

# **Oral Health Behaviour of Iranian Mothers and Their 9-Year-old Children**

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Purpose: The present study examined associations between the oral health behaviour (OHB) of Iranian mothers and the OHB and oral health status of their children.

Materials and Methods: In 2005, two self-administered questionnaires provided data on the OHB of a random sample of 9year-old children (n = 459) and their mothers in Tehran, Iran. Brushing frequency, use of fluoridated toothpaste and number of sugary snacks between meals served as oral self-care (OSC) assessment criteria for both. A clinical examination was performed for children at school. DMFT/dmft values, the restoration index (RI) and the unmet treatment needs index (UTN) facilitated an assessment of children's dental status and treatment. Chi-square test, bivariate correlation, and binary logistic regression model were employed in these analyses.

Results: Mother's OSC correlated with child's OSC (r = 0.18; p < 0.01). The reported children's brushing frequency correlated with mothers' brushing frequency (r = 0.2; p < 0.01). High maternal OSC levels were associated with lower dental treatmemt (DT) values in children (p < 0.01). Children's RI was positively and UTN negatively associated with mothers' OSC (p < 0.01). In the model, mothers' OSC (OR = 2.1) and female gender (OR = 2.1) were associated with children's OSC, while mothers' OSC was strongly associated with DT (OR = 11.0) and RI (OR = 34.0) in children.

Conclusions: Higher OSC levels of the surveyed mothers were reflected positively in the oral health status and behaviour of their offspring. The potential of mothers to play a significant role in the oral health of their children should be kept in mind when developing oral health promotion programmes.

Key words: child behaviour, dental health, maternal behaviour, oral health behaviour, oral self-care

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dvantageous behaviour for maintaining oral health Athrough life generally starts at school age, when children learn and voluntarily accept positive health behaviours, even if these behaviours are introduced at an early stage of the child's life (Addy et al, 1994; Mattila et al, 2005a). Parents have a central role in giving children the information and encouragement they need to lead healthy lives (Christensen, 2004), with the main responsibility for their oral health behaviour (OHB) falling on their mothers (Åstrøm, 1998). In addi-

tion, it has been shown that parents' OHB is also associated with the oral health status (OHS) of their offspring (Okada et al, 2002; Mattila et al, 2005a).

It is recognised that OHB and OHS are both linked with socioeconomic factors; children with an advantageous socioeconomic background have a more favourable behaviour (Farsi et al. 2004; Poutanen et al, 2005) and better OHS (Mattila et al, 2005a; Saied-Moallemi et al, 2006) than their more socially disadvantaged counterparts. Furthermore, girls have consistently been reported to have more favourable OHB patterns (Kuusela et al, 1997; Poutanen et al, 2005) and better OHS (Addy et al, 1994; Saied-Moallemi et al, 2006) than boys.

There is a need to evaluate the impact of maternal OHB on children's OHS and OHB, especially in countries where mothers have a significant role in training their children. The principal research task is to find out

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how the full potential of mothers in the promotion of their children's OHB could be realised. The aim of the present study was to examine associations between the OHB of Iranian mothers and the OHB and OHS of their children.

# MATERIALS AND METHODS

## **Subjects**

The present study was carried out in a representative sample of 9-year-old primary school children in Tehran, Iran. Samples of 9-year-old pupils were selected by multi-stage stratified random sampling from all the public primary schools of the city (Saied-Moallemi et al, 2006). From a list of primary schools (Ministry of Education, 2004), 16 schools (8 boys' schools and 8 girls' schools) were randomly selected for the study. From each school one third-year class was randomly chosen and all children with their mothers were included. In total, 459 subjects (225 boys and 234 girls) and their mothers participated in the study.

A clinical examination of the child together with two self-administered questionnaires delivered to the mother and the child formed the basis for obtaining the data. At the beginning of the survey duplicate examinations of the children in one school were performed in order to assess intra-examiner agreement in the use of the diagnostic criteria (Kappa value > 0.9) (Saied-Moallemi et al, 2006).

## Questionnaires

Data on the OHB of mothers and children were obtained from self-administered questionnaires. The questions used in this study included items on oral self-care (OSC) for both the mother and the child. Frequency of tooth brushing, use of fluoridated toothpaste, and frequency of sugary snacks between meals were used to assess OSC. Mothers were asked to give information on parents' education as a socioeconomic background factor.

