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Rational Use of Medicines During the Pandemic "The Case of Kayseri"

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Abstract

This study aimed to determine the knowledge levels, attitudes, and behaviors of the participants across in Kayseri towards rational drug use (RDU) and to investigate their practices on RDU during the Covid-19 pandemic process. Of all, 868 participants made a contribution to the research. Exploratory sequential design, which is one of the mixed method designs with quantitative and qualitative data collection analysis methods, was used. Quantitative data were collected through semi-structured interviews. The mean RDU score of the participants was 39.13±3.38, the lower limit was 16 and the upper limit was 42. In line with the findings, it was seen that 794 (91.5%) participants had a sufficient knowledge level on the topic of rational drug use and 74 (8.5%) had insufficient RDU knowledge level. In accordance with the results of the research, it was determined that there were significant differences between the RDU knowledge levels of the individuals according to their demographic and socioeconomic variables**.**

This study demonstrated that the participants could not reflect their current knowledge to their attitudes and behaviors due to the panic and fear they experienced during the pandemic despite their mean RDU scores were high. The semi-structured interviews with doctors and pharmacists supported this finding. It was concluded that the knowledge levels of participants were mostly insufficient in the questions about herbal treatment, which is one of the traditional treatment methods. It was revealed that herbal products were consumed abundantly during the Covid-19 process. Moreover, there was a tendency towards food supplements and vitamins during the pandemic process, and painkillers, antipyretics, and blood thinners were used the most within the drug category. In line with the data, an online information meeting on the use of RDU was organized with an academic specialized in the field at the schools of the project students for the students and institution teachers. In

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the literature review, since there was no other study on RDU in the Covid-19 period and as it was a study involving high school students; it is thought that this study will contribute to the field.

Keywords: Rational Drug Use, Medical Sociology, Community Health, Covid-19

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INTRODUCTION

Sociology is the branch of science that examines human societies systematically. Sociology is interested in every phenomenon and event that concerns society. Many parameters affecting the structure of individuals and society such as industrialization, politics, family, health/disease, business life, family, city, and religion are the fields of study of sociology (Günler, 2011).

Medical sociology

The World Health Organization defines health not only as the absence of disability or disease but also as a state of well-being, including physical, social, and mental aspects (Ekizer, 2020). However, the Sociology of Health studies is necessary for understanding the social structure and revealing the interrelations between institutions at the social level (Tekin, 2007). Although health/disease research seems to be only the subject of the field of medicine, it is also found among the subjects of social sciences and especially sociology (Aytaç & Kurtdaş, 2015). The number of research on the sociology of health in Turkey is small number compared to other sub-disciplines of sociology (Güven, 2014). Public health, which is one of the fields of study of Health Sociology, has an important place." Public Health" includes practices aiming to take the necessary measures for the rapidly increasing world population, rapid urbanization and industrialization, the use of resources without control and the detection of harmful factors that occur when all these processes are completed, to control the health of living things and to minimize harmful compounds (Yurtseven, 2015). Incorrect and unnecessary drug use is a the problem affecting health in Turkey as well as in the whole world (Ekenler & Koçoğlu, 2016). The negative effects of commonly found and carelessly taken medications pose a greater threat to public health than we recognize.

Drug

The drug is called the product that provides the reduction or improvement of a disease diagnosis or allows protection from the disease. (Republic of Turkey Ministry of Health, 2021). With the developments in the field of medicine in the century we live in, the number of drugs used in the diagnosis and treatment of diseases has increased. It is one of the most important tasks of people to use the drugs correctly in order to maximize the benefits to be obtained from the drugs (Gündoğar & Kartal, 2017). Increasing the number of drugs, easier access people to drugs with or without a prescription, and the question of how drugs should be used effectively brings out the term called rational use of drugs (Beggi & Aşık, 2019).

Rational Drug Use (RDU)

In health care, rational drug use is important for the health of society and the patient. Excessive, insufficient, or improper use of drugs not only harms individuals and society but also causes the current resources to be wasted. RDU is a broad period that includes the physician diagnosing the patient, writing prescriptions for the diagnosis, supplying the medicine, its usage by the patient, and monitoring the treatment process. By raising public awareness about the issue, it becomes possible to reduce unconscious drug use, alleviate pressures on doctors to prescribe unnecessary medications, provide solid information to the doctor during the diagnosis phase, and ensure compliance with the recommended treatment (Republic of Turkey Ministry of Health, 2011). The World Health Organization (WHO) defines the rational use of medicines as "the patients can easily access the medicine in sufficient doses, at the appropriate time, at the least price and as per the clinical data and individual characteristics" (WHO, 1985).

