

# Rural Mothers' Knowledge about Children's Dental Health in a Developing Country

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## ABSTRACT

**Introduction:** Recent epidemiological investigations on dental health among Iranian children revealed that the issue of dental caries is prevalent. According to the dental research in Iran, the general level of dental health, especially among children, is still unsatisfactory. Mothers play a key role in their children's health behaviour.

**Aim:** To explore the mothers' knowledge about their children's dental health.

**Materials and Methods:** A total of 200 mothers of children aged <6 years were enrolled in this cross-sectional study using the convenience sampling technique. A 25-item self-administered questionnaire was used for gathering data. An arbitrary cut-off score of 16 was considered satisfactory. All collected data were

entered in SPSS (v. 16.0) software and analysed with descriptive tests and the chi-square test.

**Results:** The mean age of the mothers was 30.8±2.5 years. The mean knowledge score of the participants was 14.2±2.0, and the minimum score was 7.0, while the maximum score was 18.0. Most respondents (58.0%) scored unsatisfactorily at 16 or less. A statistically significant association between the total score of knowledge and demographic characteristics exists ( $p<0.05$ ).

**Conclusion:** The mothers in the present study did not demonstrate satisfactory knowledge of children's dental health. Rural parents, especially mothers, need to be educated about their key role as a model for their children and should be encouraged to improve their children's dental health. Further studies with larger samples are recommended.

**Keywords:** Dental caries fluoride, Oral health, Rural parents

## INTRODUCTION

Recent epidemiological investigations on dental health among Iranian children revealed that the issue of dental caries is prevalent [1-4]. A recent study among 4,701 preschool children in urban areas of Iran showed that the total caries prevalence is 68.1% with an overall mean score for Decayed, Missing, and Filled Teeth (DMFT) of 3.167±3.003 [4].

In addition, research has revealed that the dental health of children is associated with factors such as socio-economic background and parental dental knowledge [2-5]. In addition, other studies have found a significant relationship between parental knowledge and their children's dental health status [6-9]. Mothers play a key role in their children's health behaviours. A good understanding of mothers' knowledge regarding children's dental health is essential for the effective implementation of oral health promotion efforts aimed at improving the dental health of children [6].

According to research in Iran, the general level of dental health, especially among children, is still unsatisfactory. Moreover, about 50% of the children were found to be affected by dental caries [1,8,9].

However, there are some studies among Iranian urban mothers regarding their children's dental health [1-4], but the current study is the first study conducted among rural women aimed to explore the mothers' knowledge about their children's dental health.

## MATERIALS AND METHODS

The sampling frame for this cross-sectional study comprised mothers of children aged <6 years, attending the rural divisions of the Qazvin province of Iran. The study sample of participants was selected using a convenience sampling technique. The mothers attending the Rural Health House (RHH) for regular Mother-Child Care (MCH) were invited to participate in the study. The sample size ( $n=200$ ) was calculated with following formula:

$$n = z^2 pq / d^2$$

The Iranian Primary Health Care (PHC) system was established to improve access to health care for the disadvantages and reduce the gap between health outcomes in urban and rural areas. To improve

access in remote areas in the face of shortages of human and capital resources, the system has relied on three main components: (1) establishing health houses in remote and sparsely populated villages; (2) staffing the health houses with health workers, known as 'behvarzan', recruited from local communities; and (3) developing a simple but well-integrated health information system [1,8].

Approval to conduct the study was taken from the Ethical Board of Qazvin University of Medical Sciences Ethics Code: (IR.QUMS.REC.1394.188). Informed consent was received from all participants.

A 25-item self-administered questionnaire in the local language including socio-demographic characteristics (5-items) and knowledge about children's dental health (20-items) was used for gathering data. The questionnaire was pretested by conducting a pilot study among 20 participants to assess the clarity of the language and the level of information in the questionnaire. The content validity and reliability of the questionnaire were assessed in order to establish the instrument's psychometric properties. A panel of 10 experts (Dentists, Oral Health Practitioners) reviewed the questionnaire in order to determine its content and face validity. Test-retest reliability was assessed based on a sample of 20 participants (Cronbach's alpha=0.81). The questionnaires were distributed to the participants during their attendance at RHH from June to October 2016.

