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Rational use of medicines in the older adult: the role of trust in the health care system

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Abstract

Background More than 50% of drugs used by people worldwide are used inappropriately. This rate increases even more in older adults due to reasons such as memory loss, forgetfulness, and polypharmacy. The population of older adults is increasing worldwide, and therefore, rational drug use in older individuals is becoming even more important.

Objective This study aims to determine the effects of demographic characteristics and trust in the health care system on the rational use of medicines among older adults.

Design A cross-sectional study design was employed, and data were collected from older adult participants using structured questionnaires. Data were collected using a convenience sampling method from 443 elderly individuals who presented to public hospitals and private pharmacies in Türkiye. Multiple regression analyses were conducted to evaluate the predictive power of these variables on the rational use of medicines.

Results Trust in the health care system was found to be a significant positive predictor of rational use of medicines ($R^2 = 0.167$, $p < 0.001$).

Conclusion Findings suggest the need for targeted interventions that take into account sociodemographic and psychological factors to support the safe use of medications in aging societies.

Patient or public contribution Increasing trust in the health care system also strengthens individuals' trust in rational drug use. This result shows that increasing trust in the health care system is important in encouraging conscious drug use in society.

Keywords Geriatrics, Older adult, Rational use of medicines, Trust in the health care system, Trust

Introduction

The global population is aging, and according to the World Health Organization (WHO), one in six people worldwide will be aged 60 and over by 2030. Additionally, the number of people aged 80 and over is projected to triple between 2020 and 2050 [1]. According to the Turkish Statistical Institute (TurkStat) Population projections, it is estimated that Turkey's older adult population rate will be 11.0% in 2025, 12.9% in 2030, 16.3% in 2040, 22.6% in 2060, and 25.6% in 2080 [2]. Due to this increase in the older adult population, research on older adult health has increased significantly in recent years [3].

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Aging is an inevitable process with sociological, chronological, and biological implications [4]. Cognitive decline in older adults may lead to medication nonadherence or inappropriate dose adjustments, compromising treatment effectiveness [5]. The aging population and polypharmacy may increase the risk of adverse drug events such as drug-drug and drug-disease interactions, potentially leading to inappropriate drug prescribing and medication nonadherence [6]. In addition, older adult individuals may be subject to incorrect medication use due to reasons such as repeated prescriptions by more than one doctor, patients purchasing unauthorized nonprescription medications, and patients stopping taking unauthorized medications after symptoms improve [7]. Loss of body mass and decreased liver and kidney function narrow the safe drug range in older adults, increasing the risk of drug toxicity. Individuals may experience adverse reactions and drug interactions if they use more than one medication and overdose [8]. More than 50% of drugs used by people worldwide are prescribed inappropriately, and more than 50% of drugs consumed are not used correctly by people [9]. For this reason, the rational use of medicines in the elderly is very important.

Rational use of drugs is defined as "a set of rules that ensure that patients receive medicines appropriate to their clinical needs, for the appropriate duration and in doses that meet their personal needs, at the lowest cost to themselves and society" [9]. If drugs are not used following the principles of rational use of medicines, many negative consequences may occur during the treatment process. This may lead to results such as increased mortality and morbidity rates, prolonged treatment duration, treatment failure, side effects, development of drug resistance, recurrence of the disease, decreased patient confidence and compliance, and increased treatment costs [10, 11]. Patient safety has emerged as a fundamental concern and has become a priority in healthcare services [12].

This study reveals that demographic factors and trust in the healthcare system can play an effective role in promoting the rational use of medicines among older adults. According to WHO, the health care system is defined as "the totality of people, institutions, and resources brought together in line with the policies determined to improve the health of the population they serve in the process of responding to their legitimate expectations by protecting people against the costs of illness through various activities, with the primary purpose of improving health" [13]. Trust in the healthcare system includes healthcare providers, healthcare institutions, and healthcare payment institutions [14]. In medicine, trust is defined as "a set of beliefs and expectations that a physician will behave in a certain way" [15]. The trust in health care providers dimension expresses the individual's sense of trust in the health professional (physician, nurse, etc.) who provides health services. The level of trust in healthcare payers refers to the level of trust individuals have in public or private insurance companies that cover their healthcare expenses. The trust in health care institution dimension describes the individual's sense of trust in the health institutions, such as hospitals, clinics, and health centers, from which they receive health services [16]. Trust is one of the key factors in the delivery of healthcare services [17]. Especially in medical activities, trust forms the basis of the patient-doctor relationship [18]. Some research results have shown that trust in nurses reduces patients' clinical symptoms, improves their quality of life, and increases self-management ability, compliance, and satisfaction rate in patients [19, 20].

