DOI: 10.4274/terh.galenos.2023.71324
J Tepecik Educ Res Hosp 2023;33(2):155-62

CLINICAL RESEARCH / KLİNİK ARAŞTIRMA

Evaluation of the Behaviors and Attitudes of the Parents of the Primary School Students Among the Rational Use of Antibiotics

İlköğretim Öğrencilerinde Akılcı Antibiyotik Kullanımı ile İlgili Ailelerin Davranış ve Tutumlarının Değerlendirilmesi

Özlem Bakbak[1], Aliye Baştuğ[2], Nilay Ünver[1], Sevcan Eşiyok[1], Sevim Yıldız Sağlam[1], Mehmet Ziya Tuncer[1], Nazım Bakbak[3]

[1]Hatay Şehit İlker Uylaş Primary School, Hatay, Turkey
[2]University of Health Sciences Turkey, Ankara City Hospital, Clinic of Infectious Disease and Clinical Microbiology, Ankara, Turkey
[3]Bedii Sabuncu Secondary School, Hatay, Turkey

Cite as: Bakbak Ö, Baştuğ A, Ünver N, Eşiyok S, Yıldız Sağlam S, Tuncer MZ, Bakbak N. Evaluation of the Behaviors and Attitudes of the Parents of the Primary School Students among the Rational Use of Antibiotics. J Tepecik Educ Res Hosp 2023;33(2):155-62

Abstract

Objective: Inappropriate use of antibiotics leads to an increase in antibiotic resistance. It is aimed to determine the attitudes of parents about the rational use of antibiotics in primary school students.

Methods: The parents of primary school students in Hatay province were included in the study. Parents were asked to fill in a 25-question google questionnaire. The results were analyzed with SPSS v24. P<0.05 was considered significant.

Results: A total of 481 parents participated voluntarily. Of them 46.4% stated that they first applied to the family physician when their child got sick. If both parents graduated from high school or higher degree, the rate of preference for family physicians was determined as 60.7% (n=139) (p<0.001). Multivitamin use was also higher in this group (32.2%, n=85, p<0.001). About half of the parents (47.4%) use antibiotics two-to-three times a year for their children. While the rate of those who stated that they used it for the duration and dose recommended by the physician was 97.5%. It was determined that 13.5% of them used a scale other than the antibiotic scale when the same question was asked differently. Of the parents, 35.6% stated that they were not informed by the healthcare professional about the possible side effects of antibiotics. Those who think that they have knowledge about the harms of using inappropriate antibiotics are 71.5%.

Conclusion: There is still a lack of information about the damages of inappropriate antibiotic use, at a rate of 30-35%. More information should be given about the rational use of antibiotics.

Keywords: Rational use of antibiotics, parental attitudes, education

Address for Correspondence/Yazışma Adresi: Özlem Bakbak, Hatay Şehit İlker Uylaş Primary School, Hatay, Turkey
Phone: +90 505 232 46 12 **E-mail:** miss_275@hotmail.com
ORCID ID: orcid.org/0000-0001-9909-6118

Received/Geliş tarihi: 14.01.2023
Accepted/Kabul tarihi: 01.02.2023

Öz

Amaç: Uygunsuz antibiyotik kullanımı antibiyotik direncinde artışa yol açmaktadır. İlköğretim öğrencileri ebeveynlerinin akılcı antibiyotik kullanımıyla ilgili tutumlarının belirlenmesi amaçlanmıştır.

Yöntem: Çalışmaya ilköğretim öğrenci velileri dahil edilmiştir. Ebeveynlerden 25 soruluk Google anket formunu doldurmaları istenmiştir. Sonuçlar SPSS v24 programıyla analiz edilmiş, p<0,05 anlamlı kabul edilmiştir.

Bulgular: Çalışmamıza 481 ebeveyn katılmıştır. Ebeveynlerin %46,4'ü çocukları hastalandığında ilk olarak aile hekimine başvurduklarını belirtmiştir. Her iki ebeveynin lise ve üzeri okullardan mezun olması durumunda aile hekimini tercih oranı %60,7 (n=139) olup anlamlı yüksektir (p<0,001). Aynı grupta multivitamin kullanımı daha fazladır (%32,2 n=85, p<0,001). Ebeveynlerin yaklaşık yarısı (%47,4) çocuğuna yılda 2-3 kez antibiyotik kullanmaktadır. Hekimin önerdiği süre ve dozda kullandığını bildirenlerin oranı %97,5 iken, aynı soru farklı sorulduğunda %13,5'inin antibiyotiğin ölçeği dışında bir ölçek kullandığı saptanmıştır. Katılımcıların %35,6'sı sağlık profesyoneli tarafından antibiyotiklerin olası yan etkileri konusunda bilgilendirilmediğini belirtmişlerdir. Uygunsuz antibiyotik kullanımının zararları hakkında bilgi sahibi olduğunu düşünenler %71,5'dir.

