



## RESEARCH ARTICLE

### SELF-MEDICATION PRACTICES BY PARENTS IN CHILDREN FOR DENTAL CONDITIONS

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#### ARTICLE INFO

##### Article History:

Received 27<sup>th</sup> November, 2017  
Received in revised form  
23<sup>rd</sup> December, 2017  
Accepted 20<sup>th</sup> January, 2018  
Published online 28<sup>th</sup> February, 2018

##### Key words:

Self-medication,  
Parents,  
Children,  
Dental problems.

#### ABSTRACT

**Background:** Oral health is often neglected. Over the years, there has been an increase in the practice of self-medication (SM) with non-prescription (over-the-counter) drugs for dental problems. With regard to paediatric patients, such practices are entirely under the control of the parent. Pharmacokinetics of drugs vary in children due to their unique physiology. Therefore, it is of utmost importance to select appropriate medication and dosage for children, as dosing errors in paediatric patients may cause fatal complications.

**Aim:** To assess self-medication practices by parents in children for various dental conditions.

**Method:** A cross sectional questionnaire survey was carried out in parents of patients aged up to 14 years reporting to the outpatient department of Pedodontics and Preventive Dentistry. Data was collected using a self-structured questionnaire to record demographic information and various aspects of self-medication by parents in children for dental problems.

**Results:** 61% of the parents self-medicated their children for dental conditions. A statistically significant relation of self-medication practice with age ( $\chi^2=135.4105$ ,  $p=0.0001$ ), gender ( $\chi^2=105.8601$ ,  $p=0.0001$ ) and socioeconomic status (SM) ( $\chi^2=220.0210$ ,  $p=0.0001$ ) was found. Self-medication was most prevalent in the females, age group 4-8 years and in the lower socioeconomic status.

**Conclusion:** SM is widely practiced by parents for treating dental conditions in their children. Thus, the need of the hour is to create awareness among the parents and thereby encourage appropriate drugs usage in children.

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Citation: Amrita Nayyar and Anand K. Tavargeri, 2018. "Self-medication practices by parents in children for dental conditions", *International Journal of Current Research*, 10, (02), 65684-65688.

## INTRODUCTION

Oral health is an important component of overall well-being, but is often neglected. Dental diseases are not uncommon in children. Parents being the primary caregivers are the first ones to whom children report their symptoms. However, in today's contemporary scenario due to economic and time constraints there is low parental responsiveness. As a result of this some parents often resort to the practice of self-medication for their children. On the other hand, parents with a positive dental attitude seek immediate specialist care in order to relieve the symptoms of the child. Children are not miniature adults, the route and rate of drug administration, dosage, on set, duration of action and possibility of toxicity are influenced by unique physiology of childhood and thus significantly differs from adults. Hence, the inappropriate and unguided use of medications may lead to fatal complications. Self-medication can be defined as "the selection and use of medicines by

individuals (or a member of the individuals' family) to treat self-recognized or self-diagnosed conditions or symptoms." It also includes the selection of a medication for a chronic or recurrent condition by the patient, after an initial diagnosis and prescription by a physician (Ruiz, 2010). With this background the aim of the current study was to assess the pattern of self-medication practices by parents in children for various dental conditions.

## MATERIALS AND METHODS

The following cross-sectional, questionnaire-based survey was conducted in Department of Pedodontic and Preventive Dentistry of our institute.

### Questionnaire design

The present survey was conducted using a self-structured questionnaire, the face validity for which was assessed by experts from the fields of public health dentistry, paediatric dentistry, paediatrics and pharmacology. The reliability of the questionnaire was determined by test-retest method conducted

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on 20 subjects involved in the pilot study (Cronbach's  $\alpha = 0.8$ ). The questionnaire was designed in English and translated to local language (Kannada) in accordance with the WHO guidelines (World Health Organization, 2007) by an expert committee comprising of translators and health care professionals having adequate proficiency in both the languages. The questionnaire comprised of two sections. The first section consisted of questions recording the demographic details namely age/sex of child, relation of respondent to child (father/mother), educational level and occupation of parent and annual family income. Based on these demographic details the socioeconomic status (SES) was determined using the revised Kuppuswamy scale (Singh *et al.*, 2017). The second section comprised of 18 close ended questions of which 12 were dichotomous (yes/no) and 6 were multichotomous.

