

Original Article

Prevalence of Self-Medication For Dental Conditions By Parents For Their Children: A Cross-Sectional Study

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Abstract:

Aim: This study aimed to assess the prevalence and practices of self-medication for dental conditions by parents for their children.

Subjects and methods: A descriptive cross-sectional study was carried out among 188 mothers of children under 10 years of age who attended the department of Pediatric Dentistry and Dental Public Health, Faculty of Dentistry, Cairo University. Data were collected using an interviewer-administered questionnaire and were statistically analyzed.

Results: One hundred thirty-nine respondents reported giving drugs to their children without the advice of a doctor or using previous prescriptions for the treatment of oral conditions. There was no statistically significant difference between the demographic data (age of the children, age of parents, and their educational level), and the self-medication.

Conclusion: The prevalence of self-medication by parents to their children for oral health problems was 73.94%, and was not significantly influenced by the age of the children or the education level of the parents.

Keywords: Self-medication; Self-treatment; Treatment without doctor

Introduction:

According to the World Health Organization, self-medication is defined as the act of medicating oneself, either on their own initiative or on the advice of a relative person, to treat self-recognized conditions or symptoms without supervision by a healthcare professional (*Paulino et al., 2019*).

Self-medication includes the use of nonprescription drugs and a variety of various alternative medicines like herbal remedies, food supplements, and traditional products. It also involves sharing drugs with other members of the family and social group, using previous prescriptions, or disrespecting the medical prescription either by prolonging or interrupting

the dosage and the administration period prescribed (**Pfaffenbach et al., 2010**).

People of all socio-demographic categories practice self-medication. Self-medication is common in both developed and developing countries but higher in developing countries, due to a wider increase of drug availability without prescription (**Esan et al., 2018**).

The factors contributing to the high prevalence of self-medication include the wide variety of over-the-counter drugs and advertising campaigns that use the strategy of overemphasizing benefits and hiding the risks of medicines. Also, the difficulties of access to the public healthcare system and the high costs of healthcare insurance have contributed to the dissemination of self-medication practice (**Paulino et al., 2019**).

Other factors affecting the frequency of self-medication are age, educational level, family behaviours, advertising of drug manufacturers, previous experiences with the symptoms or disease, the significance attributed to the disease, home-kept prescription drugs, and economic status of respondents. Depression and anxiety may also be connected with self-medication (**Lukovic et al., 2014**).

The practice of self-medication among children is significantly important as children constitute a large percentage of the population in developing countries and are prone to many diseases. Younger children are often given medications by their parents because the first response by most families to many diseases in their children is the use of non-prescribed medications (**Nahhas et al., 2012**).

Self-medication can alter the symptoms and disorientate or delay clinical diagnosis, cause bad effects by overdose, select resistance to

antimicrobials, especially to antibiotics and antimalarials. Toxicity by natural products used in traditional medicine can also happen (**Islam et al., 2019**).

It is important to assess the prevalence and practices among parents on self-medication, the reasons for self-medication, and the current situation of medicaments usage in the communities (**Gohar et al., 2017**).

To the best of our knowledge, no studies evaluated the prevalence and practices of self-medication by parents to their children for oral conditions in Egypt. Therefore this study aimed to assess the prevalence and practices of self-medication for dental conditions by parents for their children.

Subjects and Methods

Study design and setting

This study was an observational (cross-sectional) questionnaire-based survey carried out in the academic year 2019–2020 in the waiting areas and clinics of the Department of Pediatric Dentistry and Dental Public Health, Faculty of Dentistry, Cairo University.

Ethical approval

Ethical approval was obtained from the Research Ethics Committee, Faculty of Dentistry, Cairo University, with an ethical approval number (1993), and informed consent was obtained and signed by the participants before completing the questionnaires. The study protocol was registered on clinical trial .com with an identifier NCT04004780.

Sample size calculation

A power analysis was designed to have adequate power to apply a 2-sided statistical test of the research question regarding the prevalence and practices of self-medication for dental conditions by parents for their children. According to the results of **Nayyar et al. (2018)**

in which the prevalence of self-medication for dental conditions by parents for their children was (61.0%), by adopting a confidence interval of (95%), and a margin of error of (7%) with a finite population correction. The predicted sample size (n) was a total of (188) cases. The sample size calculation was performed using Epi info for windows version 7.2.

Eligibility criteria

The inclusion criteria

- Parents of healthy children up to 10 years.
- Parents who accept to participate in the study.

