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ORIGINAL ARTICLE

Accessibility to dental services by immigrant and refugee children residing in Turkey

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Abstract

Background: Turkey is hosting the world's largest immigrant population under temporary and international protection. Due to the social inequalities contributing to early childhood dental caries, the effectiveness of dental care service for immigrant children should be evaluated.

Aim: To evaluate the accessibility of immigrant and refugee children residing in four different regions of Turkey to oral health products and dental treatment services.

Design: A questionnaire consisting of 21 questions was administered: The first six questions elicited demographic data, and the remaining 15 questions asked about oral health habits, access to oral hygiene materials, and dental treatment services. Participants included the parents of 430 children under the age of 18, who were registered with migrant associations in the regions where they lived (Istanbul, Samsun, Hatay, or Ankara).

Results: The majority of the participants were from Syria and Iraq. Of the participants, 42.1% reported that their children's oral hygiene habits had changed negatively after they migrated, 71.9% reported that they had not been to the dentist in the last year, and 82.8% reported that they had not been to the dentist for more than 12 months. Access to oral and dental hygiene products was not difficult for 68.4%. About 62.6%, however, reported that they had difficulty accessing dental treatment.

Conclusion: The findings showed that this disadvantaged group had difficulty accessing dental treatment. Therefore, there is a need for national and international health strategies to ensure that immigrant and refugee children have effective access to dental treatment.

KEYWORDS

child, dental health services, emigrants and immigrants, oral health, Turkey

1 | INTRODUCTION

Many countries, including Turkey, host immigrant and refugee children from all over the world. In 2016, data showed that half of the 22.5 million immigrants worldwide were under the age of 18 years.[1] In 2018, data reported by the United Nations Office of the High Commissioner for Refugees (UNHCR) showed that Turkey's immigrant

population was 3.9 million, 32% of which were children.[1] It is important for public health and children's rights that these children, who may be either accompanied or unaccompanied, have access to comprehensive health services administered by specialist physicians.[1] With the support of various nongovernmental organizations, health screening, especially of children under the age of five years, is conducted, and they are treated by specialist personnel in multiservice support centers when necessary.[2]

At the time of this study, Turkey had been hosting the world's largest immigrant population under temporary and international protection for six years. In 2020, the number of Syrians under temporary protection exceeded 3.6 million, and almost half of this population consisted of children. In addition, Turkey hosts approximately 320 000 applicants requiring international protection and status holders from other countries.[3]

Health services are rendered with the help of and under the coordination of the Ministry of Interior per Migrant Health Law No. 5510, the Law on Foreigners and International Protection No. 6458, and the Temporary Protection Regulation of the General Directorate of Migration Management. The Directorate of Migration Health operates under the General Directorate of Public Health in the Ministry of Health. Health directorate at the provincial level coordinates and executes healthcare services Healthcare services provided to immigrants in Turkey are offered at Migration Health Centers (MHC), Strengthened MHC, polyclinics for foreigners, and healthcare services provided by nongovernmental organizations.[4] Although the public health service offers free dental care for children in Turkey, dental health care is provided through a private system, and patients pay for each visit.

To date, however, there has been a lack of research on screening for dental caries, which is a global health problem because of its high prevalence in migrant children. Moreover, dental caries is the most common chronic disease in childhood, affecting 60–90% of children worldwide. Dental caries, which is caused by inadequate oral hygiene and sugar intake habits, can induce eating, speech, and sleep disorders because of chronic pain, infection, and sepsis.[5,6] Thus, it ultimately affects the performance of children in school. In addition, poor oral hygiene can negatively affect children's self-confidence and lead to social isolation.[6]

Most refugee children who start living in a new country do not have access to oral health services or protective materials, such as toothbrushes or toothpaste.[6] In addition, families who have children after migrating may have a low awareness of oral health practices. In particular, the low socioeconomic status and education level of a family may also lead to a lack of awareness in terms of oral hygiene and nutritional habits. Economic and cultural factors could also give rise to overconsumption of high-energy, low-cost, nutrient-poor, sugary, and fatty products and beverages (junk foods), which are directly linked to dental caries.[7] In addition, past traumas can be an obstacle to obtaining dental health care.[8] Although it is of great importance that refugee children have access to dental services and oral hygiene education, economic and technical inadequacies and language problems in many parts of the world make it difficult for this disadvantaged group to access treatment.[6,9,10] Because social inequalities contribute to the development of early childhood dental caries, the effectiveness of using dental care services for immigrant children should be evaluated by researchers.[11]

