

## Unacceptable status of oral and dental health-related knowledge among Iranian primary school students

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### ABSTRACT

Oral health as one of the health Criteria of people plays key role in general health. For improvement of oral health, it is necessary to measure the knowledge level. This study has investigated the Oral health- related knowledge among Rafsanjan City Primary Schools' Students. The present descriptive-analytical study has been conducted on 429 primary students (second grade) in Rafsanjan, Iran. Samples are selected using random cluster sampling. Data collection method is the researchers' questionnaire containing 24 items and that validity and reliability was respectively obtained through using opinions of experts and content validity and test-retest method and extraction of Cronbach's alpha. After collecting the data, the data are analyzed using SPSS-21 software using independent t-test, one-way ANOVA and Pearson correlation at the significance level of 0.05. Mean score of knowledge of students is  $10.24 \pm 3.1$  of 24 and 69% of students had knowledge in average level. The most important weakness points included knowledge of students about mental, psychological and social complications of inadequate oral and dental health. Significant correlation was between knowledge and education of parents and description of oral and dental health status of students excellently and the variable of reporting regular brushing status. Making behavior needs increasing knowledge and changing attitude in people. Despite to the advancements and communicative technologies, knowledge level of students is in undesirable, low and unacceptable level. Hence, it would be better to arrange and announce required policy making to design intervention plans.

**KEY WORDS:** ORAL AND DENTAL HEALTH, KNOWLEDGE, STUDENTS

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## INTRODUCTION

Oral and dental health is one of the main health criteria of the society and plays key role in general health and quality of life of people and can affect overall public health (1, 2). In most countries of the world, spread of oral and dental diseases like Oral Cancer is reported 1-10 cases per 100 thousand people and tooth decay is also the most common disease across the world and about 100% of adults suffer from it. Moreover, spread of the disease is reported to 60-90% among school children, (Daly and Batchelor 2012, WHO 2012, Nurelhuda et al 2009)

Oral and dental diseases like decay and periodontitis, similar to systemic diseases, have chronic process and similar behavioral features and multifactorial nature (4). Urbanization, industrial and mechanized life, change in nutrition style and poor eating habits, smoking, tobacco and alcohol are the main factors causing increase in tooth decay and gum disease. Other factors affecting oral and dental diseases include change in lifestyle, limited children's access to oral care services, social status, knowledge, personality and attention to their own health, poor diet such as eating too much sugar and generally, no observance of oral and dental hygiene (lack of brushing and no flossing. In general, 4 main factors creating decay include germs, sugar, teeth resistance and time, (Maltz et al., 2010, Liu et al., 2009 Antonio et al., 2007, Al Subait et al., 2016, Çolakoğlu and Has 2015 Castilho et al., 2015).

Oral and dental diseases can result in various complications including chewing food disorders, gastrointestinal problems, bad breath, major social problems, cancer and oral carcinomas and reduced life expectancy, speech problems, mental disorders, inflammation of the gums, tooth irregularity, low self-esteem, poor quality of life, impaired nutritional status, reducing the growth of children, the loss of more than 50 million hours of school curriculum (10-15).

Torabi et al., 2009, Zeidi et al., 2013, Morowatishari-fabad et al., 2011, Rahimi et al., 2011) Feldens et al., 207 and Peterson et al., 2008).

The most important strategies of WHO to prevent the problems and to improve oral and dental health include reducing load of unacceptable oral and dental health-related disorders, promoting healthy lifestyles and reducing risk factors (environmental, economic, social and behavioral), development of health service provider systems and arrangement of policies to promote oral and dental health, WHO (2015).

The only effective and efficient strategy to solve problems related to oral and dental health is prevention and various collections of activities in individual, job and social level WHO (2015).

For effective improvement of oral and dental health-related behaviors and planning in this field, people should have complete and comprehensive information about factors affecting decision making, assessment of nutrition status, measurement of public knowledge, evaluation of health status and information, size of tooth decays, assessing the status of self-care behaviors, brushing and flossing, (Pakpour et al 2011 Pishva and Asefzadeh 2010).