Sonuç: Uygunsuz antibiyotik kullanımının zararları konusunda bilgilendirme ile ilgili halen, %30-35 oranında eksiklik mevcuttur. Akılcı antibiyotik kullanımı hususunda daha fazla bilgilendirilme yapılmalıdır.

Anahtar Kelimeler: Akılcı antibiyotik kullanımı, ebeveyn tutumları, eğitim

Introduction

Antimicrobial resistance (AMD) is a global public health problem and in order to prevent it, the World Health Organization publishes a global action plan and guidelines containing the points to be considered before and after prescribing[1]. AMD is the condition in which microorganisms can continue to live and multiply despite the presence of antimicrobial drugs, threatening successful treatment of the infection[1]. Inappropriate use of antibiotics is one of the important causes of antibiotic resistance. It is very important to be aware of this issue and to use the right antibiotic at the right dose and only when necessary[2]. In this regard, in addition to the knowledge and attitudes of physicians, it is also very important to reduce the pressure on physicians to prescribe antibiotics in the society[2,3]. It has been reported in the literature that the insistence of families on antibiotic prescription to the physician have an impact in the childhood age group, where viral upper respiratory tract infections and inappropriate antibiotic prescriptions are common[4]. In another study, it was reported that if the antibiotic pressure of mothers could be reduced, the use of antibiotics in children could be reduced by 50%[5]. Studies have shown that parents' age and socioeconomic levels are among the factors affecting antibiotic use, and it has been reported that socioeconomic level and antibiotic consumption are inversely proportional[6,7]. It is very important to raise public awareness that the unnecessary widespread use of antibiotics, which is our only option in the treatment of bacterial infections, may lead to the development of resistance and drug side effects. Considering that, the education and behavioral patterns are learned in the primary school and even in the family, a survey study was conducted for the parents of primary school students in order to reveal whether they exhibit the right attitudes and behaviors for rational antibiotic use. It was also aimed to eliminate the deficiencies, if any. The impact of parents' age, educational status, and socioeconomic characteristics on appropriate antibiotic use were also examined.

Materials and Methods

The current descriptive study was conducted between 01.08.2022 and 30.09.2022. The parents of students from Hatay Şehit İlker Uylaş Primary School and Bedii Sabuncu Secondary School in Hatay province were asked to fill in a 25-question Google questionnaire form. A total of 481 parents agreed to participate in the study. Sociodemographic characteristics, educational and working status, antibiotic attitudes and behaviors were questioned. The effects of sociodemographic characteristics, education and employment status on attitudes and behaviors related to antibiotic use were examined. In the questionnaire, questions evaluating behaviors such as age, gender, educational status and frequency of antibiotic use of both parents, storage conditions of antibiotics and how antibiotics should be used were included.

Educational statuses were divided into four groups as illiterate/literate only, primary school graduate, and high school /undergraduate degree. The following questions were also asked regarding parents' attitudes towards rational drug use; how often they use antibiotics during the year for their child, which health institution they apply to first when the child got sick, whether they use antibiotics with the

advice of neighbors or friends, whether they use antibiotics for the duration and dose recommended by the physician, whether they are adequately informed about the side effects of antibiotics, what they do with antibiotics left over from previous treatment, and whether they use multivitamin supplements to support recovery. Ethics committee approval was obtained from University of Health Sciences Turkey, Ankara City Hospital for the study (decision no: E1-22-2927, date: 21.09.2022).

Statistical Analysis

Statistical analysis of the data was done with IBM SPSS version 26 program. Pearson chi-square and Fisher's exact test statistical analyzes were used to compare variables between groups. P<0.05 was considered statistically significant.

