RESIDENT DOCTORS' (BRANCH) ATTITUDES AND BEHAVIOURS ABOUT RATIONAL DRUG USE

ARAŞTIRMA GÖREVLİLERİNİN (BRANŞ) AKILCI İLAÇ KULLANIMI KONUSUNDA BİLGİ TUTUM VE DAVRANIŞLARI

(iD) **Burcu Bulut[1]**, (iD) **Gökhan Akkurt[2]**

[1]Bolu Mengen Public Hospital
[2]Ankara City Hospital

Yazışma Adresi / Correspondence:
Gökhan Akkurt (e-mail: drakkurt06@gmail.com)

Ankara Yıldırım Beyazıt University Faculty of Medicine
Department of Family Medicine

Öz

Amaç: Bu çalışmanın amacı, Ankara İli Eğitim ve Araştırma Hastanelerinde aile hekimliği asistanları dışında eğitim gören asistan doktorların akılcı ilaç kullanımı ile ilgili bilgi, davranış ve tutumlarını belirlemektir.

Materyal ve Metot: Çalışmada, Ankara'da Eğitim ve Araştırma Hastanelerinde aile hekimliği asistanı olmayan 180 araştırma görevlisi yer aldı. Akılcı ilaç kullanımının bilgi ve tutum düzeyini değerlendirmek için hekimlere 27 soruluk bir anket verildi.

Bulgular: İlaç reçete ederken, doktorların %65,56'sı (n = 118) hastanın tedaviye cevabının nasıl ve hangi şekilde olabileceğini açıklamaktadır. Hekimlerin %41,67'si (n = 75) hastalarını muayene etmeden asla reçete yazmamaktadır. Hekimlerin ilaçlar hakkındaki bilgi düzeyini değerlendiren sorular arasında, hekimlerin kendilerini en yeterli buldukları ilaçlarla ilgili (%18,90, n = 31) ve günlük dozla ilgili (%18,29, n = 30) sorular, hekimlerin en az yeterli buldukları sorular ise ilaç fiyatına ilişkin sorulardı (%10,43, n = 17). En sık reçete edilen 3 ilaç grubu; %35,32 oranında antibiyotik, %18,72 oranında analjezik ve %12,77 oranında PPI idi. Hekimlerin %2,23'ü (n = 4) akılcı ilaç kullanımı açısından çok yeterli olduğunu düşünürken, %35,75'i (n = 64) yeterli olduğunu, %54,19'u (n = 97) orta düzeyde yetkinliğe sahip olduğunu ve %7,82 (n = 14) akılcı ilaç kullanımında yetersiz olduklarını düşünmektedir.

Sonuç: Akılcı ilaç kullanımı bilincini artırmak için örgün ve yaygın eğitim yöntemlerinin uygulanmasına devam edilmeli ve geliştirilmelidir. Eğitime ek olarak, öğrenilmiş tutum ve davranışları korumak ve desteklemek için gerekli idari düzenlemeler yapılması gerektiği düşüncesindeyiz.

Anahtar Kelimeler: Akılcı Olmayan İlaç Kullanımı, Araştırma Görevlisi, Tutum ve Davranışlar

Abstract

Objectives: The aim of this study was to determine the knowledge, behavior, and attitudes of resident doctors training in the Research and Training hospitals of Ankara Province, except Family Medicine Residents.

Materials and Methods: The study included 180 research assistants, a 27-question questionnaire was given to the physicians to evaluate the level of knowledge and attitudes about rational drug use.

Results: While prescribing drugs, 65.56% of the physicians (n = 118) described how and which way the patients' response to treatment can be. 41.67% (n = 75) of the physicians never prescribed their patients without examination. Among the questions that assess the knowledge level of physicians on drugs, the questions with which physicians found themselves most sufficient were related to drug indication (18.90%, n=31) and daily dose (18.29%, n=30); on the other hand, the questions with which physicians found themselves least sufficient were related drug prices (10.43%, n=17). Of the physicians, 2.23% (n = 4) thought that they were very sufficient in terms of rational drug use, whereas 35.75% (n = 64) thought that they were sufficient, 54.19% (n = 97) thought that they had moderate competence and 7.82% (n = 14) thought that they were insufficient in rational drug use.