### Study population

Any attempt of obtaining or consuming medications without advice of doctor or a prescription or use of previously prescribed medications for the treatment of chronic or recurrent conditions by the parent for their child was considered as practice of self-medication. Study samples were randomly selected from the parents with children up to 14 years of age visiting the outpatient department of paediatric dentistry unit of our institute for treatment of various dental complaints. Those paediatric patients who were not accompanied by their guardians were not included in the study sample.

### Sample size estimation

The sample size was determined after conducting a pilot study on 20 subjects. It was observed that 65% of the parents self-medicated their children for dental conditions. The following formula was used to calculate the sample size (n):

$$n = 4PQ / d^2$$

Where, P (prevalence, as calculated in pilot study) = 0.65, Q=(1-P), d(precision) was set at 5%. The sample size was calculated to be 364, extrapolated to 400.

### Administration of Questionnaire

The nature of the study was explained to the parents meeting the inclusion criteria. After obtaining informed consent from those who were willing to participate the self-designed questionnaire, pretested for reliability and validity, was administered by face to face interview method in the language most suitable to the respondents. Approximately 10 minutes were taken to interview one subject. The readings were tabulated and entered in Microsoft Excel sheets. The data was subjected to statistical analysis using SPSS software (version 20.0; IBM Company, Chicago, IL, USA). The statistical significance was set at  $p < 0.05$ . The Chi square test was used to study the correlation self-medication practices by parents in children for various dental conditions with socioeconomic status and age and sex of child.

## RESULTS

A total of 400 parents (fathers= 136, mothers=264) were surveyed in the course of our study. The age of the children was categorised into 3 age groups:<4 years (100), 4-8 years

(188) and 8-14 years (112) of which 218 were males and 182 were females. Majority of the study samples belonged to the upper lower category followed by upper middle, lower middle and upper. Table 1 summarises the Distribution of study population according to sociodemographic characteristics. Of the 400 parents surveyed 156 parents did not self-medicate their children for dental conditions whereas 244 parents acknowledged doing it (Graph 1).

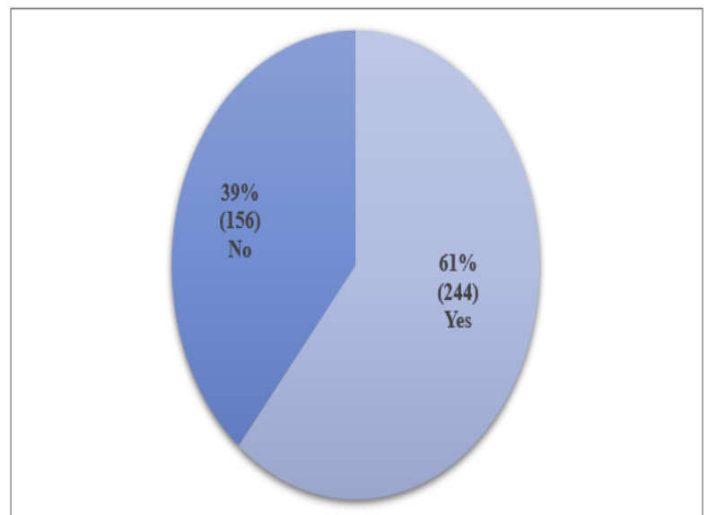
**Table 1. Distribution of study population according to sociodemographic characteristics**

