



ORIGINAL ARTICLE

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## Determination of rational drug use knowledge levels of adult Syrians under temporary protection applying to immigrant health centers in Malatya province and related factors

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### Abstract

In this study, it was aimed to determine the rational drug use knowledge level of Syrians under temporary protection who applied to migrant health centers in Malatya province and related factors. A total of 983 Syrian patients under temporary protection in four Migrant Health Centers in Malatya were included in the study. Socio-demographic characteristics form and Rational Drug Use Scale were used as data collection tools. The mean duration of stay of the population included in the study in Turkey was  $5.8 \pm 2$  (1-12, median 6) years, and the mean duration of stay in Malatya was  $5.2 \pm 2.1$  (1-10, median 6) years. According to the questionnaire on the Rational Drug Use Scale, the average score of the participants was approximately 6 points behind the cut-off value of 34 points. Only 23.1% of them were able to score 35 and above. While the scores of the patients did not differ according to gender, a weak correlation was found with age. In addition, it was determined that education level, year lived in Turkey, marital status and regular working life in Syria and living in a village or town were effective factors on rational drug use scores. According to the findings of this study, it was determined that the rational drug use knowledge level of the participants was low.

**Keywords:** Emigration, medicine, refugees, migrants, public health

### Introduction

While it is one of the basic human rights for people to access health services, it is important worldwide that they receive this service and reach medicine correctly. For this reason, rational drug use (RDU) has come to the fore.

RDU can be defined as the process of accurately prescribing, dispensing and using drugs for the diagnosis, prevention and medical treatment of diseases. WHO, on the other hand, defined RDU as the ability of patients to access the right time, the right drug and dose with the lowest cost and easily, according to their clinical findings and personal characteristics. Consideration should be given to rational drug safety, efficacy, appropriateness

and unsuitability in an indication [1-5]. Obligation regarding appropriate treatment and appropriate duration of use is a matter that binds everyone and every institution, from doctors, health workers, health management, health institutions, health policies, to the institutions that produce the medicine and distribute the medicine. The most important responsibility actually lies with the individuals using the drug [6,7].

WHO states that more than 50% of medicines are prescribed, procured or sold incorrectly. It is also stated that half of the patients use the drugs incorrectly. As a result, irrational drug use by patients leads to various health risks and unnecessary costs [4]. According to the data of the Ministry of Health in our country, the share of drugs in health expenditures is around 45%. This rate is 2-4 times higher than developed countries and shows the economic impact of inappropriate drug use in our country [8].

Unnecessary and inappropriate drug use and difficulties in diagnosis and treatment cause unnecessary costs both for the individual and

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for the public, in addition to cost. The use of ineffective, expensive and inappropriate drugs is an important problem in the world and occupies a large place in the total health costs. Finding and using over-the-counter drugs, which are very common in our country, increases the problems in this regard. The high cost of meaningless drug use also affects the country's economy in a bad way [6]. Syrians under Temporary Protection living in our country are among the disadvantaged groups receiving health services under the conditions they live in, and the need to receive preventive medicine and treatment services is high. In line with these results, this cross-sectional research was conducted in order to determine the awareness of Syrian immigrants about RDU and to eliminate the deficiencies.

### Research Questions

- What are the RDU levels of Syrian refugees?
- What is the relationship between the demographic variables of Syrian refugees and the level of RDU and how does it affect them?

### Material and Methods

#### Study design and sample

Adult Syrian patients over the age of 18 who applied to the Migrant Health Centers in Malatya were included in the study. Patients who did not volunteer to participate in the study, and patients with mental and physical disorders (deafness, Alzheimer's disease, etc.) that could not give appropriate answers to the questions in the study were excluded from the study.

#### Data collection

Data were collected between May and November 2021. To collect the data, a questionnaire consisting of 11 questions including the socio-demographic characteristics of adults and the Rational Drug Use Scale (RDUS) were applied. This scale consists of 21 questions in total. The answers to the questions are yes, no or I don't know. The answers to the questions that do not contain reverse propositions are scored as '2' if it yes, '1' if it I don't know, '0' if it no. 2., 5., 6., 9., 10., 13., 15., 16., 17., 19. 20. items are reverse scored. As the scores obtained from the scale increase, the level of knowledge about RDU increases. The highest score that can be obtained from the scale is 42. The cut-off value for the scale was found to be 34 points. Patients with a score of 35 and above were considered to have appropriate drug use knowledge. Significant safety and validity analysis for this scale was conducted by Demirtaş et al. made by. While the item discrimination power index of the scale items varies between 0.20 and 0.64, and the difficulty index is 50%-90%, in the factor study it is Kaiser-Meyer Olkin: 0.836, and Barlett's test result is  $p < 0.001$ . The total proportional values of the items vary between 20-51%. Cronbach's alpha coefficient is 0.789 [9].

