

# Evaluation of Parents' Knowledge and Attitudes Regarding Self-Medication in the Dental Problems of Their Child During the COVID-19 Pandemic

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## Research Article

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# Abstract

**Background:** Self-medication means taking medicine without consultation with any doctor or dentist and an important health issue, especially during the COVID-19 pandemic. The present study aims to evaluate the knowledge and attitudes of parents regarding self-medication in dental problems of their children during to COVID-19 pandemic in Northern Turkey.

**Methods:** A cross-sectional survey was carried out in the pediatric dental clinic immediately after the COVID-19 lockdown ended. A total of 389 parents who agreed to participate in the study completed the questionnaire for three months. A structured questionnaire with 18 items was designed to collect information on the parents' knowledge and attitudes regarding when, why, and how to use drugs and on their practices medicating children.

**Results:** The majority of parents (n = 273; 70.2%) were practiced self-medication to their children's dental problems. Self-medication with a previous medication was usually preferred to their children by parents (n = 179; 62.2%). It was observed the analgesics practiced by parents (98%) were the most commonly used self-medication for their children's dental problems.

**Conclusion:** New healthcare systems like tele-dentistry may be useful to overcome self-medication problems directed to children in unusual times that limit to reach healthcare providers such as pandemics.

## Background

COVID-19 (2019 Coronavirus Disease) is a novel coronavirus, SARS-CoV-2 (Originally identified as 2019-nCoV) infection can influence many systems such as cardiovascular, endocrine, gastrointestinal, particularly in the respiratory system, and it can be life-threatening. As of March 11, 2020, a pandemic was declared by the WHO (World Health Organization) as a consequence of the spread of the infection to many countries in a few months [1, 2]. The first COVID-19 case was reported on March 10, 2020, in Turkey [3]. Several measures have been taken particularly in the health sector so that the public health system does not overload in Turkey. Elective procedures and non-urgent dental treatments were delayed or rescheduled, and only emergency treatments and procedures were accepted by health care providers. Severe toothaches, abscesses with systemic complaints, dental trauma, life-threatening or uncontrolled bleeding are defined as oral emergencies [4, 5].

The Turkish Ministry of Health has announced the completion of the first phase of the COVID-19 control phase and the initiation of the second phase known as a controlled social life. Although the controlled social life phase was declared in early May, strict measures were in force until the end of May. As of 1 June, standard infection prevention protocols have been implemented in compliance with the guidelines issued by the Turkish Ministry of Health, and all dental operations, whether urgent or not, have begun to be carried out. Patients have trouble accessing healthcare providers, and several elective procedures for healthcare providers have to be postponed because of the measures that had to be taken due to the

pandemic. During this time, patients are considered to more common practice self-medication for dental problems [3–5].

Self-medication (SM) defines as the practice of non-prescription medicines by people on their own initiative [6]. SM patterns are influenced by a lot of factors, such as lack of knowledge regarding medicine side effects, socio-economic status, difficulties in accessing health services, and epidemic diseases [7]. Patients that practice any of the medicines based on their previous experiences, that buy medicines with close advice, practice the same medicines, and buys directly from the pharmacy. Thus, a dangerous habit of abuse emerges as SM that is the result of a medical model that people have learned, without consulting a doctor, either alone or with advice from someone else [8, 9].

As a result of restricted patient admissions in COVID-19 hospitals, and concerns about COVID-19 contracting, the search for digital care and SM may have increased [10, 11]. The prevalence of SM is different, especially with a higher prevalence in developing countries [6–9, 12], but there is little knowledge about SM during this period. Also, there is lacking study about SM practice of parents regarding their children in dental problems. The present study aims to evaluate the awareness and behavior of parents about SM regarding their child who applied to the pediatric dental clinic for their child's dental problems during the COVID-19 pandemic in Northern Turkey.

