

## RATIONAL DRUG USE: DENTISTS CASE

### Akılcı İlaç Kullanımı: Diş Hekimleri Örneği

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#### ABSTRACT

Objective: drug spending is increasing with each passing day, Turkey, and worldwide. The fact that this increase does not correlate with the burden of disease requires careful consideration of rational drug use. In this regard, revealing the current knowledge and attitudes of dentists is essential in terms of improving the existing structure. This study aimed to examine the knowledge, attitudes, and behaviors of dentists regarding rational drug use. Method: The universe of this descriptive study was composed of 1335 dentists working in public dental hospitals and centers operating in Istanbul. In the study, the Gpower power analysis done for the sample, and it determined that the number of samples was 299 in the 95% confidence interval. However, 143 dentists who did not accept to participate in the study could not include in the sample of the study, and 156 dentists formed the sample. The data of the study were collected between 02 December 2019 and 26 January 2020 by the survey method. As the data collection tool, the "Introductory Information Form" and Physician Assessment Form consisting of 17 questions were used, which the researchers created in line with the literature. Descriptive statistics and chi-square tests used to analyze the data. Results: 33.3% of the dentists participating in the study are women, 66.7% are men, and 40.4% are between the ages of 31-40. 43% of Dentists have ten years of professional experience. While 79.5% of the participants are dentists, 29.5% are specialists. While 90.3% (n = 141) of the dentists participated in post-graduate training, it found that 62.1% (n = 97) received training on RDU (rational drug use). It was determined that 53.2% (n = 83) of dentists received RDU education from in-service trainings, 46.7% (n = 73) from dentistry faculties. Among physicians, 57% (n = 89) of those who work less than ten years (43 =) have received RDU training provided by the faculties of dentistry (p = 0.00). While prescribing dentists, 92.3% (n = 144) use the information sources. The most important source of information for dentists when prescribing is the internet. Conclusion: It is observed that the importance given to the rational drug use (RDU) education of the faculties of dentistry should be increased during formal dentistry education. The findings were that dentists use the internet more as a resource for drug information and prescribing; It suggests that it is necessary to create reliable support that can be accessed quickly and free of charge over the internet and to introduce them to physicians. Physicians do not appear to report adverse drug effects adequately. The importance of reporting adverse drug effects should be explained to physicians.

