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ASSESSMENT OF RATIONAL DRUG USE FEATURES OF UNIVERSITY STUDENTS

Nurhayat KILIÇ^{1*}, Yalçın KANBAY², Özgür ASLAN³, Elif IŞIK³,
Mukaddes DAĞ⁴ and Ömer ŞEKERCİOĞLU⁵

^{1,2,3}Artvin Çoruh University, Faculty of Health Sciences, Artvin/Turkey

^{4,5}Artvin Provincial Health Directorate

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ABSTRACT

Method: The study was carried out with 563 students studying at Artvin Çoruh University in the 2014-2015 academic year using a form of socio-demographic properties and rational drug use survey.

Findings: 47.1% of the students store their drugs at home in the fridge, while 65% of the drugs which must be stored in the fridge are stored on the refrigerator door. 29.7% of the students buy drugs with the idea that it can be necessary, while the rate of the students who use drugs with the suggestion of the people around them is 25%, the rate of the students who suggest drugs to their relatives and friends with similar health complaints as theirs is 36.4%. The rate of the students who use the drugs suggested by the doctor until the end of the duration suggested by the doctor is 37.3%. 44.6% of the students supply painkillers from the pharmacy with a prescription, 33.6% from the pharmacy without prescription, 14.4% from their neighbours or acquaintances, and 7.5% from groceries or markets. A significant part of them (48.5%) stated that they buy drugs from pharmacies without being examined. In addition to this, 34.1% of the students do not check whether it is the right medicine when they buy drugs with a prescription. Furthermore, 52.8% state that they would not accept equivalent drugs suggested by the pharmacist when supplying drugs.

Consequence: It was concluded that significant mistakes are being made regarding the intake, use, and storage of the drugs.

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INTRODUCTION

In 1985, rational drug use was defined by the World Health Organization (WHO) as following: "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community" (1). It is also defined as a process that allows for applying the drug treatment effectively, reliably and economically. In this process, it is necessary for the state, drug industry, all health staff, and society to act rationally (2,3). Rational behaviours depend on the sufficient level of knowledge and skills (3).

Rational drug use is one of the subjects that various national and international organizations recently focus on most (4). Today, the irrational drug is an important health issue all around the world, and especially in developing countries (4,5). According to the data of the World Health Organization, almost 50% of the drugs around the world are inappropriately prescribed, sold or administered. More than half of all patients use their drugs inappropriately (6). In studies carried out for the purpose of determining the financial burden caused by the use of drugs, it was determined that drug expenditures have a significant place among general health expenditures of the

countries (7,8). In Turkey, irrational drug consumption habits are a significant problem and it increases the share of the drug in general health expenditures. While 10-15% of the health expenditures are allocated to drugs, this rate is above 40% in Turkey (2).

Among the main problems detected in the studies carried out on the irrational drug use are the prescription of more drugs than necessary, incorrect use of drugs, unnecessary use of expensive drugs, unnecessary use of antibiotics or unnecessary prescription of injection (2,4). As a result of the irrational drug use, it is reported that treatments cannot be performed effectively, and this causes an increase in morbidity or mortality, and diseases repeat or prolong. In addition to these, it was reported that the side effects of drugs and their risk of giving several harms to patients increase, patients become addicted to drugs, and drugs introduce a heavy burden on the patient and the country's economy (2,9,10,11). In the light of this information, it is considered that rational drug use is a very important subject for individuals, society, and country, and thus, determining the rational drug use features of individuals is important for the steps to be taken. To this end, this study on determining the rational drug use features of university

students was planned and it was aimed to contribute to the literature.

METHOD

Objective of the Study: This study was performed in order to determine the rational drug use states of university students.

Type of Research: - This research was carried out as a descriptive study.

Place and Time at Which the Study is Carried Out: This study was carried out at Artvin Çoruh University, Artvin/Turkey between January 2015 and June 2015.