Factors	No of respondents (n=400)	Percentage of respondents (%)
Respondents		
Father	136	34.00
Mother	264	66.00
Age groups		
<4	100	25.00
4--8	188	47.00
9--12	112	28.00
Gender		
Male	218	54.50
Female	182	45.50
SES		
Upper	8	2.00
Upper middle	133	33.25
Lower middle	113	28.25
Upper lower	146	36.50
Total	400	100.00

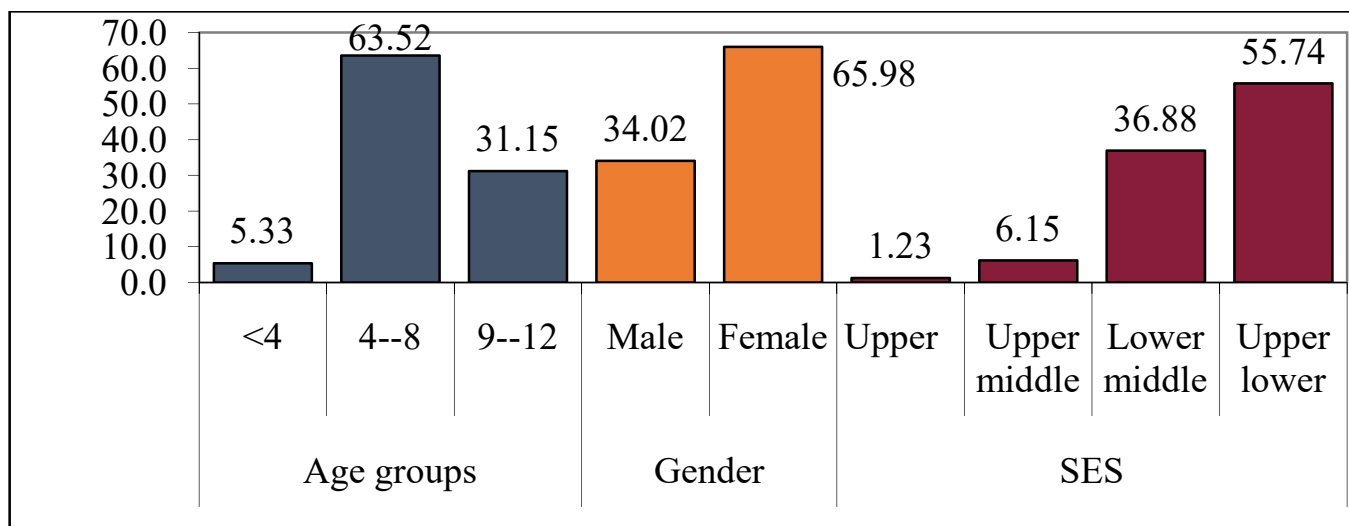
**Table 2. Association of Self-medication with Age, gender and socioeconomic status (n=244)**

	Self-medication present	Percentage (%)
	Age	
	$(\chi^2=135.4105, p=0.0001^*)$	
<4	13	5.33
4--8	155	63.52
9--12	76	31.15
	Gender	
	$(\chi^2=105.8601, p=0.0001^*)$	
Male	83	34.02
Female	161	65.98
	SES	
	$(\chi^2=220.0210, p=0.0001^*)$	
Upper	3	1.23
Upper middle	15	6.15
Lower middle	90	36.88
Upper lower	136	55.74

\* $p < 0.05$



**Graph 1. Presence of self-medication practice by parents in children for dental conditions**



Graph 2. Prevalence of self-medication practice according to age, gender and socioeconomic status

Table 3. Summary of responses of the parents on various aspects of self-medication in children for dental conditions (n=244)