The exclusion criteria

- Guardians other than parents (child's father or mother).

Data sources and management

Data was obtained through a written questionnaire based on the previous study of *Nayyar et al., (2018)*. The questionnaire was formed of closed structured questions for assessing the prevalence of self-medication and parents' self-medication practices. The original questionnaire was designed in the English language and was translated to the Arabic language. The questionnaire was composed of two sections: the first section consists of questions recording the demographic details namely the age of the child, the relation of the respondent to the child, and the educational level of the parent. The second section comprises 18 close-ended questions of which 12 were binary concerning the prevalence for oral conditions and the different practices of self-medication and 6 were multiple-choice questions which represented the reason, source of information of self-medication, the common drugs used, and their effects for relief of pain. The prevalence of self-medication was calculated based on the answers of the parents to question number (1) in the second section.

Statistical analysis:

Categorical data were presented as frequencies (n) and percentages (%) and were analyzed using Fisher's exact test. Quantitative

data were presented as mean and standard deviation values. The significance level was set at $p \leq 0.05$ for all tests and p-values were corrected for multiple comparisons using Bonferroni correction. Statistical analysis was performed with IBM® SPSS® (SPSS Inc., IBM Corporation, NY, USA) Statistics Version 26 for Windows.

Results

A total of 188 female parents participated in the study with a significantly higher percentage of which being 30 years or older [158 (84.0%)], and with a medium educational level (primary, secondary school) [98 (52.1%)]. Most of the parents' children were 6 years or older [161 (85.6%)] ($p < 0.001$)

Regarding the prevalence of self-medication, 73.94% (n=139) respondents reported giving drugs to their children without the advice of a doctor or using previous prescriptions for the treatment of oral conditions as shown in table (1).

Concerning the educational level, 71.43% (n=25) of these parents were of low education level, while (76.53%) (n= 75) were of medium educational level, and (70.91%) (n= 39) were of high educational level.

The results showed that self-medicated children's distribution was as follows, 62.96% (n=17) were less than 6 years, and 75.78% (n=122) were above 6 years.

The results showed that there was no correlation between the demographic data (age of the children, age of parents, and their educational level, and the practices of self-medication as shown in table (2).

The most common condition for which parents self-medicated their children was tooth pain (75.53%). The most common reason to resort to the practice of self-medication was that (Dentist not available nearby) (32.45%).

Table 1: Frequencies (n) and percentages (%) of practice questions answers

Questions	Answers	Numb (Freq). (%)	p-value
1- Do you give your child medications without the advice of a doctor or a prescription or use previously prescribed medications for treatment of chronic or recurrent oral conditions?	No	49(26.06%)	<0.001*
	Yes	139(73.94%)	
2-Do you buy medicines for your child without a prescription?	No	36(19.15%)	<0.001*
	Yes	152(80.85%)	
3-Do you tell the pharmacist about other health ailments/weight/age of your child before buying medications for him/her?	No	74(39.36%)	0.004*
	Yes	114(60.64%)	
4- Are you aware of completing the course of the medicine?	No	95(50.53%)	0.942ns
	Yes	93(49.47%)	
5-Do you think self-medication can harm the health of your child?	No	48(25.53%)	<0.001*
	Yes	140(74.47%)	
6-Are you aware of the hazards of overdosage in children?	No	38(20.21%)	<0.001*
	Yes	150(79.79%)	
7-Do you check the expiry date of medicines before buying them?	No	73(38.83%)	0.003*
	Yes	115(61.17%)	
8-Are you aware of how much is one teaspoon?	No	101(53.72%)	0.343ns
	Yes	87(46.28%)	
9-Do you reuse an old prescription of your child for a similar condition?	No	83(44.15%)	0.125ns
	Yes	105(55.85%)	
10-Do you use the prescription of one of your children for a similar Dental condition in your other child?	No	109(57.98%)	0.034*
	Yes	79(42.02%)	
11-Do you think expensive medicines are better than cheaper ones?	No	100(53.19%)	0.422ns
	Yes	88(46.81%)	
12-Do you think dosage in children is different from adults?	No	12(6.38%)	<0.001*
	Yes	176(93.62%)	
13-Did self-medication relieve the symptoms of the dental condition in your child?	Completely	11(5.85%) ^B	<0.001*
	Temporary Relief	163(86.7%) ^A	
	No Relief	14(7.45%) ^B	
	Aggravated the symptoms	0(0%)	
14-Reason for self-medication?	Dental visit is expensive	47(25%) ^{AB}	<0.001*
	Long ques at hospital	4(2.13%) ^C	
	Saves time	35(18.62%) ^B	
	Dentist not available nearby	61(32.45%) ^A	
	Others	41(21.81%) ^{AB}	
15-Dental condition for which self-medication is taken?	Tooth pain	142(75.53%) ^A	<0.001*
	Swelling	11(5.85%) ^C	

