

Evaluation of Oral Health Behavior in 6-8-Year-Old Children in Yasuj, Iran in 2017

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Abstract

Purpose: Health behavior is the human action taken in order to maintain and promote health. The aim of this study is evaluation of oral health behavior in 6-8-year-old children. **Method and material:** This cross-sectional study was carried out on 350 students (6-8 years old) at elementary school parents, after that sampling questionnaires were answered by parents at home and returned to school. Independent Samples t-test and mann-whitney were used to analyze the data. **Result:** The score of oral health behavior was 10.48 ± 2.72 (range 0-22) in this study. The relation between mothers' occupation ($p=0.3$), mothers' age ($p=0.06$) and the score of oral health behavior was not significant. However, the level of mothers' education had a significant relationship with the child's oral health behavior ($p=0.007$). **Conclusion:** It was concluded that children's oral health practice is poor. Considering that more than half of parents are not familiar with oral health, programs designed for students in school hours, and health training sessions for parents and mass-media programs can improve their practice regarding this issue.

Key Words: Oral health, Behaviour, Children

Introduction

Good oral health is an integral component of good general health. Although enjoying good oral health includes more than just having healthy teeth, many children have inadequate oral and general health because of active and uncontrolled dental caries [1].

One of the goals of WHO up to 2010 was achieving the DMFT below 1 for 12 year old children, but studies performed in different cities of Iran show that the fact is far from this. Dental caries is a major public health problem affecting most of children in many countries worldwide [2,3].

Dental caries is a preventable disease. Preventive dentistry is the foundation on which all oral health care must be built. At the core of this preventive foundation is home oral Hygiene and plaque control [1,2].

This age group is important in dentistry because it is time of eruption first permanent molar. This is while the child of this group does not have necessary motor skills and attention to do proper health care. Other factors that make this tooth susceptible to caries and extraction are the fissures and deep depressions on the surface of first permanent molar tooth, it is an appropriate place for food and sweet material retention. And consuming sweet materials and sticky candies. This makes the tooth susceptible to early caries very soon after eruption or in some cases, it can lead to early teeth loss [4,5].

Adverse effects of early loss of the first permanent molar include overbite reduction, eruption of the second and third permanent molar tooth before their accurate time, osteoporotic changes of jaw trabecular bone, drifting and rotating of adjacent teeth [6].

As the technological level of health care increases, it is important not to lose sight of the basics of patient care. In dentistry, this means establishing and maintaining effective preventive habits in our patients. Counseling with parents as

the primary caregiver for children of this age on their own hygiene habits and the effect they can have on their children as role models will aid in improving both the parents' and child's oral health [6].

Parents' information about their children oral health care has an important role in their children oral health improvement. Also, a deep perception of the population needs, knowledge, attitude and practice, is a prerequisite to an effective health promotion [7,8].

So, the aim of this study was evaluation of oral health behavior in Yasujian 6-8 year-old children.

Materials and Methods

This cross-sectional study was conducted on 350 students (6-8 years old) at elementary school in Yasouj, Iran, in 2016 Yasuj. The study protocol was approved by the ethics committee of YUMS (93.12.26.07).

The sample size was estimated according to a similar study ($p=0.35$, $d=0.05$) and by using the formula $N=z^2.p(1-p)/d^2$. Following that, we recourse Yasuj department of training and education and prepared a list of state and private elementary schools including both girls and boys [9].

The sample size was accounted considering the ratio of students in state and private schools and also the ratio of girls and boys in schools. Sampling was done in two stages; first, schools were selected through random sampling and then systematic sampling was employed according to the lists of students' names. The validity and reliability of the questionnaire were confirmed according to reference number [10].

After taking written informed consent from mothers, questionnaires were answered by parents at home and returned to school. The students who did not take the questionnaire back were excluded from the study.

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The questionnaire consisted of demographic indexes of children and parents and 11 questions about parents' behavior about oral health of their children, and one question was also about how they got the information. For every correct answer, we considered score 2, for every incorrect answer, score 0 and if parents did not know the answer for a question, the score was 1.