A study of TSI (TUIK) data showed a significant increase in total health spending in 2020 (Health Spending Statistics, 2020). Considering the Covid-19 pandemic process, it can be predicted that there will be a serious increase in Turkey country's health expenditures. Therefore, in order to avoid medical problems and to prevent economic losses, RDU is among the most important tasks of individuals in particular and society in general.

In the literature review, students (Karabela, Özkaya, Şimşekoğlu, Kart & Baydili, 2020; Gündoğar &Kartal, 2017; Kaya et al., 2015; Yılmaz, A. et al., 2018); healthcare professionals (Şahingöz & Balcı, 2014; Akıcı, Uğurlu, Gönüllü, Oktay & Kalaça, 2002), adults (Barutçu, Tengilimoğlu and Naldöken, 2017; Kılıç, 2020; Macit, Karaman & Parlak, 2019; Dağtekin et al., 2018) for rational drug use studies have been encountered.

After the literature review, it was found that there were incomplete or insufficient levels of knowledge and awareness of RDU. Everyone, from physicians to mass media, from pharmacists to patients, from professional organizations to regulatory authorities, has important roles in raising this awareness, raising awareness, and improving society's knowledge and practices in a positive way (Öztürk, 2020).

Covid-19 and Rational Drug Use

News about Covid-19 appears every day in mass media. Since March, when the first case was seen in Turkey, herbal products such as thyme, lavender, ginger, turmeric, sumac, carob, olive leaf, etc. have appeared in the news for their possible usage in the treatment of Covid-19. However, although the antiviral effects of these herbs on other diseases have been investigated, there are not enough studies on the effects of Coronavirus.

An unnecessarily high intake of vitamins and minerals leads to various health problems (Acar Tek & Pekcan, 2008). According to all this information, it was decided to conduct this project on RDU in the context of health sociology. In this study, it was aimed to determine the level of knowledge, attitudes, and behaviours of the study group selected from across the province, to investigate the effects of certain demographic characteristics on the level of knowledge, attitudes, and behaviours, and to investigate the opinions of individuals regarding the drug, food supplement, traditional treatment methods used by individuals during the Covid-19 pandemic. In the literature review, did not find any studies related to RDU during the Covid-19 process. This makes this study different from other studies.

METHOD

Research Design

Exploratory sequential design, which is one of the mixed method designs with quantitative and qualitative data collection analysis methods, was used in this research. In the explanatory sequential design, the aim is to apply and clarify the qualitative stage by using the results obtained with quantitative data. The design has been applied in two stages. In the first stage, quantitative data related to the research question were collected. In the second stage, qualitative data were collected to help interpret the quantitative results obtained with these data (Creswell & Plano Clark, 2011).

Study Group

The study group consisted in Kayseri of a total of 868 people including 174 high school students from 10 different high schools and 684 adults over the age of 18 selected by the convenience sampling method. Individuals who are most accessible for the research are included in the sample in the convenience sampling method, which is utilized to avoid loss of both time and labor force (Büyüköztürk et al., 2010). The data for the research was gathered between 20/12/2020 and 05/02/2021 in urban and rural locations. The required permissions have been acquired. In the study, in which quantitative data were collected, there were 587 women and 281 men from 95 different professions. This grouping of occupations facilitates analysis. The most frequent jobs (student, teacher, housewife) were chosen for grouping purposes. In addition, 174 research participants are between the ages of 14 and 17, 96 are between the ages of 18 and 30, 292 are between the ages of 31 and 40, 237 are between the ages of 41 and 50, 55 are between the ages of 51 and 64, and 14 are older than 65. Table 1 displays the distribution of the study group by age and gender.

Table 1

Distribution of Study Group Based on Gender and Age

Age	**Gender**		**Total**
	Women	**Men**	
Aged between 14-17	110	64	174
Aged between 18-30	64	32	96
Aged between 31-40	233	59	292
Aged between 41-50	151	86	237
Aged between 51-64	21	34	55
65 and over	8	6	14
Total	587	281	868

In addition to the quantitative research group, interviews were conducted with 9 participants, 3 pharmacists, and 4 doctors. To identify the interviewees, an extreme or deviant case sampling method was used. This technique examines the variability of extreme situations without concern for generalization (Büyüköztürk et al., 2010). By analysing the responses provided by members of the research group from whom quantitative data were obtained, extreme cases were identified, and interviews were performed with them.

