

Mother's Knowledge, Attitudes, and Practices of Antibiotics Use for Children with Upper Respiratory Tract Infections in Babylon Governorate

Huda Mohammed Ismael¹, Ali Hadi Mahdi Al-Thabhwai²

¹Babylon Health Directorate, ²Department of Pediatric, College of Medicine, University of Babylon, Al Hillah, Iraq

Abstract

Background: Self-medication with antibiotics (AB) is an ongoing main global health problem. It is defined as the use of nonprescribed medications by people on their own initiative or on the advice of another individual, without physician consultation. Lack of knowledge among parents regarding the prudent use of AB in managing common childhood illnesses can result in its misuse. On the other hand, physicians commonly prescribe AB as their first response for several symptoms, usually relating such over-prescription to patients'/ parents' pressure. Although AB are targeted to kill or inhibit the growth of bacteria and have no effect on viral agents, it is often inappropriately used to treat viral infections, such as most upper respiratory tract infections (URTI). Problems associated with the overuse of AB include development of antibacterial resistance, increasing the burden of chronic diseases, rising costs of health services. **Objectives:** To evaluate mothers' Knowledge, Attitudes, and Practices (KAP) related to antibiotic use for children with URTI in a sample of mothers in Babylon Governorate and assess the associated factors with antibiotic misuse among mothers who attended primary healthcare centers and hospitals. **Materials and Methods:** A cross-sectional study was carried out in Babylon Governorate during the period from April 10 to June 20, 2021. Two primary healthcare centers (one in the periphery of Babylon Governorate and the other in center of Babylon Governorate) and two hospitals (one in the periphery of Babylon Governorate and the other in center of Babylon Governorate) were selected conveniently and 270 mothers who attended these centers interviewed 3–4 days per week during the period of the study. Data were gathered through structured questionnaire that was used to identify different variables in the study during the interview. Statistical analysis was carried out using Statistical Package for the Social Sciences. **Results:** The mean age of mothers was (30 ± 7) years old. Small percentage had adequate knowledge about antibiotic use (26.3%), and only 8.52% had positive attitudes. Also, only 10.37% had good practice. Self-medication of AB was in a large proportion of mothers (67%) and most of them depend on pharmacists as a source of information (61.24%). There was a significant association between inadequate knowledge and mothers who were housewives, school-educated, and had self-medication practice. There was a significant association between negative attitude and poor practice with mothers who had self-medication. This study revealed that mothers who lived in rural areas, school-educated, housewives, and had enough monthly income tend to self-medicate their children with AB. **Conclusions:** Inadequate knowledge related to mothers with school education and housewives. Self-medication with AB is related to poor KAP. Self-medication occurs mostly among mothers who are housewives, residents in rural area, had school education, and have enough income.

Keywords: Attitudes, Babylon Governorate, children, knowledge, practices, upper respiratory tract infections

INTRODUCTION

Antibiotics (AB) are frequently used unnecessarily to treat viral infections such as upper respiratory tract infections (URTIs), despite the fact that they are designed to destroy or prevent the growth of bacteria and have little effect on viral agents.^[1] URTIs are the most frequent diseases that children suffer from, including the common cold, laryngitis,

Address for correspondence: Dr. Huda Mohammed Ismael, Babylon Health Directorate, Al Hillah, Iraq.
E-mail: ahdy3587@gmail.com

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pharyngitis/tonsillitis, acute rhinitis, acute rhinosinusitis, and acute otitis media.^[1] Antimicrobial usage for children with URTI is reported to be inappropriate 20–50% of the time.^[1] Antibiotic self-medication is a major global issue wellbeing problem.^[2] It is defined as the use of nonprescribed medications by people on their own action or the counsel of another person, without physician consultation.^[3] Self-medication with AB is described, which may result in antibiotic selection errors, inadequate dosages, or excessive therapy.^[4] As a result, patients with antibiotic-resistant infections are more likely to have longer and more expensive hospital stays, necessitating the use of more potent AB, which can have additional and more serious side effects.^[4] Antibiotic use grew by 65% globally between 2000 and 2015, with the majority of the rise occurring in low-income and middle-income nations.^[5] Antibiotic misuse may result from a complex interaction of several factors, including prescriber knowledge and experience, diagnostic confusion, patient perceptions of the patient–prescriber interaction, and physician inadequate patient education.^[6] As a result, reducing antibiotic use necessitates multifaceted approaches involving experienced and committed healthcare professionals and the public.^[6]