Children filled in a self-administered questionnaire revised after a pilot study in one girl's school in class under supervision before the clinical examination. After this, a self-administered questionnaire with a covering letter was delivered to the mother of the child. The overall response rate was 91%.

According to the proposed recommendations for oral health maintenance (Sheiham, 2001; Moynihan, 2005), mothers and their children were categorised



into favourable, moderate, or unfavourable behaviour groups. The recommended OSC behaviour consisted of tooth brushing at least twice a day, regular use of fluoridated toothpaste, and eating sugary snacks between meals once a day or less. For OSC, mothers or children who had favourable behaviours in all three areas formed a 'favourable behaviour group' (FB). A 'moderate behaviour group' (MB) included those with poor behaviour in one area. Those with unfavourable behaviour in two or all three behavioural aspects were placed in the 'unfavourable behaviour group' (UB).

The uniformity of each child's and his or her mother's responses concerning the child's tooth brushing was evaluated. In the mother's questionnaire, the options for answering this question were: 'always or almost always', 'often', 'seldom', and 'not at all'.

# **Clinical examinations**

A clinical examination was performed based on WHO criteria for recording dental health indicators of children (WHO, 1997). DMFT and dmft values with their components, the restoration index (RI = F/D + F) and the unmet treatment needs index (UTN = D/D+F) facilitated an assessment of children's dental status and treatment (Vanobbergen et al, 2001). Only two of the children were excluded from the clinical examination because of refusing to participate or having a cleft lip and palate.

Parents' education (PE) was categorised into three levels; low (primary or intermediate schools, less than 9 years), medium (high school or diploma, between 9 and 12 years), and high (university degree, more than 12 years). The educational level of the parents was defined as the highest level of either parent's education. Ethical approval was obtained from the Ethics Committee of the Shaheed Beheshti University, Tehran, Iran. The study was coordinated with the Ministry of Health and the Ministry of Education, as well as with the principal of each school and the teacher of each class.

## **Statistical analyses**

Differences in the distribution of children's OSC were analysed by cross-tabulations according to gender and PE. Differences regarding children's dental health indicators were analysed by cross-tabulations for PE and children's and mothers' OSC. Statistical significances were evaluated by two-tailed chi-square ( $\chi^2$ ) test. Bivariate correlation coefficients were calculated for re-

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# Table 1 Percentage distribution of 9-year-olds (n = 457) by their oral self-care (OSC) according to gender and parents' education in Tehran, Iran

	Gender				Parents' education <sup>2</sup>					
Aspects of OSC and recommended levels (R*)	All	Boys	Girls	p1	Low	Medium	High	p1		
	(n=457) 100%	(n=224) 49%	(n=233) 51%		(n=94) 23%	(n=173) 42%	(n=142) 35%			
Tooth brushing frequency				0.04				0.001		
Twice a day or more (R)	46	41	53		36	50	49			
Once a day	30	32	27		26	26	36			
Less frequently	24	27	20		38	24	15			
Use of fluoridated toothpaste				0.001				0.01		
Always or almost always (R)	74	66	82		63	73	82			
Often	10	13	7		17	9	9			
Occasionally or never	16	21	11		20	17	9			
Eating sugary snacks				0.01				0.65		
between meals										
Rarely or never (R)	28	22	34		28	28	27			
Occasionally (R)	36	35	38		30	39	41			
Once a day (R)	15	18	12		16	14	14			
Twice a day or more	21	25	16		26	19	18			
				0.001				0.02		
Recommended OSC										
Favourable (FB)	34	25	42		26	35	38			
Moderate (MB)	37	38	37		30	39	38			
Unfavourable (UB)	29	37	21		44	26	24			

\*R, recommended OSC includes tooth brushing at least twice a day, regular use of fluoridated toothpaste, and eating sugary snacks once daily or less Favourable behaviour is defined as reporting recommended behaviour in all three areas. Moderate behaviour includes poor behaviour in one area. Non-favourable behaviour is defined as achieving poor results in two or all three behavioural aspects.