This study is the first to evaluate the access of immigrant and refugee children residing in Turkey to oral health materials and treatment services. In addition, according to data reported by the Turkish Statistical Institute, the cities selected for this study had received a high number of immigrants.[12] In 2019, an analysis of the number of immigrants to Turkey by province showed that Istanbul had received the highest number of immigrants at a rate of 45.3% followed by Ankara (9.2%).[12] In 2018, according to a statement on the official Website of the Governorship of Samsun, at 30000, that province had the highest immigrant population in the Black Sea region.[13] In 2022, according to a statement made by the Ministry of Interior on its official website, the actual number of immigrants living in Hatay, located in southern Turkey, bordering Syria, was 370260.[14] Data were also collected from provinces representing four different geographical regions, which allowed for a comparison of the ease of access to treatment services in these areas.

Why this paper is important to paediatric dentists

- This paper draws attention to inequalities in the field of oral health for immigrant children.
- Paediatric dentists should be aware of the oral health situation and necessities of disadvantaged groups residing in their countries.
- Paediatric dentists should be Pioneers in developing health policies that facilitate refugee children's access to oral and dental health care.

2 | MATERIALS AND METHODS

In this cross-sectional study, a questionnaire was administered to collect demographic data on refugee children

TABLE 1 Participants' countries of origin and characteristics

Country	*n* (%)	Age	Duration of residence in Turkey	Number of children per family
Iraq	116 (27)	10.5 ± 2.6	4.9 ± 1.4	3.882 ± 1.237
Syria	181 (42.1)	10.6 ± 3.0	6.2 ± 1.6	3.803 ± 1.402
Turkey	112 (26)	5.6 ± 2.2	7.2 ± 2.4	3.288 ± 1.115
Afghanistan	5 (1.2)	8 ± 2.1	4 ± 1.6	2.500 ± 1.290
Iran	2 (0.5)	10	5 ± 4.2	2 ± 1.414

residing in Istanbul, Samsun, Hatay, and Ankara, including data on current oral health problems and habits, previous oral health problems and habits, and the use of dental services. The study was approved by the Istanbul Atlas University Non-Interventional Clinical Research Ethical Committee (Approval No. 2019/27-18).

To recruit the volunteers who participated in our study, the researchers cooperated in organizing oral health events with the Provincial Directorate of National Education in Samsun (September 14, 2021), the Migrant Rights and Social Cohesion Association in Ankara (September 15–16, 2021), Hatay (October 9, 2021), and the Refugee Association in Istanbul (October 30, 2022 and November 6, 2021). Parents and children who were phone-called and invited by the officials of the association to oral health events, which were organized in four different cities in cooperation with the associations, were also informed about our survey study, and an appointment was made for a face-to-face interview on the day of the event. Prior to interviews, researchers received two hours of training and reviewed all questions. Parents who were willing to participate in phone interviews were included and completed the questionnaire face-to-face with the researchers. The procedure was explained in detail to the parents during the interviews by the researchers, either alone or with interpreters, and their written informed consent was obtained before the study. The face-to-face interviews, which lasted approximately 20 minutes, were conducted in a separate room provided by the host refugee associations.

The questionnaire, which was developed by the authors, consisted of 21 questions: The first six questions asked for demographic data and the remaining 15 questions were about oral health habits, access to oral hygiene materials, and dental treatment services. Experts examined the adequacy of the questionnaire to assess the clarity of the wording of the items prior to the main study. The questions were sent to five experts (one paediatric dentist, one general dentist, one biostatistician, and two social workers in the immigration office). The questionnaire was then revised based on the experts' comments. The final 15 questions were tested by two experts (one paediatric dentist and one general dentist) to check whether the questions were understandable and consistent with conceptual framework. Finally, the questionnaire was sent to Turkish and Arabic language experts for validation. The questionnaire was then concluded.

Of the 15 questions, seven included "yes," "no," or "not sure" options, whereas the following seven questions were multiple choice, two of which could be answered by choosing more than one option. The last question was open-ended, asking for the participants' opinions about the reasons why they had difficulty accessing dental treatment.

According to data held by the Turkish Statistical Institute, the total population of individuals under the age of 18 years who migrated to Turkey from 2016 to 2019 was 549012, among which 384 cases were included in the sample calculation formula (95% confidence level and 0.05 margin of error). The provinces where the study took place (Istanbul, Samsun, Hatay, and Ankara) had received the highest number of immigrants from the four different geographical regions of Turkey examined in the study. As a result of the power analysis and based on the immigrant populations in the study areas, researchers aimed to include at least 410 questionnaires. In the statistical analysis, the age ranges were divided into three groups: 0–6.99 years (preschool), 7–12.99 years (school age), and 13–17.99 years (adolescent).