Results

A total of 481 parents participated voluntarily in our study. All of the participants answered all of the survey questions. It was determined that the median age of the mothers was 35 [minimum-maximum (min-max): 23-66], and the father was 38 years old (min-max: 28-68). When the socioeconomic status of the parents was questioned; it was determined that 71.5% (n=344) of the mothers did not work in any job, whilst 92.3% (n=444) of the fathers were working. Sociodemographic characteristics of the parents were summarized in Table 1. The behavioral characteristics of the parents on their antibiotic use in case their children got sick was given in Table 2. The number of parents who stated that their children get sick very often was 110 (22.9%), while the number of people who used antibiotics three to five times a year was 95 (19.8%). There were 223 people (46.4%) who preferred to go to the family doctor firstly, when their child was sick. Of the parents, 91.3% (n=439) answered the question of "What do you do with the drugs left over from the previous antibiotic treatment" as "I throw them away and I don't use them again". One hundred seventeen of them (24.3%) stated that they use multivitamins in order to support their child's immunity and increase school success. For the question "Do you insist on your doctor to give antibiotics?"; while 95.8% (n=461) of the parents stated that they were not persistent, only 4.2% (n=20) stated that they were persistent (Table 2).

While using antibiotics, 86.7% (n=417) of the parents stated that they did not use any scale other than the scale in it. Of them, 97.5% (n=469) stated that they used antibiotics for the dose and duration recommended by the physician. The number of those who gave antibiotics to their children with the advice of a neighbor or friend was 12 (2.5%). Of the parents 98.8% (n=475) stated that they checked the expiration date before using antibiotics, and 91.5% (n=440) stated that they knew that the expiration date of antibiotics changed after the cap was opened and the antibiotic was diluted.

To the question of "Are you adequately informed by your doctor or pharmacist about the side effects of antibiotics?" 310 people (64.4%) answered yes (Table 3). When the effect of education status of mothers on antibiotic attitudes was evaluated; there was no significant difference between

Table 1. Sociodemographic characteristics of parents

	n	%
Mother's age		
20-30 years old	141	29.3
31-40 years old	264	54.9
Over 40 age	76	15.8
Median (min-max)	35 (23-66)	
Father's age		
20-30 years old	20	4.2
31-40 years old	276	57.4
Over 40 years old	185	38.5
Median (min-max)	38 (28-68)	
Mother's education status		
Literate/illiterate	29	6.0
Primary education graduate	147	30.6
High school graduate	136	28.3
University graduate	169	35.1
Father's education status		
Literate/illiterate	54	11.2
Primary education	87	18.1
High school graduate	125	26.0
University graduate	215	44.7
Mother's occupation		
Not working	344	71.5
Working	137	28.5
Father's occupation		
Not working in any job	37	7.7
Working in any job	444	92.3
Mother's-father's occupation		
Both are not working in any job	31	6.4
One of them working in any job	319	66.3
Both of them working in any job	131	27.2

Min-max: Minimum-maximum

educational status and frequency of antibiotic use (p>0.05). Parents who were high school and undergraduate degrees stated that they applied firstly to family physicians at a significantly higher rate when their child got sick (50.2%, n=153 and 51.5%, n=175, respectively) (p<0.001 in both groups). Ninety six (31.5%) (n=96) of the mothers who graduated from high school or higher degree mentioned that they used multivitamins to strengthen the immunity of their childs. It was determined that the multivitamin usage was statistically higher in them than the other groups (p<0.001).

There was no significant difference between the answers given to the question of whether you would insist on starting antibiotics when your doctor said that there was no need to prescribe antibiotics, according to the education level of the mothers (p>0.05) (Table 4). A significant relationship was found between the employment status of the parents and the preference of the health center for their children (p=0.008) (Table 5).

When the educational status of the parents was evaluated together; if both parents graduated from high school or higher degrees, the rate of choosing a family doctor was 60.7% (n=139), and it was found to be significantly higher than the other groups (p<0.001). Similarly, it was found that multivitamin drugs were used significantly more (32.2% n=85, p<0.001) in the same group. There was no significant relationship between the ages of the parents and their attitudes among antibiotic use (p>0.05).

Table 2. The attitudes and behaviors of the parents

	n	%
Does your child get sick very often?		
Yes	110	22.9
No	371	77.1
How often do you use antibiotics for your child for a year?		
Once a year	130	27.0
Two to three times a year	228	47.4
Three to five times a year	95	19.8
Five times and more a year	28	5.8
Where do you go first when your child get sick?		
To the family doctor	223	46.4
To the state hospital	216	44.9
To the private hospital	42	8.7
How long do you use the antibiotic?		
For the period recommended by the physician	432	89.8
I'll stop using when the symptoms of my child improve	49	10.2
What do you do with leftover medication from previous antibiotic treatment?		
I throw it away and never use it again	439	91.3
I give it to my neighbor/relative in need	9	1.9
I keep it and use it again	33	6.9
Do you use multivitamin drugs to strengthen your child's immunity or increase school success?		
Yes	117	24.3
No	364	75.7
Do you insist on starting antibiotics when your doctor says it is unnecessary?		
Yes	20	4.2
No	461	95.8