#### Statistical analysis

SPSS 22.0 program was used for the analysis of the data obtained from the research. Data are shown as numbers, percentages, mean and standard deviation. Evaluation of the normal distribution was made by Kolmogorov-Smirnov Z and Shapiro-Wilk tests. In the

light of the findings, Mann-Whitney U test was used for two-mean values from non-parametric tests, Kruskal Wallis Test was used for analysis of three or more means, Spearman Correlation Test was used for correlational analysis, and logistic regression analysis was used for effect evaluation. In the statistical evaluation, the level of significance was taken as  $p < 0.05$ .

### Ethic

Before starting the study, ethics committee approval was obtained from the XXX Clinical Research Ethics Committee (Decision No 2021/1960 and 20.04.2021), written pre-approval and permissions were obtained from the Immigrant Health Centers and Malatya Provincial Health Directorate (See Appendix). At the same time, written and verbal consent was obtained from the patients who agreed to participate in the study through a sworn translator. At every stage of the research, the principles of the Declaration of Helsinki were followed. The results of the research will be shared with the Immigration Administration.

### Results

A total of 983 Syrian patients under temporary protection from four Migrant Health Centers in Malatya were included in the study. 577 (58.7%) of these patients were women. The mean age of the patients was  $33.3 \pm 12.83$ . The average length of stay of the patients participating in the study in Turkey was  $5.75 \pm 2.02$  years, and the average duration of stay in Malatya was  $5.15 \pm 2.08$  years.

The mean scores of the patients participating in the study were  $27.8 \pm 6.94$ . This score is lower than the cut-off value of 34 for the scale. The lowest score in our study was 6, and the highest score was 42 full points. 42 full points were obtained by only 1 patient. The median score was 29, and the most common score was 36, 206 times. A total of 227 (23.1%) patients scored 35 points or more (Figure 1).

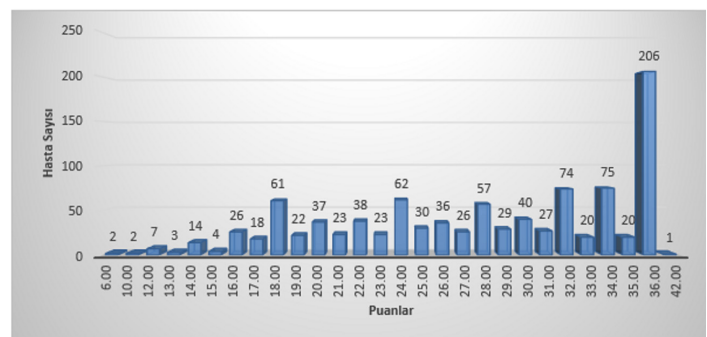


Figure 1. Distribution of Scores Obtained in The Study

The correlation between the age of the patients and the total score obtained from the RDUS is shown in Table 1. There is a weak statistically positive correlation between age and total score ( $p < 0.001$ ,  $r = 0.110$ ).

Table 1. Correlation table between total score and age

Variable	Total Score	
	<b>r value*</b>	<b>0.110**</b>
Age	<b>p value</b>	<b>0.001</b>

\*\* $p < 0.01$ , r: Spearman correlation coefficient

There was a statistically significant difference between the gender

categories of the patients included in the study in terms of scores ( $p=0.046$ ). Terms of total score according to marital status was found a statistically significant difference in ( $p=0.033$ ). Education levels in terms of RDU total score between was found a statistically significant difference ( $p=0.010$ ). In the study, there wasn't statistically significant difference in terms of total score according to the nature of the place lived in Syria ( $p=0.079$ ). When evaluated according to the presence of a regular job in Malatya, it was seen that regular employees had higher scores and this difference was significant (Table 2).