MATERIALS AND METHODS

A descriptive cross-sectional study was carried out at two primary healthcare centers (one in midtown of Babylon Governorate [Al-Asatetha PHCC] and the other in the

countryside of Babylon Governorate [Al-Saddah PHCC] and two hospitals (one in midtown of Babylon Governorate [Babil teaching hospital for Maternity and children] and the other in the countryside of Babylon Governorate [Ibn-Saif Hospital for Children]). A convenient sample of 270 mothers was approached (mothers who had children with upper URTI [previously or at the time of interview] and agreed to participate). The interview was direct (face-to-face) 3–4 days per week from April 10 to June 20, 2021. Each mother was interviewed for about 10 minutes. About 275 mothers were interviewed, 5 mothers refuse participation from the beginning or did not complete the interview, so they had been excluded. The sample size was calculated according to Fisher's formula,^[7] 263 was approximated to 270 to be selected in the study.

A structured questionnaire consists of four parts. The first part includes sociodemographic characteristics. The second includes 12 items to assess the mothers' knowledge about AB use: (AB are used for viral infections, most URTIs are caused by viruses, and AB do not work with them, AB have no side effects, AB overuse reduces AB effectiveness, AB reduce URTIs symptoms, AB are used to reduce fever, AB are used to overcome pain, AB are used for common cold, AB treatments should be started by prescription by physician, AB treatment is continued until bottle finished or physician advise to stop, administering AB twice a day means once when you wake up and once before you go to sleep, have you ever read or heard about antibiotic

Table 1: Sociodemographic characteristics of mothers by frequency and percentage

Variables	Frequency	Percentage
Residence		
Urban	138	51.1
Rural	132	48.9
Education level		
Illiterate	34	12.6
School education (primary and secondary)	126	46.7
Higher education	110	40.7
Occupation		
Employment	97	35.9
Housewife	173	64.1
Income		
Enough ^a	195	72.2
Not enough	75	27.8
No. children		
3 and below	193	71.5
>3	77	28.5
Self-medication		
Yes	181	67.0
No	89	33.0
Age (years)		
15–24	48	17.8
25–34	149	55.2
35–44	67	24.8
>44	6	2.2

^aRough estimation by mothers words

Table 2: Association of mother's knowledge and independent variables

Variables	Good	Knowledge		P value
		Good	Poor	
Residence				
Urban	40 (56.3%)		98 (49.2%)	0.34
Rural	31 (43.7%)		101 (50.8%)	
Total	71 (26.30%)		199 (73.70%)	
Educational level				
Illiterate	4 (5.6%)		30 (15.1%)	0.028
School education	30 (42.3%)		96 (48.2%)	
Higher education	37 (52.1%)		73 (36.7%)	
Total	71 (26.30%)		199 (73.70%)	
Occupation				
Employment	35 (49.3%)		62 (31.2%)	0.009
Housewife	36 (50.7%)		137 (68.8%)	
Total	71 (26.30%)		199 (73.70%)	
Income				
Enough	52 (73.2%)		143 (71.9%)	0.88
Not enough	19 (26.8%)		56 (28.1%)	
Total	71 (26.30%)		199 (73.70%)	
No. children				
3 and below	48 (67.6%)		145 (72.9%)	0.45
>3	23 (32.4%)		54 (27.1%)	
Total	71 (26.30%)		199 (73.70%)	
Self-medication				
Yes	40 (56.3%)		141 (70.9%)	0.028
No	31 (43.7%)		58 (29.1%)	
Total	71 (26.30%)		199 (73.70%)	
Age of children (years)				
15–24	4 (17.4%)		45 (18.2%)	
25–34	14 (60.9%)		136 (55.1%)	
35–44	5 (21.7%)		59 (23.9%)	
>44	0 (0.0%)		7 (2.8%)	
Total	71 (26.30%)		199 (73.70%)	