The mothers were requested to respond to the questions by indicating a suitable option, which was expressed as scores of a, b, and c for the options. They scored one point for each knowledge question answered "a" and zero for "b" or "c" answers. A knowledge score was calculated from the number of correct (option "a") answers. The maximum score was 20.

## STATISTICAL ANALYSIS

All collected data were entered in SPSS (v. 16.0) software and descriptive statistics were obtained. The percentage frequency distributions of responses to the questions as well as the mean, standard deviation, and proportion were used to quantify the study and outcome variables. To observe the association between two

categorical variables, the chi-square test was used.

## RESULTS

A total of 200 mothers enrolled in this study. Their mean and standard deviation of age was 30.8±2.5 years. Regarding the source of health information, RHH, television and radio were the main sources for about 160 (80%) of the mothers. The mean and standard deviation of the mothers' knowledge was 14.2±2.0 and the minimum score was 7.0, while the maximum score was 18.0.

The distribution of the mothers' responses to the questions related to knowledge about children's dental health is presented in [Table/Fig-1]. More than 50% of the mothers answered the first eight questions on knowledge correctly. The minimum (11%) and

No.	Items	N	(%)
1	Prolonged bottle feeding causes dental carries.		
	a) True	112	56.0
	b) False	45	22.5
2	Excesses intake of sugary food for infants can cause cavities.		
	a) True	157	78.5
	b) False	25	12.5
3	Milk teeth do not require good care as it is going to fall anyway		
	a) True	124	62.0
	b) False	57	28.5
4	With the eruption of the first baby teeth, parents can begin to clean them with a piece of gauze or clean washcloth.		
	a) True	101	50.5
	b) False	65	32.5
5	Can irregularly placed teeth be aligned in the correct position?		
	a) Yes	122	61.0
	b) No	26	13.0
6	What type of brush is best for a young child?		
	a) Small	175	87.5
	b) Large	11	5.5
7	How much tooth paste should be placed on the brush?		
	a) Small pea-size	142	71.0
	b) Full length	29	14.5
8	Which of the following foods cause most decay in children?		
	a) Chocolate	118	59.0
	b) Biscuits	43	21.5
9	That it harms a baby's tooth to let him/her sleep all night with a milk bottle in its mouth.		
	a) True	98	49.0
	b) False	82	41.0
10	Bacteria from mom's cavities can infect baby's tooth if mom uses the same spoon when feeding the baby.		
	a) True	68	34.0
	b) False	73	36.5
11	It is necessary to take the child for regular dental visits.		
	a) True	95	47.5
	b) False	79	39.5
12	Cleaning of the child's teeth should be done by mothers.		
	a) True	78	39.0
	b) False	45	22.5
13	Does the tooth paste contain fluoride?		
	a) Yes	68	34.0
	b) No	46	23.0
14	When is it best to give sugary food and drinks to young children?		
	a) At meals	59	29.5
	b) Between meals	65	32.5
15	How often should a child's teeth be brushed?		
	a) Once a day	94	47.0
	b) Twice a day	35	17.5
16	What is the role of the fluoride in the tooth paste?		
	a) Prevent tooth decay	72	36.0
	b) Prevent gum problems	43	21.5
17	How much fluoride should the paste contain?		
	a) 1000 ppm	22	11.0
	b) 500 ppm	19	9.5
18	How should you brush your child's teeth?		
	a) Standing behind the child	49	24.5
	b) Standing in front of the child	72	36.0
19	At what time babies should have their first time visit?		
	a) At the time when the first tooth erupts	39	19.5
	b) 1-year	75	37.5
20	How many milk teeth are there in a child's mouth?		
	a) 20	48	24.0
	b) 32	69	34.5
	c) Don't know	83	41.5

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[Table/Fig-1]: Mothers' knowledge about children's dental health.

maximum (87%) rates of true answers were related to questions 17 and 6, respectively.