Data Collection Tool

As a data collection tool, the Rational Drug Use Questionnaire, which consists of three parts: Personal Information Form (PIF), Rational Drug Use Scale (RDUS), and Open-Ended Questions (OEQ), was used. PIF, RDUS, and OEQ were applied to the whole sample group. Interview Form (IF) was used in qualitative data.

Personal Information Form (PIF)

The PIF consisted of a total of 13 questions, some of which asked participants to provide demographic information about themselves, such as their age and gender.

Rational Drug Use Scale (RDUS)

Demirtaş, et al., (2018) created the Rational Drug Use Scale (RDUS), which was used in this investigation. The scale's goal is to gauge people's understanding of rational drug usage. Each question has options for right, wrong, and don't know. There are 21 statements on the scale, 10 of which are true and 11 false. 2 points were given for each correct response, 1 point for "I don't know," and 0 points for an incorrect response on the evaluation scale. A total of at least 0 points and a maximum of 42 points could be attained. The level of knowledge is determined by the overall score. The researchers found that the scale had a predictive value of 34 and that those who scored 35 or above had adequate knowledge about rational drug use. The scale's Cronbach's alpha value was discovered to be 0.79. The scale's items were found to have a distinctiveness index between 0.20 and 0.64 and item difficulty indices between 50% and 90%. The item-total correlations ranged from 20% to 51%. The scale was developed with adults (18 years and older) in mind. Both those above the age of 18 and people between the ages of 14 and 17 are included in this research. It was decided to consult an expert to find out whether the scale also applies to people between the ages of 14 and 17. It was observed that the scale comprised phrases that the 14–17 age range could easily understand, which was consistent with the judgments of three experts. In addition, the computed Cronbach alpha reliability coefficient for those aged 14 to 17 using the data gathered was found to be 0.76.

Open-Ended Questions (OEQ)

There are 11 open-ended questions in the OEQ section concerning rational drug use in the Covid-19 process. Did you use over-the-counter medication (painkillers, antipyretics, etc.) during the Covid -19 Epidemic? Is an example of a question used in this section?

Interview Form (IF)

Semi-structured interviews with 9 individuals, chosen from those from whom quantitative data was gathered, were conducted using IF. For the newly created IF, necessary changes were made in accordance with the suggestions after seeking the views of 3 experts. The interviews took around ten minutes. The selection of respondents for this study was conducted utilizing the extreme or deviant case sampling method, which entailed the deliberate inclusion of individuals based on their responses in the quantitative component of the research.

Data Collection and Analysis

In order to collect data, the data collection form consisting of 3 sections created as a result of the literature review was applied to the participants. The data were analyzed using SPSS 22 program. It was investigated whether the data showed normal distribution or not. In this study, skewness and kurtosis coefficients, normality tests, box plot, Q-Q graph, stem-leaf plot, and histogram were examined, and it was seen that there was no normal distribution. Therefore, non-parametric tests were used. "Mann Whitney U-Test" was applied to determine whether there was a significant difference between the "Rational Drug Use Scale" scores according to the socio-demographic variables such as gender, marital status, family status, employment status, social security, chronic illness, and regular drug use of the study group. Pairwise comparisons for the variables determined to be different by the Kruskal Wallis test were made with the Mann Whitney U test. "Kruskal-Wallis H Test" was applied to determine whether there was a significant difference between the "Rational Drug Use Scale" scores according to age, occupation, education level, family income level, long-term residence, and distance to the health institution of the study group. All examinations were evaluated according to the p=0.05 significance level. In the qualitative part of the study, semi-structured interviews were conducted with 3 pharmacists and 4 doctors, and 9 participants who gave attention-grabbing answers to the questionnaire. In addition, an online information conference on rational drug use was offered by a Faculty Member of Gaziantep University Medical Pharmacology Department to two science and two Anatolian high school students and teachers affiliated with project students' school and parents.

A descriptive analysis approach was adopted in the analysis of qualitative data. The aim of descriptive analysis is to present the findings to the reader in an organized and interpreted manner. (Yıldırım & Şimşek, 2011).

