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Original Research

Oral Health Knowledge of Turkish Senior Child Development Students: Results of the Pilot Study

Elif Ballikaya[1], Seyma Özturk[1], Semra Şahin[2], Nilgün Metin[2],
Meryem Uzamış Tekçiçek[1], Bahar Güçiz Doğan[3]

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Abstract

Objective: The aim was evaluating oral health related knowledge of a group of senior Child Development students. **Materials and Methods:** Data of this pilot study were gathered via a structured self-administered questionnaire in 2019, from 76 students with the intention of developing a future cross-sectional study, that would cover all senior students of Child Development Departments in Turkey. Ethical approval and verbal informed consent from students were obtained. **Results:** The mean age was 22.9±1.8 years; 73 were female. Only 2.6% could define what dental plaque was. Most of them (93.4%) knew the eruption time of first primary tooth but only 16 (21.0%) knew the correct number of primary teeth. Fifty (65.8%) agreed that 'dental caries of primary teeth is an important issue for the child'. Only 47 (61.8%) stated that children under two years of age could have dental caries. The appropriateness of toothpaste use between 0-2 years of age was understood by 26.3%. Although 68.4% reported they were aware of fluoride, only 5 fully understood the role of fluoride in the prevention of dental caries. Three-fourth reported incorrectly that children between 2 and 6 years should brush their teeth by themselves. Only 2 (2.6%) stated that they had previous education regarding oral health; 11.8% thought their oral health knowledge level was sufficient. However, 97.4% requested more education. **Conclusions:** The oral health knowledge of the senior Child Development students was not adequate. The present curriculum should be reviewed and lectures on this topic given.

Keywords: *Oral Health, Knowledge, Health Personnel.*

[1]**Elif Ballikaya**, Hacettepe University Faculty of Dentistry, Department of Pediatric Dentistry, Ankara/Turkey 03123052280. E-mail: eyildirim@hacettepe.edu.tr
[1]**Şeyma Özturk**. Hacettepe University Faculty of Dentistry, Department of Pediatric Dentistry Ankara/Turkey 03123052280. E-mail: dtseymaozturk@gmail.com
[2]**Semra Şahin**. Hacettepe University Faculty of Health Sciences, Department of Child Development. Ankara/Turkey. 03123051526. E-mail sahsemra@gmail.com
[2]**Nilgün Metin**. Hacettepe University Faculty of Health Sciences, Department of Child Development. Ankara/Turkey. 03123051526. E-mail enmetin@gmail.com
[1]**Meryem Uzamış Tekçiçek**. Hacettepe University Faculty of Dentistry, Department of Pediatric Dentistry. Ankara/Turkey 03123052280. E-mail: meryemtekcicek@gmail.com
[3]**Bahar Güçiz Doğan**, Hacettepe University Faculty of Medicine, Department of Public Health. Ankara/Turkey 03123051590. E-mail: bdogan@hacettepe.edu.tr

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Introduction

Oral health, which affects the quality of life of infants and children is a vital part of general health (Sischo & Broder, 2011). Severe untreated dental caries is very common in pre-school children in many countries (Gökalp, Guciz Dogan, Tekçiçek, Berberoglu, & Ünlüer, 2010; Pitts, Boyles, Nugent, Thomas, & Pine, 2007; Sheiham, 2006). Children with untreated early childhood caries (ECC) have significantly poorer oral health-related quality of life than children without ECC. Untreated dental caries with associated discomfort or toothache have negative effects on weight gain, growth and quality of life as well as the cognitive development of young children. Severe dental decay could induce failure to thrive (Acs, Shulman, Chussid, & Ng, 1999; Anderson, Drummond, & Thomson, 2004; Ratnayake & Ekanayake, 2005; Sheiham, 2006; Thomas & Primosch, 2002). At the beginning, infection associated untreated caries can cause pain and disturbance, and reduce the dietary intake because of pain when chewing (Acs et al., 1999; Elice & Fields, 1990; Sheiham, 2006); then, severe caries can affect children's quality of life and growth for leading to pain, irritability and disturbed sleeping habits (Low, Tan, & Schwartz, 1999; Reisine, 1988; Sheiham, 2006). Disturbed sleep may affect glucosteroid production and growth (Sheiham, 2006). Pain due to untreated severe caries could cause restricted activity and absence from school and a decreased ability to learn (Gift, Reisine, & Larach, 1992; Ratnayake & Ekanayake, 2005; Reisine, 1985).

