

## PARENTAL SELF MEDICATION OF ANTIBIOTICS FOR CHILDREN IN BAGHDAD CITY

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### ABSTRACT

**Objective:** to evaluate many factors associated with self medication practice of parents for the behalf of their children.

**Methods:** This study was designed as the cross sectional descriptive study in which the data was collected via direct interviews with the parents using previously prepared questionnaires. A total of 124 parents with the practice of self medication for their children were included.

**Results:** The majority of children were 1-6 years old and male children were slightly more than females. The main reason of self medication was dealing with same current ailments previously followed by considering the current illness as mild one. The major sources of information about self medicated antibiotics were previous prescription and community pharmacists. The most frequent source of antibiotics was the community pharmacies. Upper respiratory tract conditions were the commonest indication for self medication. Amoxicillin was found to be the most frequently acquired and utilized antibiotic in this study.

**Conclusion:** Many parents considered that self medicated antibiotics are powerful agents in treating a wide range of children conditions without confirming the microbial cause of these conditions. Community pharmacists could play very important roles in improving the practice of parental self medication.

**Keywords:** Self medication, Parents, Children, Antibiotics.

### INTRODUCTION

Utilization of drugs in both children and adolescents is of great concern worldwide [1,2]. Many drugs for this group of the population, both as prescribed and non-prescribed, are used in the outpatient setting [3]. In general, the parents use non prescribed drugs for treating many illnesses of their children [4].

There has been increasing trend toward practicing self medication (SM) phenomenon in both developed and developing countries in the recent years [5]. SM practice is defined as the act of obtaining and utilizing medications without supervision of the physician for the purpose of diagnosis, prevention or treatment of minor symptoms or conditions [6]; also SM involves the use of previously prescribed drugs intermittently or continuously for recurrent or chronic diseases or symptoms [7] as well as the family use of drugs for the children and adolescents [8].

SM practice makes economic savings for national health care systems and put more responsibility on the patients or their caregivers for managing the minor conditions in well educated manner [9].

The most frequently used self medicated drugs include antibiotics [10,11]. The antibiotics were found to have greater benefits in improving public health than any other group of drugs in the preceding five decades [12]. Different studies were conducted in different countries [13,14,15] and revealed the high prevalence of antibiotics SM. Many causes were found responsible for the familiar use of SM in the developing world like a high incidence of infectious diseases, selling antibiotics as over the counter drugs, and poor regulatory authorities of dispensing antibiotics [16,17].

The wide use of antibiotic SM has led to many problems; multiple resistant organisms that would be difficult to treat and increased the morbidity could emerge from this wide use [18]. Other consequences of the emergence of resistant organisms include treatment failure, prolonged hospitalization period, drug toxicity and increased treatment costs [19].

Local community pharmacies serve as the first point of contact of consumers with the healthcare system [20]. Therefore, community pharmacists play a vital role in advising consumers about the proper

utilization of SM, whether for them [21] or for their children [22]. Non-doctor prescribing of drugs is another common source of self medicated drugs in developing countries [23].

The nature and extent of practicing SM varies between countries depending on many different cultural and social factors [24]; in Iraq there is suspicion that SM is high because many drugs (including antibiotics) can be obtained from the community pharmacies and other non official drug stores without the requirement of a medical prescription [25]. Many studies were done about SM practice [8,22], but these studies were conducted in countries different from Iraq regarding the culture and nature of health care system, so the results of these studies cannot be transferred completely to the Iraqi context.

To our knowledge, there are no published studies that address SM pattern of antibiotics for children by the community in Baghdad. Therefore, this study was done to evaluate many factors associated with the parental SM of antibiotics for their children.

### MATERIALS AND METHODS

This cross sectional descriptive community based study was carried out in Baghdad City, capital of Iraq, from January to May 2014. This study investigated the SM practice of antibiotics for children aged ≤ 12 years through the face to face interview of their parents using a structured previously prepared questionnaire. The subject was included in the study after taking a verbal consent from his/her parent if he/she was administered an antibiotic within a month prior to the interview or if he/she complained a current condition which made his/her parent attending the pharmacy to purchase an antibiotic.

The study was conducted in three community pharmacies from different sectors of Baghdad; post graduate pharmacists were responsible for interviewing the subjects. Each interview took about 5-10 minutes.

The questionnaire was first prepared in English and then translated to Arabic. The questionnaire consisted of six sections and included both open and closed ended questions. The first section identified the age and gender of the child and identified the parent whether father or mother. The following sections investigated the reason of

utilizing/acquiring the antibiotic, source of information about the drug and its use, source of the drug itself, description of the condition or symptom to be treated and finally the name of the antimicrobial. The data were analyzed using Internet based chi-square and P values of < 0.05 were considered significant.

**RESULTS**

**Sociodemographic characteristics**

A total of 124 parents (70 fathers and 54 mothers) with practice of SM for their children were included in this study. The children had an average age of 4 years ± 0.321 (standard error of mean SEM) with age range between 4 months and 12 years. Of these children, 67 were males and 57 was females. Ages of 19 children (15.3%) were below one year, 75 patients (60.5%) were aged between 1-6 years (this groups was significantly higher than the other two groups), whereas the remaining 30 patients (24.2%) had ages between 6-12 years.