After collecting the questionnaires and scoring them, we entered the data in SPSS and analyzed it statistically using Independent Samples t-test and mann-whitney.

Finally, after scoring, the total answers were calculated in which the caring scores were between 0 to 22.

Results

In this study, 350 students and their mothers were studied. Children were within the age range of 6-8 years, average and standard deviation of their age was 7.25 ± 0.69 years. Average and standard deviation of mothers age was 34.08 ± 5.44 years. Minimum and maximum ages of mothers were 22 and 49 years. Demographic specifications of children and mothers are listed in *Table 1*.

The score of oral health behavior was 10.48 ± 2.72 (range 0-22) in our study. The relation between *Figure 1* occupation ($p=0.3$), mothers' age ($p=0.06$) and the score of oral health behavior was not significant. But level of mothers' education had significant relation with child 's oral health behavior ($p=0.007$) (*Tables 2-4*).

Table 1. Demographic indexes of children and their parents.

Variant	Relative abundance	Absolute abundance (%)
Sex:		
Boy	171	48.9
Girl		
Mothers occupation:		
Unemployed	285	81.4
Employed	65	18.6
Fathers occupation:		
Unemployed	5	1.4
Employed	345	98.6
Number of children in family:		
2 or less	184	52.6
3 or more	166	47.4
Mothers education:		
Diploma or lower	251	71.7
Higher than diploma	99	28.3
Fathers education:		
Diploma or lower	176	50.3
Higher than diploma	174	49.7

A Source of mothers' information about the oral health of their children is shown in *Figure 1*.

Demographic indexes of children and parents are listed in *Table 1*.

Table 2. Comparison oral health behavior score of according to their education level of mothers'.

Knowledge	Average \pm standard deviation	p-value	C \pm 0.95	Test
Score education				
Diploma and lower than diploma	10/59 \pm 2/78	0.07/0	0.23 to -1.49	Independent Samples t-test

Table 3. Comparison oral health behavior of according to occupation of mothers.

Knowledge	Average \pm standard deviation	p-value	C \pm 0.95	Test
Score occupation				
Unemployed	10.96 \pm 2.79	0.03	-0.06 -53/1	Independent Samples t-test
Employed	11.49 \pm 2.29			

Table 4. Comparison oral health behavior score of according to age of mothers.

Knowledge	Average \pm standard deviation	p-value	C \pm 0.95	Test
Score age				
Younger than 40	10.96 \pm 2.70	0.55	1.25 to -0.17	Independent Samples t-test
40 and older	10.21 \pm 2.74			

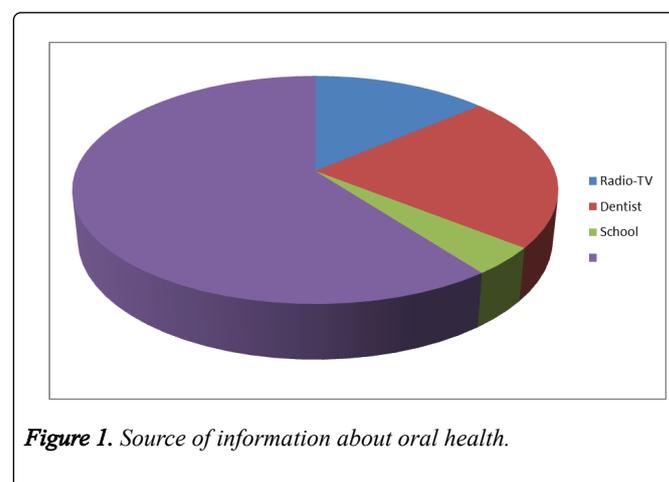


Figure 1. Source of information about oral health.

Discussion

According to the results, there was not a significant relationship between mothers' occupation, mothers' age and the score of oral health behavior. However, the level of mothers' education had a significant relationship with child's oral health behavior. This facts which is consistent with the same previous study conducted [8,9,11].