With regard to good oral health, undoubtedly, mothers are the primary source of early education in children (Mani, Aziz, John, & Ismail, 2010). However, young children spend a considerable amount of time in day-care centers or kindergartens in the present time. In these day-care centers, the caretakers' or preschool teachers' or child development professionals' role is similar to that of parents and may be even more important because they also get involved in children's daily diet, general hygiene and oral health care.

There is a special department in Turkish high education system of which the primary objective is to educate professionals who will provide guidance, counseling and research services on child development. This education is given in the Department of Child Development under the Faculty of Health Sciences of the universities. The graduates have the title of "Child Developmentalist" as health personnel, and they provide services 0 to 18-year-old children, their families, educators, and the whole community with theoretical and practical education programs for supporting all developmental areas (mental, language, motor, self-care,

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socio-emotional) of children with normal development, special needs, in need of protection (institutionalized, working, immigrant and delinquent children), and hospitalized children. Oral health education is vital for the students of Child Development Departments since they would be at a critical point related to get children adopt healthy habits and detect possible developmental problems associated to oral health.

There are many childcare and development programs in the world (Currie, 2001; McMullen et al., 2005; Whitebook, Bellm, Lee, & Sakai, 2005). These programs are for children from birth to some ages vary of from 12 to 18. As one of the members of health services team, child developmentalist is important for health promotion. Their own oral health knowledge must be good, and their oral health behavior conforms to professional recommendations. With proper knowledge and oral health behavior, they can play an important role in the health education of individuals and groups and act as role models for children and the community. However, no study has focused on determining the role of child developmentalists in promoting oral health among children yet in Turkey. The majority of the studies have focused on parent/ primary caretaker's and pre-school teacher's attitudes and beliefs which put the child at risk for ECC (Akpabio, Klausner, & Inglehart, 2008; Orenuga & Sofola, 2005; Schroth, Brothwell, & Moffatt, 2007; Szatko, Wierzbicka, Dybizbanska, Struzycka, & Iwanicka-Frankowska, 2004). A Child Developer as a professional, who follows the development of the child, should know that oral health problems affect the child's development negatively. In order to decide whether a change in the curriculum needed, firstly, the level of knowledge of the Child Development Department students should be evaluated and this study would be the very first study performed on the topic.

Under the light of these issues, it is important to evaluate oral health related knowledge of senior Child Development Department students in Turkey. A prior for this investigation, a pilot study was implemented on this topic.

Materials and Methods

Ethical approval was obtained from Hacettepe University Non-Interventional Clinical Researches Ethical Board (473-332).

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Participants

This descriptive study was planned as a pilot for the comprehensive study, which would cover all of the senior students of the Child Development Departments in Turkey. The target group was the senior students of one Child Development Department (84 students); 76 were participated to the study (response rate was 90.4%).

Data Collection Tool

The data were gathered via a structured, pre-tested, self-administered questionnaire (consisted of 45 questions). The questionnaire was developed with the contribution of three Pediatric Dentists, two academicians from the Department of Child Development and one from the Department of Public Health. The questionnaire consisted of 45 questions related to three basic topics: 1) Background: age (20-23, 24-32); residence (city center, district, village, abroad), number of siblings (1-3, 4 over), educational status of parents. 2) Oral health knowledge: role of bacteria in dental caries; definition of dental plaque, eruption time of primary teeth, number of primary teeth, time for complete set of primary tooth eruption, importance of dental caries on primary teeth, the timing of first dental visit, frequency of dental visit, age of children of whom dental caries could be observed, appropriateness of toothpaste use between 0-2 years of age and 3-6 years of age, appropriateness of adult toothpaste use between 3-6 years of age, appropriate amount of toothpaste between 3-6 years of age, Be aware of fluoride, functions of fluoride, knowledge regarding to functions of fluoride, role of fluoride in toothpaste. 3) Oral health education: Previous training on oral health, self-evaluation of sufficiency of oral health knowledge, willingness to have education on oral health.

For pre-testing, the first draft of the questionnaire implemented on 25 senior child development students of another faculty regarding content and intelligibility.

Data Collection Procedure

The data were gathered in May 2019, at a single day at the end of a lecture. The questionnaires were distributed to all senior students (n= 84); they were requested to remain in the classroom after the lecture and fill in the questionnaire. Verbal informed consent was obtained from the study participants. The participation was voluntary.

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Data Analysis

Statistical analysis was carried out by using SPSS for Windows 20.0 (IBM Corp. Released, 2012. Armonk, NY: IBM Corp.). Number, percentage, mean, standard deviation, median, minimum and maximum values were estimated for descriptive statistics.

Results

The mean age of the participants was 22.9±1.83 years (min-max=20-32). There were only 3 male students. 44.8% (n=34) of mothers and 23.7% n=18) of fathers of the participants had primary education or less. Only two mothers have profession related to health (1 nurse, 1 midwife).