For these reasons, it is believed that identifying the factors affecting rational drug use among older adults is important for the health of older adults and the national economy, and that the research results will contribute to researchers and policymakers. he current literature shows that the rational use of medicines is significantly influenced by individual and demographic factors such as gender, age, socioeconomic status, and education [21–23]. However, no study has been found in the literature addressing the effect of trust in the health care system on the rational use of medicines, which reveals a significant lack of information. This study aims to examine the effects of demographic characteristics and trust in the health care system on the rational use of medicines in older adult individuals. Based on the findings, it is aimed to develop innovative and applicable solutions that will support the rational use of medicines among older adults.

Method

Sampling

A cross-sectional, descriptive, and quantitative design was employed. This study was conducted on older adults who applied to public hospitals and private pharmacies in Kutahya province, Türkiye. Research data were collected via a face-to-face survey method between September 2023 and December 2023. This study was conducted with the participation of a total of 443 elderly adults. The conditions for inclusion in the study were determined as being 65 years of age or older, having good mental health, not having a hearing impairment, and being a volunteer. Those who did not meet these conditions were eliminated. In this study, the convenience sampling method was used, and data were collected by respecting the backgrounds of the individuals. Data were collected using structured face-to-face surveys.

Data collection tools

The "Sociodemographic Information Form" was used to collect sociodemographic information of the participants, the "Multidimensional Trust Scale in the Health

Care System" was used to measure the level of trust in the health care system, and the "Rational Drug.

Use Scale" was used to measure the level of rational use of medicines.

A sociodemographic information form was used to determine the sociodemographic status of the participants. This form included statements regarding the participants' age, gender, marital status, level of education, income, type of health insurance, the last time they benefited from health services, graduation from a health-related department, employment status in the health sector, and hospital type preference.

To measure the trust levels of older adults in the health care system, the "Multidimensional Trust in the Health Care System Scale" was developed by Egede and Ellis (2008) and adapted to Turkish by Dinç et al. (2013) was used [14, 24]. There are 17 statements in the trust in the health care system scale, and the scale items are 5-point Likert-type (5 = strongly agree to 1 = strongly disagree). The range of scores that can be obtained from the scale varies between 17 and 85. This study determined the Cronbach's alpha value for the trust in health care system scale to be 0.95.

The "Rational Drug Use Scale" (RDS) developed by Çakmak and Çınar Pakyüz (2020) was used to measure the rational use of medicines level of the participants [25]. There are 36 statements on the scale. For scoring the scale items, never (0), sometimes (1), and always (2). In this study, the Cronbach's alpha value of the Rational Use of Medicines Scale was determined as 0.85.

Data analysis

The data were analyzed using the IBM SPSS Statistics 25.0 software package. In the analysis of sociodemographic data, the Kolmogorov-Smirnov Test was used to test the normal distribution of the data. In examining the difference between variables showing normal distribution, the Independent Samples T Test was used for two groups, in examining the difference between two independent variables not showing normal distribution, the Mann-Whitney U Test was used, and in examining the difference between three or more independent variables, the Kruskal-Wallis Test was used. Skewness and kurtosis values were examined to evaluate whether the data belonging to the scales showed normal distribution. It was found that the skewness and kurtosis values varied between −0.607 and −0.34. Since the data showed normal distribution properties, parametric methods were preferred in data analysis [26]. Pearson Correlation Test was used to detect the relationship between dependent and independent variables, and Linear Regression Analysis was used to test the effect of the independent variable on the dependent variable. For statistical significance, $p < 0.05$ was considered significant.