One of the most important and also initial steps in field of the process of changing behavior is assessing knowledge in this field and such knowledge can pave the way for formation of attitude and improvement of behavior. Studies have reported high level of knowledge of children in field of oral and dental health. Gao et al (2014) has reported the amount of spread of tooth decay among 12-15 years old children to 24% and has also reported knowledge of students in undesirable level and has reported no significant correlation between the two variables. The status of this index is also reported in undesirable level in Iranian children (Moeini et al., 2013). For example, Moeini et al (2013) have studied the knowledge level of primary students of Sanandaj to 8.5 of 20 and in undesirable level and have claimed that it can pave the way for formation of other attitude variables such as sensitivity and perceived intensity. But most of these studies have not analyzed the weaknesses of children's knowledge.

Children and adolescents are the large capital sources and the most valuable resources of a society and the more the society tries to save the resources, the society can be more successful and healthy in future. Therefore, according to role of knowledge in formation of behavior, this study has been conducted with the purpose of determining the knowledge level of students as one of the determinants of behavior and Analysis of strengths and weaknesses in field of oral and dental health.

## MATERIALS AND METHODS

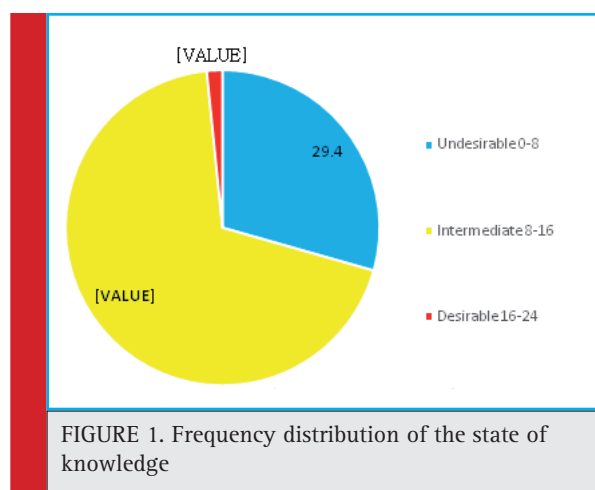
The descriptive-analytical study has been conducted on 429 primary students of second period (fourth, fifth and sixth grade) in Rafsanjan (6 schools; 3 for girls and 3 for boys). Sampling is done using cluster sampling and classes in each school are selected randomly. Data collection instrument is formed of 2 parts of demographic questions (9 questions) and researchers' questionnaire (using review of studies and scientific references). Validity of the questionnaire was measured based on opinion of 10 experts and adjustment of the results with Lavshah table using test-retest approach among 57 students and the Cronbach's alpha was obtained to 0.74. Number of questions in second part on measuring knowledge

of students includes 24 items, in which 11 questions are 3-option for (true, false and I do not know) and 13 questions are 4-option items with self-report answering method and with score range of (0-24). The true answers were scored with point 1, false and I do not know answer were scored with point 0. The inclusion criterion in this study was the consent of participants and exclusion criterion was incomplete responding to the questions. The data processing and analysis was done using SPSS-21 software and using independent t-test, one-way ANOVA and Pearson Correlation at the significance level of 0.05. In terms of ethical considerations in this study, one can refer to being ensured of secrecy and privacy of information and anonymity of questionnaires, presenting the results to the relevant parties, preservation of material and spiritual rights of research team and considering the contrast of interests of research team members.

## RESULTS

The number of participants was 429 students (179 girls and 250 boys). Education level of about one third of parents was diploma and about 40% of fathers had free jobs and 65.7% of mothers were housekeeper. About 17% of participants reported excellent level of oral and dental health and 45% reported that they brush their teeth regularly. The highest level of knowledge was reported in student in sixth grade and the difference between classes was significant ( $p < 0.001$ ) (table 1). Mean score knowledge of students was  $10.24 \pm 3.1$  of 24 and only Less than

2% of students had desirable and acceptable knowledge level (figure 1). Mean score of knowledge level was equal to  $11 \pm 2.9$  for girls and to  $9.6 \pm 3.2$  for boys and the difference between two groups was significant ( $p < 0.001$ ). In this study, no significant correlation was observed between mean score of knowledge level of students with age and parent's job ( $P > 0.05$ ). However, there was significant correlation between higher education (academic education) of parents and description of oral and dental health status and report of regular brushing ( $P < 0.01$ ). Educational needs based on analysis of items in the questionnaire are reported in table 1. As it is clear, 3 preferred educational needs of students are in field of knowledge in field of beginning time of observing