## Methods

A cross-sectional survey was carried out from July 1 to October 1 during controlled social life following the approval of the Ethical Boards and Commissions of Ondokuz Mayıs University, Samsun, Turkey (2020/461).

Inclusion criteria: Parents who applied to the pediatric dental clinic with a child between 0–12 years of age and parents who agreed to participate in the study. Exclusion criteria: Parents who do not agree to participate or are illiterate in research.

Socio-demographic data such as parents' age, parents' gender, parents' level of education, economic status, health insurance, and children's age, children's gender, children's medical history were also collected during this research. Questionnaires were applied to 396 parents when they arrived for a dental visit at the pediatric dental clinic. A total of 389 parents agreed to participate, only 7 of 396 parents declined to participate in this study (response rate of 98.2%).

The questionnaire with 18 items gathered the opinions of parents regarding SM in the dental problems of their child as follows: Frequency of SM in dental problems for their child (measured with two option, where 2 = no, 1 = yes), other items were measured with a multiple-choice question, dental disease types in which SM is given, groups of medicines practiced by parents for their child, such as antibiotics and analgesics, type of source for medical data, types of obtaining medicines, knowledge of adverse reactions for medicines, type of medicine time frame that is practiced, reasons of SM.

The data collected were statistically processed using SPSS software version 25 (IBM Corp, Armonk, NY, USA) to analyze the data obtained, descriptive statistics (frequency, mean, and standard deviation), and analytical statistics (Chi-Square test) were used ( $p$ -value < 0.05 considered significant).

## Results

Characteristics of the study population and factors associated with practices of self-medication are presented in Table 1.

Table 1  
 Characteristics of the study population and factors associated with practices of self-medication,  
 n (%)

		Total (n = 389)	Self-medication present*		p
			Yes (n = 273)	No (n = 116)	
Children Gender	Boy	202 (51.9)	150 (74.3)	52 (25.7)	.068
	Girl	187 (48.1)	123 (65.8)	64 (34.2)	
Age	0–4	36 (9.3)	25 (69.4)	11 (30.6)	.97
	5–8	185 (47.6)	129 (69.7)	56 (30.3)	
	9–12	168 (43.2)	119 (70.8)	49 (29.2)	
Parents Gender	Male	104 (26.7)	69 (66.3)	35 (33.7)	.318
	Female	285 (73.3)	204 (71.6)	81 (28.4)	
Age	25–30	46 (11.8)	32 (69.6)	14 (30.4)	.773
	30–35	97 (24.9)	72 (74.2)	25 (25.8)	
	35–40	144 (37.1)	100 (69.4)	44 (30.6)	
	> 40	102 (26.2)	69 (67.6)	33 (32.4)	
Educational level	Basic education	102 (26.2)	65 (63.7)	37 (36.3)	.224
	Secondary education	163 (41.9)	120 (73.6)	43 (26.4)	
	Higher education	124 (31.9)	88 (71)	36 (29)	
Urbanicity	Rural	42 (10.8)	33 (78.6)	9 (21.4)	.208
	Urban	347 (89.2)	240 (69.2)	107 (28.4)	
Economic status	Lower income	81 (20.8)	51 (70.8)	21 (29.2)	.572
	Middle income	236 (60.7)	169 (71.6)	67 (28.4)	
	High income	72 (18.5)	53 (65.4)	28 (34.6)	
Health insurances	Present	358 (92.0)	251 (70.1)	107(29.9)	.92
	Absent	31 (8.0)	22 (71.0)	9 (29.0)	
*Row percentages used in Table 1.					

389 participants completed the questionnaires during the study period. The majority of the parents (n = 287; 73.8%) under the age of 40 years. Also, parents (n = 287; 73.8%) had at least a degree from secondary education. There was a low proportion of participants (n = 42; 10.8%) living in rural areas.

It was found that a low proportion of children (n = 39; 10%) had chronic diseases when the medical history of the children was questioned, of these, a high proportion of the children (n = 32; 82%) with this chronic disease were constantly using medication. The rate of SM by parents to their children among basic education graduates was lower (63.7%), but no significant statistical results have been found between self-medication administration and the educational level of parents ( $p > 0.005$ ).