Conclusion: In addition to education in rational drug use, the necessary administrative arrangements should be made to protect and support learned attitudes and behaviors. Therefore, in order for physicians to reach objective information, pre- and post-graduate education in our country should be reviewed.

Keywords: Non Rational Drug Use, Research Assistant, Attitude and Behaviors

Introduction

Drug is defined by the World Health Organization (WHO) as "a substance or product that is used and / or intended to be used for the benefit or change of the receiver in physiological or pathological conditions".[1] Although improper use of drugs can cease life, when used correctly, it can eliminate the conditions that threaten human health and life. When used in adequate doses and appropriate time, the contribution of drugs to human health is indisputable.[2] Rational drug use (RDU) is of special importance because of its role in preventing diseases at both individual and social levels.[3] According to the WHO definition, rational drug use is "providing patients with appropriate medication according to the clinical findings and individual characteristics, in appropriate time and dosage, at lowest price, easily".[4]

In RDU, the physician who decides which drug will be administered, the pharmacist providing the drug, the nurse who applies the drug and the patient to whom the drug is administered should be evaluated as a whole.[5] The most important issue in decision with drugs is to make the right diagnosis. Patients should be informed about changes in diet, exercise and lifestyle before the drug is administered. In rational drug treatment, the patient's compliance with the treatment and the physician's communication with the patient and his relatives play an important role.[6] RDU is actively implemented in many countries. It is intended to prevent drug resistance, reduce side effects of drugs and economic loss associated with them by avoiding excessive and incorrect use of drugs, especially antibiotics. Studies have reported that excessive use of antibiotics and unnecessary and improper prophylaxis in surgical clinics are the most important factors in increasing drug resistance.[7]

Non-rational drug use has a significant share in the health expenditures in Turkey. This ratio is higher in developing countries compared to developed countries in terms of drug expenditures. Dependence on drug exports and unnecessary drug use is believed to be the culprit behind this discrepancy.[5]

Today, drug use is a sine qua non for health services. With advances in the diagnosis and treatment of diseases, the social demand for therapeutic drugs is increasing. Unfortunately, factors such as environmental pollution, smoking, increased alcohol consumption and stress negatively affects public health, resulting in increased drug consumption. Another reason for increasing drug consumption is squandering. Most prominent reasons for drug misuse are misdiagnosis, marketing methods of pharmaceutical companies, advertising, consumer's unconsciousness, unethical relationships, and the fact that drugs are not used completely by patients.[8] Most of the burden within the framework of RDU is on physicians' shoulders. Therefore, physicians need to have sufficient knowledge about rational drug use and take an active role in all activities carried out to promote rational drug use. The objective of this study was to evaluate the knowledge, attitude and behaviors of physicians about rational drug use with focus on primary care.

Materials and Methods

The study was planned to determine the factors affecting the attitudes and behaviors of the research assistants outside of the family medicine field who are studying in research and training hospitals in Ankara province and approved by the Yildirim Beyazit University Medical School Clinical Research Ethics Committee (13.05.2015 date and decision no. 115, number: 26379996/17). From Atatürk R&T, Ankara Numune R&T, Ankara R&T, Keçiören R&T and Dışkapı R&T, Dr. Sami Ulus Child Health and Diseases Hospitals; a total of 180 physicians were included from following specialties: Pediatrics (45), Internal Medicine (37), Emergency Medicine (25), General Surgery (18), Psychiatry (9), Cardiology (7), Obstetrics and Gynecology (5) and other branches (34). A questionnaire form consisting of 27 questions was prepared in order to evaluate the knowledge and attitudes of the physicians about some descriptive characteristics of the physicians, information they used while prescribing the drug, rational drug use and education about rational drug use education. The questionnaire consisted of seven chapters. Each questionnaire was delivered to physicians themselves and explained face to face to all of them. Physicians were given detailed information about the study in order to eliminate personal concerns. The questionnaires were filled by physicians themselves. Participation was entirely voluntary. For each physician who participated in the study, consent forms were included in the introduction of the questionnaire .