The score of oral health behavior was 10.48 ± 2.72 in this study. This study was in line with a study in Kuwait which showed that the overall mean practice score was 2.49 ± 0.99 (range 0-4) and suggested that parents with education of higher than diploma had children with higher level of oral

health care [1]. This results show that the higher level of mother education the better the health care of the child.

American Academy of Pediatric dentistry recommends that the first dental visit occur within six months and no later than twelve months of age [8,2].

In the current study, 30.4% of students did not have any dental visits, 17.5% had only one visit and 7.5% had regular dental visits by dentists. In Turkey, 10% of children (10-12 years old) did not experience any dental visits and 71% had regular visits by dentists [8].

Regular dental visits were made by 4% of students in India [12]. In Nigeria, 6.8% of participants never had a dental visit [13]. Two main reasons for not visiting the dentist are dental phobia and also high cost [14]. Toothache is the most common reason for the most resent dental visit and preventive dental care is very uncommon, while first and regular dental visit of a child is considered one of the major caries preventive strategies [8,15].

Tooth brushing and flossing must be performed after meals and before sleeping, or at least once day, preferably, before sleeping [16].

An analysis of the practice scores for individual questions indicated that 24.6% of parents said that their children brush their teeth 1-2 times a day and 75.4% of them brush their teeth occasionally or do not brush; 38.3% of parents had supervision on their children brushing; 48.9% supervised occasionally and 12.9% had no supervision.

According to a study in India, 4.8% of 1-2-year-old children brush their teeth once a day, 25% brushed more than one time a day [14]. In another study in Kuwait 80%, in Turkey 58.3%, Mongolia 81%, France 78%, in Nigeria 47.5% of children brushed their teeth more than once a day [1,8,13,17,18]. In Jordan, 69% of participants brushed their teeth at least twice a day, 17% brushed irregularly and only 26% of them were supervised by their parents [19]. Another study in India showed that 57% of parents help their children brushing; 13% of parents said that they have no supervision on their children brushing [20].

While physiologically, children under 9 years old have not completely acquired motor skills. So, without help, they cannot remove dental plaque effectively while brushing. This shows that parents' observation and cooperation is important when brushing [12].

According to this study, 8% of parents claimed that their children used dental floss regularly 0.65.1% said they do not use it at all and 26.9% flossed occasionally. A study in Nigeria showed that 48.6% of students did not use dental floss at all and only 7.3% of them used it once a day [13]. In Jordan 2% of students used dental floss regularly [19]; 12% of Indian students [12] and 96.4% of Turkish students used dental floss [8].

Unfortunately, flossing is not accepted as an oral health behavior all over the world. On the other hand, brushing is not sufficient for dental plaque removal, especially in interproximal surfaces teeth.

Sugar consumption between main meals increases dental caries rate. Raising the number of sugar consumption times causes increasing dental caries rate. Sweet snacks consumption is better to be limited to once a day and with the main meals [13,15,21].

According to this study, 64.6% of children used dairy as the main food during the day. 1.7% of children consumed sweet materials, 0.33.3% of children used sweet snacks two or more times a day and only 2.9% of them consumed it with their main meals.

87% of Indian mothers had complaints of their children habit of sweet material consumption [20]. Another study in Iran showed that 27.3% of children used sweet materials, 43% used sweet drinks several times a day and only 15% of them consumed fruits and vegetables during a day [16]. In Kuwait, 75% of preschool children [1] and in Nigeria, 43.5% of children consumed sweet snacks between main meals that 26.5% of them used it two times and 19% used it three times [13].

Without doubt, the repeated use of fluorides is of critical importance for the control and prevention of dental caries in both children and adults. Numerous controlled clinical Investigations have consistently demonstrated the cariostatic properties of fluoride provided in a variety of manners [22]. In this study, 67.7% of parent's prepared fluoridated toothpaste for their children. 20.9% of children used fluoridated toothpaste occasionally and 11.4% did not use it at all. In Nigeria, 95.4% of children used fluoridated toothpaste [13]. In the present study, 9/4% of students used fluoridated mouth wash regularly, 6.4% used it occasionally and 74.3% did not use it at all. According to a study in Jordan, 6% of participants used mouth wash regularly [19].