When the total score obtained from the RDUS is categorized and compared, there is no statistically significant relationship between gender categories ( $p=0.265$ ). There is a statistically significant difference between the marital status categories of those who are married and those who are single. There wasn't statistically significant relationship between the categories of the total score and the marital status categories ( $p=0.289$ ). A statistically significant relationship was observed when compared with education status ( $p=0.031$ ). There was a statistically significant relationship between the categorized form of the total score and the categories of the place lived in Syria ( $p<0.001$ ; Table 3).

**Table 2.** The relationship between rational drug use scale according to sociodemographic data

Variables		Total Score from the Rational Drug Use Scale		
		$\bar{x}\pm SD$	Median (Min-Max)	p
Gender	Male	28.26 $\pm$ 7.03	30(6-36)	0.046
	Female	27.47 $\pm$ 6.86	28(6-42)	
Marital Status	Married	28.16 $\pm$ 6.86	29(6-42)	0.034*
	Single	26.77 $\pm$ 7	27(6-36)	
	Widow	27.74 $\pm$ 7.22	28(12-36)	
Educational Status	Illiterate	26.63 $\pm$ 6.85	27(16-36)	0.01*
	Literate	26.13 $\pm$ 6.57	26(14-36)	
	Primary education	28.57 $\pm$ 6.95	30(12-42)	
	High school	27.81 $\pm$ 7.02	29(6-36)	
Living Place in Syria	College	27.94 $\pm$ 6.87	29.5(6-36)	0.079*
	Village	28.2 $\pm$ 6.91	29(10-36)	
	Town	27.87 $\pm$ 7.32	28(6-42)	
Malatya Regular Job Status	City	27.23 $\pm$ 6.49	28(12-36)	<0.001*
	Yes	29.15 $\pm$ 6.95	32(10-42)	
	No	27.35 $\pm$ 6.88	28(6-36)	

The Mann-Whitney U test was performed between groups. \*Kruskal Wallis test was performed.  $p < 0.05$  was considered statistically significant

**Table 3.** Statistical Relationship Between Groups According to the Cut-off Point for Rational Drug Use

Variables		Point Groups		p
		Point <35	Point $\geq$ 35	
		n (%)	n (%)	
Gender	Male	305 (75.1)	101 (24.9)	0.265
	Female	451 (78.2)	126 (21.8)	
Marital Status	Married	517 (76.3)	161 (23.7)	0.289
	Single	190 (80.2)	47 (19.8)	
	Widow	49 (72.1)	19 (27.9)	
Educational Status	Illiterate	42 (77.8)	12 (22.2)	0.031
	Literate	91 (84.3)	17 (15.7)	
	Primary education	197 (70.9)	81 (29.1)	
	High school	290 (77.3)	85 (22.7)	
Living Place in Syria	College	136 (81)	32 (19)	<0.001
	Village	251 (73)	93 (27)	
	Town	254 (72.8)	95 (27.2)	
Malatya Regular Job Status	City	251 (86.6)	39 (13.4)	<0.001
	Yes	166 (67.8)	79 (32.2)	
	No	590 (79.9)	148 (20.1)	

Pearson chi-square test was performed between groups. Those with  $p < 0.05$  were considered statistically significant

**Table 4.** Correlation Table between Total Score and Duration of Stay in Turkey and Duration of Stay in Malatya

Variables		Total Score
Duration of Stay in Turkey	r value	0.001
	p value	0.969
Duration of Stay in Malatya	r value	0.062
	p value	0.053

**r: Spearman correlation coefficient**

**Table 5.** Logistic Regression Analysis Results to Identify Factors Affecting Rational Drug Use

Variables	Beta	SE	Wald	p	OR	CI		
						Lower	Upper	
Age	0.006	0.008	0.546	0.460	1.006	0.990	1.022	
Gender	(R: Female)							
	Male	0.082	0.187	0.193	0.660	1.086	0.753	1.565
Marital Status	R: Single		1.696	0.428				
	Married	0.284	0.236	1.454	0.228	1.329	0.837	2.108
	Widow	0.413	0.397	1.082	0.298	1.511	0.694	3.286
Educational status	(R: Literate)		9.758	0.045				
	Primary education	0.895	0.326	7.513	0.006	2.446	1.290	4.638
	High school	0.784	0.322	5.925	0.015	2.191	1.165	4.119
	Collage	0.529	0.362	2.131	0.144	1.697	0.834	3.450
Duration of Stay in Turkey (Year)	-0.254	0.088	8.262	0.004	0.776	0.652	0.922	
Duration of Stay in Malatya (Year)	0.164	0.085	3.703	0.054	1.179	0.997	1.394	
Living Place in Syria	(R: City)		7.129	0.028				
	Village	0.666	0.251	7.035	0.008	1.947	1.190	3.185
	Town	0.371	0.237	2.450	0.118	1.449	0.911	2.306
Malatya Regular Job Status	(R: No)							
Yes	0.343	0.194	3.134	0.077	1.409	0.964	2.060	
Constant	-2.151	0.483	19.810	0.000	0.116			