Universe and Sample: The universe of the study consisted of 6894 students studying at Artvin Çoruh University in the 2014-2015 academic year. The sample calculation formula $(Nt^2pq / d^2(N-1) + t^2pq)$ was used in the determination of the number of samples to be included in the study (12). According to the calculation made, the minimum number of samples that must be chosen in a universe of 6894 people at the confidence level of 95% was determined to be 364. However, this number was exceeded as it is the minimum number, and 582 people who accepted to participate in the study were included in this study. 563 students made up the sample of the study as there were students who answered the questionnaire forms incompletely. 36.1% of the sample consist of male, and 63.9% consist of female students, and the age average was determined as 20.4 ± 0.1 .

Data Collection: The data of the study were collected at the end of the spring term of the 2014-2015 academic year. The researchers were excluded from the data collection stage, and teaching staff who are known by the students but are not related to this study collected the data in order to ensure that the data collection stage is safe (in order for the students not to be affected, the students do not feel themselves under pressure, etc.).

Data Collection Tools: The socio-demographic properties questionnaire form and “Rational Drug Use Survey” were used at the data collection stage of the study.

Data Assessment: The assessment of the data was performed in SPSS 17.0 using numbers and percentages.

Ethical Side of the Research: The ethics committee approval from Artvin Çoruh University, written permissions from the institutions where the study was carried out and informed consent of the participants were taken in this study.

Findings

While 47.1% of the students keep their drugs in the fridge, 2.5% keep them in the freezer/deep freezer and 50.4% at room temperature. Furthermore, 65% of the drugs that must be stored in the fridge are stored on the fridge door, 32% in the fridge shelf, and 3% in the freezer/deep freezer. While 14.7% of the students do not keep unopened or unfinished drugs in their houses, the remaining part 85.3% keep at least 1-5 boxes of drugs.

While a great majority (60.6%) of the students keep the drugs left from a treatment to use again, 5% give them to a health institution, 4.8% to the pharmacy, 2% to relatives and friends who ask for it, 0.9% throw them in the toilet, and an important part (23.6%) throw them away.

Table 1 Conditions of Keeping and Storing Drugs at Home

		n	%
Where do you store the drugs that have no indications of storage conditions?	In the fridge	265	47.1
	In the freezer / Deep freezer	14	2.5
	At room temperature	284	50.4
If the drug at your home is a cold chain drug (if it is necessary to keep it in the fridge), in which part of the fridge do you store it?	On fridge door	366	65.0
	In fridge shelf	180	32.0
	In the freezer/deep freezer	17	3.0
	None	83	14.7
How many boxes of never used or unfinished drugs are there at your home?	1-5 boxes	259	46.0
	6-10 boxes	107	19.0
	More than 10	114	20.2

Table 2 States of Keeping the Left Drugs of the Students

		n	%
What do you usually do with the drugs that are left from a treatment?	I keep them for reuse	341	60.6
	I give them to a health institution	28	5.0
	I give them to the pharmacy	27	4.8
	I give them to my relatives and friends	11	2.0
	I throw them away	133	23.6
	I throw them in the toilet	5	0.9
	Other	18	3.2
On average, how many boxes of drugs do you throw away each year as their date of expiry passed?	1-3	225	40.0
	4-7	86	15.3
	8-10	41	7.3
	More than 10	27	4.8
	Never	184	32.7

Furthermore, while 32.7% do not throw any drugs away for a duration of 1 year, the remaining part (67.3%) states that they throw at least 1-3 boxes of drugs away.

Table 3 Drug intake and suggestion states of the students

		n	%
Do you purchase drugs with the idea that it can be necessary?	Yes	107	29.7
	No	396	70.3
Do you use drugs with the suggestion of your relatives and friends?	Yes	141	25.0
	No	422	75.0
Do you suggest drugs to your relatives and friends suffering from similar health complaints to yours?	Yes	205	36.4
	No	358	63.6
How do you use the drugs prescribed by the doctor?	I use the drug until I finish it	115	20.4
	I use it until there is no complaint left	238	42.3
	I use it during the period prescribed by the doctor	210	37.3

While 29.7% of the students said “yes” to the question do you take drugs with the thought that it can be necessary, 70.3% said “no”. While the rate of the students using drugs with the suggestion of one’s friends and relatives is 25%, the rate of the students who suggest drugs to their relatives and friends having similar health complaints as oneself is 36.4%.