Most respondents (58.0%) scored unsatisfactorily at 16 or less. The associations between knowledge score and demographic items are

Variables	Score		p-value
	<16 (n=116; 58%)	≥16 (n=84; 42%)	
Age (year)			
≤30	60 (30.0%)	38 (19.0%)	0.042*
>30	56 (28.0%)	46 (23.0%)	
Education			
None	34 (17.0%)	21 (10.5%)	0.034*
Under diploma	47 (23.5%)	45 (22.5%)	
University	35 (17.5%)	18 (9.0%)	
No. of children			
1	69 (34.5%)	35 (17.5%)	0.021*
≥2	47 (23.5%)	49 (24.5%)	
Attending health education classes			
Yes	73 (36.5%)	38 (19.0%)	0.023*
No	43 (21.5%)	46 (23.0%)	
Source of health information			
TV and radio	45 (22.5%)	31 (15.5%)	0.049*
RHH	36 (18.0%)	29 (14.5%)	
Others	35 (17.5%)	24 (12.0%)	

[Table/Fig-2]: Association between the mothers' knowledge score and demographic figures.

\*Chi-square test shows significant differences

shown in [Table/Fig-2]. A statistically significant association between the total score of knowledge and demographic characteristics exists ( $p < 0.05$ ).

## DISCUSSION

This study was conducted in rural areas of the Qazvin province, Iran, to explore the knowledge of mothers regarding the dental health of their children under age six and to assess the associated maternal factors. To authors knowledge, there are very few Iranian studies involving mothers of children in this age group.

The results of this study revealed that the mean knowledge of the mothers, which was just below the cut-off score, was an indication

of an unsatisfactory level. In addition, the mothers' knowledge score was significantly associated with demographic characteristics, such as age, education, number of children, attending health education classes, and source of information.

However, there are more studies for and against these findings, and it is noteworthy that there are no similar studies among Iranian rural women. A study by Shaghaghian S et al., showed that about 60% of mothers had satisfactory knowledge about their children's dental health [9]. In a similar study conducted by Ibrahim, the mean knowledge score was 25 (out of 40), and the minimum score was 14, while the maximum score was 36. Moreover, 218 (58.4%) scored more than the cut-off point [10]. In addition, Shetty RM et al., and Reang T and found that most mothers in their studies were aware of the dental health risk factors of children [6,11].

In contrast with these studies, Suresh BS et al., found that the average mothers' knowledge regarding children's dental health, including brushing and knowledge about fluoride, was unsatisfactory, as nearly 73% of the mothers had inadequate or partial knowledge [12]. In addition, Akpabio A et al., aimed to explore mothers' knowledge about children's oral health and discovered that just up to 35% of the sample was aware of brushing and dental care [13].

These differences might be because the study population was situated in rural areas where the literacy was likely to be less than that in urban areas. In addition, if we reduce the cut-off point for the knowledge score, the results might be similar to these studies. Moreover, these differences might be due to the variation in the data collection instruments that the researchers used in their studies.

In parallel with the present findings, regarding the association between the mothers' knowledge score about children's dental health and their demographic characteristics, similar studies revealed a significant association between parents' knowledge and their educational level [9,14], occupation, number of children [13], source of information [13,15], age, and attendance of health education classes [16-18].

Results of a systematic review to illustrate the effects of the family environment on children's oral health by Castilho AR et al., showed an association between children's dental health and parental dental health practices and awareness [19]. Another systematic review by Kumar S et al., to investigate the effect of parental socio-economic status on children's Oral Health-Related Quality of Life (OHRQoL) revealed that parents with higher income levels and education had better OHRQoL. In addition, the mothers' age and family structure were two significant predictors of children's dental health [20]. Rad M et al., in a cross-sectional study among 1,554 school children, explored the vigorous association among mothers' educations and jobs with children's dental health [21].

## LIMITATION

The present study has some limitation. Authors did not gather the information about family diet and oral health of children. Another limitation is the small sample size regarded to numerous villages in Qazvin province. Cross-sectional nature of this study, did not allow to assess the cause and effect relationship between mothers knowledge and children oral health.

## CONCLUSION

In the present study, mothers had unsatisfactory knowledge of children's dental health. Rural parents, especially mothers, need to be educated about their key position as role models for their children and be encouraged to improve their children's dental health. Since this study was conducted in the rural areas of Qazvin province, Iran, conclusions cannot be applied to the entire population; thus, further studies with larger samples are recommended.