The data were transferred to IBM SPSS Statistics 23 computer program and the analysis was completed in the same computer environment. Distributions for categorical variables (Number, Percentage) are given with data evaluations. The relationship between two categorical variables was examined with the Chi-Square Test. In cases where sufficient numbers could not be reached in the groups for the chi-square test, groups were aggregated and the test was re-applied.

Results

In the study, 56.11% of the doctors were female and 43.89% were male. While 78.33% of physicians worked in other health institutions previously, 21.67% did not work in other health institutions before their current institutions. 40% of the physicians had a service time of 3 years and less, and 13.33% of them worked for a period of 10 years or more. While 11.67% of the participants were prescribing 1% -20% of the patients who applied daily, 0.56% did not prescribe the patients. 37.78% of the physicians can describe the patient's name and causes for the treatment (Table 1) after examination and diagnosis, while 7.78% of participants can rarely describe mentioned features.

Of the 180 physicians, 63.33% (n = 114) were employed in medical specialties, while 36.67% (n = 66) of them were working in surgical specialties. 3.89% of physicians frequently prescribed their patients without

examination and on the other hand, 41.67% never prescribed their patients without examining. 28.49% of the participants gave information to the patients about the prescribed drugs, while 3.91% of them rarely briefed their patients.

56.11% of participants told the name of the drug prescribed to the patients, also 25.56% informed and warned patients about side and adverse effects of medications (Table 2).

While 1.11% of the physicians who participated in the study knew the price of the drugs they prescribed, 5.00% stated that they never knew the price of drugs. While 67.81% of the physicians were using vademecum while prescribing, 26.71% used pharmacology books, 32.88% drug prospectuses, 31.51% information sources of the pharmaceutical companies, and 0.68 % used Neoflax.

1.83% of physicians thought that they were very sufficient about drug interactions, while 1.22% did not think it was enough. Also 18.90% think that they have adequate knowledge about indication and 0.61% of them thought that their knowledge was insufficient. 4.94% of the respondents thought that they were very sufficient about contraindications and 7.41% reported that they were insufficient. On the other hand, 3.07% thought that they were very sufficient about side effects and 11.04% of them thought that they were insufficient. Besides that, while 10.49% of the participants thought that they have satisfactory knowledge about mechanism of action, 9.26% reported that their knowledge was inadequate (Table 3).

77.22% of the participants considered the effectiveness of drugs as the important criterion, on the other hand, 74.44% considered safety and 82.22% appropriateness of drugs as the important criterion (Table 4). 2.23% of the physicians thought that they were very sufficient in rational drug use; however, 7.82% reported that they were insufficient (Table 5). In addition, for 20.23% of participants the price of the drug was the important gauge for selection, but in contrast 25.73% considered the broadest indication as the important factor for prescription and for 35.50% the form of drug administration.

As a result of Chi-square analysis, there was a statistically significant correlation between the specialty branch and the average number of patients per day. Accordingly, the rate of physicians in medical fields including "30 and less patients" and "30-59 patients" groups was significantly higher than those in Surgical fields. Chi square analysis revealed no statistically significant correlation between the specialty branch and knowledge of rational drug use (p= 0.791) (Table 6).

In examining the relationship between the duration of practice and Rational Drug Use Knowledge levels; while 23.61% of physicians working 3 years or less find themselves sufficient, 67.39% of those working 7 years or more find it sufficient (p=0.211) (Table 7).