Results

This study was conducted with 443 participants. The findings regarding the demographic characteristics of the participants are shown in Table 1. 81.5% of the participants were between the ages of 65–74, 18.5% were 75 years old and above, 52.6% were male, 78.6% were primary school graduates, 66.6% had an income below 10,000 Turkish Lira (TL), 91.6% preferred public health institutions, and 95.9% had chronic diseases.

The differences in the participants' trust in the health care system and rational use of medicines according to their socio-demographic characteristics were examined, and the analysis results are shown in Table 1. The findings were disaggregated according to these variables to highlight differences and provide an inclusive interpretation. The mean score for rational use of medicines among females (2.82 ± 0.13) was higher than that of males (2.78 ± 0.14), and this difference was found to be statistically significant ($p < 0.05$). It was found that the average rational medication use score of individuals without chronic diseases (2.87 ± 0.08) was higher than that of individuals with chronic diseases (2.80 ± 0.13) and that the difference was statistically significant ($p < 0.05$). The data confirmed that the average score of illiterate individuals' trust in the health care system (4.17 ± 0.57) was higher than the average of high school graduates (3.78 ± 0.49), and the difference was statistically significant ($p < 0.05$).

Table 2 presents the relationship between participants' demographic data, trust in the health care system, and rational use of medicines. There is a very weak positive correlation between rational use of medicines and chronic disease status ($r = 0.113$, $p = 0.017$). There is a weak positive relationship between rational use of medicines and the health care system ($r = 0.353$, $p < 0.001$). A very weak negative relationship exists between trust in the health care system and education level and income status ($r = -0.174$ and -0.145, $p < 0.05$) (Table 2).

The results of the multiple regression analysis conducted to examine the impact of demographic variables and trust in the health care system on rational use of medicines are presented in Table 3. In Model 1, the influence of demographic variables on the rational use of medicines is assessed. These variables collectively explained 4.3% of the variance in the rational use of medicines ($R^2 = 0.043$, $p < 0.001$). In particular, with each unit increase in gender (female = 1, male = 2), the rational use score for drugs decreases by 0.106 ($\beta = -0.106$, $p < 0.05$). In contrast, a one-unit increase in chronic disease (yes = 1, no = 2) results in a 0.139 increase in the rational use of medications score ($\beta = 0.139$, $p = 0.006$).

Model II illustrates the combined effect of demographic variables and trust in the health care system on the rational use of medicines. The variables included in this model accounted for 16.7% of the variance in the

Table 1 Characteristics of the study population ($n=443$)

		N	%	Trust in the health care system M ± SD	Rational use of medication M ± SD
Age	65–74	361	81.5	3.95 ± 0.52	2.80 ± 0.13
	≥ 75	82	18.5	3.97 ± 0.52	2.78 ± 0.13
	Test Statistics[1]			−0.139	−1.307
	p			0.890	0.191
Gender	Female	210	47.4	3.97 ± 0.53	2.82 ± 0.13
	Male	233	52.6	3.93 ± 0.51	2.78 ± 0.14
	Test Statistics[2]			0.668	2.726
	p			0.504	**0.007***
Health institution selection	Public	406	91.6	3.95 ± 0.52	2.80 ± 0.13
	Private	37	8.4	3.97 ± 0.48	2.79 ± 0.12
	Test Statistics[1]			−0.303	−0.314
	p			0.762	0.753
Chronic disease	Yes	425	95.9	3.96 ± 0.52	2.80 ± 0.13
	No	18	4.1	3.84 ± 0.35	2.87 ± 0.08
	Test Statistics[1]			−0.650	−2.563
	p			0.515	**0.010***
Income	*< 10.000 TL*	288	65.0	3.98	2.81 ± 0.13
	≥ 10.000 TL	155	35.0	3.89	2.79 ± 0.14
	Test Statistics[2]			1.829	1.418
	p			0.068	0.157
Educational level	Not literate[a]	36	8.1	4.17 ± 0.57	2.86 ± 0.12
	Primary education[b]	348	78.6	3.96 ± 0.50	2.79 ± 0.13
	High school[c]	47	10.6	3.78 ± 0.49	2.79 ± 0.14
	University graduate[d]	12	2.7	3.69 ± 0.65	2.82 ± 0.12
	Test Statistic[3]			14.568	9.330
	p			**0.002*** (a-c)	0.251