Key Words: Rational Drug Use, Dentist, Health Management, Hospital

#### ÖZET

Amaç: ilaç harcamaları her geçen gün Türkiye ve dünya genelinde artış göstermektedir. Bu artışın hastalık yükü ile paralellik göstermemesi, akılcı ilaç kullanımı konusu üzerinde titizlikle durmayı gerektirmektedir. Bu konuda, diş hekimlerinin mevcut bilgi ve tutumlarının ortaya konulması, var olan yapının iyileştirilmesi açısından önem taşımaktadır. Bu çalışmada diş hekimlerinin, akılcı ilaç kullanımına ilişkin bilgi, tutum ve davranışlarını incelenmesi amaçlandı. Gereç ve Yöntem: Tanımlayıcı tipte olan bu araştırmanın evrenini İstanbul ilinde faaliyette bulunan kamuya bağlı ağız diş sağlığı hastaneleri ve merkezlerinde görev alan toplam 1335 diş hekimi oluşturdu. Araştırmada örnekleme için Gpower güç analizi yapıldı ve %95 güven aralığında örneklem sayısının 299 olduğu belirlendi. Ancak çalışmaya katılmayı kabul etmeyen 143 diş hekimi araştırmanın örnekleme kapsamına alınmadı ve örnekleme 156 diş hekimi oluşturdu. Araştırmanın verileri 02 Aralık 2019-26 Ocak 2020 tarihleri arasında anket yöntemi ile toplandı. Veri toplama aracı olarak, araştırmacılar tarafından literatür doğrultusunda oluşturulan, "Tanıtıcı Bilgi Formu" ve Veri toplama aracı olarak Sağlık Bakanlığının (SB) hazırladığı 17 sorudan oluşan Hekim Değerlendirme Formu kullanıldı. Verilerin analizinde tanımlayıcı istatistikler ve ki-kare testi uygulanmıştır. Bulgular: Araştırmaya katılan diş hekimlerinin %33,3'ü kadınlardan, %66,7'i erkeklerden oluşmaktadır ve %40,4'ü 31-40 yaş aralığındadır. Diş Hekimlerinin %43'ü 10 yıl ve üstü mesleki tecrübeye sahiptir. Katılımcıların %79,5'i diş hekimi iken %29,5'i uzman diş hekimidir. Diş hekimlerinin %90,3'i (n=141) mezuniyet sonrası meslek içi eğitimlerine katılırken, AİK (akılcı ilaç kullanımı) konusunda %62,1'i (n=97) eğitim aldığı saptandı. Diş hekimlerin %53,2'ü (n=83) hizmet içi eğitimlerden, %46,7'si (n=73) diş hekimliği fakültelerinden AİK eğitimi aldığı belirlendi. Hekimlerden mesleğinde 10 yıldan az çalışanların %57'si (n=89) 10 yıldan fazla çalışanların %43'ü (n=67) diş hekimliği fakülteleri tarafından verilen AİK eğitimi almıştır (p=0,00). Diş hekimleri reçeteleme yaparken bilgi kaynaklarından %92,3 (n=144) oranında yararlanmaktadır. Diş Hekimlerin reçeteleme yaparken en çok faydalandığı bilgi kaynağı internettir. Sonuç: Örgün diş hekimliği eğitimi sırasında diş hekimliği fakültelerinin akılcı ilaç kullanımı (AİK) eğitimine verdiği önemin artırılması gerektiği görülmektedir. Bulgular diş hekimlerinin ilaç bilgisi, reçeteleme konusunda kaynak olarak daha çok interneti kullanması; internet üzerinden kolay, ücretsiz ulaşılabilecek güvenilir kaynaklar oluşturulması ve hekimlere tanıtımı yapılması gerektiğini düşündürmektedir. Hekimlerin ilaç advers etkilerini yeterince bildirmedikleri görülmektedir. İlaç advers etkilerinin bildiriminin önemi hekimlere anlatılmalıdır.

**Anahtar Kelimeler:** Akılcı ilaç kullanımı, diş hekimi, sağlık yönetimi, hastane

## 1.INTRODUCTION

World Health Organization (WHO), Rational Drug Use (RDU); defined the drug that is the most appropriate for the patient's own clinical needs, with the proper indication, appropriate dose/time, and the lowest cost. Any mistake related to the use of drugs directly or indirectly defined as irrational drug use. Unreasonable use of drugs is an important worldwide problem. WHO estimates that more than half of all medicines are improperly prescribed, distributed, or sold, and half of them are not taking their medications properly (WHO 2020). This is an important problem affecting public health. Irrational drug use leads to decreased patient compliance, drug interactions, resistance to certain drugs, recurrence or prolongation of diseases, increased frequency of adverse events, and increased treatment costs (Turkey Pharmaceuticals and Medical Devices Agency, 2019). It is essential to get rid of these problems and to spread the RDU, and the correct functioning of every stage of the RDU process (Akıcı, 2015; Kınalılıkaya *et.al.*, 2018).