When their children's dental problem occurs a high percentage (n = 272; 70%) of parents self-medicate. Of these that practice SM with previous prescriptions (n = 179; 62.2%); only 12 (4.2%) of the parents that practice any medicines with from advertising (ads) or internet (Fig. 1). SM with which parents given their children are analgesics respectively (n = 268; 98%), antibiotics (n = 104; 38.1%), mouthwashes (n = 36; 13.1%) and herbal medicines (n = 24; 8.8%). Also analgesics were mostly preferred for toothache (n = 180; 83.3%) (Table 2).

Table 2

Participants' beliefs about requirements for a medicine for their children's dental problems, (n = 273)\*

<b>Dental Problems</b>	<b>Analgesics n (%)</b>	<b>Antibiotics n (%)</b>	<b>Mouthwash n (%)</b>	<b>Herbal Medicine n (%)</b>
Toothache	180 (83.3)	62 (28.7)	21 (9.7)	13 (6.0)
Tooth abscess	26 (74.3)	20 (57.1)	5 (14.3)	1 (2.9)
Facial swelling	11 (84.6)	10 (76.9)	3 (23.1)	1 (7.7)
Eruption disturbances	7 (63.6)	1 (9.1)	0 (0)	2 (18.2)
Gum problems	7 (58.3)	3 (25)	6 (50)	2 (16.7)
Dental trauma	7 (100)	2 (28.6)	1 (14.3)	0 (0)
Other problems (Bruxism, TMJ problems, Tooth colored problems)	30 (73.2)	6 (14.6)	0 (0)	5 (12.2)
<b>Total</b>	<b>268 (98.0)</b>	<b>104 (38.1)</b>	<b>36 (13.2)</b>	<b>24 (8.8)</b>
*Row percentages used in Table 2, and more than one option was chosen in some questions				

Parents (n = 140; 45.6%) thought that after the symptoms disappeared, medication could be stopped, and parents (n = 159; 51.8%) thought that treatment should be continued as recommended by the doctor while parents (n = 11; 36.2%) thought that treatment could be stopped when the medicines ran out.

Less than half of the parents (n = 166; 42.7%) have limited knowledge of side effects. Of these (n = 103; 62%) thought that the medicines had side effects on Gastrointestinal system (GIS) (Fig. 2).

As reported by the parents practicing SM (n = 208; 87%), the main reason for self-medication was difficulty access to dental consultation (Fig. 3).

## Discussion

Although there are many studies about the practice of SM for adult patients, there is a lack of studies on the practice of SM for children with dental problems. In this study, it was found an extremely high prevalence (70.2%) of SM in children with dental problems in Northern Turkey. The practice of SM for children 70% Romanian population [13], 58% in Pakistan [14], 56.6% in Brazil [9], 45% in Denmark [15], 25.2% in Germany [8]. This study result agrees with Răducanu et al. [13], and it is higher than the other studies [8, 9, 14, 15]. SM prevalence depends on several factors such as education level, socio-economic status, accessibility to the health system [7]. With COVID-19, access to healthcare providers has become very difficult for patients, which is thought to further increase the practice of SM, which is also known as an important health issue in the world [10].

Mothers (73.3%) were generally the parents who accompanied the children in the current study. This possibility clearly shows that women are more likely to follow up than fathers on the health side of parents with their children regarding medical and dental appointments, and is similar to results of other studies [13–18].

In the present study, no significant statistical results were found between self-medication administration and the demographic characteristics of families. Although our results are in line with Jensen et al. [15], some studies found that demographic characteristics were significantly related to the practice of SM [8, 13, 16]. Surprisingly, they found the prevalence of SM was higher in high educated parents [8, 13, 16]. Also, Du Y et al. reported that self-medication administration was found to be positively associated with socio-economic status of parents [8].