 $^1\,\mbox{Chi-square test}$   $^2\,\mbox{Data missing for 7 cases}$ 

lations between aspects of OSC of the children and their mothers. P values less than 0.01 were considered statistically significant.

Binary logistic regression analysis was fitted to the data to measure odds ratios (OR) with 95% confidence intervals (CI). For explanatory variables, gender and mother's OSC were utilised as categorised variables, while PE served as the continuous variable. The dependent variables, namely children's OSC (FB = 1, MB and NB = 0), DT (without caries = 1, with caries = 0), and RI (complete dental treatment = 1, incomplete treatment or without treatment = 0), were dichotomised. The statistical package SPSS 13.0 was used for the statistical analyses.

# RESULTS

Recommended OSC was found for 14% of the mothers. Almost one-third (28%) of the mothers reported

tooth brushing at least twice a day and 60% of them reported regular use of fluoridated toothpaste. Eating sugary snacks between meals once daily or less was reported by 81% of the mothers.

Of the children, one third (34%) reported recommended OSC (Table 1). Almost half (46%) of the children reported that they brushed their teeth at least twice a day. The figures for regular use of fluoridated toothpaste and eating sugary snacks between meals once daily or less by children were 74% and 79%, respectively. Girls reported more favourable behaviour in most aspects of OSC than boys (p < 0.01; see Table 1). The children of high education parents brushed their teeth (p < 0.01) and used toothpaste (p = 0.01) more frequently compared to their low education counterparts (Table 1).

Correlation coefficients for the reported OSC of the mothers and their children are shown in Table 2. Mothers' OSC showed more correlations with girls' OSC than with boys, OSC (Table 2). Overall, mothers' OSC was

 Table 2 Correlations between aspects of oral self-care (OSC) among 9-year-olds (n = 457) separately for boys (224) and girls (233) and their mothers in Tehran, Iran

	Children's OSC								
	Tooth brushing frequency		Use of fluoridated toothpaste		Eating sugary snacks between meals		Sum of scores		
Mothers' OSC	Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls	
Tooth brushing frequency	0.16	0.231	0.05	0.03	0.04	0.18	0.13	0.221	
Use of fluoridated toothpaste Eating sugary snacks	0.09 0.01	0.18 <sup>1</sup> -0.09	-0.02 0.16	0.17 -0.13	0.05 0.06	0.01 0.01	0.06 0.11	0.20 <sup>1</sup> -0.12	
Sum of scores	0.15	0.24 <sup>1</sup>	0.06	0.09	0.09	0.13	0.16	0.231	
<sup>1</sup> p < 0.01									

 Table 3 Dental health indicators of 9-year-olds (n = 457) according to levels of children's and mothers' oral self-care (OSC) being favourable (FB) or unfavourable (UB) and parents' education in Tehran, Iran

	Children's OSC				Mothers' OSC <sup>2</sup>				Parents' education <sup>3</sup>		
Dental health indicators	All	FB	UB	p1	FB	UB	p1	Low	Medium	High	p1
	(n=457)	(n=154)	(n=301)		(n=59)	(n=354)		(n=94)	(n=173)	(n=142)	
Dental caries											
dt = 0	36	42	34	0.07	42	34	0.19	29	30	47	0.001
DT = 0	88	88	88	0.91	98	86	0.01	80	90	91	0.02
DT + dt = 0	33	38	31	0.10	41	30	0.11	23	28	43	0.01
Dental treatment	(n=99)	(n=39)	(n=60)		(n=13)	(n=77)		(n=24)	(n=34)	(n=31)	
RI for permanent teeth	44	<b>5</b> 1	40	0.27	92	36	0.001	21	50	58	0.02
UTN for perma- nent teeth	56	49	60	0.27	8	64	0.001	79	50	42	0.02
	(n=357)	(n=118)	(n=239)		(n=49)	(n=281)		(n=71)	(n=144)	(n=112)	
RI for primary teeth	`19 <sup>′</sup>	25	16	0.06	31	16	0.02	6	15	33	0.001
UTN for primary teeth	81	75	84	0.06	69	84	0.02	94	85	67	0.001

Restoration index (RI) =F/D+F; unmet treatment needs index (UTN) =D/D+F

Favourable behaviour includes tooth brushing at least twice a day, regular use of fluoridated toothpaste, and eating sugary snacks between meals once daily or less.