FINDINGS

When the data obtained in this study were examined, it was determined that they did not show normal distribution, therefore, the analyzes were performed with non-parametric tests (since they did not meet the prerequisites of parametric tests). In order to determine the normal distribution of the data, the skewness and kurtosis coefficients were examined, and it was seen that the skewness and kurtosis coefficients were outside the range of -2 and +2. If the skewness and kurtosis coefficients are in this range, the data are considered to have a normal distribution (Garson, 2012; Tabachnick & Fidell, 2013). In addition, when histogram, box-line graph, Q-Q graph and stem leaf graph were examined, it was seen that the data did not show normal distribution. Mann-Whitney U test was used to determine whether there was a significant difference between the scores obtained from two

unrelated samples in the analysis of the demographic characteristics of research group such as gender, marital status, family status, employment status, social security, chronic illness status diagnosed by physician and regular drug use variables.

Table 2

Mann-Whitney U Test Results According to Some Demographic Characteristics of the Participants

Variables		**n**	**RowAvg**	**U**	**p**	**Significant difference**
Gender	Female	287	449.92	73489.000	.000	Difference in favour of woman
	Male	281	402,53			
Marital Status	Married	584	478.87	55847.500	.000	Difference in favor of married
	Single	284	399.53			
Family situation	Extended	131	371.74	40052.000	.002	Difference in favor of nuclear
	Nuclear	737	445.66			
Employment Status	Employed	453	492.05	67925.000	.000	Difference in favor of employed
	Unemployed	415	371.68			
Social Security	Present	798	448.18	17009.500	.000	Difference in favor of having social security
	Not Present	70	278.49			

In the study, the Effect size (Cohen d) was calculated using the https://www.psychometrica.de/effect_size.html web address. Cohen (1988) effect sizes was defined as "small, d = .2,"; "medium, d =.5," and "large, d =.8. The Cohen's effect size was obtained .38 for levels of the social security.

Table 3

Mann-Whitney U Test Results Regarding the Health Status of the Participants

Variables	Yes/No	n	RowAvg	U	p	Significant difference
Do you have a chronic disease diagnosed by a physician?	Yes	184	454.01	59337.500	.225	No Difference
	No	684	429.25			
Do you regularly use any medication?	Yes	204	457.63	63008.500	.125	No Difference
	No	664	427.79			

When Table 2 and Table 3 were examined, it was determined that there were significant differences in the level of RDU knowledge according to gender, marital status, family status, employment status, and social security variables, and there were no statistically significant differences according to chronic illness status diagnosed by physician and regular drug use variables.

Kruskal-Wallis H Test is used for unrelated multiple sampling in non-parametric statistics. Since there are multiple samples in the Rational Drug Use questionnaire in terms of age, educational status, occupation, long-term residence, family income level, and distance to the health institution, the findings were obtained with this test.

Table 4

Kruskal-Wallis H Test Findings of Some Demographic Characteristics of the Study Group According to the Rational Drug Use Survey

Variables		n	Row Avg.	sd	χ^2	p	Significant difference
Age	14-17	174	315.99	5	105.404	.000	No difference between 14-17 and 18-30; 31-40 and 41-50; 41-50 and 51-64 age groups There is a significant difference between other pairs
	18 - 30	96	343.70				
	31-40	292	471.15				
	41-50	237	503.53				
	51-64	55	543.05				
	Over 65	14	170.82				
Educational Status	Primary School	47	420.76	4	71.372	.000	No difference between primary school- university; university-postgraduate education levels. There is a significant difference between other pairs
	Secondary School	56	295.75				
	High School University	292	265.54				
	Postgraduate Degree	359	485.92				
		114	523.04				
Occupation	Student	191	317.64	3	59.254	.000	No difference between teacher-housewife; teacher-other occupational groups There is a significant difference between other pairs
	Teacher	254	437.84				
	Housewife	181	436.91				
	Other	242	493.59				
Long-term Residence	City	752	443.13	2	7.084	.029	No difference between city- village; district-village There is a significant difference between other pairs.
	District	84	384.26				
	Village	32	363.64				
Family Income Level	Minimum Wage and Below	109	51.23	3	20.202	.000	There is no significant difference between below the minimum wage - above 15001 TL; 2826 TL - 8000 TL- 15001 and above. There is a significant difference between other pairs
	2826TL-8000 TL	464	39.71				
	8001 TL -15000TL	221	474.63				
	15001 TL and Over	74	98.32				
Distance to Health Organization	Less than 1 km	413	430.68	2	10.691	.005	There is no difference between less than 1-3 km and 1-3 km There is a significant difference between other pairs
	1-3 kilometers	353	458.06				
	More than 3 kilometers	102	368.45				

When Table 4 is examined, it is determined that there are significant differences between the groups in terms of RDU knowledge level according to age, educational status, occupation, long-term residence, family income level, and distance to the health institution.