**Self medication practice**

The study found that the major reason (41.1%) behind practicing SM by the parents was that their children experienced similar ailments

previously and this reason was significantly higher than the others. Other reasons for SM were simple condition not requiring physician consultation (29.8%), high cost of treatment if private clinics were visited (15.3%), lack of near public health care centers (13%), self decision by the parents (9.7%) and the least common reason was long time of waiting in the private clinics and hospitals (6.5%).

The study explored the possible sources of information about the antibiotics intended for use to treat the children and found that nearly half the parents knew the name and the proper use of antibiotic from previous prescription and this source of information was significantly more than other sources. Community pharmacists were the second most common source and supplied the necessary information for about one third of parents. The remaining sources were medical staff members other than physicians and pharmacists (12.9%), family members or friends (4.8%) and drug directions (3.2%).

The study investigated the sources of obtaining antibiotics used for children and found that the principal source accounted for 87.1% of cases was the community pharmacies followed by shops of other medical staff 8.1% and finally 4.8% of the parents used left over antibiotics stored at their homes.

**Study questionnaire**

Age	Gender		
Reason of self medication	Simple disease	Previous experience with similar symptoms	High treatment cost in private clinics
	Lack of near health care centers	Self decision	
Source of information	Previous prescription	Community pharmacy	Other medical staff
Source of antibiotic	Family members or friends	Drug directions	Mass media
Type of disease(s) you need drugs for	Community pharmacy	Other medical staff	Left over
Antibiotics requested by self medication			
Date of interview			

**Table 1: Sociodemographic characteristics of the study population (n=124)**

Variable	Number of subjects	Percentage (%)	P value
1. Parent			
Father	70	56.5	
Mather	54	43.5	
2. Gender of children			
Male	67	54	
Female	57	46	
3. Ages of children			
Younger than one year	19	15.3	
(1-6) years	75	60.5	0.000
(6-12) years	30	24.2	

**Table 2: Frequencies of reasons of self medication, sources of information and sources of antibiotics**

Variable	Number of subjects	Percentage (% <sup>a</sup> )	P value
1. Reason of SM			
Previous experience with similar symptoms	51	41.1	0.000
Simple condition	37	29.8	
High treatment costs in private clinics	19	15.3	
Lack of near health care centers	16	13	
Self decision	12	9.7	
Long delay in private clinics	9	6.5	
2. Source of information			
Previous prescription	57	46	0.000
Community pharmacy	41	33.1	
Other medical staff	16	12.9	
Family members or friends	6	4.8	
Drug directions	4	3.2	
Mass media	0.0	0.0	
3. Source of antibiotics			
Community pharmacy	108	87.1	0.000
Other medical staff	10	8.1	
Left over	6	4.8	

a: numbers do not add to 100% because single subject may have more than one reason and/or more than one source of information.

As illustrated by Table (3), indications of SM which had the higher significant frequencies than the others were coughing and sore throat encountered by 53 and 49 children (42.7% and 39.5%) respectively. Flu or common cold was encountered by 21% of the

study population (26 children) followed by runny nose (9.7%), severe ear discomfort (7.3%), diarrhea (4.8%) and fever (4.03%). Each of abdominal pain and vomiting was encountered by four children only (3.2%) and they were the least common.

**Table 3: Frequencies of indications of self medication**

Indication	Number of children	Percentage (%) <sup>a</sup>	P value
Cough	53	42.7	0.000
Sore throat	49	39.5	
Flu or common cold	26	21	
Runny nose	12	9.7	
Severe ear discomfort	9	7.3	
Diarrhea	6	4.8	
Fever	5	4.03	
Vomiting	4	3.2	
Abdominal pain	4	3.2	

a: numbers do not add to 100% because single subject may have more than one indication

As demonstrated in Table (4), amoxicillin was more significantly acquired than all the other antibiotics; amoxicillin was used for the treatment of 59 children who represented the majority of the study population (47.6%). The third generation cephalosporin (cefixime) was the second most commonly used antibiotic by the parents for 17

children (13.7%) followed by co-amoxiclav which was the preferred choice for treating 12 children (9.7%). Other antibiotics were cefalexin (8.1%), co-trimoxazole (7.3%), metronidazole (5.6%), azithromycine (5.6%). The broad spectrum penicillin (ampicillin) was the least frequently used self medicated drug (2.4%).

**Table 4: medications (drugs) used for self medication**

Antibiotic	Number of children	Percentage (%)	P value
Amoxicillin	59	47.6	0.000
Cefixime	17	13.7	
Co-amoxiclav	12	9.7	
Cefalexin	10	8.1	
Co-trimoxazole	9	7.3	
Metronidazole	7	5.6	
Azithromycin	7	5.6	
Ampicillin	3	2.4	

## DISCUSSION

The study was conducted in Baghdad city only because it is the largest city in Iraq regarding the number of population and also due to financial and time factors. This study found that fathers purchasing self medicated antibiotics were relatively more than mothers and this finding was consistent with that of a previous study [3]; the possible explanation of this slight difference is that some women considered that the father is more appropriate for this mission or they could not leave their homes without companionship of a male relative from the first degree [26].