Mann-Whitney U test[1], Independent sample t test[2], Kruskal Wallis[3], *$p < 0,05$

Table 2 Correlation analysis for demographic data, rational use of medicines, and trust in the health care system ($n=443$)

Variables		1	2	3	4	5	6	7	8	9
Age[1]	***r***	1								
	p									
Gender[2]	***r***	−0.157**	1							
	p	0.001								
Educational level[3]	***r***	−0.276**	0.305**	1						
	p	0.000	0.000							
Marital status[4]	***r***	0.063	−0.193**	−0.277**	1					
	p	0.183	0.000	0.000						
Income[5]	***r***	−0.406**	0.232**	0.714**	−0.305**	1				
	p	0.000	0.000	0.000	0.000					
Health institution selection[6]	***r***	−0.293**	0.123**	0.507**	−0.133**	0.569**	1			
	p	0.000	0.009	0.000	0.005	0.000				
Chronic disease[7]	r	−0.065	−0.034	0.234**	−0.091	0.307**	0.227**	1		
	p	0.169	0.481	0.000	0.056	0.000	0.000			
Trust in the health care system[8]	r	0.034	−0.032	−0.174**	0.043	−0.145**	0.014	−0.043	1	
	p	0.481	0.503	0.000	0.372	0.002	0.773	0.364		
Rational use of medicines[9]	r	−0.012	−0.129**	−0.044	0.090	−0.071	−0.010	0.113*	0.353**	1
	p	0.795	0.007	0.358	0.058	0.138	0.831	0.017	< 0.001	

**. Correlation is significant at the 0.01 level (2-tailed)

*. Correlation is significant at the 0.05 level (2-tailed)

Table 3 Multiple linear regression analysis of participants' socio-demographic data and the effect of trust in the health care system on rational use of medicines

Variables	Model 1					Model 2				
	β	95% CI		*p*	VIF	β	95% CI		*p*	VIF
Age	−0.062	−0.005	0.001	0.231	1.227	−0.057	−0.005	0.001	0.239	1.227
Gender	−0.106	−0.056	−0.002	0.035	1.143	−0.116	−0.057	−0.007	0.014	1.144
Educational level	0.045	−0.015	0.030	0.521	2.218	0.113	−0.003	0.040	0.087	2.256
Marital status	0.059	−0.007	0.029	0.240	1.138	0.066	−0.005	0.030	0.160	1.138
Income	−0.137	0.000	0.000	0.074	2.666	−0.092	0.000	0.000	0.201	2.683
Health institution selection	0.016	−0.049	0.065	0.782	1.553	−0.046	−0.076	0.031	0.409	1.584
Chronic disease	0.139	0.028	0.165	0.006	1.130	0.139	0.033	0.160	0.003	1.130
Trust in the health care system						0.362	0.072	0.119	0.000	1.054
R^2	0.043					0.167				

Model 1: Socio-demographic data

Model 2: Socio-demographic data and trust in the health care system

rational use of medicines (R^2 = 0.167, $p < 0.001$). Notably, every one-unit increase in trust in the healthcare system, the score of rational use of medicines increases by 0.36 (β = 0.362, $p = 0.006$).

Discussion

The results of this study provide valuable suggestions regarding the impact of demographic variables and healthcare system choices on the rational use of medicines among older adults. The results of multiple regression analysis to determine the impact of independent variables on rational use of medicines are presented in Table 3. The effect of demographic variables on the rational use of medicines was evaluated in Model 1. It was determined that these variables collectively explained 4.3% of the variance in rational use of medicines. Among demographic variables, gender was determined to be a significant predictor. Being male is significantly associated with reduced rational medication use. The results also showed that the absence of chronic disease increased the rational use of medicines. These findings suggest that older adults with chronic diseases are more likely to engage in irrational medication use. They also highlight the role of factors related to older adults' health status in irrational medication use. Results showed that older adults with chronic diseases use medications more irrationally. Additionally, individuals with chronic diseases tend to use multiple medications, consistent with previous literature showing that multiple medication use increases the risk of irrational medication use [27].