The highest Cohen's effect size was obtained for levels of the age (ES=0.73), followed by educational status (ES=0.58) and the occupation (ES=0.52).

The mean CDUS score of the research group was 39,13±3,38, the median (median) was 40,00, the lower limit was 16, and the upper limit was 42. The findings of the Rational Drug Use Scale of the individuals in the research group can be seen in Table 5.

Table 5

The Distribution of the Rational Drug Use Scale Answers from the Study Group

Variables	**Yes**		**No**		**I don't know**	
VARIABLES	n	%	n	%	n	%
1.Only doctors can suggest medicine.	824	94,9	29	3,4	15	1,7
2. There is no harm in suggesting medicine to close circles experiencing similar symptoms.	53	6,1	783	90,2	32	3,7
3..Doctors can determine whether we need medical treatment when we got sick	847	97,6	8	0,9	13	1,5
4. While drugs have positive effects, they can also have negative effects.	853	98,3	-	--	15	1,7
5.All drugs cause the same side effects.	26	3,0	800	92,2	42	4,8
6.It is not harmful to use drugs more frequently than the doctor's instruction.	62	7,1	774	89,2	32	3,7
7. The usage guidelines reveal whether the medications should be taken on an empty or full stomach.	749	86,3	60	6,9	59	6,8
8. Healing may be hampered if the drug is not taken for the full time that the doctor has prescribed.	774	89,2	67	7,7	27	3,1
9. Herbal products can be used instead of drugs.	172	19,8	512	59	184	21,2
10. There is no harm to consume herbal products according to your preference.	38	4,4	742	85,5	88	10,1
11. If we see any adverse effects while taking medicine, we should consult with our doctor.	859	99	1	0,9	8	0,1
12. While our doctor is planning our therapy, we must notify him or her of any medications we are already taking.	852	98,1	5	0,6	11	1,3
13. We can quit taking medicine when we feel better during the treatment.	84	9,7	725	83,5	59	6,8
14.We can ask where to store our drugs at home to our pharmacist.	817	94,1	26	3	25	2,9
15. Each drug's treatment period is equal.	14	1,6	819	94,4	35	4
16. Herbal products are totally harmless.	25	2,9	749	86,3	94	10,8
17. Medicine can be used in the same amount for all age groups.	13	1,5	836	96,3	19	2,2
18. We can recover when we use the right amount of medication—not too much.	808	93,0	30	3,5	30	3,5
19. More expensive drugs are more effective.	30	3,5	794	91,5	44	5,0
20. Every drug can be used during pregnancy safely.	-	-	835	96,2	33	3,8
21. Some drugs have addictive features.	470	54,2	342	39,4	56	6,4

According to Table 5, 19,8% of the group stated that "Herbal products can be used instead of drugs. "is true while 21,2% stated that they did not know the answer. While 86,3% of the participants said that the statement of "Herbal products are totally harmless." is correct, 10,8% said they do not know. Considering the statement "We can quit taking medicine when we feel better during the treatment.", 9,7% of the participants stated yes, and 6,8% said I don't know. While 99% of the participants said that the statement "If we see any adverse effects while taking medicine, we should

consult with doctor.” is correct, 86,3% of the participants stated that the statement “The usage guidelines reveal whether the medications should be taken on an empty or full stomach.” is correct. On the other hand, 91,5% of the participants said it is incorrect to the statement of “More expensive drugs are more effective.” while and 5% answered as "I don't know".

The study's findings revealed that 794 (91.5%) of the participants had a sufficient level of knowledge on rational drug use, whereas 74 (8.5%) of them did not.

