

**EVALUATION OF DMFT AND SIC INDICES AND RELATED FACTORS IN 12 YEAR-
OLD STUDENTS IN KERMAN, IRAN (2011)**¹Ali Eskandarizadeh, ²Molook Torabi, ³Pejvak Parval and ⁴Ali Taheri¹Associate Professor, Department of Operative Dentistry, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran.²Associate Professor, Department of Pathology, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran.³Dentist, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran.⁴Assistant Professor, Department of pathology, School of Dentistry, Kerman University of Medical Sciences, Kerman, Iran.***Corresponding Author: Molook Torabi**

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ABSTRACT

Background and aim: Significant Caries index (SiC) has been defined by WHO to evaluate caries status in different societies, in this index 1/3 of samples who had the highest caries rate would be analyzed. The aim of this study was to determine the SiC in 12-year-old students in Kerman, Iran. **Materials and methods:** This descriptive cross sectional study was carried out on 300, 12-year-old students that had been selected by systematic cluster sampling. Data were collected by a questionnaire (parents' educational level, parents' occupation, birth rank, number of children in family) and oral health behavior (tooth brushing, use of fluoride mouth wash, dental floss and dental visits status). Teeth were examined by dental mirror, according to WHO criteria. Data were analyzed in SPSS.V.19 by using t-test, and chi square tests. **Results:** The mean DMFT and SiC indices were 3.39 ± 2.6 and 6.74 ± 1.68 respectively 15% of students were caries free (CF). There was significant correlation between SiC & number of children in family, parents' educational level, tooth brushing and dental floss use status. There was no significant correlation between SiC and sex, birth rank, parents' occupational status, using fluoride mouth wash and dental visits. **Conclusion:** SiC in 12-year-old students in Kerman is more than WHO standards, so more attention to this group is recommended.

KEYWORDS: DMFT, SiC, Kerman, 12-year-old, students.**INTRODUCTION**

Dental caries is a multifactorial disease and affects high percent of population. It has been shown dental caries prevalence in people with low socio-economic condition is higher.^[1,2] Dental caries and trauma are the most common oral health problems for many decades.^[3] Dental caries can effect on children's quality of life.^[4] It is shown 8-10 year-old children with high dental caries experienced lower oral health related quality of life than those with no dental caries.^[5] Sever dental caries effect on young children growth.^[6] In recent years the rate of dental caries in children and adolescents has been declined in developed countries and also many countries.^[7] Prevalence of dental caries varies in different countries. The numbers of DMFT in 12-year-olds were 2.96, 2.07, 0.89, and 0.70 in the Czech Republic, Brazil, Denmark, and Germany, respectively.^[8] DMFT is an accepted index for assessing the rate of dental caries, missing teeth and filling teeth.^[9] DMFT can't reflect the skewed distribution of dental caries in different

countries.^[10] Significant Caries index (SiC index) highlight individuals with the highest caries scores in different population.^[11,12] SiC index in Korean 12 year-old children decreased from 2.86 to 1.84 between 2000 to 2012 period.^[13] DMFT and SiC indices in 12 year – old children in Bosnia and Herzegovina were reported 4.16 ± 2.92 and 7.41 ± 3.31 respectively.^[14] The aim of the present study was to assess the DMFT and SiC indices in 12 year-old children in Kerman, Iran.

METHODS AND MATERIALS

This cross-sectional study conducted on 300, 12 year-old children who selected by multistage sampling method. Data was collected through dental examination and questionnaire including demographic data (sex, birth rank, parents' job, parents' education, number of family children) and oral health behavior (frequency of daily tooth brush, use of dental floss, fluoride mouth wash and visit a dentist as dental caries control). Dental examinations were performed by a trained last year

dentistry student, in the classroom, with children sitting a chair facing a window with natural light. The diagnostic criteria followed the WHO protocol.^[15] The mean number of DMFT and the prevalence of caries in permanent teeth were calculated. The prevalence of caries-free (DMFT = 0) was also calculated. The SiC index was calculated for the one-third of the population with the highest caries scores.^[13] data analyzed in SPSS 19 software by T, ANOVA and chi² tests. P value considered at 0.05.

RESULTS

In the present study 49.3% of fathers and 49.0% of mothers had diploma. The results of the present study showed 9.7% never brushed their teeth, 65% did not use

dental floss and 60.7% of participants did not use fluoride mouth wash (table 1).