Table 3. Parents' knowledge and attitudes on rational antibiotic use

	n	%
Do you know enough about the damage that antibiotics will cause to the child as a result of unnecessary use?		
Yes	344	71.5
No	25	5.2
Partially	112	23.3
When using antibiotics, do you use something else instead of its own scale?		
Yes	64	13.3
No	417	86.7
Would you give your child antibiotics on the advice of a neighbor or friend?		
Yes	12	2.5
No	469	97.5
Do you use antibiotics for the duration and dose recommended by your doctor?		
Yes	469	97.5
No	12	2.5
Do you check the expiry date before using antibiotics?		
Yes	475	98.8
No	6	1.2
Do you know that the expiry date of the antibiotics changes after it was diluted?		
Yes	440	91.5
No	41	8.5
Are you adequately informed by your doctor or pharmacist about the side effects of antibiotics?		
Yes	310	64.4
No	171	35.6

Table 4. Antibiotic attitudes of mothers according to educational status

		Mother's education status						X^2	p
		Literate/illiterate		Primary education		High school and above			
		n	%	n	%	n	%		
How often do you use antibiotics to your child per year?	Once a year	9	31	34	23.1	87	28.5	2.664	>0.05
	Two-three times	15	51.7	71	48.3	142	46.6	-	-
	Three to five times	4	13.8	33	22.4	58	19	-	-
	Five times and more	1	3.4	9	6.1	18	5.9	-	-
Where do you go first when your child get sick?	Family doctor	9	31	61	41.5	153	50.2	21.376	**<0.001**
	State hospital	19	65.5	81	55.1	116	38	-	-
	Private hospital	1	3.4	5	3.4	36	11.8	-	-
What do you do with leftover medication from previous antibiotic treatment?	I throw it away and never use it again	24	82.8	133	90.5	282	92.5	6.673	>0.05
	I give it to my neighbor/ relative in need	2	6.9	4	2.7	3	1	-	-
	I keep it and use it again	3	10.3	10	6.8	20	6.6	-	-
Do you use multivitamin drugs to strengthen your child's immunity or increase school success?	Yes	5	17.2	16	10.9	96	31.5	23.689	**<0.001**
	No	24	82.8	131	89.1	209	68.5	-	-
Do you insist on starting antibiotics when your doctor says it is unnecessary?	Yes	1	3.4	5	3.4	14	4.6	0.323	>0.05
	No	28	96.6	142	96.6	291	95.4	-	-

Pearson chi-square, Fisher's exact test

Table 5. Attitudes of parents according to their working status

	Mother's-father's occupation						X^2	p
	Both not working		One working		Both working			
	n	%	n	%	n	%		
Where do you go first when your child is sick?								
Family doctor	17	54.8	140	43.9	66	50.4	13.486	**0.008**
State hospital	14	45.2	156	48.9	46	35.1	-	-
Private hospital	0	0	23	7.2	19	14.5	-	-
What do you do with leftover medication from previous antibiotic treatment?								
I throw it away and never use it again	25	80.6	293	91.8	121	92.4	8.834	**0.046**
I give it to my neighbor/relative in need	1	3.2	8	2.5	0	0	-	-
I keep it and use it again.	5	16.1	18	5.6	10	7.6	-	-
Do you use multivitamin drugs to strenghten your child's immunity or increase school success?								
Yes	3	9.7	66	20.7	48	36.6	16.699	**<0.001**
No	28	90.3	253	79.3	83	63.4	-	-

Pearson chi-square, Fisher's exact test

Discussion

Unnecessary use of antibiotics is a serious problem all over the world and is among the important causes of AMD. The basic approach in the rational use of drugs is using antibiotics in the right indication, in the right dose and time, and in the appropriate way[8]. Attitudes and behaviors of parents as well as doctors play an important role in the rational use of antibiotics[2,3,9].

In our study, 46.4% of the parents stated that they first applied to the family doctor when their children became ill, and 44.9% stated that they applied to the state hospital. In the study of Sezer et al.[10], it was reported that 74.7% of the participants first applied to a state hospital. It is thought that regional factors may have an impact on this difference between studies.