Variable	variable modes					P- Value
	Illiterate	Elementary	Guidance	Diploma	Academic	
	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	Number (Percent)	P=0.03
Father's education	6 (1.6)	26 (7)	67 (18.2)	155 (42)	115 (31.2)	P=0.001
Mother's education	2 (0.5)	41 (11)	59 (15.9)	149 (40.1)	131 (32.5)	
Father's job	Unemployed	Worker	Employee	Self-employed	Retired	P=0.1
	8 (1.9)	59 (14.1)	160 (38.5)	173 (41.6)	16 (3.8)	
Mother's job	Housewife		Employed			P=0.08
	282 (65.9)		146 (34.1)			
Describe the state of oral health	Excellent	Very good	Good	Average	Weak	P<0.001
	75 (17.7)	90 (21.2)	156 (36.8)	88 (20.8)	15 (3.5)	
Describe the brushing	Never	Rarely	Sometimes	Regularly & Always		P=0.002
	13 (3)	30 (7)	189 (44.1)	197 (945.9)		
Grade	Fourth (M±D)	Fifth (M±D)		Sixth (M±D)		P<0.001
	9.5±3	10.5±3.2		11.03±3.06		

Table 2. check the status of responding to awareness questions and education priorities

questions	Correct answers		Incorrect answers		Educational priority
	Number	Percent	Number	Percent	
the time of beginning observance of oral and dental hygiene	26	6.1	403	93.9	1
Mental complications of tooth decay (being ashamed, etc.)	49	11.4	380	88.6	2
right time to change the brush	60	14	369	86	3
right time to appoint a dentist for examination	89	20.7	340	79.3	4
least times of using floss per day	91	21.2	338	78.8	5
minimum brushing time	99	23.1	330	76.9	6
time of using mouthwash in children	106	24.7	323	75.3	7
type of teeth and their effect on decay	112	26.1	317	73.9	8
dental sensitivity to heat and cold (a sign of decay)	113	26.3	316	73.7	9
brushing style of outer surface of upper teeth	117	27.3	312	72.7	10
toothache or bleeding while brushing (a sign of decay)	151	35.2	278	64.8	11
task of teeth in speaking	181	42.2	248	57.8	12
the amount of using toothpaste in children	185	43.1	244	56.9	13
the time that food residuals remain on tooth and its effect on decay	205	47.8	224	52.2	14
frequency of brushing behavior in day and night	222	51.7	207	48.3	15
the best way to clean the space between teeth	237	55.2	192	44.8	16
physical complications of decay (bad breath, etc.)	250	58.3	179	41.7	17
germs and their impact on decay	272	63.4	157	36.6	18
sugar and its impact on decay	281	65.5	148	34.5	19
task of teeth in protecting face beauty	286	66.7	143	33.3	20
brown and black spots on tooth (a sign of decay)	292	68.1	137	31.9	21
right times of brushing	295	68.8	134	31.2	22
task of teeth in chewing food	297	69.2	132	30.8	23
the time of beginning observance of oral and dental hygiene	377	87.9	52	12.1	24

oral and dental hygiene, mental complications of tooth decay and the right time to change the brush.

## DISCUSSION

Undoubtedly, to arrange interventions and educational plans, comprehensive recognition of determinants of the behavior is required, so that the arranged planning and intervention could have the highest effect and result. One of the most important and initial steps in field of process of changing behavior is measurement of knowledge of individuals in field of the studied issue. In this study, mean value of total knowledge level of students is obtained to  $10.24 \pm 3.1$  of 24 and majority had unacceptable knowledge level. In other studies, knowledge level of students was reported in weak level (Paula *et al.*, 2013). In a study conducted by Haleem *et al.* (2013), mean score of knowledge level of 10-12 years old students in field of oral and dental health was reported to 2.5 from 12.

About 95% of students in this study reported that the beginning time of oral and dental health behaviors was from eruption time. It is necessary to provide required information for them and their families in field of observance of oral and dental health before eruption time. Majority of the students were aware of physical complications of lack of observing oral hygiene; although majority of them were unaware of mental and psychological complications and social complications like self-confidence, being ashamed and losing friends. This issue is one of the most important issues to make children sensitive and pave the way for them to begin oral health behaviors, since having information about outcomes of a phenomenon can lead to formation of attitudes and encouraging children to take health behaviors. In the study of Haleem A, it was reported that children have unacceptable knowledge in field of complications of no observance of oral and dental health Haleem *et al.* (2013). Therefore, it is suggested to planners and designers of intervention plans to consider this issue seriously, so that the sensitivity of perceived intensity is formed in

children to take healthy, rapid and sustainable behaviors. In this study, the students had acceptable knowledge level about functions of teeth; although more than half of them were unaware of tasks of teeth and their role in speaking. Their knowledge in this field can pave the way to encourage them to take preventive behaviors.