P value ≤ 0.05 (significant).

resistance?) The third part includes three items to assess the mothers' attitude about AB use: (the doctor gives only analgesics and antipyretics for children with URTI, when my child has URTI; I should give him/her antibiotic, in case of URTI, AB make my child get better faster) and the fourth part includes three items to assess the mothers practice about AB use: (Have you ever given your child with URTI an AB without doctor advice? How have you got the AB you used for your child the last one year he/she had URTI? Was it by doctor prescription? What do you do when you find that the AB is not effective? Do you use it as recommended?). Each question (apart from those of sociodemographic data) comprised three possible answers (accepting only one right answer). For each correct answer, the score is 1, for the incorrect answer score is 0.

Statistical analysis was carried out using Statistical Package for the Social Sciences, *P* value less or equal to 0.05 is considered significant.

RESULTS

Mothers with adequate knowledge were 71 (26.30%), whereas mothers with inadequate knowledge were 199 (73.70%).

Mothers with positive attitude were 23 (8.52%), whereas mothers with negative attitude were 247 (91.48%).

Mothers with good practice were 28 (10.37%), whereas mothers with bad practice were 242 (89.63%).

Regarding the source of information about AB, pharmacists were the most common source 109 (61.24%), whereas nurses; internet and television; family and friends were 30.34%, 5.06%, and 3.37%, respectively.

Reasons for self-medication (AB), the most common one was not serious child condition (70.22%) while low financial state and not availability of healthcare services were 24.72% and 5.06%, respectively.

Table 3: Association of mother's attitude and independent variables

Variables	Attitude		P value
	Good	Poor	
Residence			
Rural	14 (60.9%)	118 (47.8%)	0.28
Urban	9 (39.1%)	129 (52.2%)	
Total	23 (8.52%)	247 (91.48%)	
Educational level			
Illiterate	1 (4.3%)	33 (13.4%)	0.33
School education (primary and secondary)	10 (43.5%)	116 (47.0%)	
higher education	12 (52.2%)	98 (39.7%)	
Total	23 (8.52%)	247 (91.48%)	
Occupation			
Employment	10 (43.5%)	87 (35.2%)	0.5
Housewife	13 (56.5%)	160 (64.8%)	
Total	23 (8.52%)	247 (91.48%)	
Income			
Enough	16 (69.6%)	179 (72.5%)	0.81
Not enough	7 (30.4%)	68 (27.5%)	
Total	23 (8.52%)	247 (91.48%)	
No. children			
3 and below	16 (69.6%)	177 (71.7%)	0.81
>3	7 (30.4%)	70 (28.3%)	
Total	23 (8.52%)	247 (91.48%)	
Self-medication			
Yes	10 (43.5%)	171 (69.2%)	0.019
No	13 (56.5%)	76 (30.8%)	
Total	23 (8.52%)	247 (91.48%)	
Age (years)			
15–24	14 (19.7%)	35 (17.6%)	0.97
25–34	38 (53.5%)	112 (56.3%)	
35–44	17 (23.9%)	47 (23.6%)	
>44	2 (2.8%)	5 (2.5%)	
Total	23 (8.52%)	247 (91.48%)	

P value ≤ 0.05 (significant).

Table 1 shows 51.1% of women live in urban, 46.7% of women with school education, 64.1% of women are housewives, 72.2% of women with enough income, 71.5% of women have three children and less, 67% of women have self-medication, and 55.2% of women at age 24–35 years old. Mean age of them (30 ± 7) years old.

Table 2 shows that there is a significant association between mothers' knowledge and education level, occupation, and self-medication.

Table 3 shows that there is a significant association between mothers' attitude and self-medication.