Table 1. Demographic Information of Doctors

	n	%
Gender		
Female	101	56.11
Male (119)	79	43.89
Age		
20-25	15	8.33
26-30	93	51.67
31-35	42	23.33
36 and above	30	16.67
Time After Graduation		
0 to 5 years	117	65.00
6-10 years	39	21.67
11-15 years	11	6.11
16-20 years	13	7.22
Past Service in Different Health Institution		
Yes	141	78.33
No	39	21.67
Total Practice Duration		
3 years or less	72	40.00
4-6 years	61	33.89
7-9 years	23	12.78
10 years or more	24	13.33
Daily Average Patients		
30 and below	51	28.65
30-59	57	32.02
60-89	40	22.47
90 and above	30	16.85
The Average Time Dedicated to Examining Patients After Diagnosis		
4 min or less	61	33.89
5-9 min	88	48.89
10-14 min	22	12.22
15 min or more	9	5.00
Distribution of Prescription for Daily Patients		
1% to 20%	21	11.67
21%-40%	48	26.67
41%-80%	72	40.00
81%-100%	38	21.11
I never prescribe	1	0.56
Average number of drugs in prescription		
1	3	1.68
2	62	34.64
3	88	49.16
4	21	11.73
5	5	2.79
Frequency of Speaking About Disease, Diagnosis, Reasons and the logic behind Treatment after Examination and Diagnosis		
Always	68	37.78
Often	79	43.89
Sometimes	19	10.56
Rarely	14	7.78

Table 2. Types of Information About Prescription

	n	%
The name of the drug	101	56.11
Application	159	88.33
The daily dosage	156	86.67
How to use the drugs	134	74.44
Duration of treatment	145	80.56
The effects of the drugs	55	30.56
Possible side effects of the drugs	91	50.56
Warnings about drugs	46	25.56

Table 3. Distribution of Knowledge Level Questions

	Very Sufficient		Sufficient		Mediocre		Insufficient		Very Insufficient	
	n	%	n	%	n	%	n	%	n	%
About drug interactions	3	1.83	55	33.54	69	42.07	35	21.34	2	1.22
About drug indications	31	18.90	74	45.12	58	35.37	1	0.61	0	0.00
About the daily dosages of drugs	30	18.29	80	48.78	52	31.71	2	1.22	0	0.00
About contraindications	8	4.94	76	46.91	66	40.74	12	7.41	0	0.00
About the side effects	5	3.07	73	44.79	67	41.10	18	11.04	0	0.00
About bioavailability and bioequivalence	1	0.61	31	18.90	90	54.88	36	21.95	6	3.66
About the action mechanism	17	10.49	61	37.65	69	42.59	15	9.26	0	0.00
About the applications	27	16.67	93	57.41	40	24.69	2	1.23	0	0.00
About the prices of drugs	6	3.68	31	19.02	60	36.81	49	30.06	17	10.43

Table 4. Definitions of Rational Drug Use According to Doctors

	n	%
Effective prescription	139	77.22
Safe prescription	134	74.44
Proper drug	148	82.22
Prescribing cost-effective drugs	99	55.00
Proper dose of medication	129	71.67
Appropriate period of use	111	61.67

Table 5. Knowledge Levels of Rational Drug Use by Doctors

	n	%
Very Sufficient	4	2.23
Sufficient	64	35.75
Mediocre	97	54.19
Insufficient	14	7.82
Very Insufficient	0	0.00

There was no statistically significant correlation between the time allocated for organizing treatment and levels of information about drugs. There was no statistically significant correlation between the number of daily prescriptions and the criteria used for prescribing. Finally, there was no statistically significant correlation between the number of daily prescriptions and the level of knowledge about rational drug use (p=0.641) (Table 8).

Table 6. Investigation of the Relationship between Rational Drug Use and Knowledge Levels

			Medical Branch	Surgical Branch	Total	Chi-square	p
Rational drug use knowledge level	Sufficient	Number	45	23	68	0.468	0.791
		%	39.47	35.38	37.99		
	Mediocre	Number	61	36	97		
		%	53.51	55.38	54.19		
	Insufficient	Number	8	6	14		
		%	7.02	9.23	7.82		
Total		Number	114	65	179		
		%	100.00	100.00	100.00		

*: p <0.05 **: p <0.01 ***: p <0.001

Table 7. Investigation of the Relationship Between the time in practice and the Rational Drug Use Knowledge Levels

			Time in practice			Total	Chi-square	p
			3 years or less	4-6 years	7 years or more			
Rational drug use knowledge level	Sufficient	n	17	20	31	68	5.850	0.211
		%	23.61	32.79	67.39	37.99		
	Mediocre	n	45	37	15	97		
		%	62.50	60.66	32.61	54.19		
	Insufficient	n	10	4	0	14		
		%	13.89	6.56	0.00	7.82		
Total		n	72	61	46	179		
		%	100.00	100.00	100.00	100.00		