The main problems in irrational drug use; polypharmacy (multiple drug use), excessive and unnecessary use of antibiotics and injections, prescribing by drug guidelines, self-medication, rejection or resistance to prescription medications (WHO 2010; Saygılı, & Özer 2015). Poor prescribing habits lead to effective and unreliable treatments, recurrence or prolongation of diseases, patients suffering and suffering, and higher treatment expenditures. This also makes the prescriber vulnerable to effects that may lead to non-rational prescribing, such as patient pressure, bad example colleagues, and drug promotion staff that promise broad possibilities (Saygılı, & Özer 2015; Akıcı, *et.al.*, 2002). High drug expenditures resulting from economic problems faced by irrational drug use; it puts a heavy burden on social security institutions and creates serious problems in reimbursement (Saygılı, & Özer 2015). Where there are non-rational drug use problems, all healthcare professionals are responsible, from physicians to pharmacists, nurses to other people working in the health center, and therefore the issue is multidimensional (Saygılı, & Özer 2015; Aydın, & Gelal 2012). At the national level, various institutions and organizations have responsibilities, from health authorities to health institutions and reimbursement institutions to the pharmaceutical industry. Apart from those responsible, the most critical responsibility belongs to the society, to generalize the people who use the drug (Saygılı, & Özer 2015). Physicians, pharmacists, nurses, other healthcare professionals, patient / patient relatives, industry, regulatory authority, professional organizations, and other (media, academy, etc.) groups are responsible parties in raising awareness and raising public awareness about the provision of RDU (Turkey Pharmaceuticals and Medical Devices Agency, 2019; Kınalılıkaya *et.al.*, 2018). Dentists also make important contributions to the success of each stage of this process. The physician makes the selection of personal medicines using the criteria of effectiveness, suitability, safety, and cost. The treatments they arrange with the drug (s) they chose in this way and the satisfying information they provide to the patient are among the leading determinant roles of physicians in RDU. Healthcare professionals, especially physicians, will be decisive in the realization of the RDU (Akıcı, 2015).

Another critical issue related to rational drug applications is the "Adverse Effect Report." WHO defines the Adverse Drug Reaction as "a harmful and undesired reaction of the drug that occurs in human use at normal doses" (Turkey Pharmaceuticals and Medical Devices Agency, 2019). Rational drug use is the planning, execution, and monitoring process that allows drug treatment to implemented effectively, safely, and economically (Saygılı, & Özer 2015; Acar & Yeğenoğlu, 2005; Turkey Pharmaceuticals and Medical Devices Agency, 2020). In this process, physicians have responsibilities such as following and reporting adverse reactions in drug applications. Physicians are the most focused occupational group in activities carried out within the framework of rational drug use. Dentistry included in this group. For this reason, knowing the evaluations of dentists on rational drug use will be useful in all activities to promote rational drug use, as well as determine the source of the problems experienced in the process. This study aims to examine the knowledge, attitudes, and behaviors of the dentists working in the oral and dental health centers and hospitals operating in the province of Istanbul regarding rational drug use.

## 2.METHOD

### 2.1. Sample of the Study:

In this descriptive study, a total of 1335 dentists working in public oral dental health hospitals and centers operating in the province of Istanbul constituted the universe. In the study, GPower power analysis done for the sample, and it determined that the number of samples was 299 in 95% confidence interval. However,



143 dentists who did not accept participating in the study could not include in the sample of the research, and 156 dentists formed the sample.

## 2.2.Application of the Research

"Introductory Information Form" and "Information Form" and the Ministry of Health Medicines and Medical Devices Agency Rational Drug Use, prepared by the Unit "in hospitals in Turkey Serve Physicians' Rational Knowledge and Behavior of Drug Use Study belonging to the form was used (Turkey Pharmaceuticals and Medical Devices Agency,2020).With this form, the current situation can be evaluated about rational drug use. The informed consent form was explained to the participants, explaining the work to be done and informing that the data will be kept confidential and the questionnaire prepared after receiving the written or verbal declaration that these procedures permitted to be done with his consent was applied face-to-face. Study data were collected between December 02, 2019, and January 26, 2020. Ethics committee approval (2019/94 number) was obtained from the non-interventional health research ethics committee of the university, where the researcher was assigned, and permission to conduct research obtained from the administrations of the institutions where the research is done. Descriptive statistics (number, percentage distribution, mean, standard deviation) were used to present the data. A Chi-square test was used to compare the relationship between categorical variables. The results evaluated within the 95% confidence interval, and the significance level was  $p < 0.05$

## 3.RESULTS

The socio-demographic characteristics and opinions of the dentists in the scope of the research and rational use of drugs are given in Table 1. Accordingly, 33.3% of the physicians participating in the study are women, and 66.7% are men. In terms of age groups, half of the dentists (40.4%) were found to be in the 31-40 age range. 43% of Dentists have ten years of professional experience. While 79.5% of the participants are dentists, 29.5% are specialists.