Table 4 State of Using Antibiotics

		n	%
Do you use antibiotics in cases such as flu, colds, common colds without being examined first?	Yes	153	27.2
	Yes, but I stop using it when I feel better	100	17.8
	No	310	55.1

The rate of the students who use the drug prescribed by the doctor until it is finished is 20.4%, those who use it until there are no complaints left is 42.3%, and the rate of the students who use it during the period prescribed by the doctor is 37.3%.

27.2% of the students stated that they use antibiotics without being examined in cases such as flu, colds, and common colds, while 17.8% said that they use it but stop using it when they feel better, and 55.1% said that they do not use it.

Table 5 Information on the ways of drug supply of the students

		n	%
How do you supply painkillers when you need them?	From the pharmacy with prescription	251	44.6
	From the pharmacy without prescription	189	33.6
	From neighbours, acquaintances	81	14.4
	From the grocery, market	42	7.5
Do you take medicines without the prescription of the doctor?	Yes	273	48.5
	No	290	51.5
Do you check whether it is the right medicine in the prescription when buying drugs with a prescription?	Yes	371	65.9
	No	192	34.1
Do you accept equivalent drugs suggested by your pharmacy when supplying drugs?	Yes	266	47.2
	No	297	52.8

44.6% of the students answered the question how you will supply painkillers when you need them as from the pharmacy with a prescription, 33.6% from the pharmacy without a prescription, 14.4% from neighbours or acquaintances, and 7.5% from grocery or market. A significant part of the students (48.5%) stated that they buy drugs without the prescription of a doctor. Also, 34.1% do not check whether it is the right medicine when buying drugs with a prescription. Furthermore, 52.8% say that they will not accept the equivalent drugs suggested by the pharmacist while supplying drugs.

DISCUSSION

Health supply is a basic human right, and health should be addressed in a wide scope. Drug use, which makes up a major part of health service, has a great share for treatment services. However, it also brings about many problems (13). The elimination of these problems depends on the rational use of the drugs. Rational drug use is to use the right medicine, at the right time and amount, and for a reasonable price in order to prevent, take under control and treat a disease (14).

While 47.1% of the students who participated in our study keep the drugs at home in the fridge, 65% of the drugs that must be stored in the fridge are stored on the fridge door (Table 1). In their study, Yapıcı *et al.* (2011) stated that 61.1% of the participants store their drugs in the fridge, 28.7% at room temperature, 7.7% in a cool place, and 7.0% in the first-aid chest (15). Özyiğit and Arıkan (2015) detected that 66.4% of the participants store the suitable drug under suitable conditions (13). In their study, Sorensen *et al.* (2005) emphasized that 1/3 of the users store their drugs under inappropriate conditions and they do not attribute enough importance to this (16). That the drug is stored under appropriate conditions is an important area of the irrational drug use. For, as well as being beneficial for human health, drugs may turn into extremely dangerous products. Factors such as heat, light, and moisture are among the conditions that must be taken into consideration in drug use (13).

A major part (60.6%) of the students keep the drugs left from a treatment so as to use them again, while a significant part (23.6%) throw them away (Table 2). In their study, Yapıcı *et al.* (2011) determined that 37.0% keep the drugs they do not use at home (15). In the study conducted by Göçgeldi *et al.* (2009), 61.3% of the participants, and in the study of Özkan *et al.* (2005), 44.8% of the participants stated that they keep drugs that they do not use at home (17,18).

While 29.7% of the students in our study take medicines with the thought that it can be necessary, 25% use drugs with the suggestion of their relatives and friends, and 36.4% suggest drugs to their relatives and friends with similar health complaints with themselves (Table 3). In their study, Şahingöz (2012) stated that 60.5% of the nurses suggest a drug that improved their disease to someone else for the same disease (14). In their study, Yapıcı *et al.* (2011) stated that 17.0% of the participants use drugs with the suggestion of the people around them, while 25.3% suggest drugs that improved their disease (15). Özçelikay (2001) detected in their study that 23.2% of the participants use a drug suggested by someone else without consulting the doctor, and 24.5% suggest a drug that improves their disease to other people (3). Özkan *et al.* (2005) stated in their study that 25.6% of the participants use drugs with the suggestion of their relatives and friends, while 22.6% suggest drugs to other people (17).