Descriptive statistics were used to describe the continuous variables (i.e., mean, standard deviation, minimum, median, and maximum). The relationships between categorical variables were examined using chi-squared or Fisher's exact tests. Statistical significance was determined at 0.05. Statistical analyses were performed using the IBM SPSS program (version 24.0; IBM, Chicago, IL, USA).

3 | RESULTS

The total number of participating children was 430: 224 girls, 202 boys; four did not specify gender. The mean age of the children was 8.2 ± 3.5 (n = 429, min = 1 max = 18). The survey was conducted in four different cities in Turkey: Samsun (n = 102, 23.7%, response rate, 81.6%); Ankara (n = 61, 14.2%, response rate, 67.7%);

Hatay ($n = 79$, 18.4%, response rate, 112.8%); and Istanbul ($n = 188$, 43.7%, response rate: 94%).

The countries of origin and characteristics of the participants are shown in Table 1. The majority of the participants were from Syria ($n = 181$, 42.1%) and Iraq ($n = 116$, 27.0%); the remainder were born in Turkey ($n = 112$, 26%). The percentage of Iraqi refugees residing in Samsun was 69.8% ($n = 81$), whereas 64.1% (n = 116) of Syrian refugees resided in Istanbul. Refugees who migrated to Turkey had been residing in this country for an average of 6.0 ± 2.0 (min = 1, max = 25) years. Of the refugees, 36.6% ($n = 153$) did not have a regular income. In the families of the refugees who participated in the survey, an average of 3.66 ± 1.333 (min = 1, max = 10) children were under the age of 18 years.

Regarding the children's daily oral hygiene habits, 44% ($n = 189$) of the participants brushed once a day, 29.1% ($n = 125$) brushed twice a day, 1.9% ($n = 8$) brushed three times a day, and 12.8% ($n = 55$) did not brush at all. Of the participants, 52.6% ($n = 226$) reported that they changed their children's toothbrushes every three months, and 29.1% ($n = 125$) reported that they changed their toothbrush when it was worn out; 31.6% of the participants had difficulty accessing oral hygiene products, such as a toothbrush and toothpaste. The majority of the participants (92.3%, $n = 397$) reported that they did not use dental floss on their children's teeth. Of the participants, 36.3% ($n = 156$) reported that the oral hygiene habits of their children did not change after they migrated, whereas 21.6% ($n = 93$) reported that their oral hygiene habits had improved.

Of the respondents, 28.1% ($n = 121$) reported that they had visited a dentist in the last year, and 17.2% ($n = 117$) reported that they had been to a dentist more than 12 months ago. Although only 10.5% ($n = 45$) of the participants stated that they went to the dentist in their own country, the rate of visitng a dentist in Turkey was 16.5% ($n = 701$). The percentage of children who were born in Turkey and had visited a dentist within the last 12 months was 17.9% ($n = 20$).

Table 2 shows the trends in dentist visits, treatments received, preventive dental visits, and access to care according to immigrant status. Of the respondents, 88.4% reported that their children had their own toothbrush, and only 35.8% had their own toothpaste. The rate of the latter was significantly higher in the adolescent group than in the younger groups (Table 3). Self-reported major dental problems included tooth decay, pain, esthetic problems, and gum disease (44.9%, 34.7%, 12.3%, and 10.7%, respectively). Tooth extraction, which was the most common treatment (14.7%), was followed by routine checkups and filling and root canal treatments (11.9% and 11.2%, respectively).

TABLE 2 Participants' visits to a dentist

Questions	Yes *n* (%)	No *n* (%)
7-Does your child have her/his own toothbrush?[a]	380 (88.4)	43 (10.5)
8-Does your child have his/her own toothpaste?[a]	154 (35.8)	268 (62.3)
10-Does your child brush their teeth by themselves?[a]	345 (80.2)	66 (15.3)
15-Do you take your child to the dentist for routine checkups?[a]	46 (10.7)	379 (88.1)
16- What problems does your child have with oral and dental health?		
a-No problems	114 (26.5)	306 (71.2)
b-Pain	149 (34.7)	281 (65.3)
c-Sensitivity	28 (6.5)	402 (93.5)
d-Trauma	8 (1.9)	422 (98.1)
e-Gum disease	46 (10.7)	384 (89.3)
f-Caries	193 (44.9)	237 (55.1)
g-Esthetic problems	53 (12.3)	377 (87.7)
h-Supernumerary teeth	6 (1.4)	424 (98.6)
i-Tooth loss	14 (3.3)	415 (96.5)
j-Other reason	12 (2.8)	404 (94.0)
18- What treatment did your child receive in the last dentist visit?		
a-Checkup[a]	51 (11.9)	378 (87.9)
b-Cleaning	5 (1.2)	425 (98.8)
c-Filling/root canal treatment	48 (11.2)	382 (88.8)
d-Tooth extraction	63 (14.7)	367 (85.3)
e-Prosthodontics	4 (0.9)	426 (99.1)
f-Orthodontic treatment	3 (0.7)	427 (99.3)
g-Fluoride/fissure sealant	4 (0.9)	426 (99.1)
h-Other reason[a]	41 (9.5)	370 (86)