<sup>1</sup> Chi-square test <sup>2</sup> Data missing for 3 cases <sup>3</sup> Data missing for 7 cases

significantly correlated to children's OSC, and mothers' brushing frequency was significantly correlated with that of their children (r = 0.2; p < 0.01). The agreement of reports by mothers and children was high (84%) regarding children's brushing less than once a day, but only 44% of mothers agreed with their children's reports that they brushed their teeth at least once a day.

Table 3 illustrates children of mothers with favourable behaviour had more caries-free teeth in

permanent dentition and had received more treatment in both dentitions. Children of parents with low education had least caries-free teeth and highest unmet treatment rates in both dentitions. No association was found between children's OSC and their dental health indicators (Table 3). Regarding the aspects of OSC in the children, only reported regular use of fluoridated toothpaste was significantly associated with RI in primary teeth (p < 0.01).

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Table 4 Meeting oral self-care (OSC) recommendations among 9-year-olds as explained by mothers' OSC and socio-demographic characteristics by means of a logistic regression model

	Estimate	S.E.	р	OR	95% CI
Gender (0 = boy, 1 = girl) Mother's OSC (FB) Parents' education Constant	0.734 0.742 0.052 -1.520	0.217 0.325 0.078 0.343	0.001 0.02 0.51	2.1 2.1 1.1	1.4-3.2 1.1-4.0 0.9-1.2

Recommended OSC: tooth brushing at least twice a day, regular use of fluoridated toothpaste, and eating sugary snacks between meals once daily or less

Goodness-of-fit (Hosmer-Lemeshow test) p = 0.93

Table 5 Odds ratios for having good oral health in permanent teeth among 9-year-olds as explained by mothers' oral self-care (OSC) and socio-demographic characteristics by means of a logistic regression model

	Estimate	S.E.	р	OR	95% CI
Model for DT (caries-free)					
Gender (0 = boy, 1 = girl) Mother's OSC (FB) Parents' education Constant Goodness-of-fit <sup>1</sup> (p = 0.56)	0.056 2.389 0.233 0.778	0.311 1.033 0.131 0.477	0.86 0.02 0.08	1.1 11.0 1.3	0.6-1.9 1.4-82.6 1.0-1.6
Model for RI (full treatment)					
Gender (0 = boy, 1 = girl) Mother's OSC (FB) Parents' education Constant Goodness-of-fit <sup>1</sup> (p = 0.80)	1.043 3.523 0.342 -3.038	0.533 1.149 0.208 0.937	0.05 0.002 0.10	2.8 34.0 1.4	1.0-8.1 3.6-322.3 0.9-2.1
<sup>1</sup> Hosmer- Lemeshow test					

In the logistic regression model (Table 4), children with mothers having favourable OSC (OR = 2.1; 95%CI 1.1-4.0) and girls (OR = 2.1; 95%Cl 1.4-3.2) were more likely to belong to the favourable OSC group. Similar results were found when using children's tooth brushing as a dependent variable. The results concerning dental health indicators in the same model are presented in Table 5. Children whose mother had favourable OSC were more likely to have caries-free teeth and receive full treatment in permanent teeth.

# DISCUSSION

In the present study, brushing twice daily was reported by almost half (47%) of the children. This percentage is higher than those reported for children in Middle East countries (Rajab et al, 2002) and some European countries, but lower than those reported for other European countries (Kuusela et al, 1997). After assessing the uniformity of children's and their mothers' responses regarding children's brushing, we found that agreement between mothers and children for reporting unfavourable behaviour in brushing was higher than for favourable behaviour. This finding is in line with the known tendency to report one's behaviour more favourably than it really is, due to socially acceptable answering. The low frequency of reported favourable behaviour among children and their mothers, however, calls for decisive action to improve the situation.

The results revealed that mothers' OSC had a strong influence on children's OSC. This finding is in accordance with that of Åstrøm (1998) and Okada et al (2002), who reported a significant relation between maternal OSC and child's OSC in childhood and adolescence. This significance persisted even in the logistic regression model.