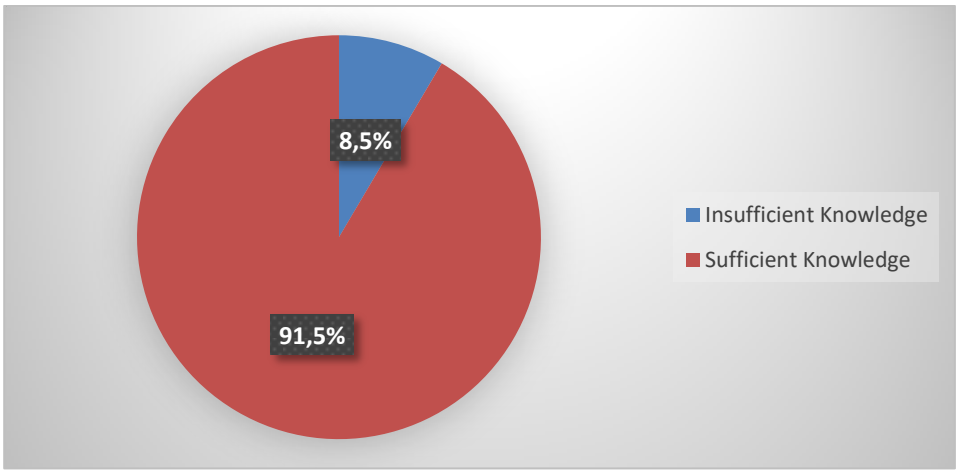

Chart 1. The knowledge levels of participants on rational drug use

When the 74 participants who do not have sufficient knowledge about rational drug use in this study were examined separately in terms of variables, it has been found that 42 of them are female, 45 of them are married, 56 of them have social security, 33 of them have between the ages of 14-17, 35 of them have a high school education, 26 of them are students, 23 of them are teachers, 63 of them live in the city, 37 of them have a monthly income below the minimum wage.

Following are the results of the open-ended questions that were created using professional opinions and applied to the research group.

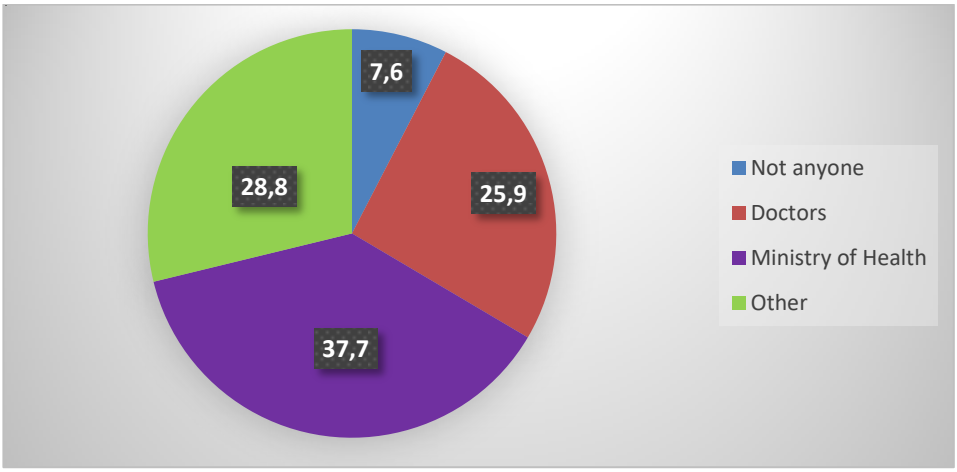

Chart 2. The Study group's trusted sources regarding the corona virus

Considering the answers to the question of "which sources do you trust regarding the Corona Virus?"; 66 people (7,6%) of the study group stated that they do not trust anyone, 225 people (25,9%) stated that they trust doctors, 327 people (37,7%) trust the Ministry of Health, and 250 (28,8%) people trust other institutions and organizations (world health organization, scientific board, mass media, etc.).