Because of commercial advertisements for fluoridated toothpastes and their anti-cavity effect in Iran, lots of parents provide them for their children. But the use of fluoridated mouthwash is limited because of poor advertisements about it.

Pit and fissure sealants are safe and effective ways to prevent dental caries and should be considered as part of an overall caries-preventive strategy. The cariostatic properties of sealants are attributed to the physical obstruction of the pits and grooves. This prevents colonization of the pits and fissures with new bacteria and also prevents the penetration of fermentable carbohydrates to any bacteria remaining in the pits [23].

One of the core functions of the Iran public dental service is to provide state-funded dental services to children under the age of 12 in Primary schools. One of the perceived concerns about the use of pit and fissure sealants is that partial loss of sealant may leave the tooth at increased risk of developing caries. This issue is important to follow Pit and fissure sealants per 6 months. For this reason, awareness of parents about this issue is very important; therefore parents should be aware of the importance to follow up pit and fissure sealant every 6 months [24].

In this study, only 13.1% of parents used fissure sealant as a caries preventive method for the first permanent molar teeth of their children, 72.6% of them did not use it and 4.3% did not have any information about it. In a study by Bowman,

between 73% and 81% of parents knew about fissure sealant and 40-47% of children had experienced sealant therapy [25].

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In most industrialized countries, the occurrence of dental caries in children has declined dramatically, both in terms of lower prevalence proportion rates and reduction of mean dental caries experience; such changes are observed in parallel with improved socioeconomic conditions, changing lifestyles, self-care practices, use of fluorides and effective use of preventive oral health services [27].

In the present study, 4% of parents gained their information about oral health care from school, 13.7% from radio and television and 22% from dentists.

Parents should be informed and encouraged to improve their children oral health care by programs. It is better if these programs emphasize dental caries consequences, sweet material consumption and inaccurate cleaning. Teachers also should be informed about these programs. It is possible to use radio and television and Provincial Health Centers to teach mothers. It is better to educate parents about their children oral health care before permanent first molar eruption. Because most people watch TV programs, it is recommended to show more useful programs about oral health in the media.

Some parents get their information about oral health from school. So, government should perform some programs to improve oral hygiene education in schools.

Conclusion

The results of this study indicate that children's and parents' attitudes toward oral health and dental care are low and need to be improved. Comprehensive oral health educational programs for both children and their parents are required to achieve this goal.

Acknowledgments

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References

1. Dean J, McDonald R, Avery D (2016) McDonald and Avery Dentistry for the child and Adolescent (10th edn). United States, Elsevier.
2. Dean J, McDonald R, Avery D (2011) McDonald and Avery Dentistry for the child and Adolescent (9th edn). United States, Elsevier. pg: 218-219
3. No authors (1998) Intercountry workshop on planning community based preventive oral health programs for children. Beirut, Lebanon.