Question	Yes	No
1. Do you buy medicines for your child without prescription?	191 (78.28%)	53 (21.72%)
2. Do you tell the pharmacist about other health ailments/ weight / age of your child before buying medications for him/her?	43 (17.62%)	201 (82.38%)
3. Are you aware about completing the course of the medicine?	31 (12.70%)	213 (87.30%)
4. Do you think self-medication can harm the health of your child?	45 (18.44%)	199 (81.56%)
5. Are you aware about hazards of over dosage in children?	69 (28.27%)	175 (71.73%)
6. Do you check the expiry date of medicines before buying them?	204 (83.60%)	40 (16.4%)
7. Are you aware about how much is one teaspoon?	17 (6.96%)	227 (93.04%)
8. Do you reuse an old prescription of your child for a similar condition?	127 (52.05%)	117 (47.95%)
9. Do you use the prescription of one of your child for similar Dental condition in your other child?	159 (65.16%)	85 (34.84%)
10. Do you think expensive medicines are better than cheaper ones?	125 (51.22%)	119 (48.78%)
11. Do you think dosage in children is different from adults?	215 (88.11%)	29 (11.89%)

Table 4. Summary of responses of the parents on various aspects of self-medication in (n=244)

Did self-medication relieve the symptoms of the dental condition in your child?		
Completely		75 (30.73%)
Temporary Relief		152 (62.30%)
No Relief		17 (6.97%)
Aggravated the Symptoms		0
Reason for self-medication:		
Dental visit is expensive		83 (34.02%)
Long queues at hospital;		44 (18.03%)
Saves time		103 (42.21%)
Dentist not available nearby		14 (5.74%)
Others		0
Dental condition for which self-medication is taken:		
Tooth pain		204 (83.6%)
Swelling		24 (9.84%)
Sensitivity		6 (2.46%)
Oral ulcers		10 (4.1%)
Others		0
Commonly used medicines for dental conditions as self-medication:		
Pain killers		200 (81.96%)
Vitamins		0
Antibiotics		40 (16.40%)
Calcium supplements		4 (1.64%)
Others		0
Commonly used form of self-medication:		
Allopathic		186 (76.23%)
Home remedies		44 (18.03%)
Ayurveda		14 (5.74%)
Homeopathic		0
Source of information for self-medication:		
Friends/Family		42 (17.21%)
Old Prescriptions		108 (44.26%)
Media & Advertisements		10 (4.1%)
Chemist (Pharmacist)		84 (34.43%)

The questionnaire was further administered to only those 244 parents to determine their perception about various aspects of self-medication practice. A statistically significant relation of self-medication practice with age ( $\chi^2=135.4105$ ,  $p=0.0001$ ), gender ( $\chi^2=105.8601$ ,  $p=0.0001$ ) and socioeconomic status ( $\chi^2=220.0210$ ,  $p=0.0001$ ) was found. Self-medication was most prevalent in the females, age group 4-8 years and in the upper lower socioeconomic status (Table 2, Graph 2). The most common condition for which parents self-medicated their children was tooth pain (83.6%). The most common reason to resort to the practice of self-medication was to save time (42.21%). Allopathic medication (63.93%) and Analgesics (pain killers) (81.96%) were most commonly used by parents to self-medicate children for dental problems. Most common source of information for self-medication was old prescriptions (44.26%). A majority of the respondents agreed that self-medication only temporarily relieved the symptoms in their children (62.30%). Table 3, 4 summarize the responses of the parents on various aspects of self-medication.

## DISCUSSION

Over the years the majority of studies on self-medication (SM) practices for medical and dental problems have focused on adults and also the students in the field of health sciences (Selvaraj *et al.*, 2014; Simon *et al.*, 2015; Patil *et al.*, 2014). Few studies report the parental SM practices in children. However, they concentrate on such practices for ailments like fever, upper respiratory tract infections, diarrhea, vomiting etc (Sontakke *et al.*, 2015; Eldalo, 2013). To the best of our knowledge there is no documented literature on SM practices by parents in children for dental complaints. In a developing country like India, oral health is often overlooked and parents are ignorant towards primary teeth. Most of the parents take children to a dentist for more of interceptive treatment as compared to preventive treatment. Gurunathan D and Shanmugaavel A K reported high prevalence of dental neglect among parents of Chennai city (Gurunathan and Shanmugaavel, 2016).