## REFERENCES

- [1] Ahmadzadeh J, Rezaeian S, Esmahilli-Sani A, Lava B, Mobaraki K, Amini S, et al. Oral health status and behaviours of children aged 6-12 years old: A cross-sectional study. *Ann Public Health Res.* 2015;2(2):1017.
- [2] Bozorgmehr E, Hajizamani A, Malek Mohammadi T. Oral health behaviour of parents as a predictor of oral health status of their children. *ISRN Dent.* 2013;2013:741783.
- [3] Nourijelyani K, Yekaninejad MS, Eshraghian MR, Mohammad K, Rahimi Froushani A, Pakpour A. The influence of mothers' lifestyle and health behaviour on their children: an exploration for oral health. *Iran Red Crescent Med J.* 2014;16:e16051.
- [4] Hamissi J. Prevalence of dental caries among preschool children in Qazvin, Iran: school screening programs. *Journal of International Oral Health.* 2015;7(12):5-9.
- [5] Chu CH, Ho PL, Lo EC. Oral health status and behaviours of preschool children in Hong Kong. *BMC Public Health.* 2012;12:767.
- [6] Shetty RM, Deoghare A, Rath S, Sarda R, Tamrakar A. Influence of mother's oral health care knowledge on oral health status of their preschool child. *Saudi J Oral Sci.* 2016;3:12-16.
- [7] Jain R, Oswal KC, Chitguppi R. Knowledge, attitude and practices of mothers toward their children's oral health: A questionnaire survey among subpopulation in Mumbai (India). *Journal of Dental Research and Scientific Development.* 2014;1(2):40-45.
- [8] Pakshir HR. Oral health in Iran. *Int Dent J.* 2004;54:367-72.
- [9] Shaghaghian S, Savadi N, Amin M. Evaluation of parental awareness regarding their child's oral hygiene. *Int J Dent Hyg.* 2017;15(4):e149-55.
- [10] Al-Ayed IH. Mothers' knowledge of child health matters: Are we doing enough? *J Family Community Med.* 2010;17(1):22-28.
- [11] Reang T, Bhattacharjya H. Mother's knowledge and practice regarding oral hygiene and challenges in the prevention of dental caries of under five children in an urban resettlement colony. *International Journal of Medical Science and Public Health.* 2014;3(1):76-80.
- [12] Suresh BS, Ravishankar TL, Chaitra TR, Mohapatra AK, Gupta V. Mother's knowledge about pre-school child oral health. *J Indian Soc Pedod Prev Dent.* 2010;28:282-87.
- [13] Akpabio A, Klausner CP, Inglehart MR. Mothers'/guardians' knowledge about promoting children's oral health. *J Dent Hyg.* 2008;82(1):12.
- [14] Folayan MO, Kolawole KA, Oziegbe EO, Oyedele T, Oshomoji OV, Chukwumah NM, et al. Prevalence, and early childhood caries risk indicators in preschool children in suburban Nigeria. *BMC Oral Health.* 2015;15:72.
- [15] Dogra S, Arora R, Bhayya DP, Thakur D. Knowledge and Attitude of Lactating Mothers towards Infant oral health care in Udaipur. *IOSR Journal of Dental and Medical Sciences.* 2014;13(1):57-60.
- [16] Kino S, Bernabé E, Sabbah W, Aukett J. Relationship between family characteristics and children's regular toothbrushing with fluoride toothpaste. *Community Dent Health.* 2015;32(3):132-36.
- [17] Rahbari M, Gold J. Knowledge and behaviours regarding early childhood caries among low-income women in Florida: a pilot study. *J Dent Hyg.* 2015;89(2):132-38.
- [18] Hallas D, Fernandez JB, Lim LJ, Catapano P, Dickson SK, Blouin KR, et al. OHEP: an oral health education program for mothers of newborns. *J Pediatr Health Care.* 2015;29(2):181-90.
- [19] Castilho AR, Mialhe FL, Barbosa Tde S, Puppim-Frontani RM. Influence of family environment on children's oral health: a systematic review. *J Pediatr (Rio J).* 2013;89(2):116-23.
- [20] Kumar S, Kroon J, Laloo R. A systematic review of the impact of parental socio-economic status and home environment characteristics on children's oral health related quality of life. *Health Qual Life Outcomes.* 2014;12:41.
- [21] Rad M, Shahravan A, Haghdoost AA. Oral health knowledge, attitude, and practice in 12-year-old schoolchildren in Iran. *J Int Soc Prev Community Dent.* 2015;5(5):419-24.

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