While 90.3% (n = 141) of the dentists participated in post-graduate training, it was determined that 62.1% (n = 97) received training on RDU (rational drug use). It was determined that 53.2% (n = 83) of dentists received RDU training from in-service trainings, 46.7% (n = 73) from dentistry faculties. Among physicians, 57% (n = 89) of those who work less than ten years (43 =) have received education from the faculties of dentistry ( $p = 0.00$ ) given by 43% (n = 67) of those who work for more than ten years. When the status of prescribing the drugs requested by the patients (which the patient has previously used, recommended by others, the patient purchased from the pharmacy, etc.) is evaluated; While 17.3% of the physicians replied "yes, I can only prescribe medicines for chronic diseases," 82.7.2% replied, "no, I never write medication without examination". 15.3% (n = 24) of dentists reported unexpected adverse effects. While prescribing dentists, 92.3% (n = 144) use the information sources. The most important source of information for dentists when prescribing is the Internet (Table 1).

**Table 1.** Socio-Demographic Characteristics of Physicians Participating in the Research and Their Opinions on Rational Drug Use

Groups	Frequency (n)	Percent (%)
<b>Age</b>		
24-30	11	7
31-40	63	40.4
41-50	48	30.7
51-60	27	17.3
60 years old and above	7	4.5
<b>Title</b>		
Dentist	124	79.5
Specialist dentist	32	20.5
<b>Gender</b>		
Famale	52	33.3
Male	104	66.7
<b>Professional Experience</b>		
1-3 years	49	31.5

4-10 years	40	25.5
10 years and over	67	43
<b>Education on Rational Drug Use</b>		
Yes	97	62.1
No	59	37.9
<b>Where He Received Training on Rational Medicine (For Those Who Answer Yes)</b>		
Faculty of Dentistry	83	53.2
In-Service Trainings	73	46.8
Job Room	0	0
Medicine company	0	0
<b>Prescribing Medicines Requested by Patients</b>		
Yes	27	17.3
No	129	82.7
<b>Status of Applying to Information Source While Prescribing</b>		
Yeah	144	92.3
No	12	7.7
<b>Information * Sources Used When Making Prescriptions (For Those Who Answer Yes)</b>		
Turkey Medication Guide	14	8.9
Vademecum	97	62.2
Pharmacology Books	57	36.5
Pharmaceutical Information Software Programs (Rx, Media pharma, TEBRP, etc.)	8	5.1
Research and Promotion Studies of Pharmaceutical Companies	22	14.1
The Colleague	18	11.5
Internet	107	68.5

\* This question has more than one answer, (n = 144 )

In Table 2, the knowledge level of dentists about drugs has been evaluated. 33.3% of dentists described their level of knowledge about indications very well and 25% of them as good, and knowledge level of pharmacological properties as 43.5% of dentists. The majority of dentists stated that they knew about contraindications, side effects, drug interactions (drug/nutrient), warnings, precautions (pregnancy, pediatrics, etc.), and bioequivalence at a moderate level.

**Table 2.** Findings Regarding the Knowledge Level of Physicians Participating in the Research on Drugs

Drug Information Type	Very bad		Bad		Middle		Good		Very good	
	n	%	n	%	n	%	n	%	n	%
Endijasyon on	10	6.4	27	17.3	28	18	39	25	52	33.3
Posology and Application Form	9	5.8	24	15.4	36	23	42	26.9	45	28.8
Pharmacological Properties	8	5.1	20	12.9	22	14.1	38	24.3	68	43.5
Contraindications	3	1.9	5	3.2	62	39.7	49	31.4	37	23.7
Side effects	3	1.9	13	8.3	47	30.1	61	39.1	32	20.5
Drug Interactions (Drug / Food)	6	3.8	48	3.8	54	34.6	17	10.9	31	19.9
Warnings Precautions	0	0	31	19.9	65	41.7	31	19.9	29	18.6
Special Conditions (Pregnancy, Pediatrics etc.)	0	0	35	22.4	61	39.1	37	23.7	23	14.7
Bioequivalence	34	21.8	67	43	37	23.7	13	8.3	5	3.2

In Table 3, the question of which anamnesis information the patients used while prescribing drugs evaluated. 52.5% of the physicians participating in the study, the age of the patient, 50.6% whether their patients have chronic diseases, 47.4% drug allergy, 37.1% whether they have pregnancy status, 43.7% declared that they always question whether there is drug allergy, 37.8% have kidney disease, 30.7% have liver disease.