15% were caries free. The mean of DMFT and SiC indices were 3.39 ± 2.60 and 6.74 ± 1.68 respectively. DMFT index was greater in boys and SiC index was greater in girls (table 2). there was significant correlation between frequency of tooth brush and using of dental floss with DMFT index. There was also significant correlation between using fluoride mouth wash and SiC. There was significant correlation between number of children in family, mothers' educational level and SiC index. There was not significant correlation between parents' job, children birth ranking in family and DMFT, SiC indices.

Table 1: Frequency of oral health behavior of participant.

| Variable | | Boys | | Girls | | Total | |
|---------------------------------|--------------|------|------|-------|------|-------|------|
| | | No | % | No | % | No | % |
| Daily tooth brush frequency | Never | 25 | 16.7 | 4 | 2.7 | 29 | 9.7 |
| | once | 21 | 14.0 | 32 | 21.7 | 53 | 17.8 |
| | twice | 14 | 9.3 | 23 | 15.6 | 37 | 12.4 |
| | irregular | 90 | 60.0 | 90 | 60.0 | 180 | 60.0 |
| Using Dental floss | yes | 39 | 26.0 | 66 | 44.0 | 105 | 35.0 |
| | no | 111 | 74.0 | 84 | 56.0 | 195 | 65.0 |
| Using Fluoride mouth wash | yes | 6 | 4.0 | 7 | 4.7 | 13 | 4.3 |
| | No | 101 | 67.3 | 81 | 54.0 | 182 | 60.7 |
| | occasionally | 43 | 28.7 | 62 | 41.3 | 105 | 35.0 |
| Visit a dentist in past 6 month | yes | 111 | 74.0 | 115 | 76.7 | 226 | 75.3 |
| | no | 39 | 26.0 | 35 | 23.7 | 74 | 24.7 |

Table 2: Correlation between mean and standard deviation of DMFT (D, M, F) and SiC according to sex.

| Variable | Boys | | Girls | | Test | |
|----------|------|------|-------|------|-------|------|
| | Mean | SD | Mean | SD | T | P |
| DT | 2.72 | 2.18 | 2.59 | 2.51 | 0.539 | 0.59 |
| MT | 0.41 | 0.91 | 0.19 | 0.49 | 2.592 | 0.10 |
| FT | 0.45 | 1.12 | 0.41 | 0.90 | 0.282 | 0.77 |
| DMFT | 3.61 | 2.48 | 3.17 | 2.70 | 1.468 | 0.14 |
| SiC | 7.45 | 1.28 | 7.57 | 1.66 | 0.311 | 0.75 |

DISCUSSION

The result of the present study showed mean of DMFT and SiC indices were 3.39 ± 2.60 and 6.74 ± 1.68 respectively. In Garcia-Cortes et al study SiC in 16-25 year-old individuals in Mexico was 8.64.^[16] In Juric et al study in Crovaci SiC and DMFT were 10.89 and 7.7 ± 6.7 respectively,^[17] that are greater than our study. This difference may be due the difference between age group study.

In our study, SiC was higher in comparison of the other studies such as Tagliaferro et al^[18] in Brazilian 12 year-old (DMFT 0.9 ± 1.56 , SiC 2.63), and Nigerian^[19] 12 year-old (4.12) and north Italian^[20] 12 year-old (DMFT 1.44 ± 2 SiC 3.88). This difference may be due to children oral

health policy in different countries. In the present study there was no significant difference between sex and DMFT and SiC indices which it is not compatible with Pontigo-loyola et al and Casanova-Rosado et al studies.^[21,22]

In the present study there was significant correlation between mothers' education level and SiC Significant correlation is shown between lower educational level in mothers and higher permanent teeth caries rate in children.^[23,24] We can't found significant correlation between SiC and daily frequency tooth brushing and dental flossing. We found significant correlation between regular using fluoride mouth wash and SiC. Regular dentist visit and fluoride mouth wash usage is recommended to reduce dental caries rate. Children with better Oral health behavior had lower DMFT rate. Regular daily tooth brushing and dental flossing in all age groups especially in 12 year-old should be emphasized. In the present study positive correlation between children family number and higher SiC index was seen, it might be due to difficulties in oral health care maintenance in crowded families. In the present study there was no correlation between birth rank and SiC rate, it is compatible with Mosharafian et al study.^[25]

Females had higher caries level than males and this was in accordance with several studies.^[26-28] In the present

study 15% of 12 year- old were caries free and this was similar to Milciuviene et al^[29] study in Lithuania (14.5%) and lower than Maran et al^[30] study in Bhopal city (26.8%).

CONCLUSION

SiC Index is a useful indicator and helps targeting the preventive programs in high risk population in the community. Based on the finding of the present study SiC in 12 year-old children in Kerman is more than WHO standards. Attendance to oral health education and caries preventive program in this age group is recommended.

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