Our study found that SM practice in the group of 1-6 years was higher than that for children aged below one year or those between 6-12 years possibly because the children below one year receive high degree of care from the parents which could result in less risk of infections and many parents consider that older children have good immunity and body defense which make them less worried about conditions of their children.

The reason of practicing SM for 41.1% of the parents was their perception that the child was exposed previously to the same current ailment, therefore they considered that the prescription will be the same if they visited the physician and also considered that they had good experience and became familiar with the appropriate antibiotics for managing this current condition [27].

In concordance with other studies [28,29], low severity of symptoms was considered by many parents to be the cause for acquiring self medicated antibiotics. Lower cost of SM practice compared to medical care obtained from hospitals or from visiting private clinics is an important driving reason for acquiring self medicated drugs for many subjects [30,31]; this work found that the economic factor was the reason of SM for 15.3% of study population. Another common

reason for purchasing self medicated drugs is the long waiting queues at hospitals or private clinics [32]; this reason was estimated in our study by 6.5% of the participating parents.

In general, the population requires accurate and easily accessible and understandable information about the benefits and possible risks associated with the drugs. The commonest source of information about self medicated drugs in this work was old medical prescription which is consistent with the results of other studies [33]. The physicians depend on a group of certain symptoms in the diagnosis of infectious conditions; this encourages the parents to purchase the same prescription when they consider that similar or related symptoms occur again [34]. The other important source of information for 33.1% of the study population was the community pharmacists; this is consistent with the results of other studies done in different countries like Saudi Arabia [26] and Indonesia [35] which highlight the important roles of community pharmacies in wide pervasion of SM in the community [36]. Therefore, community pharmacists could play crucial roles in directing the consumers toward the proper use and in the same time reduce the irrational use of self medicated antibiotics [37]. Sixteen parents (12.9%) got their information from health personnel other than physicians and pharmacists because they considered that these personnel have sufficient experience that enable them to be a good source of detailed information about SM.

Community pharmacy is obviously the principle source for most parents in this study (87.1%) to obtain the self medicated antibiotics; this confirms the weakness of high disciplinary regulations [38]. The majority of parents trusted in pharmacy personnel and were comfortable when they acquired self medicated drugs from the pharmacy because they considered that community pharmacists have good and reliable academic certificate and medical

expertise, while the reason for some parents was their perception that local community pharmacies were low cost alternatives compared to private clinics which charged consultation and laboratory fees [27]. Few parents used medications kept at home for the treatment of their children; this source has the risk of reduced potency of the antibiotic or even toxicity because in hot climates (like Iraq) the stability and shelf life of drugs stored at home may decrease with time [39].

This study revealed that the most frequent conditions which motivated the parents to practice SM for their children were Upper respiratory tract conditions (cough, sore throat and flu or common cold respectively); this result is consistent with the findings of other studies conducted in other countries like Malaysia [40], Turkey [41], and European countries [14].

The probable explanation for this finding is that the study was conducted in winter and spring which may increase the incidence of these conditions [42,43] and because many individuals in the community (including the parents) believe that antibiotics can reliably treat and eradicate any microorganism causing upper respiratory tract conditions whatever its type [15] and also because they believe that these conditions are self limited and could be treated safely by self medicated antibiotics without the need to see the physician [44].

In agreement with the findings of studies conducted in India [45], Nigeria [32] and Srilanka [33], amoxicillin was the preferred antibiotic for the majority of parents; the probable causes of these findings are the broad spectrum, the low cost and the wide prescription of this drug by the doctors that lead the parents to reuse it [46]. The second ranked drug (13.7%) was cefixime, the third generation cephalosporin, despite its higher cost than many antibiotics in this study because the parents might be satisfied of its action after short term use against many infectious conditions. Co-trimoxazole was preferred by 7.3% of the study population for children, possibly because it is considered one of the very cheap antibiotics [47].

The least acquired antibiotic in this study was ampicillin despite its similar spectrum to that of amoxicillin and its lower cost which may be due to its probable interaction with the food, its higher incidence of gastro-intestinal side effects and four times daily administration, therefore it was replaced largely by amoxicillin.

**CONCLUSIONS**

The study concluded that parents had great expectations for the antibiotics and many of them practiced SM for their children when these children developed ailments that may not be microbial in origin, and if microbial it may not be bacterial in nature. Also the study concluded that the local community pharmacists can play crucial roles in enhancing the proper practicing of SM because they are reliable sources of information for many parents. It is recommended to encourage the parents to have greater attendance to private clinics or to local primary health care centers before acquiring antibiotics because many ailments do not require these drugs. Also, community pharmacists must continuously improve their clinical skills and knowledge to educate the general population in addition to other public educational material about the proper use of antibiotics and to reduce the consequences of the irrational use; in the long term, as health care improves, then it will be necessary to enforce high regulatory authorities and dispense antibiotics only by official prescriptions.

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