Thus, parents may also self-medicate their children for oral health problems and defer dental treatment till the child develops severe and acute symptoms. In the present study the prevalence of parental SM in children for dental conditions was 61%. Majority of the respondents were mothers, which is consistent with the findings of other studies (Pereira *et al.*, 2007; Tibdewal and Gupta, 2005). This can be due to the reason that in the Indian scenario majority of the households have the males (fathers) as the job-holder with the mothers being more involved in homemaking. Parental SM was least for children <4 years. This can be attributed to high parental responsiveness in the preschool age as a result of which parents may seek immediate expert advice. An increase in caries from 5 years to 8 years and a subsequent decrease at 11 and 15 years was reported by Dash *et al.* 2012 and Shingare *et al.* 2012. This correlates with our findings of maximum self-medication in the age group of 4-8 years (82.45%) and which relatively reduced in the 8-14-year-old children (67.86%). Untreated dental carious lesions may result in pain. Also, in our study tooth pain was the most common reason for SM and analgesics were most widely used which further validates our observations. In the current study females were commonly self-medicated by parents as compared to males. This may be attributed to high levels of dental anxiety in females in

comparison to their counterparts as reported by majority of studies (Boorin, 1995; Berggren *et al.*, 1997). This may make the child show reluctance to visit a dentist resulting in SM by parents to provide relief. Parental SM was strongly associated with socioeconomic status (SES) with increased prevalence in the lower SES (upper middle 55.74% and lower middle 36.88%). These strata of population will have limited financial resources and low literacy levels leading to poor knowledge regarding its adverse effects. All these factors may predispose them to SM their children. Further, the major reason for parental SM in our study was to save time and money. SM saves the time by avoiding long waiting hours in the health care centers, as loss of working hours may further hamper them economically. This further reason out its increased prevalence in lower SES groups. On the contrary, higher SES population will have a sound educational background leading to better understanding of complications associated with SM. Also, they will have a better spending capacity. These factors contribute to low prevalence of parental SM in these groups as noted in our study (upper 1.23%, upper middle 6.15%). Since SM is more prevailing in lower SES status parents, the common belief that expensive medicines are better than cheaper ones as noted in the current study should be addressed. Instead parents should be encouraged to buy medicines by generic names as buying their expensive substitutes may be a monetary burden.

Use of older prescriptions was the most common source of information for self-medication, similar finding was also reported by Sontakke *et al.*, 2015. This is of great concern especially when antibiotics are administered, as their repeated use may lead to emergence of drug resistance. This also requires regulation on behalf of the pharmacists who are also a common source for information to parents about drug usage. Majority of the parents were unaware about the pediatric dosages, hazards of over dosage and importance of completing the course of a medicine. This may lead to under treatment of various conditions and especially when antibiotics are employed inadequate dosages and treatment duration may lead to partially treated infections whereas their overzealous usage may cause drug resistance and super infections in children. This is in accordance with the finding of our study where parents reported that SM only temporarily relieved the symptoms of their child. Most of the parents didn't take into consideration the other health ailments in their child while self-medication for dental conditions. Hepatic or renal dysfunction may require adjustment of drug dosage or complete avoidance of certain drugs. Thus, poor parental knowledge regarding contraindication of various drugs in specific medical conditions is a matter of concern. A large number of parents didn't check expiry date of medicines before buying them, this could be due to high prevalence of SM practice by parents of lower SES. Thus, due to low levels of education, they don't know the importance of shelf life of medicines or are not literate enough to check it.

## Conclusion

Current study highlights the high prevalence of SM by parents for management of dental problems in their children. Therefore, it is extremely important to educate the parents regarding the pediatric dosage and potential risks of SM. Pediatrics dentists can play an important role in generating awareness amongst the parents of their patients and discourage such practices.

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