Even though research also emphasises the wide variations in children's health, parents retain a central role in providing care and support and in transmitting health-related knowledge and healthy behaviour to them (Christensen, 2004). Socialisation to OHBs may be considered a modelling process in which children learn the behaviour of their parents (Bandura, 1986), who are available and who provide valued role models for their offspring. Parents, especially mothers as the reinforcing factor (Green and Kreuter, 1991), could be the most important resources for the social support of school-age children (Åstrøm and Jakobsen, 1996).

Mothers are able to guide their children toward healthy behaviour through their own behaviour and by organising proper food habits in the family. Mattila et al (2005b) showed that parents who depend on explanation as the sole means of educating their children are unlikely to achieve the desired results; however, through their behaviour parents are important models for everyday life. The present finding emphasises the role of mothers as role models, thus confirming the results of previous research (Åstrøm and Jakobsen, 1996; Mattila et al, 2005b).

Especially in countries like Iran, mothers have a vital role in instilling favourable behaviours in their children, as they are the primary care givers and spend a great deal of time in close relationship with their children. In addition to providing training in cultural and religious aspects of Iranian society, mothers support the cohesiveness of the family by transmitting behaviours, symbols, motivation and socialisation.

Thus, mothers assume responsibility for the establishment of their children's dietary preferences, as many of the patterns of eating are established in early life. Significant resemblance between mothers and their children has been reported in food preferences (Borah-Giddens and Falciglia, 1993). Habitual use of and exposure to sugary items may therefore be learnt from mothers, as is reflected in the patterns of sweetness preference in mother-child pairs (Maciel et al, 2001).

The observed gender differences in some aspects of OSC among the children in the present study are in agreement with earlier findings (Kuusela et al, 1997; Rajab et al, 2002; Farsi et al, 2004; Poutanen et al, 2005). It seems that regardless of society and culture, girls show better OHB. In our study, mothers' OSC showed higher correlations with that of girls than with that of boys. This finding seems to support the notion that maternal modelling has a stronger impact on girls. However, as boys should also be encouraged towards healthier behaviour (Poutanen et al, 2005), the mothers' role as a good model should also facilitate the boys' learning through their mothers.

In agreement with findings of prior research (Okada et al, 2002; Bruno-Ambrosius et al, 2005), we found no relation between reported OHB in the children and their dental caries. This contradiction might be due to the over-reporting of actual behaviour by the children. Unstable oral conditions during the period of mixed dentition may also explain this unclear situation.

Socio-demographic background factors, such as parents' education and gender, are known to have a significant impact on OHS of children (Addy et al, 1994; Mattila et al, 2005a). As found by Okada et al (2002), the children of mothers with favourable OHB had better OHS than the others. Mattila et al (2005b) showed that parents with poor OHB represent a risk factor for dental caries in their own children. In the present study, among these factors only mother's OSC remained significant in explaining the dental health indicators of their children. This result confirms the mothers' decisive role in transmitting favourable OHB patterns as well as in the utilisation of dental services.

Although various studies have assessed schoolchildren, only few studies have been made of oral health and OSC in this age group (Oliveira et al, 2000; Saied-Moallemi et al, 2006). In addition to their mixed dentition, pupils in this age group are in the process of developing their individual health behaviour, yet are still strongly under the influence of their mothers especially in the Middle Eastern societies. Thus, this age is the decisive opportunity to take advantage of the significant influence of mothers on children's oral health (Okada et al, 2001). Furthermore, the third-grade children's responses to self-administered questionnaires are more valid than those of younger schoolchildren as they have better reading and writing skills.

# CONCLUSION

Studies in many Western countries show that high levels of education in parents seem to be correlated with favourable OSC and OHS of their children. In addition, the mother's own behaviour has been shown to be an accurate predictor of a child's OSC. Mothers in countries with cultures similar to that of Iran play a significant role in the oral health of their children, and this potential should be fully realised when developing oral health promotion programmes.

