in adults [5]. It could be concluded that caries develop with the age. It also develops in the adults who prevent caries. The less developed countries are trying their best to fight against the dental caries. The DMFT index goal of WHO had been achieved about 80% of the countries [6]. However the prevalence of dental caries is continuously increasing in about all the developing countries across the globe. In the last 50 years there is a continuous increase in DMFT index from 1.6 to 10.4 according to global report of WHO [7]. An earlier cross sectional study was conducted in India on school children in age of 13-15. They reported mean DMFT of 2.41 [8]. 94% prevalence of dental caries was reported in primary school children in Riyadh [8]. Concurrently, a recent study done in Tehran reported that there is drop in mean DMFT from 1.6 to 0.7 [8]. A previous report by WHO showed that in 12 year old children, there is increase in DMFT from 1.2 in 1990 to 1.38 in 2004 but in age group of 35-45 years, DMFT reaches to 17.73. This increase is due to missing component of the teeth due to dental caries [9]. The risk of dental caries is enhanced by much general health status which is also considered as risk factors for heart diseases and diabetic patients [10]. Globally dental caries is considered as important health problem and in children it is highly prevalent [11]. Many factors are considered to be involved in high prevalence of dental caries in developing countries. These factors include, habit of eating unhealthy food, no proper and satisfactory health care services, no or poor public health service access and use of limited fluoride. Whereas the decrease in the prevalence of the dental caries in developed countries is due to many factors including, changes in eating of sugar, habit of oral hygiene, more participation in oral program for health and preventive program on population base. Furthermore, the rapid rise in the prevalence of dental caries in developing countries might be due to urbanization and western lifestyle acceptance without having effective public health programs [12]. In one of the study by WHO in many districts of Pakistan reported that dental caries is the most common chronic disease of children as it is seven times more common than hay fever and five times than asthma [13, 14]. The present study was aimed to determine the prevalence and risk factors associated with the dental carries in Hayatabad Medical Complex Peshawar.

MATERIAL AND METHODS

This cross sectional study was conducted at Department of dentistry Hayatabad medical Complex Peshawar for one year from January 2016 to December 2016 to determine the prevalence and risk factors associated with dental carries in a tertiary care hospital. 600 patient having dental problems were included in our study at Department of dentistry Hayatabad medical Complex Peshawar. Before the study started, local research and ethical committee of Hayatabad medical Complex Peshawar approved our study. A written informed consent was obtained from all the participants in our study. For the confirmation of the diagnosis of dental caries, full medical history and clinical examination was done. The technique for sampling was non-probability sampling and confidence level 1 and samples size was 600 patients at precision 0.1. The inclusion criteria for our study were all the patients having dental problem of age from 5 to 65 years. While the exclusion criteria were patients having chronic debilitating disease like carcinoma, tuberculosis and diabetes or patients having prolong steroid therapy and patients having BMI less than 18.

RESULTS

All the information of the included patients regarding biological data and DMFT score was recorded. A tooth in deteriorated and discolored condition was recorded as decayed. Tooth had been extracted or imbalanced surfaces or rather a dynamic equilibrium with its surrounding environment was considered as missing. A tooth presented with an inadequate restoration which had no defective or decayed areas around it was said to be filled.

The overall prevalence of dental carries observed in our study was 48% (n=288). (Table 1) There were more male (55%) participants as compared to female (45%). (Table 2) Mean DMFT value for male (0.97) was higher in male as compared to female (1). (Table 3) In the age wise group the mean DMFT in age 5-25 is 0.006, 26-45 is 0.002 and 46-65 is 0.004. (Table 4) Patient from urban area (55.14%) have high prevalence of dental caries as compared to rural area (38%). Patient with brushing have less prevalence (25) as compared to non-brushing (68.12%). Patient with two times brushing on daily basis have less prevalence (20%) of dental caries as compared to once daily brushing (25%) and occasional brushing (72.66%). Significant association of different risk factors was observed with the prevalence of dental caries as the p value was 0.001 which is significant (p value less than 0.05) (Table 5).

Table 1: Overall prevalence of dental carries

Total sample	Dental carries positive n (%)	Dental carries negative n (%)
600	288 (48%)	312 (52%)

Table 2: Gender wise participant in our study

Gender	Total no	percentage
Male	330	55%
Female	270	45%

Table 3: Gender wise mean DMFT score

Gender	Gender	
	Male	Female
Total cases	330	270
Mean DMFT score	0.97	1

Table 4: Age wise mean DMFT score

Age group	No of patients	Mean DMFT score
5-25	80	0.006
26-45	380	0.002
46-65	140	0.004
Total	600	0.012