[a]Percentage of "not sure" response for this question is not specified.

Table 4 shows the relationships between the city of residence and the difficulty accessing dental treatment. The percentage of those who had difficulty accessing dental treatment was significantly higher in Istanbul (41.2%, $p < 0.001$) than in other provinces. In addition, the adolescent group had significantly greater difficulty than the other two age groups (Table 3).

Access to oral and dental hygiene products was not difficult for 68.4% ($n = 294$) of the participants. Of the participants, 62.6% ($n = 269$), however, reported that they had difficulty accessing dental treatment. Of the participants, 88.1% ($n = 379$) reported that they did not take their children for routine dental checkups. Of the participants, 21.6% ($n = 93$) reported that they applied to private clinics,

TABLE 3 Accessibility of oral hygiene products and dental services according to age

	Age group			
	0–6.99 n (%)	7–12.99 n (%)	13–17.99 n (%)	*p*-value
Has own toothbrush?				
Yes	62 (73.8)	245 (91.8)	72 (98.6)	**<0.001**
No	22 (26.2)	22 (8.2)	1 (1.4)	
Brush their teeth by themselves?				
Yes	35 (45.5)	237 (91.5)	72 (97.3)	**<0.001**
No	42 (54.5)	22 (8.5)	2 (27)	
Have difficulty in accessing dental treatment?				
Yes	50 (63.3)	170 (66.9)	49 (73.1)	**0.002**
No	10 (12.7)	60 (23.6)	14 (20.9)	
Have difficulty in reaching oral and dental cleaning products (e.g., toothbrush and toothpaste)				
Yes	19 (23.2)	59 (22.2)	25 (33.8)	**0.186**
No	60 (73.2)	187 (70.3)	46 (62.2)	

Note: Chi-squared test, $p < 0.05$.

Bold value indicates statistically significant difference between the groups $p < 0.05$.

TABLE 4 Relationship between the city where the survey was conducted and difficulty accessing dental treatment

	City					
	Samsun n (%)	Ankara n (%)	Hatay n (%)	İstanbul n (%)	Total	*p*-value
20-Do you think you have difficulty accessing dental treatment?						
Yes	35[a] (9.9)	40[b] (11.4)	49[b] (13.9)	145[b] (41.2)	269 (76.4)	
No	35[a] (9.9)	10[b] (2.8)	11[b] (3.1)	27[b] (7.7)	83 (23.6)	**<0.001**
Total	70 (19.9)	50 (14.2)	60 (17)	172 (49.9)	352 (100)	

Chi square: p < 0.05. There was no statistically significant difference between the groups with the same letters at row percentages.

Bold value indicates statistically significant difference between the groups $p < 0.05$.

and 21.2% ($n = 91$) had applied to oral and dental health centers for dental health services.

4 | DISCUSSION

Social inequalities may contribute to the development of dental caries; thus, the effectiveness of using dental care services for immigrant children should be evaluated by researchers.[15] The results of the current study indicate that the majority of migrant children residing in Turkey have difficulty accessing dental treatment. This finding is consistent with the fact that only a small percentage of the children in the study stated that they had received dental treatment in Turkey.

Migration has been shown to negatively affect the oral health status of individuals for many reasons.[16,17] A previous study showed that because of the various challenges that immigrants face, oral diseases are not given priority, and oral hygiene habits worsen, which was similar to our findings.[18] Socioeconomic disadvantage is a complex factor that contributes to poor oral health.[9] The lack of regular income, which was reported by 36.6% of the participants in our study, may prevent people from accessing oral hygiene products and dental treatment services. Unlike the findings of a previous study, our findings showed that the percentage of participants who had difficulty accessing toothbrushes and toothpaste was low.[19] Dental flossing was shown to be highly effective in reducing proximal caries risk in children but only if the flossing was performed by professionals.[20] The low rate of dental floss use might have been the result of its cost and a lack of awareness. On the contrary, the positive effect of flossing by children on their own is questionable, given the low rate of parental involvement in maintaining oral hygiene. Parental beliefs and attitudes, dietary habits, language barriers, and parents' education levels have been shown to be predisposition factors that influence children's oral health status.[21,22]