Findings indicated that women used drugs more rationally than men (Table 1). These findings are consistent with existing studies in the literature and support previous research in the relevant field [27, 28]. Females have a higher rate of rational use of medicines due to reasons such as applying to health services more frequently [29], being more conscious and careful about health issues [30], and complying more with medication instructions [28]. These findings highlight the role of demographic factors in shaping the rational use of medicines behaviors among older adults.

Model II highlights the broader impact of demographic variables and trust in the health care system on drug use. The variables in this model explain more of the variance in drug use than Model I. Among the predictors, trust in the healthcare system emerged as a particularly influential factor. Specifically, a one-unit increase in trust was associated with a 36.2% increase in rational use of medicines, suggesting that individuals with higher levels of trust in healthcare institutions are significantly more likely to engage in rational medication practices. This finding aligns with previous research demonstrating that trust in healthcare providers and institutions encourages individuals to seek professional guidance, adhere to prescribed treatments, and avoid self-medication. In a study conducted in China, they determined that trust in nurses reduced clinical symptoms in patients and increased quality of life, self-management ability, compliance, and satisfaction rate in patients [19, 20]. Another study showed that doctor-patient communication plays an important role in establishing patients' trust in physicians, and that trust in physicians positively affects vaccination attitudes and H1N1 vaccination behavior [31]. Trust in healthcare professionals may be effective in encouraging individuals to adhere more closely to prescription instructions, increase their willingness to seek counseling and reduce unnecessary medication use. Trust in the health care system is the combination of trust in health care providers, trust in the health care institution, and trust in the health payers [16]. In healthcare, collaboration between service providers, patients, and financial institutions, trust between stakeholders is crucial [32]. High trust in the health care system can support rational use of medicines by encouraging individuals to seek medical help from healthcare professionals and to use drugs by their prescriptions. Additionally, trust in the

healthcare system can enable informed decision-making and be effective in reducing unnecessary drug use.

The results showed that high school graduates had lower trust in the health care system than those who were illiterate. This result is consistent with previous studies showing that individuals with higher levels of education have less trust in the healthcare system [16, 33]. Individuals with a higher level of education are more likely to access and learn more detailed information about the health care system. If individuals access information about problems or deficiencies in the system, this may cause their trust in the system to decrease.

Strengths and limitations

It is the first study in the literature to examine the relationship between trust in the health care system and rational drug use. In this respect, it offers an original and innovative contribution to the literature. In addition, the study allows the development of a more holistic perspective on rational drug use by considering the sociodemographic and health status of individuals.

As with many studies, this study has several limitations. First, the study included data from older adults in Türkiye, which limits the generalizability of the findings. Second, the data were based on older adults' self-reports, which includes the possibility of social desirability bias. Third, the study had a cross-sectional design, which makes it inadequate for establishing causal relationships.

Conclusions

This study provides valuable insights into the impact of demographic variables and trust in the healthcare system on rational medication use among older adults. The findings revealed that among older adults, women use medications more rationally than men. This may be attributed to women using healthcare services more and being more meticulous about their health. Additionally, individuals with chronic diseases were found to use medications more irrationally. This may be because individuals with chronic diseases have to use many types of medications. Organization of awareness programs for older adults regarding medication use may be effective in increasing rational medication use behavior. In future studies, randomized controlled trials can be conducted to examine this issue in depth.

Overall, these findings highlight the importance of considering demographic factors and trust in the healthcare system when developing strategies to promote rational use of medicines in communities. Interventions aimed at improving rational drug behaviors should address the chronic disease status, education level, and trust in the healthcare system of individuals in the older adult population.

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Author contributions
Conception and design of the research: MN, UC, MÖ. Acquisition of data: MN, UC, MÖ. Analysis and interpretation of the data: MN, UC, MÖ. Statistical analysis: MN, UC, MÖ, GB. Obtaining financing: None. Writing of the manuscript: MN, UC, MÖ, GB. Critical revision of the manuscript for intellectual content: MN, UC, MÖ, GB. All authors reviewed the manuscript.