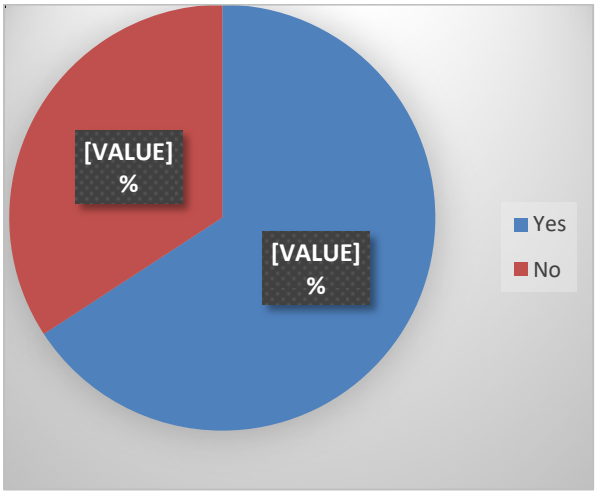

Chart 3. Using over-the-counter drugs during the Covid-19 pandemic outbreak

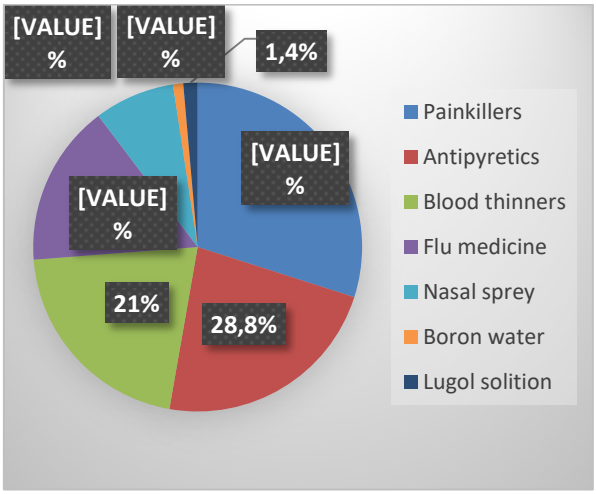

Chart 4. Over-the-counter drug groups using during the Covid-19 pandemic outbreak

Of the study group, 571 people (65,8%) stated that they used over-the-counter drugs during the Covid-19 outbreak. Also, 171 (29,9%) participants stated that they used painkillers, 130 (22,8%) of them used antipyretics, 120 (21%) of them used blood thinners, 91 (15,9%) people used flu medicine, 45 (7,9%) people used the nasal spray, 6 (1%) of them used boron water and 8 (1,4%) of them used Lugol solution.

Among them, 656 people (75,6%) stated that they used food supplements and herbal products to avoid getting sick during the Covid-19 outbreak process. Of those participants, 236(48%) people stated that they used vitamins, 187 (28,5) people used herbal teas, 86(13,1%) people used thyme juice, 68 (10,4%) people used olive leaves, and 79 (12%) individuals used other plants.

In this research, semi-structured interviews were conducted with 3 pharmacists, 4 doctors, and 9 people from the research group, determined by the deviant case sampling method, and as a result of examining these interviews through descriptive analysis, the qualitative findings of this study were obtained.

Pharmacists stated that drug demand (especially painkillers, blood thinners, etc.) increased in the Covid-19 process compared to the pre-Covid-19 era, but this increase was seen in food supplements and vitamin groups rather than therapeutic drugs. Individuals had a tendency to use immune suppressants, vitamin C and zinc, especially for the elderly and children, to protect themselves and their environment.

The doctors interviewed stated that there was an increase in the number of patients during the Covid-19 pandemic and they prescribed more drugs. They said that the patients requested antibiotics, especially with vitamins C and D. They stated that people were generally influenced by the media and an advertisement, asking for drugs after reading scientific publications was quite rare and they did not perceive patients' awareness of RDU as sufficient. They said that the patients stopped taking the medication when they feel recovered but not according to the treatment period and thought that they did not know about the side effects of the products.

Lastly, the 9 participants we interviewed stated that they used vitamins and supplementary foods during the pandemic process and were affected by the opinions of their close circle and media communication tools when using these products.

In line with the data obtained, an online information meeting on the use of RDU was organized by a Faculty Member of Gaziantep University Medical Pharmacology Department at the schools of the project students for the students and institution teachers who educate those students.

CONCLUSIONS AND DISCUSSION

People's drug usage is influenced by a variety of factors, including their socio demo graphic profile and how their social environment affects them, in addition to the conduct of doctors when recommending drugs. Research on rational drug use has increased, according to a review of studies

carried out in Turkey (Ekenler & Koçoğlu, 2016; Yılmaz et al., 2018; Dağtekin et al., 2018; Beggi & Aşık, 2019; Akıcı et al., 2020). It has been noted that there are significant gaps in information about RDU in the majority of research (Barutçu, Tengilimoğlu and Naldöken, 2017; Beggi & Aşık, 2019). According to the mean RDUS score, participants had a high degree of sufficient knowledge about the topic as a consequence of the research. The researchers Macit, Karaman and Parlak (2019), concluded that the participants had a high degree of RDU knowledge. This circumstance was seen as the result of the Ministry of Health's programs working well. Participants said that the majority of medicines used without seeking medical advice were painkillers (82,3%). Painkillers (29,9%) came in the top position among the medications taken throughout the Covid-19 procedure without a prescription in this study. It was found that married individuals had more aware attitudes and actions on RDU than single people overall in both Deniz (2019) and this research.