The vast majority of parents (67.7%) reported that they practice SM with prior prescriptions to their children in the current study that is higher than the other studies. [8, 13, 16, 18]. It can be explained difficulties to reach healthcare providers during COVID-19.

Many studies found that analgesics are the most commonly practiced SM for children [9, 13, 14] that agree with this study. It can be associated with their availability and low price. In addition, parents may believe that these are not toxic or have little harm.

In the current study, toothache was the major trigger among parents to practicing of SM to children. There were studies in the literature that show that the major trigger of SM in adults was toothache [19, 20]. In this study less than half of the parents that (42.7%) have limited knowledge of side effects which can be considered that parents do not have sufficient information on the side effects of medicines, this was stated before by another study about parents practiced SM to their children [13]. The current study also showed that parents who practice self-medication are most of those who think it is difficult to access health care providers during COVID-19.

## Limitation

The present study has some limitations associated with characteristics of survey studies. The survey was conducted during the pandemic period after especially lockdown ended. The prevalence of SM has been found higher because more children with urgent dental problems came to the clinic in this period.

## Conclusion

Accessing patients in their homes can prevent self-medication in natural disasters that make it difficult for patients to reach healthcare providers such as pandemics which means a need for new healthcare like tele-dentistry.

## Abbreviations

GIS: Gastrointestinal system SM: Self-medication, ads: advertising, TMJ: Temporomandibular joint

## Declarations

### Ethics approval and consent to participate

All participants were informed about the study and confidentiality protocols. Written informed consent was obtained from all the participants. This study was approved by The Clinical Research Ethics Boards and Commissions of the Ondokuz Mayıs University (approval number: 2020/461), and all procedures were conducted by the 1975 Helsinki Declaration (as revised in 2008).

### Consent for publication

Not applicable.

### Availability of data and materials

The datasets generated during and/or analyzed during the current study are not publicly available to preserve privacy of the involved patients but are available from the corresponding author on reasonable request.

### Competing interests

The authors declare that they have no competing interests.

### Funding

No financial support was received for this research.

### Authors' contributions

ET and EA were supervisors and principal investigators of the study and drafted the manuscript. EA and ZK collected the data in the pediatric clinic. HA performed statistical analysis. All authors read and approved the final version of the manuscript.

