

## ASSESSMENT OF ORAL HEALTH STATUS OF PEOPLE ATTENDING GULF WEEK FESTIVAL IN AL- QASSIM GOVERNORATE, CROSS-SECTIONAL SURVEY

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### ABSTRACT

**Objective:** To assess the oral health challenges of people attending Gulf Week Festival in Al-Qassim governorate, Kingdom of Saudi Arabia (KSA).

**Methods :** This study was conducted at Qassim, KSA .Oral examination of the participants was conducted March 2017. The sample size was 550 participants (278 female and 272 male).from deferent age groups were assessed for the prevalence of dental caries , oral hygiene, fluorosis and malocclusion and their compliance or adherence for fluoride topical application.

**Results:** The Caries Prevalence in The Study population was 73.4% (n=508), improper oral hygiene 38.1%(n=548), Non-compliance to Fluoride Application 34.8%(n=543), Fluorosis 8.9%(n=540), Malocclusion 14.2%(n=541).

**Conclusion.** It was concluded that: - Dental caries was high in the population attending the Gulf week festival in Qassim region. -Calculus accumulation is more prevalent in male than in female. - slight plaque accumulation was more in female under 13 years - Oral health education program and effective supervised tooth brushing program is mandatory to control plaque and calculus accumulation.

### INTRODUCTION

A good oral health means beauty smile and self confidence. No doubt oral health affects directly the general health of human being . Prevention of oral and dental diseases limits governmental spending on the individual.<sup>(1)</sup>

The extent of dental diseases, highlight the right way to assess the oral health needs of the community and then disease control.

Several studies reported that caries incidence and prevalence have increased in the Middle East.<sup>(2,3)</sup> some of them were conducted to assess the caries

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incidence in Saudi Arabia. <sup>(4,6,7)</sup> In Riyadh, study conducted targeting 6-year-old children, reported that caries prevalence was 77.7% in 2004. <sup>(4,5,10)</sup>

Another study was conducted in Jeddah in 2000, reported that caries prevalence was 83% among primary school children.<sup>(11)</sup> Preventive dental knowledge is the precursor of the reduction of caries prevalence.<sup>(8)</sup> It was noticed that young children's oral health conditions were influenced by their parents' knowledge of dental preventive measures. These included good oral hygiene, healthy and balanced diet and periodic dental visits in which topical fluoride and pit and fissure sealant applications could be obtained. <sup>(9)</sup>

According to WHO Recommendation <sup>(1)</sup> there is a lot of preventive activities (oral Health Education, professional preventive measures and community oral health programs) So during the Gulf weak festival ,we did assessment of the prevalence of dental caries , oral hygiene, fluorosis and malocclusion among people attending Gulf Week Festival in Qassim Region and their compliance or adherence for fluoride topical application.

## METHODOLOGY

Across sectional community based survey was performed in Qassim region during Gulf weak festival ,March 2017. In the study sitting mobile clinic with full preparation of dental care had been sitted in the festival place (Othaim mall – Burydah city- Qassim region –KSA).participants from different age group and gender were included in this study (550). Data was collected by:

A pre- tested oral health assessment form including personal data, examination finding(dental Caries index, oral hygiene index, occlusion and fluorosis index).

Oral examination was provided for all voluntary attendees , examination for dental caries and oral hygiene was done by well trained staff (doctors,

nurses and dental hygienists) using disposable diagnostic kit (mouth mirror, explorer...etc) for every participant.

Caries index (DMFT) “Capital letters for permanent teeth” where D= Decayed M= Missed F= Filled. (dmft) “the small letters for deciduous dentition” to measure the prevalence of dental caries.

Oral hygiene index 0= Normal, 1=slight plaque (thin film covering less than one third of the tooth surface), 2= plaque accumulation (covering more than one third of the tooth surface), 3= calculus present.

Occlusion assessment 0= Normal occlusion 1= malocclusion ,and fluorosis index (using Deans fluorosis index 0=Normal,1= questionable,2=very mild, 4=moderate, 5=severe).

Informed consent has been taken from every participant before enrollment in the study High quality infection control measures were applied by using disposable examination sets to every participants and personal protective equipment's (gloves, masks...etc.) were used for all health care providers that included in the mobile dental clinics.

Health education massages had been delivered during the festival day using posters, video, presentations, and educational Caste models to demonstrate the ideal tooth brushing Methods, then brochures, tooth brushes and tooth paste were given to all participants.

## Statistical analysis

Epi info formula is used for sample size calculation with confidence interval 90%.