	Sensitivity	2(1.06%) ^D	
	Oral ulcers	4(2.13%) ^{CD}	
	Others	29(15.43%) ^B	
16-Commonly used medicines for dental conditions as self-medication?	Pain killers	137(72.87%) ^A	<0.001*
	Vitamins	4(2.13%) ^C	
	Antibiotics	25(13.3%) ^B	
	Calcium supplements	4(2.13%) ^C	
	Others	18(8.57%) ^B	
17-Commonly used form of self-medication?	Allopathic	12(6.38%) ^B	<0.001*
	Home remedies	161(85.46%) ^A	
	Ayurveda	13(6.91%) ^B	
	Homeopathic	2(1.06%) ^C	
18-Source of information for self-medication?	Friends/Family	132(70.21%) ^A	
	Old prescriptions	25(13.3%) ^B	
	Media & Advertisement	31(16.94%) ^C	

Percentages with different superscript letters in the same question are statistically significantly different *; significant ($p \leq 0.05$) ns; non-significant ($p > 0.05$).

Analgesics (pain killers) (72.87%) were most commonly used by parents to self-medicate children for dental problems. The most common source of information for self-medication was family and friends (70.21%). A majority of the respondents agreed that self-medication only temporarily relieved the symptoms in their children (86.7%).

Discussion

In the past several years, self-medication has been studied in many areas and several articles have provided the prevalence among healthcare services attendants, the general population of adults and adolescents, university students, and individuals with different health problems (Garofalo et al., 2015). To our knowledge, little information is available regarding the self-medication prevalence of parents for their children for oral conditions, and few studies have been done on this practice in Egypt. Therefore, the objective of the present study was to assess the prevalence and the

practices of self-medication by parents for their children for oral conditions.

A structured questionnaire was used for data collection. The use of questionnaires in surveys is an economical way of accumulating information, it permits group administration and is adaptable to many objectives and it is easy to plan. A questionnaire places less pressure on the subject for an immediate response, it helps in focusing the respondent's attention on all the significant items. However, the questionnaire has limitations as questionnaires are not very helpful in finding information about complex emotional subjects, and the behavior, gestures, reactions, assertions, and emotions of the respondents remain unnoticed (Levin et al., 2006).

This study included children up to 10 years. This is comparable to Paulino et al. (2019) who evaluated 252 children/adolescents aged 6-16 years, Garofalo et al. (2015) who assessed 989 parents of children aged 3-18 years, and De Silva et al. (2017) who assessed 350 parents of children under 12 years.

Table 2: Frequencies (n) and percentages (%) for the association between the answers to question (1) and the different demographic data.

Features		Question (1) [freq. (%)]		p-value
		No	Yes	
Parent's age	< 30 years	10(33.33%)	20(66.67%)	0.365ns
	≥ 30 years	39(24.86%)	119(75.32%)	
Child age	< 6 years	10(37.04%)	17(62.96%)	0.164ns
	≥ 6 years	39(24.22%)	122(75.78%)	
Educational level	Low	10(28.57%)	25(71.43%)	0.682ns
	Medium	23(23.47%)	75(76.53%)	
	High	16(29.09%)	39(70.91%)	

ns; non-significant ($p > 0.05$)

The practice of self-medication among children is important since they constitute a large percentage of the population in developing countries and are prone to many illnesses. Young children are often given medications by their parents as the first response by most families to many illnesses in their children is the use of non-prescribed drugs (Albattat et al., 2017).

All the guardians in this study were females with a significantly higher percentage of them 30 years or older, this is consistent to Garofalo et al. (2015) who found that approximately two-thirds of 672 participants were females and dissimilar with Alkhayat et al. (2017) who carried out a study on 170 participants and found that 50% of them were fathers, and 50% were mothers. This may be clarified by the fact that mothers are more likely to follow up than fathers on the health side with their children regarding medical and dental appointments (Jasim, 2014).