Logistic regression analysis, R: Reference, SE: Standard Error, Wald: Wald statistic, OR: Odds Ratio, CI: Confidence Interval

There wasn't statistically significant relationship between the length of stay in Turkey and the total score ( $p=0.969$ ). Similarly, There wasn't statistically significant relationship between the length of stay in Malatya and the total score ( $p=0.053$ ). While there was a statistically significant difference between the categorical version of the total score and the length of stay in Turkey, there wasn't statistically significant difference between the length of stay in Malatya (Table 4).

According to the result of the Enter method in the logistic regression model; The odds ratio between the variables of age, gender, marital status, duration of life in Malatya and regular working life in Malatya and the variable that the total score was created by categorizing was not statistically significant ( $p>0.05$ ). The odds ratio between the variables of educational status and life expectancy in Turkey (years), place of residence in Syria and the institution where the survey was conducted, and the variable that the total score was created by categorizing was found to be statistically significant ( $p<0.05$ ). According to the findings; Primary school graduates are 2.446 (OR) times more likely to have adequate RDU scores than literate ones. High school graduates are 2.191 (OR) times more likely to have an adequate RDU score than those who are literate. Living less than one year in Turkey increases the probability of having a sufficient RDU score by 1.289 (1/OR). In terms of where they live in Syria, the probability of having a

sufficient RDU score is 1.947 (OR) times higher for those living in villages than those living in cities. In terms of the institution where the survey was conducted, those who went to Battalgazi G. Health Center, where the survey was conducted, are 16.326 (OR) times more likely to have a sufficient RDU score than those who go to Başharık G. Health Center. Likewise, those who go to Sancaktar G. Health Center are 49.308 (OR) times more likely to have an adequate RDU score than those who go to Başharık G. Health Center (Table 5).

## Discussion

RDU continues to be a very serious public health problem on a global scale, as the results of many studies indicate. Such situations will cause the country to fall into an economically difficult situation and to reach very serious dimensions in the future. Taking drugs without asking the doctor, using inappropriate drugs, using unnecessary antibiotics or ointments, using inappropriate doses, long drug treatment periods are the most common drug use errors [10-14]. It is stated that there is a need for appropriate, specific and very serious methods to provide education to the public and to raise awareness of RDU, especially in the society, within the scope of RDU [15,16].

According to the official data of the Ministry of Health in our country, 36.8 billion of the 156.9 billion lira budget planned for



health in 2019 is allocated to pharmaceutical expenses. The share of health expenses in the budget, which was 11.3 percent in 2002, increased to 16.3% in 2019 [17]. In this rise, the share of health expenses incurred for a total of 3 million 651 thousand 428 Syrian citizens under temporary protection residing in our country is also substantial. As a matter of fact, individuals under temporary protection in our country benefit from health services without paying any fee. In this sense, it is obvious that it is important for the individuals who are guests in our country to be informed about the rational use of drugs, both for public health and for the economy of the country and the world.

If we look at the quantitative evaluation of the results of the RDUS used in the research; The mean score of the patients participating in the study was  $27.8 \pm 6.9$ . This score is lower than the cut-off value of 34 for the scale. In a study examining RDU among adults who applied to Family Health Centers in Pamukkale, Denizli, the same scale was used and the RDUS score average of the research group was  $34.11 \pm 3.82$ ; They stated that the median is 34.0 [18]. The difference between these two studies is thought to be due to cultural differences and the barriers of living as a refugee.

In the study, the mean age was  $33.30 \pm 12.83$ , and it was determined that the awareness of RDU increased as the age increased. 577 (58.7%) of the participants were female and 406 (41.3%) were male. In the study, no relationship was found with awareness of gender-related rational use of drugs.