Table 4 shows that there is a significant association between mother's practice and self-medication.

Table 5 shows that there is a significant association between mothers with self-medication and residence, education level, occupation, and income.

DISCUSSION

Regarding sociodemographic characteristics of mothers: The current study showed that the mean age of mothers was 30 ± 7 (ranging from 18 to 47 years), meanwhile a study in Egypt mean age was 28.73 ± 4.55 years old.^[8] The higher percentage of mothers had three and less children (71.5%) which is similar to study in India.^[9] Concerning residency, nearly half of participant mothers live in urban areas (51.1%) while the remaining (48.9%) live in rural areas; study in Saudi showed the same results as 90.63% of the respondents were living in city.^[10]

Regarding educational level, the majority of the mothers have had a school level of education (46.7%) and the remaining higher educational level and illiterate, this result compatible to study done in Lebanon.^[11] This study showed that the majority of the mothers were housewives (64.1%) and the remaining were employed (35.9%), and this is compatible with a study in Egypt.^[12]

Table 4: Association of mother's practice and independent variables

Variables	Practice		P value
	Good	Poor	
Residence			
Urban	16 (57.1%)	122 (50.4%)	0.55
Rural	12 (42.9%)	120 (49.6%)	
Total	28 (10.37%)	242 (89.63%)	
Education level			
Illiterate	1 (3.6%)	33 (13.6%)	0.26
School education (primary and secondary)	13 (46.4%)	113 (46.7%)	
Higher education	14 (50.0%)	96 (39.7%)	
Total	28 (10.37%)	242 (89.63%)	
Occupation			
Employment	9 (32.1%)	88 (36.4%)	0.83
House wife	19 (67.9%)	154 (63.6%)	
Total	28 (10.37%)	242 (89.63%)	
Income			
Enough	21 (75.0%)	174 (71.9%)	0.82
Not enough	7 (25.0%)	68 (28.1%)	
Total	28 (10.37%)	242 (89.63%)	
No. children			
3 and below	16 (57.1%)	177 (73.1%)	0.81
>3	12 (42.9%)	65 (26.9%)	
Total	28 (10.37%)	242 (89.63%)	
Self-medication			
Yes	11 (39.3%)	170 (70.2%)	0.002
No	17 (60.7%)	72 (29.8%)	
Total	28 (10.37%)	242 (89.63%)	
Age of children (years)			
15–24	4 (14.3%)	45 (18.6%)	0.69
25–34	14 (50.0%)	136 (56.2%)	
35–44	9 (32.1%)	55 (22.7%)	
>44	1 (3.6%)	6 (2.5%)	
Total	28 (10.37%)	242 (89.63%)	

P value ≤ 0.05 (significant).

Regarding monthly income, the study showed that the majority of mothers said that their family income was enough (72.2%) and the remaining had not enough income (27.8%) which are compatible to study in Cyprus.^[13]

About using self-medication (AB), most mothers were using SM (67%) that agree with the study in Baghdad.^[14] The most common source of information about AB was a pharmacist (61.24%) while the other sources were nurses, internet and television, friends and family, respectively; this is compatible to study in UAE.^[15] A study in Sri Lanka revealed that the family was the most common source of information about AB.^[16] Regarding reasons for self-medication (AB), the most common reason was that the child condition is not serious (70.2%); in comparison to studying in Baghdad that reported not availability of near healthcare services and mothers, experience were the major causes of self-medication,^[14] while study in china

had the same results of our study that the major cause is child condition was not serious.^[17]

Regarding knowledge, the current study showed that a higher percentage of mothers (73.7%) had inadequate knowledge about AB; this may be due to insufficient information and education of our mothers. research in the United Arab Emirates revealed similar results of our study that the majority of respondents had poor knowledge.^[18] There was a significant association between knowledge score and maternal educational level as mothers with school education had inadequate knowledge and this is compatible to study in Dubai,^[19] also a significant association between knowledge score and maternal occupation as mothers who were housewives had inadequate knowledge and this agreed to study in Iran,^[20] and significant association between knowledge score and self-medication as mothers with inadequate knowledge have self-medication, this is supported by the study in