Regarding the prevalence of self-medication for oral conditions, the present study identified a high prevalence (73.94%) of self-medication. This is in line with De Silva et al. (2017) who found that 95% of the mothers self-medicated their children, Paulino et al. (2019)

who reported 69.8% of self-medication for toothache in children and adolescents, and Nayyar et al. (2018) who reported that 61% of the parents self-medicated their children for oral conditions. However, the results disagreed with Răducanu et al. (2016) who reported a low prevalence of self-medication 24.5%, in children and adolescent patients who received self-medication for oral conditions. This variation in prevalence rates might be due to the different methods of data collection, availability of free medical for children in some countries, parents' concern about the safety of the medicine, and high cost of medical care (Gohar et al., 2017).

Concerning the association between the prevalence of self-medication and the demographic data, the study results were in agreement with Paulino et al. (2019) who reported that there was no statistical difference between the age of children, the age, gender, and socioeconomic status of parents, and the self-medication and is in disagreement with the findings of De Silva et al. (2017), Nayyar et al. (2018) and Răducanu et al. (2016) who reported a statistically significant relation of self-medication practice with the age of children, gender and socioeconomic status of parents. This reported difference may be explained by the fact that self-medication can be influenced by many

factors such as age, gender, family, society, income, education level, previous medical knowledge, previous experience with the same or similar diseases, attitude, and perception of one's health (*Garofalo et al., 2015*).

In the present study, the most common oral health problem treated by self-medication was toothache (75.53%) in accordance to *Nayyar et al. (2019)* (83.6%), and in disagreement with *Răducanu et al. (2016)* who reported a lower percentage of self-medication for a toothache (51.7%). This may be due to the low awareness of dental health among the population, who consider the treatment from oral professionals only when all the remedies have failed to cure or treat the oral disease (*KomalRaj et al., 2015*).

Pain killers (Analgesics) were used widely among the majority of the study population in this study (72.87%) in agreement with *Paulino et al. (2019)* who found that analgesics were mainly described for self-medication, and in disagreement with *De Silva et al. (2017)* who found a much higher percentage (92%), and *Răducanu et al. (2016)* who found a lower percentage (43.6%). The higher percentage of using analgesics may be related to their wide availability and low cost (*de Lima et al., 2016*).

In this study, the highest percentage of mothers who self-medicated their children mentioned "non-availability of a near dental clinic" (32.45%) as one of the reasons for self-medication. These results disagreed with *De Silva et al. (2017)* who reported "symptoms being mild" in the workplace as one of the reasons, and *Garofalo et al. (2015)* who found that participants engaged in self-medication most frequently because they felt that the illness was too mild and they did not require the services of a doctor (84.1%), however *Nayyar et al. (2018)* reported that "save time" and money was the reason for parental self-medication.

Most of the respondents prescribing the self-medication reported that the common source of information for self-medication was members of the family (70.21%), in agreement with *Răducanu et al. (2016)* results which reported that (41.1%) of the respondents who prescribed self-medication were members of the family, and in disagreement with *Nayyar et al. (2018)* who found that "Use of older prescriptions" was the most common source of information for self-medication. The use of self-medication among family members may influence the other members and sometimes also recommend the other family members to use the same prescription used by them as the prescription could have led to the relief of symptoms in them (*KomalRaj et al., 2015*).

A significantly higher percentage of parents thought that dosage in children is different from adults (93.62%), and (61.17%) of parents reported that they checked the expiry date of medicines before buying them. This is in disagreement with *Nayyar et al. (2018)* who suggested that the majority of the parents were unaware of the pediatric dosages, and a large number of parents didn't check the expiry date of medicines before buying them. The high prevalence of self-medication practiced by parents may be due to the low levels of parents' education and that the parents didn't know the importance of shelf life of medicines or were not aware enough to check it (*Sontakke et al., 2015*).

Most of the parents in the present study stated that "home remedies" were commonly used as a common form of self-medication. This is dissimilar to *Nayyar et al. (2018)* who reported that Allopathic medication (63.93%) was commonly used by parents as a form of self-medication. Young children generally spend much of their time with their parents and caregivers who, get information from medicine information leaflets, the internet, social media,

and pharmacies to manage the child's condition (Gohar et al., 2017).

Conclusions

The prevalence of self-medication by parents to their children for oral health problems was 73.94%. Self-medication was not influenced by the age of the children or the age of parents as well as the educational level. Toothache was the most common reason for self-medication consequently analgesics were the most frequently administrated self-medication. The commonest cause for the use of self-medication drugs was the non-availability of a near dental clinic. The common source reported for self-medication practice was members of the family.

Conflict of interest:

The authors declare no conflict of interest.

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