**Table 3.** Findings Related to the Questioning of the Anamnesis Information of the Patients of the Dentists

The type of information inquired when taking an anamnesis	Always		Often		Sometimes		Rarely		Never	
	n	%	n	%	n	%	n	%	n	%
The Presence of Other Drugs Used	52	33.3	55	35.2	32		17		0	
Drug Allergy	74	47.4	48	30.7	34	21.8	0	0	0	0
Liver Disease	48	30.7	55	35.2	37	23.7	3	1.9	3	1.9
Kidney Disease	59	37.8	65	41.6	22	14.1	8	5.1	2	1.2
Patient's Age	82	52.5	55	35.2	10	6.4	5	3.2	4	2.5
Chronic Disease History	79	50.6	53	34	14	8.9	5	3.2	5	3.2
Pregnancy Status	58	37.1	61	39.1	32	20.5	5	3.2	1	0.6
Patient's Gender	48	30.7	53	34	32	20.5	17	11th	6	3.8

In Table 4, the attitudes of the dentists participating in the study to inform their patients evaluated. 47.4% of the dentists stated that the drug's method 48% of the duration of treatment, 39.7% of the time when the drug should stop, 41.7% of them explained the daily dose of the drug to their patients. Also, 50.6% of the dentist stated that they frequently talk about the possible side effects of the drug, and 30.8% of the activities that should avoid while using the drug. 57% of the dentist reported to their patients that they never mentioned the price of the drug.

**Table 4.** Findings Regarding Dentists' Informing Their Patients

The type of information inquired when taking an anamnesis	Always		Often		Sometimes		Rarely		Never	
	n	%	n	%	n	%	n	%	n	%
Name of the drug	50	32	57	36.5	34	21.8	15	9.6	0	0
Method of Application	74	47.4	52	33.3	26	16.7	4	2.5	0	0
Daily Dose	65	41.7	48	30.7	33	21.1	0	0	0	0
Treatment Time	75	48	65	41.7	16	10.2	0	0	0	0
Drug's Mechanism of Action	82	52.5	55	35.2	10	6.4	5	3.2	4	2.5
Possible Side Effects of the drug	79	50.6	63	40.3	14	8.9	0	0	0	0
The price of the drug	0	0	0	0	7	4.4	60	38.4	89	57
Interaction with Other Drugs Nutrients	52	33.3	56	35.9	27	17.3	18	11.5	3	1.92
Activity to Avoid	48	30.8	53	33.9	32	20.5	17	1.9	6	3.8
When should he stop taking the medicine?	62	39.7	55	35.2	32	20.5	7	4.4	0	0
Other Drug Warning	74	47.4	48	30.7	34	21.8	0	0	0	0

Also, the information behaviors of dentists and their adverse reactions evaluated. 47.5% of the physicians who participated in the study replied, "yes, because if the drug is not used properly, effective treatment cannot be provided" to inform their patients about the drugs. Again, after giving information to the patient, 38.6% of the physicians replied to the question, "Can you check whether the patient understands this or not? Yes, the patient must fully understand how to use the drug". 84.4% of the physicians participating in the study stated that they did not report adverse effects on drugs. In Table 5, the relationships between some socio-demographic characteristics of the physicians participating in the study and their attitudes and behaviors regarding rational drug use analyzed with chi-square analysis. According to the findings obtained, there is a statistical significance between the attendance to vocational training and the behavior of using information sources when prescribing ( $p < 0.05$ ). Also, a statistically significant difference was found between gender and behavior to participate in vocational training ( $p < 0.05$ ). It seen that there is a statistically significant relationship between professional experience and behavior to control whether the information given to the patient is understood ( $p < 0.05$ ).