4. Shafer WG, Hine MK (1990) Oral pathology (4th edn). South Carolina, WB Saunders Co.
5. Moyers R (1988) Hand book of orthodontics (4th edn). New York, Year Book Medical Publishers. pg: 353-354.
6. Ardakani AH, Soleymani A, Rashidi-Meibodi F, Gholami N, Hosseini-Abrishami M. DMFT Evaluation of first permanent molars in primary-school students in Yazd. *Journal of School of Public Health*. 2012; **11**: 1391.
7. Ashkanani F, Al-Sane M. Knowledge, attitudes and practices of caregivers in relation to oral health of preschool children. *Medical Principles and Practice*. 2013; **22**: 167-172.
8. Bekiroglu N, Tanboga I, Altinok B, Kargul B. Oral health care behavior in a group of turkish children. *Iranian Journal of Public Health*. 2009; **38**: 125-131.
9. Zouashkiani T, Mirzakhani T. Parental knowledge about presence of the first permanent molar and its effects on health of its teeth in 7-8 year old children. *Journal of Dentistry*. 2006; **30**: 225-327
10. Sadat-Sajadi F, Malek-Mohammadi T, Nabavizadeh SA, Ghanbari S, Montajab F. The awareness of parents of 7-8-year-old children in Kerman about presence of the first permanent molar and concepts of preventive dentistry and effect of education on level of parent's awareness. *Journal of Oral Health and Oral Epidemiology*. 2014; **3**: 30-36.
11. Hallett KB, O'Rourke PK. Social and behavioural determinants of early childhood caries. *Australian Dental Journal*. 2003; **48**: 27-33.
12. Kuppuswamy VL, Murthy S, Sharma S, Surapaneni KM, Grover A, et al. Oral hygiene status, knowledge, perceptions and practices among school settings in rural South India. *Oral Health and Dental Management*. 2014; **13**: 146-154.
13. Folan OM, Khami RM, Folaranmi N, Popoola BO, Sofola OO, et al. Determinants of preventive oral health behavior among senior dental students in Nigeria. *BMC Oral Health*. 2013; **13**: 28.
14. Mehta A, Kaur G. Oral health-related knowledge, attitude, and practices among 12-year-old schoolchildren studying in rural areas of Panchkula, India. *Indian Journal Of Dental Research*. 2012; **23**: 293
15. Jianghong G, Jianping R, Lin Z, Hong Z, Ruizhe H, et al. Oral health status and oral health knowledge, attitudes and behavior among rural children in Shaanxi, western China: a cross-sectional survey. *BMC oral health*. 2014; **14**:144.
16. Rad M, Shahravan A, Haghdoost AK. Oral health knowledge, attitude, and practice in 12-year-old schoolchildren in Iran. *Journal of International Society of Preventive and Community Dentistry*. 2015; **5**: 419-424.
17. Tseveenjav B, Vehkalahti M, Murtomaa H. Oral health and its determinants among Mongolian dentists. *Acta Odontologica Scandinavica*. 2004; **62**: 1-6.
18. Cavaillon JP, Conge M, Mirisch D, Nemeth T, Sitbon JM. Longitudinal study on oral health of dental students at Paris VII University. *Community Dentistry and Oral Epidemiology*. 1982; **10**: 137-143.
19. Al-Omiri MK, Al-Wahadni AM, Saeed KN. Oral health attitudes, knowledge, and behavior among school children in North Jordan. *Journal of Dental Education*. 2006; **70**: 179-187
20. Kaur B. Evaluation of oral health awareness in parents of preschool children. *Indian Journal of Dental Research*. 2009; **20**: 463-465.
21. Touger-Decker R, van Loveren C. Sugars and dental caries. *The American Journal of Clinical Nutrition*. 2003; **78**: 881S-892S.
22. Rosenblatt A, Stamford TC, Niederman R. Silver diamine fluoride: A caries "Silver-Fluoride Bullet". *Journal of Dental Research*. 2009; **88**: 116-125.
23. Simonsen RJ. Pit and fissure sealant: Review of the literature. *Pediatric Dentistry*. 2002; **24**: 393-410.
24. Azarpazhooh A, Main PA. Pit and fissure sealants in the prevention of dental caries in children and adolescents: a systematic

review. *Journal of the Canadian Dental Association*. 2008; **74**: 171-177.

25. Bowman PA, Zinner KL. Utah's parent, teacher, and physician sealant awareness surveys. *Journal of Dental Hygiene*. 1994; **68**: 279-285.

26. Rajab ID, Petersen PE, Bakaeen G, Hamdan MA. Oral health behavior of schoolchildren and parents in Jordan: A cross-sectional

study. *International Journal of Paediatric Dentistry*. 2002; **12**: 168-176.

27. Neamatollahi H, Ebrahimi M, Talebi M, Ardabili MH, Kondori K. Major differences in oral health knowledge and behavior in a group of Iranian pre-university students: A cross-sectional study. *Journal of Oral Science*. 2011; **53**: 177-184.