Sample size  $n = [DEFF * Np(1-p)] / [(d2/Z21 - \alpha/2 * (N-1) + p * (1-p)]$

The statistical analyses were performed using SPSS, version 20 statistical software (SPSS Inc., Chicago, Illinois).Patients Demographic

characteristics were summarized as frequencies and percentages, and comparisons between groups were carried out with Pearson’s chi-square-test

**RESULTS**

The sample consisted of almost equal numbers of males (49.5%) and females (50.5%). Furthermore, participants’ age ranged from 1 year to 59 years, where more than half of the sample (54.2%) aged between 7-17.

TABLE (1) Characteristic of the sample population (n=550)

Characteristic	Number	Percentage
<b>Gender</b>		
- Male	272	49.5%
- Female	277	50.5%
<b>Age</b>		
- 6 years or less	232	42.3%
- 17-7 years	297	54.2%
- 39-18 years	14	2.6%
- 59-40 years	5	.9%

TABLE (2) Prevalence of dental problems among the sample-population (n=550).

Characteristic	Prevalence
Dental Caries (n=508)	73.4%
Improper Oral Hygiene (n=548)	38.1%
Non-compliance/non-adherence to Fluoride Application (n=543)	34.8%
Fluorosis (n=540)	8.9%
Malocclusion (n=541)	14.2%

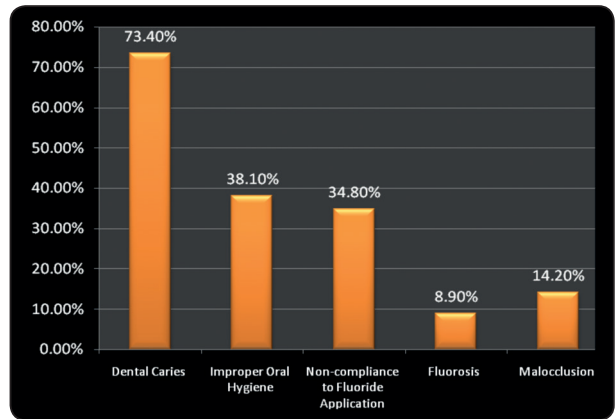


Fig. (1) Prevalence of dental problems among the sample-population (n=550).

TABLE (3) Differences in Prevalence of dental problems by gender among the sample-population (n=550).

Dental Problem	Gender		P-value*
	Males	Females	
Dental Caries (n=508)	73.2%	73.9%	.852
Improper Oral Hygiene (n=548)	56.8%	66.8%	<b>.016</b>
Non-compliance/non-adherence Fluoride Application (n=543)	44.2%	25.72%	<b>.0001</b>
Fluorosis (n=540)	7.9%	10.9%	.422
Malocclusion (n=541)	14.2%	14.2%	.999

\*Significant differences are typed in bold (P < 0.05)

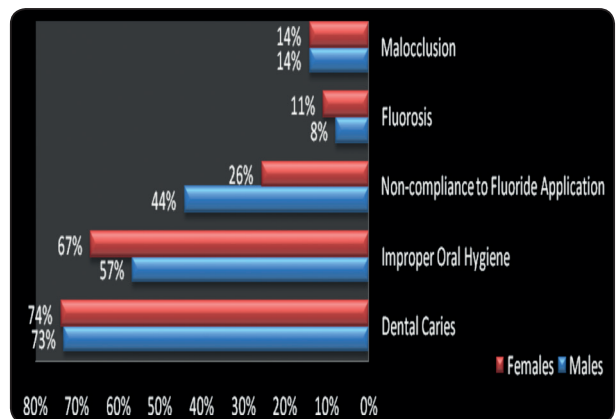


Fig. (2) Differences in Prevalence of population (n=550).

TABLE (4) Differences in Prevalence of dental problems by age group among the sample population (n=550)

Prevalence of Dental Problems	Age Group				P-value*
	≤ 6	7-17 years	18-39 years	40-59 years	
Dental Caries (n=508)	73.2%	73.9%	78.6%	40.0%	<b>.0001</b>
Improper Oral Hygiene (n=548)	56.8%	66.8%	66.7%	80.0%	<b>.028</b>
Non-compliance/non-adherence Fluoride Application (n=543)	29.7%	35.6%	91.7%	100%	<b>.0001</b>
Fluorosis (n=540)	7.0%	8.6%	41.7%	40.0%	<b>.999</b>
Malocclusion (n=541)	7.0%	18.8%	25.0%	60.0%	<b>.0001</b>

\*Significant differences are typed in bold (P < 0.05)

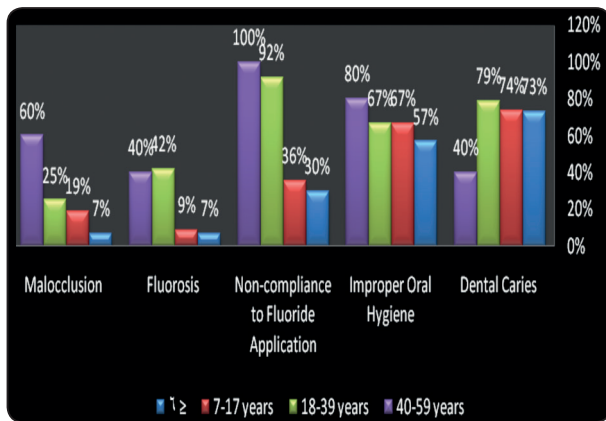


Fig. (3) Differences in Prevalence of dental problems by age group among the sample population.