Table 5: Association of mother's Self-medication and independent variables

Variables	Self-medication		P value
	Yes	No	
Residence			
Urban	80 (44.2%)	58 (65.2%)	
Rural	101 (55.8%)	31 (34.8%)	0.001
Total	181 (67%)	89 (33%)	
Education level			
Illiterate	26 (14.4%)	8 (9.0%)	
School education (primary and secondary)	108 (59.7%)	18 (20.2%)	0.0001
Higher education	47 (26.0%)	63 (70.8%)	
Total	181 (67%)	89 (33%)	
Occupation			
Employment	40 (22.1%)	57 (64.0%)	
Housewife	141 (77.9%)	32 (36.0%)	0.0001
Total	181 (67%)	89 (33%)	
Income			
Enough	120 (66.3%)	75 (84.3%)	
Not enough	61 (33.7%)	14 (15.7%)	0.002
Total	181 (67%)	89 (33%)	
No. children			
3 and below	127 (70.2%)	66 (74.2%)	
>3	54 (29.8%)	23 (25.8%)	0.57
Total	181 (67%)	89 (33%)	
Age of children (years)			
15–24	40 (22.1%)	9 (10.1%)	
25–34	95 (52.5%)	55 (61.8%)	
35–44	40 (22.1%)	24 (27.0%)	0.061
>44	6 (3.3%)	1 (1.1%)	
Total	181 (67%)	89 (33%)	

P value ≤ 0.05 (significant).

Lebanon.^[5] There is no significant association between knowledge and the other variables.

Regarding attitude, our study revealed that most mothers (91.5%) had negative attitude toward AB use and the remaining low percentage had positive attitude. Study in Saudi supported our study as attitude was poor.^[21]

There was a significant association between attitude and self-medication; as mothers with negative attitudes have self-medication. Also, study in Lebanon revealed a significant association between attitude and self-medication with AB.^[5] There is no significant association between other variables and attitude.

Regarding practice, our study showed that the majority of mothers (89.63%) had bad practice toward antibiotic use and only low percentage had good practice, this is compatible to study in Saudi Arabia.^[22] An important reason for the bad mothers' practice may be because of poor training. There was only a significant association between practice and self-medication as mothers with bad practice had self-medication.

Regarding the association between self-medication and other demographic variables, there was a significant

association between self-medication and monthly income, educational level, mothers' occupation, and residence. Mothers with enough income, housewives, school educated, and live in rural areas tend to self-medicate their children. It is potential that low education is related to inadequate information about prudent antibiotic use which can lead to incorrect practices. Being a housewife is one of the factors of AB misuse may be due to that housewife mothers are more likely to request AB. Living in rural areas is one of the causes of SM that may be explained as PHCC is far so they may use leftover AB. Enough monthly income may lead to AB overuse in this study that is may be due to the ability to buy AB easily at any time. In comparison to the results of the Saudi article, they showed that the predictors for self-medication were educational level, income, and residency of mothers.^[2]

CONCLUSIONS

Inadequate knowledge related to mothers with school education and housewife. Self-medication with AB is related to poor Knowledge, Attitudes, and Practices. Self-medication occurs mostly among mothers who are housewives, residents in a rural area, had school education and enough income.

Recommendations

- (1) Health educational programs should be presented for mothers continuously by health care providers about clinical features and causes of URTI.
- (2) Education and encouragement about the role of remedies in relieving symptoms such as (saline nasal drops, drinking plenty of water and warm liquids, etc....).
- (3) It is recommended that mothers should consult their doctors before obtaining AB because many illnesses do not require them.

Ethical consideration

- (1) Study protocol was approved by the ethical committee in Babylon University/College of medicine.
- (2) Written agreement was obtained from Babylon health directorate.
- (3) Verbal consents were obtained from the mothers before interviewing, after explaining the objectives of the study.

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Conflicts of interest

There are no conflicts of interest.

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