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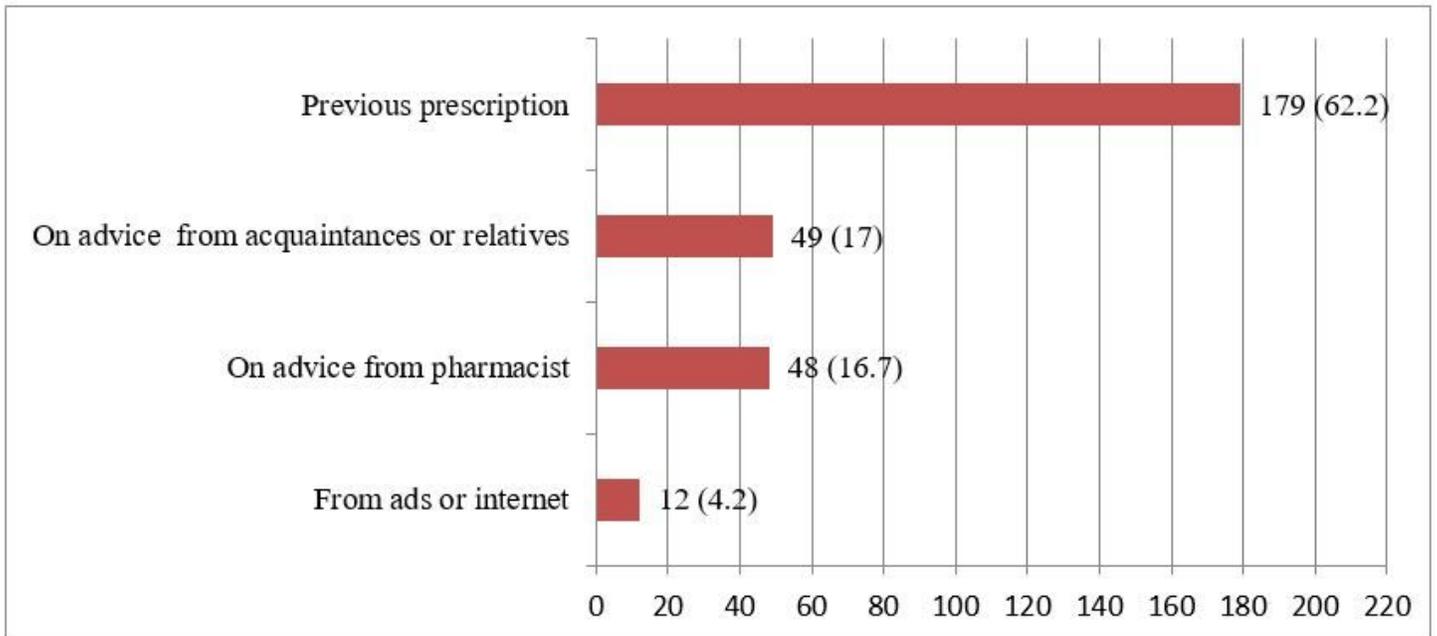
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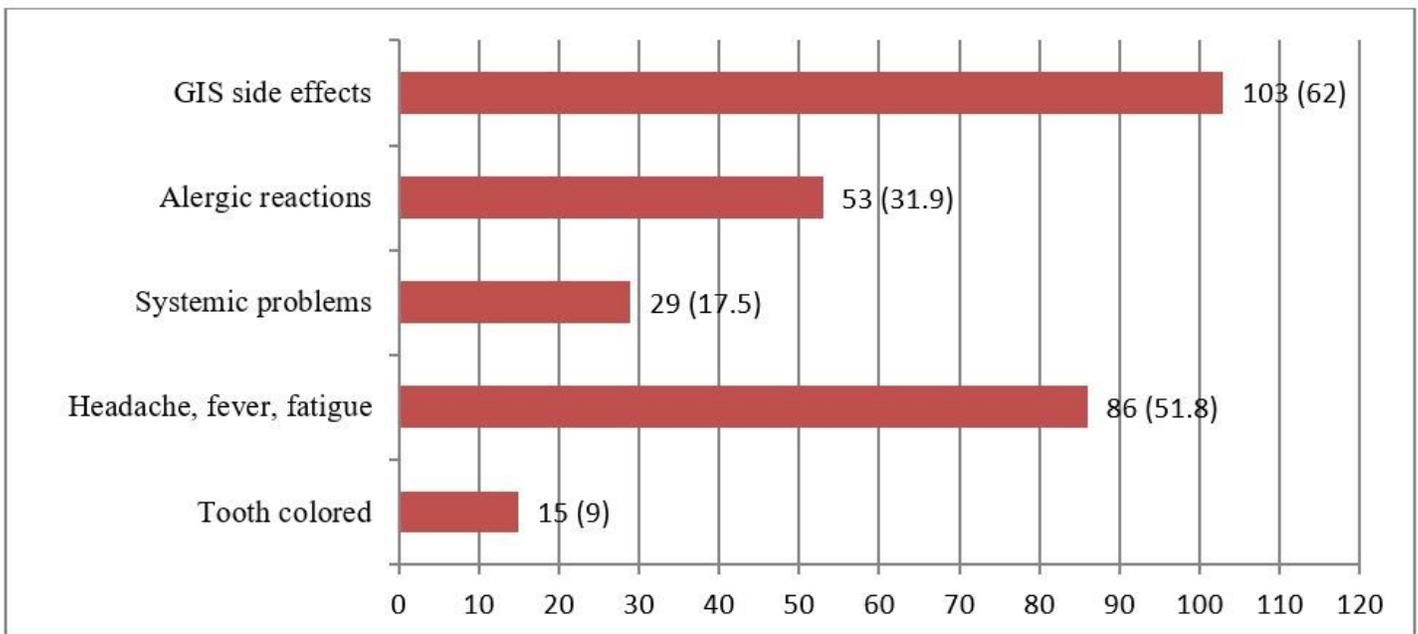
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## Figures