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## REFERENCES

- Addy M, Hunter ML, Kingdon A, Dummer PM, Shaw WC. An 8year study of changes in oral hygiene and periodontal health during adolescence. Int J Paediatr Dent 1994;4:75-80.
- 2. Åstrøm AN, Jakobsen R. The effect of parental dental health behaviour on that of their adolescent offspring. Acta Odontol Scand 1996;54:235-241.
- Åstrøm AN. Parental influences on adolescents' oral health behavior: two-year follow-up of the Norwegian Longitudinal Health Behavior Study participants. Eur J Oral Sci 1998;106:922-930.
- Bandura A. Observational Learning. In: Social Foundations of Thought and Action: A Social Cognitive Theory. New Jersey: Englewood Cliffs 1986;47-105.
- Borah-Giddens J, Falciglia GA. A meta-analysis of the relationship in food preferences between parents and children. J Nutr Educ 1993;25:102-107.
- Bruno-Ambrosius K, Swanholm G, Twetman S. Eating habits, smoking and tooth brushing in relation to dental caries: a 3-year study in Swedish female teenagers. Int J Paediatr Dent 2005;15:190-196.
- 7. Christensen P. The health-promoting family: a conceptual framework for future research. Soc Sci Med 2004;59:377-387.
- Farsi JM, Farghaly MM, Farsi N. Oral health knowledge, attitude and behaviour among Saudi school students in Jeddah city. J Dent 2004;32:47-53.
- 9. Green L, Kreuter M. Health Promotion Planning (2nd ed.). Mountain View: Mayfield Publishing Co. 1991.
- 10. Kuusela S, Honkala E, Kannas L, Tynjälä J, Wold B. Oral hygiene habits of 11-year-old schoolchildren in 22 European countries and Canada in 1993/1994. J Dent Res 1997;76:1602-1609.
- Maciel SM, Marcenes W, Watt RG, Sheiham A. The relationship between sweetness preference and dental caries in mother/ child pairs from Maringa-Pr, Brazil. Int Dent J 2001; 51:83-88.

- 12. Mattila ML, Rautava P, Aromaa M, Ojanlatva A, Paunto P, Hyssala L et al. Behavioural and demographic factors during early childhood and poor dental health at 10 years of age. Caries Res 2005a;39:85-91.
- 13. Mattila ML, Rautava P, Ojanlatva A, Paunio P, Hyssala L, Helenius H et al. Will the role of family influence dental caries among seven-year-old children? Acta Odontol Scand 2005b;63:73-84.
- 14. Ministry of Education. Booklet of statistics of administrative factors. Tehran: Ministry of Education, 2004.
- 15. Moynihan PJ. The role of diet and nutrition in the etiology and prevention of oral diseases. Bull World Health Organ 2005; 83:694-699.
- 16. Okada M, Kawamura M, Kaihara Y, Matsuzaki Y, Kuwahara S, Ishidori H et al. Influence of parents' oral health behaviour on oral health status of their school children: an exploratory study employing a causal modelling technique. Int J Paediatr Dent 2002;12:101-108.
- Okada M, Kawamura M, Miura K. Influence of oral health attitude of mothers on the gingival health of their school age children. J Dent Child 2001;68:379-383.
- Oliveira ER, Narendran S, Williamson D. Oral health knowledge, attitudes and preventive practices of third grade school children. Pediatr Dent 2000;22:395-400.
- Poutanen R, Lahti S, Hausen H. Oral health-related knowledge, attitudes, and beliefs among 11 to 12-year-old Finnish schoolchildren with different oral health behaviors. Acta Odontol Scand 2005;63:10-16.
- Rajab LD, Petersen PE, Bakaeen G, Hamdan MA. Oral health behaviour of schoolchildren and parents in Jordan. Int J Paediatr Dent 2002;12:168-176.
- 21. Saied-Moallemi Z, Virtanen JI, Tehranchi A, Murtomaa H. Disparities in oral health of children in Tehran, Iran. Eur Arch Paediatr Dent 2006;7:262-264.
- 22. Sheiham A. Dietary effects on dental diseases. Public Health Nutr 2001;4:569-591.
- 23. Vanobbergen JN, Martens LC, Lesaffre E, Declerck D. Parental occupational status related to dental caries experience in 7-year-old children in Flanders (Belgium). Community Dent Health 2001;18:256-262.
- World Health Organization. Oral Health Surveys: Basic Methods. 4th ed. Geneva: WHO, 1997.