According to Barutçu et al. (2017), a significant percentage of individuals attempt to have doctors add medications to the prescription while also using drugs on their own or based on recommendations from their social contacts. In this research, doctors and pharmacists who shared their thoughts on this topic were interviewed. During the Covid-19 outbreak, 139 of participants (16%) requested assistance from their neighbours, family, and close friends. This research does have certain limitations. When assessing the findings, these limitations should be taken into consideration. Because the study only applies to people in the province who accept online research, there is an issue with generalizing the research findings. In addition, only 14 participants over the age of 65 could be contacted since the questionnaire had to be completed online. Despite these limitations, the study will add to the body of knowledge since it is the only one to look at people's views and actions about RDU throughout the Covid-19 pandemic.

In this study, nearly half of the participants who used over-the-counter medications sought advice from pharmacists or other healthcare professionals; the remainder claimed to have made their decisions based on prior experiences, the advice of friends, and information they had gathered from television and the internet. The majority of participants in the research by Ekenler and Kocaoğlu (2016) were women (74,5%), and it was thought that this scenario may have been impacted by the fact that the study took place during the day. The fact that 587 (67,6%) of the participants in this study where women can be attributed to the online application of the survey, and they are being at home during the epidemic process.

The present study revealed that a substantial proportion of the participants in the study exhibited a preference for utilizing alternative treatment options and home remedies prior to seeking medical attention when faced with a health issue.

According to research by Hatipoğlu and Özyurt (2016), rational drug use is more prevalent in nuclear families, people who are still employed, people who earn more money than they spend, people who pay attention to their spouses, and people with higher education. These findings align with those of in this study.

According to the results of the research, there were significant differences in the knowledge levels of rational drug use of the individuals according to their demographic and socio-economic variables. As the findings regarding the socio-demographic characteristics of the research group suggest, it was seen that the level of knowledge about RDU was lower in individuals over 65 years of age and in students belonging to the age range of 14-17. As the education level of individuals increased, their awareness of RDU also increased. There was a significant difference in favour of women in the gender variable, in favour of married people in the marital status variable, in favour of nuclear family in the family status variable, in favour of employees ones in the employment status variable, and favour of those with social security.

The RDUS score of the study group revealed that 794 (91,5%) of the participants had adequate knowledge regarding rational drug use. It is believed that the fact that 374 of the participants (54,6%) were bachelor's and master's degree holders influenced this conclusion. Even though the average level of rational drug usage among people is relatively high, participants' panic and fear prevented them from using this information in their attitudes and actions during the pandemic. Semi-structured interviews with pharmacists and doctors supported this conclusion. The study found that the degree of knowledge of rational drug usage was inadequate for 74 (8,5%) of the participants. The majority of these 74 individuals are high school students aged 14 to 17 and those over 65 years old, primary school graduates, people whose family income is below the minimum wage, those living in the city, those living closer to the health institution, those who are married, those who have in nuclear families, and those with social security. The conclusion was that the degree of knowledge of the participants about herbal therapy, one of the traditional treatment methods, was poor.

RECOMMENDATIONS

In conclusion, one can see that herbal products were used abundantly during the Covid-19 process. Additionally, it was discovered that throughout the pandemic phase there was a high propensity toward food supplements and vitamins and that painkillers, antipyretics, and blood thinners were used the most often among the class of medications.

It is recommended to provide trainings on rational drug use. Non-formal and formal education improved to promote rational drug use awareness. Brochures, informative studies, training, and

seminars can be used to maintain the knowledge levels of individuals in extraordinary situations such as a pandemic. Awareness should be raised in the community about unnecessarily used and wasted medicines and their effects on both our economy and the environment. It is not possible to generalize the findings of this study to Turkey.

On the other hand, it is thought that this study will contribute to the field since there is no study in the literature on RDU during the Covid-19 process which also includes high school students.

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