In the present study, the questionnaire did not include questions regarding the entire family's awareness of oral hygiene. Despite a high number of children (0–6 years) requiring teeth-brushing by their parents, nearly half stated that their children brushed their teeth by themselves. The importance of efficient educational programs was believed to help raise awareness among immigrant parents about their children's oral health.[22]

The prevention and identification of and treatment for dental diseases are facilitated by regular dental visits, which improves the quality of life of individuals.[23] Lower rates of dental visits, however, have been repeatedly reported among immigrants.[24,25] This study found that the percentage of parents of children who had visited dentists had increased, albeit not to a satisfactory level. This difference might have been the result of negative situations, such as war and poverty, in their hometowns, which had forced them to migrate. In addition, although they stated that their children had dental problems (71.2%), pain (34.7%), gum disease (10.7%), and tooth decay (44.9%), a substantial number of the participants reported that they had not been to the dentist for more than 12 months. The parents' most frequently cited reasons were difficulty in making an appointment and high treatment costs when they were asked about accessing dental care. Similar to the results of a previous study, tooth extraction followed by restorative and endodontic treatments were the most common procedures performed on immigrant children, whereas the proportions of orthodontic treatments and preventive treatments were found to be low.[26]

Private clinics (21.6%) and governmental dental health centers (21.2%) were the most preferred centers for children's dental treatment. The most efficient means of providing good oral health for these children was found to be the delivery of free, accessible, and comprehensive dental care.[27] A recent review concluded that the major problems that immigrant families face are the following: limited access to oral health care; limited use of preventive oral health services; and high cost of dental treatment.[28] In a study that evaluated the efficiency of provincial dental hospitals affiliated with the Ministry of Health, 63 of 81 provinces, including the provinces in our study, were found to be ineffective.[29] According to a report on oral healthcare provision, despite the introduction of a new insurance system in 2008 in Turkey, there were still long waiting lists.[30] Health authorities should evaluate the accessibility of children to dental treatment, especially in provinces with high immigration, and take measures to alleviate the burden in this area.

Immigrant children's oral health is a growing dental public health concern. The oral health of immigrant populations is influenced by the factors of individuals, communities, and healthcare systems both before and after immigration, yet it remains unclear how these factors contribute to overall oral health disparities.[31] According to our findings, the participants residing in Istanbul, which is the most populated city in Turkey, had greater difficulties accessing dental care than the participants in the other cities. This finding may indicate the need to prioritize the revision of health services in highly populated cities. Effective preventive dental care might reduce treatment needs and costs. Parental education programs and accessible preventive treatment are the most cost-effective strategies to reduce the health burden on dental healthcare services. The continuous implementation of policies and programs that increase the access to and utilization of preventive dental services for immigrant populations was supported by the findings of previous research.[31]

The present study has the following limitations. First, because of the cross-sectional design, it was not possible to determine causal relationships between dental health service use, oral health problems, and socioeconomic and demographic variables. In addition, it should be noted that the data collected in the survey were obtained indirectly from the participants' own reports and may have been affected by memory and/or social desirability bias. Furthermore, due to the convenience sampling design, survey results cannot be generalized. Finally, because of the uncontrolled design of the study, it was not possible to compare the differences between native children and immigrant children.

In this study, a questionnaire was distributed to collect demographic data, including those on current oral health problems and habits, past oral health problems and habits, and local data on the use of dentistry services by refugee children residing in the provinces of Istanbul, Samsun, Hatay, and Ankara. It is hoped that these data and the results of this study will serve as a guide to facilitating future research on the access of immigrant and refugee children to dental care in Turkey. Future studies are needed to evaluate oral health status in detail and to determine the underlying reasons for poor oral health. Strategies for reducing the occurrence of dental disease should be developed in an effective education and prevention program that considers individual and cultural differences. Furthermore, health policies need to be developed to eliminate healthcare inequalities in this disadvantaged group.

AUTHOR CONTRIBUTIONS

C.D conceived the idea. F.S.U, S.Ç, Ş.I.A., and T.A. collected the data. E.E. and C.D. analyzed the data and led the writing. All authors gave final approval and agree to be accountable for all aspects of the work. The authors

declare no potential conflicts of interest with respect to the authorship and/or publication of this article.

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CONFLICT OF INTEREST

The authors report no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available in the supplementary material of this article.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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