*: p <0.05 **: p <0.01 ***: p <0.001

Table 8. Investigation of the Relationship Between the Ratio of Daily Prescription and Knowledge of Rational Drug Use

			Daily prescription rate		Total	Chi-square	p
			40% and less	41% and more			
Rational drug use knowledge level	Sufficient	n	24	44	68	0.890	0.641
		%	34.29	40.37	37.99		
	Mediocre	n	41	56	97		
		%	58.57	51.38	54.19		
	Insufficient	n	5	9	14		
		%	7.14	8.26	7.82		
Total		n	70	109	179		
		%	100	100	100		

*: p <0.05 **: p <0.01 ***: p <0.001

Discussion

In studies conducted by WHO, it is found out that more than half of the medications are prescribed and distributed unnecessarily. Unfortunately, there are not enough studies on the knowledge, attitude and behavior of physicians in Turkey. The results of this study were evaluated and compared with the results of similar studies conducted in our country and all over the world. In our study, 65.00% of the physicians were in 0-5 years of their career after graduation, while 21.67% had 6-10 years experience, 6.11% 11-15 years of experience, and 7.22% 16-20 years experience in the field. In a study conducted by Doğukan et al., duration of service was evaluated and it was found that most of the physicians had 4-6 years of work experience.[9] The reason for this difference is thought to be the disparity of branches worked on, change in time period and expected low working experience in resident doctors. Therefore, it was thought that physicians' knowledge, attitude and behavior levels increase with professional experience, and consequently it is expected to affect the results.[10]

In a study conducted by WHO in developing countries, it was observed that the average examination time of primary care physicians ranged from 3 to 6.3 minutes.[11] Studies conducted in developed countries have shown that the time spent by physicians for their examination was higher than that of the developing countries. In these studies, it was reported that the time spent by family physicians for examination in the USA was 12 minutes for patient, while in the UK general practitioners spent an average of 8 minutes with patients.[12] In the literature, it has been stated that this "ideal period" is a very important factor in terms of physician and patient communication, and it is required to provide adequate information from the patient.[13]

In a study covering all family physician offices in Ankara, the average number of items included in the prescription was found as 3.23. Many studies have been conducted by the Ministry of Health regarding prescription practices with changing focus on pharmacies, health workers and cases. In this context, in a study conducted with the autocarbon notebooks in Bolu province, there was an average of 2,46 different drugs in 4536 prescriptions.[2]

For physicians, informing the patient about the drugs in the prescription and making the patient repeat drug names is a part of the rational treatment process. Conrad et al. found that, 83.31% of the physicians tell their patients about route of administration, 86.67% tell the daily dose, 80.56% tell the duration of treatment and 69.9% tell conditions of ceasing the treatment.[13] Informing the patient about the drugs used in treatment will lead to engagement of the patient in the treatment process and it is expected to increase the confidence in physician.[10] In a study comparing the ones took RDU training with those who did not; no statistically significant difference was found in terms of knowledge level.[14]

RDU cost is an important criterion that needs attention. Considering that physicians have already shaped their personal choice of medication with the price in mind, it may be possible to look positively at the situation. However, the cost of treatment should be questioned. In a study conducted in Ankara in 2000, 79.2% of physicians reported that they knew the price of some drugs they have prescribed.[12] When asked about the price of the 18 drugs that are most often prescribed, it is generally seen that physicians know the price of only a single drug correctly. In their study, Diaz Gravalos et al. reported that most of the general practitioners in Spain did not have enough information about the cost of the drug they prescribe.[15]

Çalıkoğlu et al. evaluated the information sources while prescribing and found that highest demand was for Vademecum with 86.7%, The Diagnosis and Treatment Guideline ranked second with 65.3% , 27.6% relied on pharmaceutical companies and 21.4% used Turkish Ministry Of Health's Medication Guide.[14] In today's world, it is natural that the Internet is among the preferred prescribing information sources. Again, it is seen that there is a need for drug information databases that are controllable, compatible with general drug policies of the Ministry Of Health and can easily be reached and used by physicians nationwide. In many studies conducted out of our country, it has been shown that pharmaceutical companies have an important place in the preferences related to the drugs to be prescribed.[16,17] In similar studies, it has been reported that 91.4% of physicians encounter drug demand.[13]