The mean of decayed component of DMF index (D mean) = 3.28±2.3 while the mean of missing (M mean) = 1.49 ± 0.8 and the filled (F mean) = 2.45±2.55.

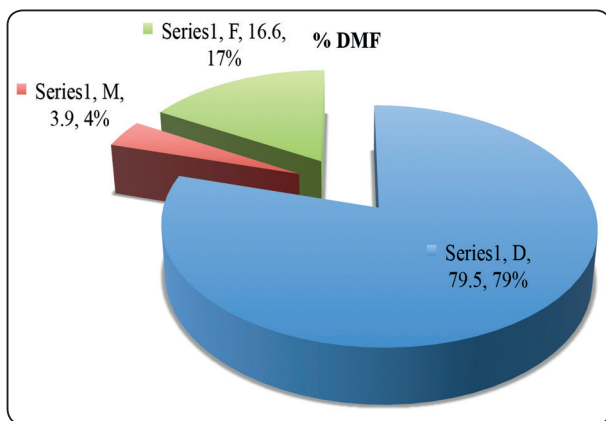


Fig. (4) The distribution of Decayed, Missed and Filled components of DMF index.

We found that 79% from DMF percentage was decayed, 4% missed due to caries and only 17% was filled which is challenged value as we seek to restore all carious teeth. And prevent decay.

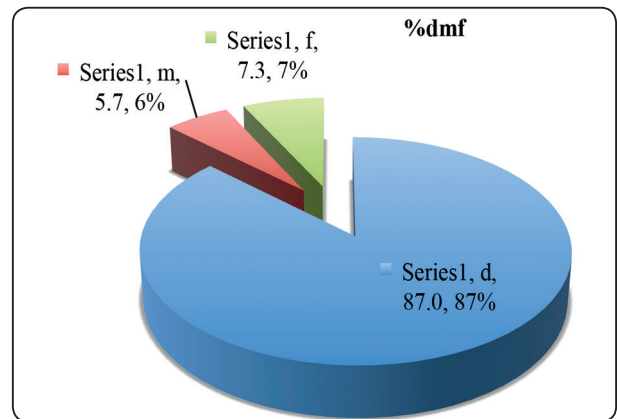


Fig. (5) Clinical finding for oral examination of deciduous teeth.

We find that 87% of dmft is decayed while 6% is missed due to caries and only 7% is filled that worse than in permanent teeth.

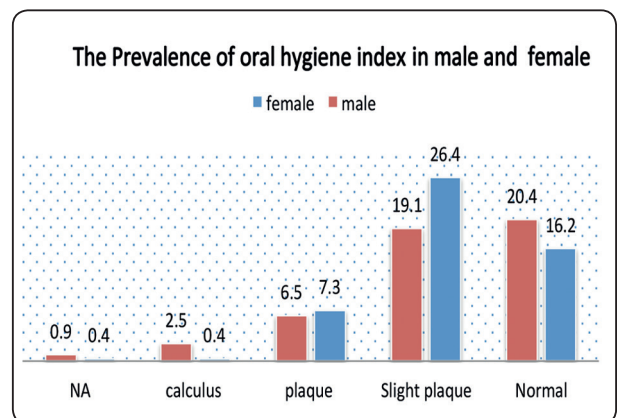


Fig. (6) The Oral Hygiene Index

We find that presence of plaque in female more than in male in the opposite hand calculus accumulation in male is more than in female

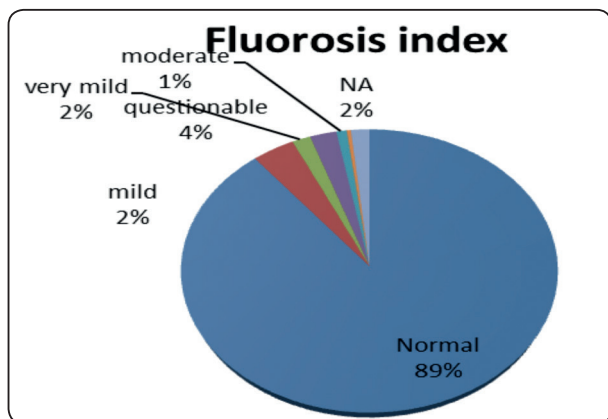


Fig. (7) The Fluorosis index.