**Table 5.** Results of Chi-Square Analysis of Dentists on Some Socio-Demographic Features and Rational Drug Use Behaviors

Compared Cases	Chi-square Value	p	Decision
Participation in In-Service Training - Behavior Using Information Source While Prescribing	6,377	0.00	The relationship is meaningful ( $p < 0.05$ )
Behavior to Participate in Gender-Professional Training	8.485	0.00	
Professional Experience Status - Behavior to Check Whether the Information Given to the Patient Is Understood	18.838	0.00	
Rational Drug Education Status - Behavior of the Patient to Write Drugs Requested	21.838	0.00	



#### 4. DISCUSSION

It aimed to provide training on smart drug use from the beginning of the dentistry education, continue in professional life, and to be successful in RDU (rational drug use). In our study, only less than half of the dentists stated they received RDU education from dentistry faculties. However, in RDU education, these training pieces are given primarily in the faculty of dentistry, and it recommended that students focus on this issue. Because new graduate doctors expected to write prescriptions as soon as they start working, and education in this period is more effective and productive compared to pieces of training in the later period of his career (Ross, *et.al.*,2009). Especially considering that it is not easy for dentists who have a terrible prescribing habit of getting rid of this, it recommended to carry out RDU education before graduation (Akıcı, *et.al.*, 2011).

Undergraduate education spanning five years can provide long-term attitudes and behaviors. Turkey is among the countries trying to create the infrastructure early on RDU. The teaching of RDU in the education of dentistry, similar to the developed countries in the world, started to be implemented in some dental faculties with current training methods in 1999. (Akıcı,*et.al.*,2002;Hocaoğlu,*et.al.*,2011). However, a limited number of studies have conducted on the effectiveness of education (Acar &Yeğenoğlu 2005). Training should continue after graduation as research shows that education has a positive effect on RDU, but the positive impact is not continuous (Hocaoğlu,*et.al.*,2011; Akıcı ,*et.al.*,2004). Dentistry faculties provide trainer support from time to time upon the call of the Training organized by the Ministry of Health. Still, it is seen that the Ministry of Health mostly provides RDU pieces of training after graduation. Our study shows that the support of other institutions, including vocational chambers, apart from the faculties of dentistry is very insufficient. Institutions other than the Ministry of Health regarding RDU should also take responsibility and take the necessary steps.It is seen that the impact of pharmaceutical companies as a source of information has decreased. However, it is thought-provoking that there is an open Internet in the first place where unscientific, wrong, and missing information can also found. It is natural for physicians to use the Internet as a source of information with the increasing use of the Internet in healthcare services. In a study with general practitioners, 54.7% of physicians stated that they could not meet their information needs related to drugs (Vançelik, *et.al.*,2006; Demirkıran, & Şahin, 2010). In this case, to be done; is to develop methods that will provide reliable, easy, and inexpensive access over the Internet that physicians frequently use as an information source.Dentists stated that they are competent in the use of drugs in special conditions such as indications, posology, application and pregnancy, pediatric patient groups. They think that they are less knowledgeable about drug-food interactions. Since it is essential to consider non-drug treatment approaches in the rational drug use process to analyze the effectiveness, suitability, safety, and cost for drugs, to provide accurate information and patient participation, physicians should be more competent in the treatment they provide. It is known that their physicians are affected by the requests of the patients when planning treatment (Demirkıran,& Şahin, 2010; Uskun, *et.al.*,2004; Yapıcı,Balıkçı, & Uğur, 2011; Akıcı, *et.al.*,2015). The physician is the most competent person in the RDU.