In their study, Doğukan et al. found that 40.2% of physicians did not prescribe drugs without examining patients, and 42.5% of physicians prescribed drugs to patients with chronic diseases without examination This finding supports the concept of RDU.[9]

In the literature, it was determined that physicians asked the patients most frequently about the pregnancy status (54%), age (62.1%) and other drugs they used.[9] In a study conducted by the Ministry of Health in 2011, 84.2% of the family physicians and 78.5% of the specialist physicians reported that they take age of the patients into account, 83.6% of the family physicians and 78% of the specialists question the patient about pregnancy and breastfeeding status, 67.1% of family physicians and 65.8% specialists consider drug allergies and 45.7 % of family physicians and 38.6% of specialist bear economic status of patients in mind. In that study, the rate of physicians who considered their knowledge on drug interactions, bioavailability, bioequivalence and price of the drug adequate was very low.[14] In a study conducted by Mollahaliloğlu et al., physicians stated that they have adequate knowledge about the route of administration, daily dose and indications of the drugs, while they reported that they considered themselves inadequate in price, drug interactions, bioequivalence and bioavailability.[2,3] Our study findings are similar to the results of this study. Similar to our study, Şemin et al. found that drug information is mainly obtained from the pharmaceutical companies.[18] These studies have shown that physicians need real scientific drug information free from commercial concerns. Unfortunately,

there are serious concerns about how much physicians can have objective medication information, as around 13% of drug company representatives graduate from health-related departments.[19]

In a study with general practitioners, Prosser et al found similar results with our study; and it was found that drug company representatives were the most effective factor in prescribing (39%) and that a very little number of physicians consider consulting to another colleague. In addition, while physicians thought the effectiveness, safety, convenience and cost as the most important criteria of the RDU, they thought compliance and cost as the least important criteria.[20]

Kırıoglu et al. were to evaluate the knowledge and attitudes in regards to rational drug use of research assistants working at Çukurova University Faculty of Medicine. They created by applying a doctoral survey to 128 research assistants from different branches working at Çukurova University Faculty of Medicine Hospital. The rate of those who said "I inform the patient about her illness and causes" among the assistant doctors participating in the study was 91.4%. 48.4% of doctors stated that they chose drugs by paying attention to drug prices. Vademekum (80.5%) was used most frequently in learning current information about drugs. In this study carried out in the tertiary care institution, it was observed that the doctors' knowledge and attitudes were lacking in some applications regarding rational drug use.[21]

Unver et al. investigated physicians' knowledge level, perceptions, attitudes and behaviours regarding influenza and common cold in a Ondokuz Mayıs University Hospital. This cross-sectional study was performed by using a questionnaire to assess knowledge levels, perceptions, attitudes and behaviours of physicians including paediatricians, specialists in infectious diseases and clinical microbiology, otorhinolaryngologists, internists, emergency medicine physicians, and pulmonologists. The authors state that new policies should be developed to increase the rate of vaccination and to use rational antibiotics.[22]

Today prescribing is a challenging process and the level of difficulty is increasing day by day. The diagnosis and pharmacological properties of drugs to be given in the treatment should be well known, foundations of clinical pharmacology should be understood and communication skills should be used actively in this process. This problem should be approached in a multidisciplinary way and the correction of education should be considered as one of the most important parameters. It is required to provide physicians with adequate training in the pre-graduate programs and to repeat the courses in the post-graduation periods (in-service training, courses etc.). In order to increase awareness in this issue, we believe that providing opportunities and support in health institutions by managers will increase physicians' awareness about rational drug use.

There are no conflicts of interest regarding this paper, and the material described is not under publication or consideration for publication elsewhere.

References

1. Kayaalp OS (2002). Farmakolojiye Giriş. Rasyonel Tedavi Yönünden Tıbbi Farmakoloji. 10 nd ed, Ankara: Hacettepe-Taş Kitapçılık Ltd. Şti.