It was found that the prevalence of fluorosis in the study population was 9% distributed as 4% questionable 2% very mild 2% mild and 1% moderate and severe cases not seen in the study population so further studies needed to assesses the prevalence of fluorosis in different areas of qassim region.

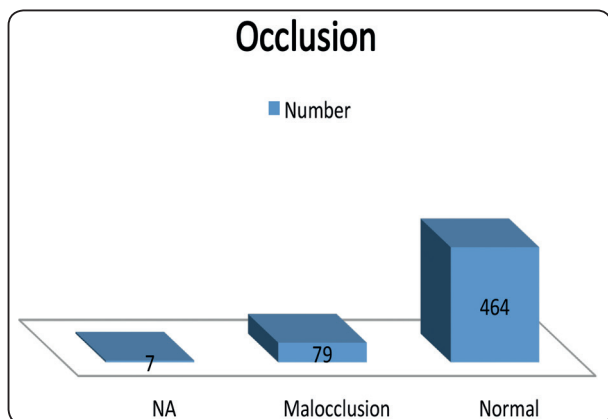


Fig. (8) The prevalence of Normal and malocclusion in the study population.

**DISCUSSION**

WHO By the year 2000, the global average for dental caries was to be no more than 3 DMFT at 12 years of age. We find in the table 8 that the maximum value to DMFT is 18 for all age groups and 7 at the age 12 years of age which is higher than the global average for dental caries needed to be reached at 2000 by WHO, But we are in 2017 so lobby and hard efforts needed for disease prevention and health promotion specially in Arabic nations.

The result of this study revealed that the Caries Prevalence in The Study population was 73.4% improper oral hygiene 38.1%, Non-compliance to Fluoride Application 34.8%, Fluorosis 8.9%, Further studies needed in prevalence of fluorosis with correlation with level of fluoride in drinking water and stratification of the sample from all qassim governorates should be collected. Malocclusion 14.2% and there is a significant increase with age.

Plaque accumulation was significantly more in female than in male this may be attributed to the age in female group, calculus accumulation was more in male than in female in the study sample.

Under the limitation of this study; the festival was made in an open area so females over 13 years old can't be examined under this circumstances that it may affect the results of female group.

A systematic review done by Ammar et al by the year 2017,concluded that the prevalence of dental fluorosis was 8% corresponding to 5-6 years of age and 38% corresponding to 20-29 years of age. The systematic review also revealed that the prevalence of dental fluorosis for Saudi Arabia 25%. Data for this systematic review was collected from larger cities such as Al jouf, Hail, Madinah, Makkah, Dammam, Tabuk, Abha, Gizan.<sup>(14)</sup>

Additionally this systematic review found that the prevalence of fluorosis in qassim region was 24-67 % corresponding to age group, 34-45 years of age.<sup>(14)</sup>

The above systematic review was in agreement with the results of our study; prevalence of dental fluorosis was 8.9% distributed by age group as follows 7% in  $\leq 6$ , 8.6% in 7-17 years old, 41.7% in 18-39 years old and 40% in 40-59 years old.

Meer et al checked the prevalence of malocclusion in One thousand eight hundred and twenty Saudi male students between the age of 15 and 17 years from Abha region. Based on Angles classification. Results revealed that there were agreement this study and our study as the prevalence of normal occlusions was the highest that was in agreement with our study. <sup>(15)</sup>

A systematic review made by Dania by the year 2013 stated that the national prevalence of dental caries and its severity in Saudi Arabia children was nearly 80% for deciduous teeth (mean dmft equal 5). Mean DMFT for permanent teeth equal 3.5 with prevalence of 70% that agree with the results of our study. which confirm that the World Health Organization (WHO) 2000 goals is still not achieved for Saudi Arabian children. <sup>(16)</sup>

A study made by Idrees et al revealed that adult subjects aged from 18-40 years old showed 100% prevalence of gingivitis, the mean gingival index was  $1.68 \pm 0.31$  indicates a moderate gingival inflammation. The signs of gingival inflammation was sever in males than in females this agree with our study as the prevalence of calculus was more in male group. The amount of plaque in Females were less affected than males in Idrees study that disagree with the results of our study which revealed that females were more affected than males as regard to plaque accumulation. <sup>(17)</sup>

## CONCLUSION

Under the limitation of the present study we concluded that:

- Dental caries was high in the population attending the Gulf week festival in Qassim region.
- Among children the prevalence of dental caries was high.

- Calculus accumulation is more prevalent in male than in female.
- Slight plaque accumulation was more in female under 13 years old requiring supervised school tooth brushing and oral health education program.
- Further studies for adult female and male groups in order to evaluate the prevalence of dental plaque to assess the most needed group for oral health program.
- Comprehensive base line data on dental fluorosis need to be collected from each governorate of Qassim region with correlation with level of fluoride in drinking water.
- Strong intervention from the local health authority to limit or solve these oral health problems is needed.

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