It is important to establish the right patient-doctor relationship during the treatment process.The physician who examines and diagnoses his patient decides whether the current situation requires treatment if he is sure of the diagnosis (Turkey Pharmaceuticals and Medical Devices Agency ,2019). In this study, approximately 82.7% of dentists stated that they never prescribed drugs without examining.However, 17.3% of the dentists stated that they fulfilled these demands in order not to argue. There are additional strategies to eliminate this element, which forces the physician to be wrong about RDU, and to reduce these demands.Because one of the interlocutors who plays a key role in fulfilling the requirements of the RDU principles is patients [Uskun,*et.al.*, 2004).

Dentists are primarily responsible for the realization of RDU. The role of physicians in the RDU begins with the regulation of the patient's treatment. While the physician arranges his patient's treatment, he chooses the drug, considering his patient's characteristics (Akıcı, *et.al.*,2015).Dentists participating in the research take into account the personal characteristics of the patients. However, the queries some anamnesis information more frequently. For example, it questioned whether the pregnancy is the most common. Patients' age, gender, body size, and socio-cultural characteristics can all affect treatment options (Akıcı, *et.al.*,2002)..For this purpose, anamnesis information such as gender, age, other drugs used, drug allergy, and other diseases should question. One of the critical components of RDU is patient compliance. For the prescribed drugs to used at the recommended dose, time, and the warnings, the physician must be informed accurately and thoroughly. Providing information to patients about the diseases and the drugs

they prescribe will increase the commitment to treatment and benefit from treatment. Patients need to have sufficient information about the whole process. If the physician has decided to give treatment to his patient, he must tell the patient and his / her relatives with the necessary details and allow sufficient time for the patient (Akıncı, *et.al.*,2015). Otherwise, irrational drug use of patients will occur (Yapıcı, Balıkçı, & Uğur, 2011; Yılmaz, Güler, & Kocataş, 2011; Mahajan *et.al.*,2010).

In this study, 57.5% of dentists stated that they found the information given to the patient sufficient. While the subjects that physicians inform the patients most frequently were the form of administration, daily dosage and duration of treatment, they stated that the subjects that they inform least were the price, mechanism of action and side effects. In this study, 25.8% of physicians stated that they could not give information to the patient due to insufficient time. Moreover, most of them stated that after giving the patient information about the drug, they did not check whether the patient understood. According to the principles of RDU, it is extremely important for patients to understand the treatment correctly. The physician must make sure that the information given to his patient is understood by his patient. Otherwise, the probability of successful treatment will be reduced (Hocaoğlu, *et.al.*,2011, Mahajan *et.al.*,2010; WHO,2010).

According to the findings obtained from chi-square analysis related to some socio-demographic characteristics and rational drug use behaviors of physicians in the study, there is a statistical significance between the status of physicians participating in vocational training when using information sources while prescribing ( $p < 0.05$ ). This finding shows that in-service training guides physicians to follow current information and use evidence-based information. In rational drug use, drug selection, based on evidence-based information, is an important factor. Also, it is seen that there is a statistically significant relationship between professional experience and behavior to control whether the information given to the patient is understood ( $p < 0.05$ ).

Adverse reporting is one of the most critical issues in rational drug use. In this study, most dentists (84.4%) stated that they did not report adverse effects. This thought to be because dentists do not know how to make the notification and the lack of information about the necessity of the announcement. Within the framework of the Ministry of Health Health Quality Standards health management, it is requested that the institution's notification instructions be created on how to make the notifications. Dentists should be informed about the processes in drug adverse reaction reporting, the form used, and to whom this form will be delivered. Also, an adverse reaction reporting system should be established in oral and dental health centers and dental hospitals.

## 5. CONCLUSION AND RECOMMENDATIONS

This research carried out on dentists working in the Oral and Dental Health Centers and hospitals in Istanbul, so it would not be correct to generalize all dentist groups. According to the results of this study, the Contribution of dentistry faculties to RDU education is not sufficient. During formal education, the importance given by the faculties of dentistry and the Ministry of Health after graduation to in-service training should increase. Dentists use the internet as a source for prescribing. For this reason, reliable resources that physicians can access over the internet should be created and introduced to physicians. Dentists seem to have deficiencies in reporting drug side effects and informing patients. Awareness should raised on the importance of reporting drug side effects to physicians.

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