The upper respiratory infections are common in childhood and the most important cause of which are viruses. It is known that these infections are the frequent cause of irrational antibiotic usage. Since, the applications of parents to the family physician for therapy is high, family physicians should be thought of as an important target group for education about collateral damages of antibiotic use to increase rational antibiotic use. In our study, it was determined that the rate of applications to family physicians increased statistically as the education level of the parents increased. Based on this information, it can be predicted that the increase in the level of education in the society might also increased the trust in the family physician.

In this study, nearly half of the parents (47.4%) stated that they used antibiotics two to three times a year for their children. The rate of parents who stated that they used the drugs at the dose and duration recommended by the physician was reported as 94.9%[10]. Similarly, in our study, the rate of those was slightly higher at 97.5%. However, when the question was asked in another way, 13.5% of them said that they used a different scale such as tablespoon, etc. while using antibiotics. In addition, the rate of parents who stated that they discontinued the antibiotic when the child's symptoms and signs improved was found to be 10.2%. In the study of Sezer et al.[10], it was reported that the rate of parents who stated that they discontinued the drugs when the symptoms improved was 11.6%. Current findings show that parents should be informed in more detail about the use of drugs at the right dose and duration, which is one of the main components of rational drug use.

In the current study, the rate of those who stated that they controlled the expiration dates of antibiotics was 98.8%. Besides, the rate of those who stated that they did not know that the expiration date had changed after the use of antibiotics (after dilution) was 8.5%. In this regard, it has been determined that there is a need for training in this issue, too. Similar to the study of Yapıcı et al.[11], 6.9% of the parents in our study stated that they kept and reused the drugs left over from the previous antibiotic treatment. In another study, the rate of using antibiotics without a prescription was reported as 8.1%[10]. Most of the participants in our study (91.3%) stated that they threw away the drugs left over from the previous antibiotic treatment. However, 1.9% stated that they gave the antibiotics, that they kept from previous treatment, to the relatives, and 2.5% stated that they used antibiotics with the recommendation of a neighbor. Although the rate of using antibiotics without a prescription, with the advice of neighbors, is lower than in the literature, complete prevention should be the main goal. The over-the-counter sale of antibiotics is prohibited in our country. However, the following issues may cause irrational use of antibiotics and should be prevented;

- Early discontinuation of the treatment when the child's symptoms improve and keeping antibiotics to use later without prescription.

- The presence of different antibiotics that prescribed by different doctors in the same infection period.

- The supply of antibiotics left over from previous treatments from neighbors or friends.

- The use of antibiotic in inappropriate dose with different scale and using remaining antibiotics later.

Regarding clinicians perspectives, it is very important to prescribe antibiotics at the dose that will meet the treatment of the current infection, and to emphasize the importance of the appropriate dose and duration. In addition, it is also important to check, whether there is any other antibiotic prescription for the same reason recently from the e-NABIZ information of the patients.

It has been reported that in the childhood age group, the insistence of the parents on the prescription of antibiotics to the physician have an impact on irrational use of antibiotics[4]. In another study, it was reported that if the insistence of the mothers on antibiotic prescribing could be decreased, the use of antibiotics in children could be reduced by 50%[5]. In our study, for the question "Do you

insist on your doctor to prescribe antibiotics?", 95.8% of the parents stated that they were not persistent. It was also determined that the age, educational status and working status of the parents did not have a significant effect on this attitude. However, previous studies had reported that the age and socioeconomic level of parents have been among the factors affecting antibiotic use, and that socioeconomic level and antibiotic consumption have been inversely proportional[6,7]. The differences between the studies might be caused by the varieties in the trust of the people in the physician so as not being insistent for antibiotic prescription and also the differences in the behaviors of rational use of the antibiotics by the physicians.

It is known that one of the leading reasons for the irrational use of antibiotics is the lack of knowledge of the society on this issue. The information of "The antibiotics are only effective in the treatment of bacterial infections and most of the respiratory infections in childhood are caused by viral agents" should be taught to the community. The important motto that should be accepted is "The antibiotics are not necessary in every infection, and that they should only be used in appropriate doses and times when necessary, and only with the advice of a doctor".

It is very important that our teachers, who have a significant contribution to the training of educated individuals, may create this awareness in childhood that should be acquired from the primary education period in the future generations.