929 (94.5%) of the people included in the study were literate, the most common education level in the study was high school graduation with 375 (38.1%). In the study, statistical significance was found in relation to the median scores according to educational status. However, contrary to expectations, the highest median score was for primary school graduates, not higher education graduates. The lowest median score was in the literate group. The low scores of high school graduates may be due to the level of knowledge of Turkish, the level of learning the rules about health in Turkey and the amount of integration into the society. It can be said that these issues should be investigated with other studies.

In the study, there was a statistically significant difference between the scores obtained according to the nature of the place lived in Syria. However, in the grouping made according to the cut-off score, the group with the highest rate of patients with 35 points or more was those living in the town with 95 (27.2%). Those living in the city were the group that fell behind with 39 (13.4%). In this evaluation, those living in the city were statistically significantly behind the other two groups. It has been interpreted that the risk of encountering abuse in matters such as the use and supply of RDU in the city residents is high, and that it may be high because the people living in the towns are passing through more accurate steps in accessing RDU.

Contrary to the general expectations, in the studies conducted in our country, there are also those who live close to the city, women, those who have education above the secondary school level, those who have children, those who have migrated, those who live in multiple living areas, those who have SGK insurance, those who have good general health status and those who need continuous medical treatment. It was stated that the rate of using medical treatment without consulting a doctor was higher in patients. It

was stated that there was no relationship between age and the use of medical treatment without consulting a doctor [19]. In an analysis by Yapıcı et al. in 2011, it was observed that the rate of medical treatment without consulting a doctor was high in young and educated people [20].

In addition to these results, a statistically significant difference was found according to the institution where the survey was conducted in terms of age, duration of stay in Turkey, duration of stay in Malatya and total score variables.

As a result of the logistic regression analysis, the odds ratio between the variables of age, gender, marital status, duration of life in Malatya and regular working life in Malatya and the variable that the total score was created by categorizing was not found statistically significant; The odds ratio between the variables of education level, life expectancy in Turkey (years), place of residence in Syria and the institution where the survey was conducted, and the variable that the total score was created by categorizing was found to be statistically significant. As a result of the findings, primary school graduates were 2.446 (OR) times more likely to have an adequate RDU score than literate ones, while high school graduates were 2.191 (OR) times more likely to have an adequate RDU score than literate ones. . It has been observed that living less than 1 year in Turkey increases the probability of having a sufficient RDU score by 1.289 (1/OR). In Syria, the probability of having a sufficient RDU score was found to be 1.947 (OR) times higher for those living in rural areas than those living in cities. It was observed that those who went to Battalgazi G. Health Center, where the survey was conducted, were 16,326 (OR) times more likely to have an adequate RDU score than those who went to Başharık G. Health Center, while those who went to Sancaktar G. Health Center had a sufficient RDU score compared to those who went to Başharık G. Health Center. It has been observed that the probability is 49.308 (OR) times higher. This research is a cross-sectional study. Cross-sectional studies are not considered a good way to reveal the cause-effect relationship. For this reason, they are mostly descriptive and prevalence studies. However, the emergence of some unrecognized features of the public, whose situation is not clear, may lead to consideration of the reasons related to this, as causes and consequences will arise.

## Conclusion

The average of the scale scores of the patients participating in our study was about 6 points behind the cut-off value of 34, and only less than 1 in 4 were able to score 35 and above. Age, educational status, marital status, place of residence in Syria, and job status were determined as factors affecting scores at various levels from sociodemographic data. However, it has been determined that working in a regular job in Syria and living in a village or town are independent factors associated with scoring above the cut-off score, and are related to the awareness of Syrians living in Turkey about their RDU. For this reason, raising the awareness of our Syrian guests about the rational use of drugs in various ways should become a part of our health policies.

## Limitations of the study

The biggest limitation in the study was that the participants spoke different languages while collecting data. Data was collected

through the translator. Another limitation was transportation problems. The fact that there were many refugees living outside the container city also limited the group to be included in the study.

#### Conflict of interests

*The authors declare that there is no conflict of interest in the study.*

#### Financial Disclosure

*The authors declare that they have received no financial support for the study.*

#### Ethical approval

*Before starting the study, ethics committee approval was obtained from the Inonu University Clinical Research Ethics Committee (Decision No 2021/1960 and 20.04.2021), written pre-approval and permissions were obtained from the Immigrant Health Centers and Malatya Provincial Health Directorate (See Appendix).*

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