Only two participants (2.6%) stated that they had education regarding oral health, 11.8% (n=9) thought that their oral health knowledge was sufficient. On the other hand, 74 students requested more education about the topic (Table 1).

Table 1. Distribution of study participants by opinions related to oral health education

Oral Health Education (n=76)	**n**	**%**
Previous oral health education		
Yes	2	2.6
No	59	77.6
Do not remember	15	19.7
Sufficiency of oral health knowledge (self-evaluation)		
Sufficient	9	11.8
Not sufficient	44	57.9
Not sure	23	30.3
Willingness to have oral health education		
Yes	74	97.4
No	2	2.6

Most of the participants (n=65, 85.5%) agreed that bacteria have directly causes dental caries. Only 2 students knew the definition of dental plaque. According to American Dental Association (ADA) (2005), the eruption time for the first primary teeth is accepted as 6-10 months. In the present study, any month in this range was accepted as the correct answer. Almost all of them (n=71, 93.4%) knew the eruption time of primary teeth however, only 16

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participants reported the correct number of primary teeth and nearly half of the participants (n=35, 46.1%) knew the time for complete set of primary tooth eruption correctly. Although some of the participants stated that "primary tooth already exfoliates, dental caries in primary teeth is not important", 50 participants (65.8%) agreed that "dental caries of primary teeth is an important issue for the child''. 47 participants (61.8%) stated that children under two years of age could have dental caries. Nearly half of the participants knew the frequency of dental visit correctly but the timing of first dental visit was known only by one third of the participants (Table 2).

Table 2. Distribution of study participants by knowledge about basic oral health issues/topics (Turkey, 2019)

Topics (n=76)	n	%
Bacteria directly causes dental caries		
Yes	65	85.5
No	5	6.6
No idea	6	7.9
Definition of dental plaque		
Knows completely	2	2.6
Knows partly	34	44.7
No idea	40	52.6
Eruption time of primary teeth		
Correct knowledge	71	93.4
Incorrect knowledge	2	2.6
No idea	3	3.9
Number of primary teeth		
Correct knowledge	16	21.0
Incorrect knowledge	29	38.1
No idea	31	40.8
Time for complete set of primary tooth eruption		
Correct knowledge	35	46.1
Incorrect knowledge	25	32.9
No idea	16	21.1
Caries on primary teeth is important for the health of the child		
Yes	50	65.8
No	11	14.5
No idea	15	19.7
The timing of first dental visit		
Correct knowledge	26	34.2
Incorrect knowledge	29	38.2
No idea	21	27.6
Frequency of dental visit		
Correct knowledge	43	56.6
Incorrect knowledge	21	27.6
No idea	12	15.8
Children under two years of age could have dental caries		
Yes	47	61.8
No	10	13.2
No idea	19	25.0

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Appropriateness of toothpaste use between 0-2 and 3-6 years of age was approved by 26.3% (n=20) and 96.1% (n=73) respectively. The reasons of thinking the toothpaste use between 0-2 years of age is not appropriate was as follows: "the toothpaste contains fluoride and fluoride is chemical and very detrimental for children''; "toothpaste is detrimental for children because they swallow it"; "dental caries is not observed in 0-2 years of age children"; "only toothbrush is enough for oral hygiene, no need for toothpaste".

Only 13 of the participants (17.8%) approved the usage of adult toothpaste between 3-6 years of age. The functions of fluoride were asked as multiple-choice (tooth whitening, strengthening of teeth, prevention to dental caries, desensitizing and other). The participants marked all of the choices except tooth whitening were accepted to have the correct knowledge. Although 52 participants (n=76, 68.4%) reported they were aware of fluoride, only 5 participants (n=52, 9.6%) knew the functions of fluoride completely. Most of the participants (n=73, 96.1%) thought that "children between 2-6 years of age should brush their teeth by themselves alone" which is an incorrect information (Table 3).