The rate of the students who use the drugs prescribed by the doctor during the period prescribed by the doctor is 37.3%. 55.1% of the students state that they do not use antibiotics without being examined in cases such as flu, common colds and colds (Table 4). In the study conducted by İlhan (2011), 85.0% of the participants stated that the antibiotic they use is prescribed by the doctor, 3.9% stated that they asked the doctor to prescribe it, and 11.0% stated that they use it by themselves (19). According to another study, the rate of the students who use antibiotics after consulting the doctor is 65.2% (14).

44.6% of the students supply painkillers from the pharmacies with a prescription, 33.6% from pharmacies without a prescription, 14.4% from neighbours or relatives, and 7.5% from groceries or markets (Table 5). In the study conducted by Yapıcı *et al.* (2011), it was determined that painkillers (90.4%) are the most frequently purchased drugs without a prescription, while they are followed by antibiotics (19.1%) and drugs for colds (11.7%) (15). In their study, Önder *et al.* (2002) stated that 57.8% of the participants generally or always purchase painkillers without a prescription, and people without health coverage get more painkillers without a prescription (20). There are also other studies in the literature supporting the result of the study (3, 21). In their study, İptes and Khorshide (2004) detected that 44.2% of the students and Kaya *et al.* (2015) detected that 35.4% of the students buy drugs without a prescription (22,23). That painkillers are sold without a prescription, are easily accessible and their prices are at a reasonable level may be the reason for considering them as the drugs that are mostly purchased without a prescription (15).

In our study, a significant part of the students (48.5%) stated that they purchase drugs without a prescription of doctors (Table 5). Şahingöz (2012) stated that 37.8% of the nurses consult doctors when they get ill (14). In their study, Özkan *et al.* (2005) determined that 70.3% of the male patients and 68.4% of the female patients consult the doctor when they get ill, and Özçelikay (2011) determined in their study that 56.6%

of the participants consult the doctor when they get ill, and 75.5% use drugs by consulting someone other than doctors or health care staff (3, 17). In their study, Yapıcı *et al.* (2011) stated that a quarter of the participants use drugs without the prescription of a doctor. It is observed that drug use of one's own accord is prevalent both in industrialized and developing countries (15). The global sales of the drugs sold without a prescription make up approximately 17% of the total drug sales of the world (15).

34.1% of the students in the study do not check whether it is the right drug while getting drugs with a prescription (Table 5). Kaya *et al.* (2015) detected that 9.4% of the students do not read the drug prospectus. In contrast with this, in their study, Yapıcı *et al.* (2011) found that 73.3% of the participants, Karakurt *et al.* (2010) found that 83.6% of the participants and Yılmaz *et al.* (2008) found that 94.1% of the participants read the prospectus before using the drug (15,21,23, 24).

In our study, 52.8% of the students state that they would not accept equivalent drugs suggested by the pharmacist during drug supply (Table 5). Equivalent drug use is a practice that can ensure that the treatment costs cheaper (13). It is necessary for bioavailability/bioequivalence studies to be performed very well in order for this practice to be effective and reliable (13). That approximately 28% of the participants in the study of Özyiğit and Arıkan (2015) prefer the cheaper drug among the drugs with the same effect shows that these drugs are perceived as less effective (13).

CONCLUSION AND SUGGESTIONS

As a result of the study, it was concluded that university students make big mistakes on the intake, use, and storage of the drugs.

In the light of the findings obtained from the study;

It is suggested to create education and guidance and counselling programs to increase rational drug use behaviours of university students and raise awareness on rational drug use among them by using communication tools such as newspapers, magazines, television, the Internet, brochures, and banners.

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