2. Mollahaliloğlu S. Ankara İl Merkezinde Bulunan Sağlık Ocaklarında Yazılan Reçetelerin Değerlendirilmesi [PhD thesis]. Hacettepe Üniversitesi Tıp Fakültesi Bilim Uzmanlığı, Ankara, Türkiye, 2000.

3. Wald ER, Green MD, Schwartz B, Barbadora K. A stereptococcal score card revisited. Pediatr EmergCare 1998;14:109.

4. WHO (2010) The World Health Report, Health Systems Financing, ThePathto Universal Coverage, Achieving Better Health Outcomes And Efficiency Gains Through Rational Use Of Medicine Technical Brief Series - Brief No 3. 2010

5. Ministry of Health (2010). Akılcı İlaç Kullanımı Konusunda Dünyada ve Ülkemizde Durum, Türkiye, http://www.akilciilac.gov.tr/content.php

6. Oktay S. Akılcı ilaç kullanımının genel ilkeleri. Türk geriatric dergisi 2006;9:15-18

7. Akan H. Akılcı Antibiyotik Kullanımı ve Türk Hematoloji Derneği (2006). ANKEM Dergisi 2006;20:65-67.

8. Özata M, Aslan Ş, Mete M. (2013). Rasyonel ilaç kullanımının hasta güvenliğine etkileri ve rasyonel ilaç kullanımına etki eden faktörlerin belirlenmesi. University of Selçuk, Türkiye.

9. Doğukan M.N. Ankara ili Keçiören Sağlık Grup Başkanlığı'na Bağlı Birinci Basamak Sağlık Kuruluşlarında Çalışan Hekimlerin Akılcı İlaç Kullanımı Konusunda Bilgi ve Tutumlarının Değerlendirilmesi [PhD thesis]. Gazi Üniversitesi Sağlık Bilimleri Enstitüsü, Ankara, Türkiye, 2008.

10. Akıcı A, Uğurlu MÜ, Gönüllü N, Oktay Ş, Kalaça S. Pratisyen Hekimlerin Akılcı İlaç Kullanımı Konusunda Bilgi ve Tutumlarının Değerlendirilmesi. STED 2002;11:253-7.

11. Ofori-Adjei D. Report on TanzaniaField Test. INRUD News 1992;3: 9

12. Grumbachg K, Fry J. Managing Primary Care in United States and in the United Kingdom. The New England Journal of Medicine 1993;328:940-5

13. Conrad P, Kern R (1994). The Sociology of Health and İllness. Critical Perspectives. St. Martin's Pres, Fourth Edition, Newyork.

14. Çalıkoğlu, O. Erzurum İl Merkezinde Çalışan Pratisyen Hekimler ile 20 Yaş ve Üzeri Kişilerin Akılcı İlaç Kullanım Boyutları ve Etkileyen Faktörler [PhD thesis], Atatürk University of Medical Sciences, Erzurum, Turkiye; 2006

15. Kalyoncu Nİ, Yarış E. Akılcı İlaç Kullanımında Hekim Sorumluluğu. Toplum ve Hekim 2004;19:359-363

16. Cheren M, Landefeld S. Phisysicians Behavior and Their İnteractions with Drug Companies. JAMA 1994;2:684-9

17. Lexchin J. Doctors and Detailers. Theapeutic Education or Pharmaceutical promotion. İnternational Journal of Health Services 1989;19:663-80

18. Şemin Ş. Sosyal ve Ekonomik Yönleri İle İlaç, 1nd ed. Ankara: Turkish Medical Association Central Council, 1998.

19. Kılıç B, Kulaç E, Simai E, Samancı B, Kaya A, Taştan M. Dokuz Eylül Üniversitesi hastanesinde ilaç tanıtımı yapan ilaç firması temsilcilerinin özellikleri. Sağlık ve ToplumDergisi 2004;14:74-80

20. Prosser H., Almond S., Walley T. Influences on GP's Decision to Prescribe New Drugs-the Importance of Who Says What. Fam Pract 2003;20:61-8