Table 5: Risk factors associated with the dental carries

Risk factor	Category	N	Dental carries result		
			N +ve (%)	N -ve (%)	p-value
Residential status	Rural	250	95 (38)	155(62)	0.001
	Urban	350	193(55.14)	157(44.85)	
Brushing	Yes	280	70(25)	210(75)	0.001
	No	320	218(68.12)	102(31.88)	
No of brushing time	Once daily	200	50(25)	150(75)	0.001
	Twice daily	100	20(20)	80(80)	
	Occasionally	300	218 (72.66)	82 (27.33)	

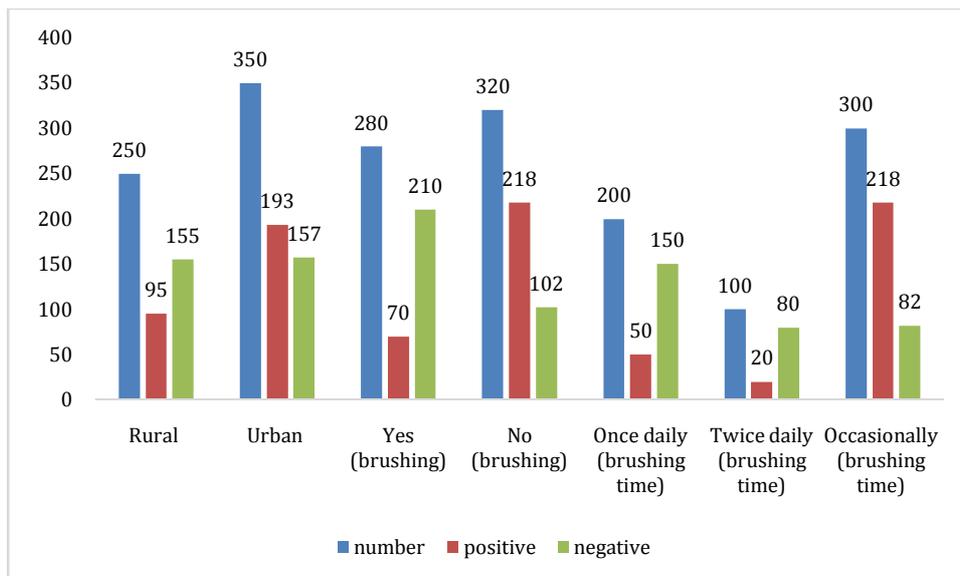


Fig 1: Risk factors associated with the dental carries

DISCUSSION

Certainly dental caries is one of the key oral problems developed quickly all over the world. The life of several people is highly affected by this problem. Dental caries is also present in the form of tooth decay and cavity, which cause demineralization of hard tooth due to acid production by fermentation of food sugar by bacteria on the surface of the teeth. The main source for acidity is lactic acid [1]. To the major extent the oral health in the developed world had been improved but the oral health in less developed countries is still a major concern for public health. In less developed countries the important agenda in oral health is dental caries. There are few studies available on dental caries. The WHO path finder survey is the only reliable source of information of 11 countries but this survey has been done in less frequent manner. There is need of further regional studies for more information about dental carries. According to our study overall prevalence of dental carries observed was 48% (n=288). There were more male (55%) participants as compared to female (45%). Mean DMFT value for male (0.97) was higher in male as compared to female (1.0). In the age wise group the mean DMFT in age 5-25 is 0.006, 26-45 is 0.002 and 46-65 is 0.004. Patient from urban area (55.14%) have high prevalence of dental caries as compared to rural area (38%). Patient with brushing have less prevalence [25] as compared to non-brushing (68.12%). Patient with two times brushing on daily basis have less prevalence (20%) of dental caries as compared to once daily brushing (25%) and occasional brushing (72.66%). Significant association of different risk factors was observed with the prevalence of dental caries as the p value was 0.001 which is significant (p value less than 0.05). Our study results are in accordance with the other studies who also reported that dental caries increase with the age [15]. An earlier study done in Mexican school children also reported that DMFT increases with the age of the children [16]. Our study shows that patient from urban area have high prevalence of dental caries as compared to rural area. This increase in prevalence of dental caries might be due to the fact that people living in urban have access to refined and readily available carbohydrates than people living in rural area who consume mostly raw food having fewer carbohydrates. The important factor for increase in prevalence of dental caries might be adoption of western and western-type diets in urban areas [17]. A recent study reported that socio-economic status is significantly associated with the prevalence of dental caries [17].

CONCLUSION

In the third world countries like Pakistan, dental caries is the most widespread disease. Our study concludes that dental caries is highly prevalent in patients having dental problems. Our study also concludes that dental caries are more common in female as compared to male. Thus it's the duty of family dentist to alert patients about accessible therapeutic options and their probable results. Our study evaluates the possible risk factors for dental carries and observed significant association with these risk factors. By introducing dental care programs at school levels Dental caries can be reduced to major extent. The objective of these programs should be education of both teachers and students about prevention and prevalence of dental caries. Parents should be aware through oral health programs at community level for early oral examination of their children.

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