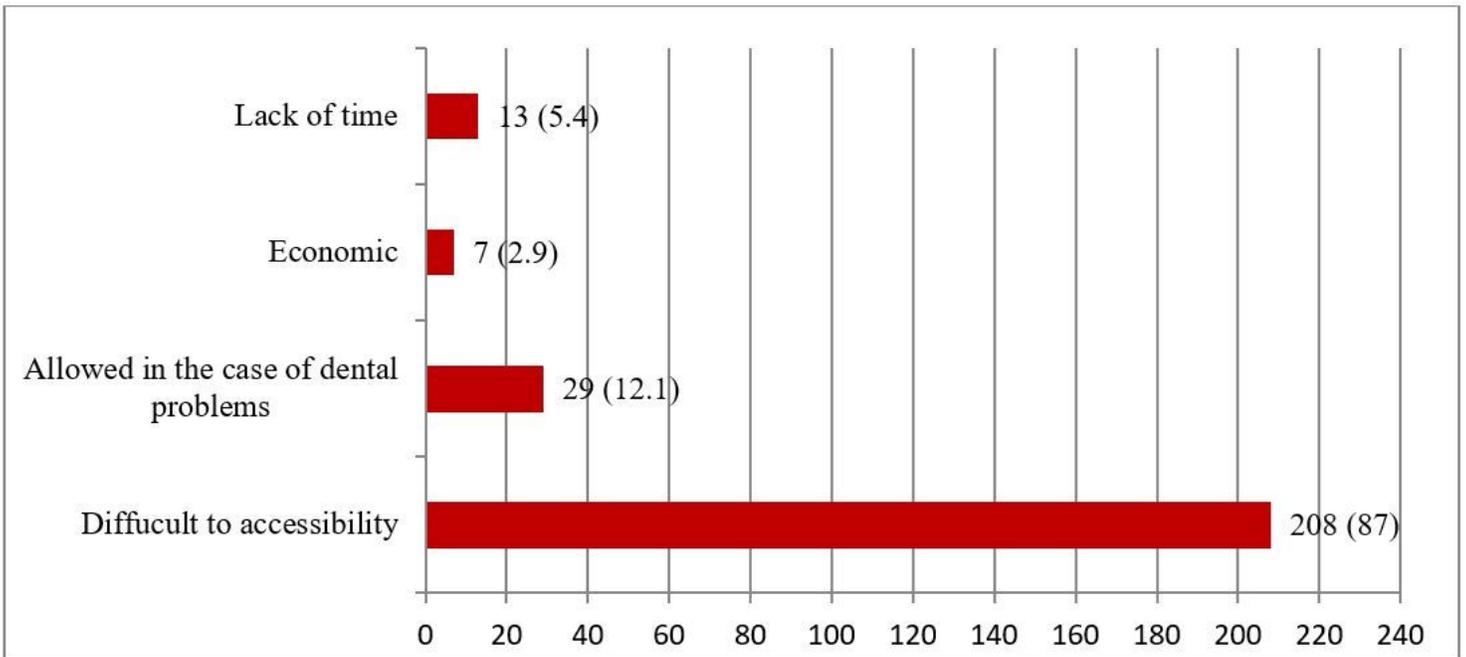
**Figure 1**

Number of parents that resort to certain solution when their children's dental problems occur, n (%)



**Figure 2**

Number of parents who know side effects when practicing self-medication, n (%)



**Figure 3**

Reason for practicing self-medication, n (%)