Another issue to encourage children to take preventive behaviors is having knowledge about the factors creating tooth decay. According to report of WHO, 4 factors including sugar, germs, resistance and time (the time that food remains in mouth) can affect teeth decay. The knowledge of students about effects of sugar and germs on decay was acceptable; although it was unacceptable in field of effect of type and resistance of teeth and time. Knowledge of children about the philosophy of teeth decay and role of important variable like time and the time that food remains on teeth can be one of the most effective factors in brushing behavior and these results are in consistence with findings of Gao *et al.* (2014) reported significantly unacceptable knowledge of 12-15 years old children in field of spread of teeth decay and reported the value about 24% for it and mentioned that this variable is one of the most effective variables in decay and dental diseases.

In this study, variables such as brown and black and white spots on teeth and dental sensitivity to heat and cold, gum bleeding and perforated teeth are investigated that are counted as signs of teeth decay in other studies (Herendon *et al.*, 2010). The knowledge of majority of students about these signs was poor. However, awareness of signs of decay and examination of these signs by the person can be the most important factor encouraging in field of formation of beliefs and intention of behavior and pave the way for seriously formation of preventive behaviors and urgent referral to dentist to get preventive services in secondary level. In other studies, insufficient knowledge of children about signs of teeth decay is reported.

Al-Darwish (2016) has reported in a study that only 25% of 12-14 year old students in Qatar have acceptable knowledge level in field of oral and dental health. The students have poor knowledge about variables such as decay signs, regular appointment of dentist with the purpose of care and examination, role of fluoride and consumption of sweet drinks and foods and plaque. Only 3.7% of children brush their teeth regularly after eating food and this has been in direct correlation with formation of brushing behavior Al-Darwish (2016). The suggestion here is to provide required empowerments to introduce the signs of teeth decay to children, so that self-care and control behaviors are facilitated.

Another weakness in field of knowledge of children is being unaware of information of a well-designed brush,

time of changing it, role and effect of toothpaste and flossing on improvement of oral and dental health, referring to dentist for regular examinations. As formation of behavior was growing and promotion of knowledge level is at the beginning of this process, it seems necessary to arrange and implement comprehensive plans by health authorities like school-oriented interventions and family-oriented intervention's in field of increasing knowledge of students.

In this study, girls had higher knowledge and awareness than boys and this was proved in the study conducted by Al-Subait *et al.* (2015). The reasons for this issue could be more sensitivity of girls to health issues, especially oral and dental health. Moreover, significant correlation was observed between knowledge level of students and some demographic variables such as education level of parents and beliefs and wrong descriptions of oral and dental health and the result has been in consistence with findings of other studies (Anne *et al.*, 2016).

In a study conducted by Nurdan and Ethem (2015), social-demographic variables had direct and significant effect on oral and dental health. In the study, the status of germ plaque was significantly correlated to the mother's job, family income, insurance status, family members, number of children, educational level of mother, caregiver, supervision of parents on oral health of children and regular appointment of dentist and brushing behavior in parents. In the study conducted by Alin-Rogeria *et al.* (2013), variables such as parent's behaviors, parent's positive attitude, supervision and control of parents on health behaviors of children are reported. Hence, it is suggested to consider the family as the main and the first center for education of children.

## LIMITATIONS OF THE STUDY

The limitations with the present study include the way of answering questions (self-report) and the strengths in this study include partial consideration of the issue of knowledge and its orientations in field of oral and dental health, which can be helpful for the interventions.

## CONCLUSION

Taking behavior needs improving knowledge and information and changing attitudes of people towards each field and issue. The results obtained from this study showed that despite to advancement of modern technologies and increased amount of communications, still some issues such as oral and dental health and awareness of the causes and complications of teeth decay,

decay signs and preventive behaviors are in unacceptable and undesirable level and this can be the main reason for lack of achievement to desirable indices among students. Designing, implementing and valuating the health interventions and promotion of health in field of oral and dental health is suggested to improve knowledge and improve relevant behaviors.

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## CONFLICT OF INTEREST

There is no conflict of interest.

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