In addition, the importance of appropriate antibiotic use may be emphasized by our teachers, who have the potential to reach parents. The current situation clearly shows how necessary are trainings on the rational use of antibiotics in national education institutions. Teachers may have an important role in raising public awareness in the future by receiving training on this subject at the university. In addition, the visibility of the activities in the World Antibiotic Awareness Week, which is celebrated all over the world, should be increased in our country[12].

Study Limitations

The limitations of our study are that it was not applied face to face, and it presents local data. Although our study provides information about a local region, it may trigger similar studies.

Conclusion

In our study, it was determined that the knowledge level of the parents about the rational use of antibiotics was generally at a good level. This will ensure that children may be protected from the collateral damages of antibiotics. Considering that parental attitudes directly affect the child's life, this is a positive development. On the other hand, there were also parents who stated that they kept the remaining antibiotic when the antibiotic treatment was finished and used it again and gave it to their neighbors or friends. Of course, it is very important and necessary for health professionals to provide information on this issue. Besides, the supporting potential of the teachers should be kept in mind. It will be useful to determine and fix the shortcomings by conducting similar surveys to parent groups in different schools and regions.

Ethics

Ethics Committee Approval: Ethics committee approval was obtained from University of Health Sciences Turkey, Ankara City Hospital for the study (decision no: E1-22-2927, date: 21.09.2022).

Informed Consent: Parents were asked to fill in a 25-question google questionnaire.

Peer-review: Externally peer-reviewed.

Authorship Contributions

Surgical and Medical Practices: A.B., Concept: Ö.B., A.B., Design: Ö.B., A.B., N.B., Data Collection or Processing: Ö.B., A.B., N.Ü., S.E., S.Y.S., M.Z.T., N.B., Analysis or Interpretation: Ö.B., A.B., N.Ü., S.E., S.Y.S., M.Z.T., N.B., Literature Search: Ö.B., A.B., N.Ü., S.E., S.Y.S., M.Z.T., N.B., Writing: Ö.B., A.B., N.B.

Conflict of Interest: No conflict of interest was declared by the authors.

Financial Disclosure: The authors declared that this study received no financial support.

References

1. World Health Organization (WHO) Regional Office for Europe. Antimicrobial stewardship interventions: a practical guide. Copenhagen: 2021. Available from: https://apps.who.int/iris/bitstream/handle/10665/340709/9789289054980-eng.pdf?sequence=1&isAllowed=y
2. Karabay O, Bastug A, Ozturk R, et al. Antibiotic Consumption, Resistance Data, and Prevention Strategies. Mediterr J Infect Microb Antimicrob 2018;7:35.
3. Tuon FF, Gasparetto J, Wollmann LC, Moraes TP. Mobile health application to assist doctors in antibiotic prescription - an approach for antibiotic stewardship. Braz J Infect Dis 2017;21:660-4.

4. Wong-Beringer A, Nguyen LH, Lee M, Shriner KA, Pallares J. An antimicrobial stewardship program with a focus on reducing fluoroquinolone overuse. Pharmacotherapy 2009;29:736-43.
5. O' Neill J. The Review on Antimicrobial Resistance. Tackling Drug-Resistant İnfections Globally: Final Report and Recommendations. 2016. Available from: https://amr-review.org/sites/default/files/160518_Final%20paper_with%20cover.pdf
6. Homedes N, Ugalde A. Mexican Pharmacies and Antibiotic Consumption at the US-Mexico Border. South Med Rev 2012;5:9-19.
7. Okeke IN, Lamikanra A, Edelman R. Socioeconomic and behavioral factors leading to acquired bacterial resistance to antibiotics in developing countries. Emerg Infect Dis 1999;5:18-27.
8. Pınar N. Drug Expenditures in our Country. İnönü Üniversitesi Tıp Fakültesi Dergisi 2012;19:59-65.
9. Güngör A, Çuhacı Çakır B, Yalçın H, Çakır HT, Karauzun A. Evaluation of Parents' Attitudes and Behaviors Related to the Use of Antibiotics in Children. Turkish J Pediatr Dis 2019;13:203-7.
10. Sezer TA, Ozturk A, Esenay FI, Tezel A. Rational Use of Medicines in Primary School Children in Turkey: Attitudes and Behaviors of Parents. International Journal of Caring Sciences 2022;15:478-88.
11. Yapıcı G, Balıkçı S, Uğur Ö. Attitudes and behavior of drug usage in applicants to primary health care center. Dicle Med J 2011;38:458-65.
12. Atik AD, Doğan Y. Antibiotic Use Scale: A Scale Development Study. YYU Journal of Education Faculty 2019;16:1248-76.