Table 3. Distribution of study participants by knowledge about basic tooth brushing topics

Topics (n=76)	n	%
Appropriateness of toothpaste use between 0-2 years of age (n=76)		
Yes	20	26.3
No	56	73.7
Appropriateness of toothpaste use between 3-6 years of age (n=76)		
Yes	73	96.1
No	3	3.9
Appropriateness of adult toothpaste use between 3-6 years of age (n=73)		
Yes	13	17.8
No	47	64.4
No idea	13	17.8
Be aware of fluoride (n=76)		
Has some idea	52	68.4
No idea	24	31.6
Knowledge regarding to functions of fluoride (n=52)		
Knows completely	5	9.6
Knows incompletely	47	90.4.
Children between 2-6 years of age could brush their teeth by themselves (n=76)		
Yes	73	96.1
No	3	3.9

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Discussion and Conclusion

Currently, there is no study regarding oral health knowledge of child developmentalists educated as health personnel in Turkey. For this reason, some comparisons were made with some previous oral health-related knowledge studies conducted on the students of different departments of Health Sciences Faculties, preschool teachers or care givers. Differing with the topic, 66%-34% of the participants had no correct dental health knowledge or had no idea about the topic. Ten students (13.2%) thought that "children under two years of age could not have dental caries". However, 65.8% (n=50) reported dental caries on primary teeth was an important issue. British Society for Pediatric Dentistry (BSPD) and the American Academy of Pediatric Dentistry (AAPD) (2008) reported first dental visit should ideally occur by the time the first teeth erupt or by one year of age (Rayner, Holt, Blinkhorn, & Duncan, 2003). However, only 26 of the 76 participants (34.2%) has a correct knowledge on this issue. In a qualitative study, parents and caregivers had similar views that the first dental visit would be around the time the child had erupted all of the primary teeth, that is three to four years of age (Naidu, Nunn, & Forde, 2012). Forty-seven of the participants (61.8%) agreed that "children under two years of age could have dental caries" however, 19 (%25) of them had no idea regarding this issue. Similarly, in a study conducted on caregivers of the children, 31 of the participants (57.4%) approved the opinion that "caries can affect infants below 2 years old" and 11 (20.4%) did not know (Ab Halim, Yusof, & Abdullah, 2018). As a health personnel, Child Developmentalist should be well educated on dental health issues.

In a study regarding oral health related knowledge of 256 nursing students at Kathmandu, 80.1% had correct knowledge on eruption time of first tooth and 63.7% on number of primary teeth (Bhattarai, Khanal, Rao, & Shrestha, 2016; Smadi & Nassar, 2016) reported that 56% of 184 nursing students in their study knew the eruption time of primary teeth correctly. Most of the students (93.4%) had correct knowledge regarding eruption time of first primary tooth in the present study. However, the number of primary teeth was known by only 16 (21.0%) students in present study. Studies have shown that the timing of eruption could vary between and within populations and sexes. The differences might be sourced from the accepted eruption time in the current study (which was mentioned in the Methodology chapter).

There was a highly concern and confusion regarding to use toothpaste in children. Some participants disagreed using toothpaste in young children due to fluoride content. Similarly, there was a high level of concern regarding to safety of fluoride in young children in previous

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studies conducted on parents and caregivers (Naidu & Davis, 2008; Naidu et al., 2012). Ansari et al. (2003) evaluated oral health knowledge and oral health behavior of male Health Sciences College students; 94% of the respondents knew the role of fluorides in prevention. In this study, %68.4 of the participants has some idea regarding the fluoride and only 9.7% of them knew completely the functions of fluoride.

Oral health knowledge does not necessarily relate to better health behavior but people who have assimilated this knowledge are more likely to adopt self-care practices (Freeman, Maizels, Wyllie, & Sheiham, 1993). For this reason, as a role model and a reliable health information source for parents and children, oral health knowledge was expected to be good among the Child Development students of Health Sciences Faculties. They need this knowledge in order to guide little kids, families and whole community when they start working, but students seemed to be not aware of the most important aspects of oral health care, i.e. dental caries, toothpaste use, functions of fluorides, timing of dental visit.

Smadi & Nassar (2016) reported that approximately 85% of nursing students would like to obtain more oral health curriculum education and to implement Oral Health Curriculum activities during their training and career. Similarly, in the present study, 74 (97.4%) of the students stated that they would like to have oral health education. It was reported in a review that treating dental caries in young children would increase growth rates and the quality of life of millions of children (Sheiham, 2006). Obviously, prevention of caries would be preferable to treatment. In order to apply preventive approaches successfully, oral health education of teachers, caregivers, parents, and whole professionals should be provided. The subject of oral health and oral hygiene procedures should take place in the curriculum of The Department of Child Development as well as the other departments of Health Sciences Faculty.

There are some limitations of this study. Most of the students are female. There were some non-responses especially among open-ended questions. The questionnaire might be a bit long for the students. After this pilot study; some questions could be restructured according to these limitations.

Even this is a pilot study, the results obtained draw attention to the deficiencies in the education of Child Developmentalists regarding the topic of oral health and provide guidance in terms of the issues to be addressed in Turkey.

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We are thankful for the students for their interest to our study.

Conflict of Interest

The authors declare that they have no conflict of interest.

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