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Data availability
The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

Declarations

Ethics approval and consent to participate
Before commencing the study, Approval was received from the ethics committee of Kutahya Health Sciences University (Approval number: 2023/07–12). Participants were given an informed consent form detailing the aims and procedures of the study. Written consent was obtained from the participants stating that they agreed to participate in the research. The research was conducted following the Helsinki Declaration, and scientific and universal ethical principles were followed.

Consent for publication
Not applicable.

Competing interests
The authors declare no competing interests.

Clinical trial number
Not applicable.

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References

1. WHO, Ageing. and health. 2024. https://www.who.int/news-room/fact-sheets/detail/ageing-and-health . Published [1 Oct 2020]. Accessed [10 Jan 2025].
2. TurkStat. Elderly with statistics, 2021. 2022. https://data.tuik.gov.tr/Bulten/Index?p=Istatistiklerle-Yaslilar-2021-45636#:~:text=T/C3/9C/C4/B0K/20Kurumsal&text=Ya/C5/9Fl/C4/B1/20n/C3/BCfus/20olarak/20kabul/20edilen,9/2C7'ye/20y/C3/BCkseldi. Access Date: 10 Oct 2022.
3. Nal M, Nal B. An overview of research in the field of elderly health: bibliometric analysis. Geriatrik Bilimler Dergisi. 2024;7:20–9.
4. Özer M, Karabulut Ö. Life satisfaction in the elderly. Turk J Geriatr. 2003;6:72–4.
5. Sun X, Hu X. Current situation and rational drug use in the elderly. Chin J Clin Health Care. 2018;21:123–6.
6. Hudhra K, García-Caballos M, Casado-Fernandez E, Jucja B, Shabani D, Bueno-Cavanillas A. Polypharmacy and potentially inappropriate prescriptions identified by Beers and STOPP criteria in co-morbid older patients at hospital discharge. J Eval Clin Pract. 2016;22:189–93.
7. Yin Q, Feng D, Zhao Y, Zhu X, Dong Y, Wang J. Rational use of drugs for the elderly during the COVID-19 pandemic in China: challenges and opportunities. Front Pharmacol. 2023;14:1–3.
8. Mortazavi SS, Shati M, Keshtkar A, Malakouti SK, Bazargan M, Assari S. Defining polypharmacy in the elderly: a systematic review protocol. BMJ Open. 2016;6:e010989.
9. WHO. Promoting rational use of medicines: core components. WHO Policy perspectives on medicines no5. 2002. https://iris.who.int/handle/10665/67438 . Erişim tarihi: 09.11.2024.

10. Altındiş S. A systematic view of rational drug use. J Biotechnol Strategic Health Res. 2017;1:34–8.
11. Afriyie DK, Tetteh RA. Description of the pattern of rational drug use in Ghana Police hospital. Int J Pharm Pharmacol. 2014;3:143–8.
12. Orkaizagirre Gómara A. La incidencia de eventos adversos Potencialmente atribuibles a Los Cuidados Enfermeros En unidades Hospitalarias. Enferm Clin. 2014;24:356–7.
13. WHO. World Health Report 2000 – Health systems: improving performance. 2020.
14. Egede LE, Ellis C. Development and testing of the multidimensional trust in health care systems scale. J Gen Intern Med. 2008;23:808–15.
15. Pellegrini CA. Trust: the keystone of the patient-physician relationship. J Am Coll Surg. 2017;224:95–102.
16. Nal M. Trust in health care system in Turkey. Bandırma Onyedi Eylül Univ J Health Sci Res. 2021;3:1–10.
17. Rasiah S, Jaafar S, Yusof S, Ponnudurai G, Chung KPY, Amirthalingam SD. A study of the nature and level of trust between patients and healthcare providers, its dimensions and determinants: a scoping review protocol. BMJ Open. 2020;10:e028061.
18. Atıcı E. Factors affecting the patient-doctor relationship. Uludag Univ Med Fac J. 2007;33:91–6.
19. Tian L, Yu W, Dai Q. Building patient trust in nurses can improve respiratory function, quality of life and self-management ability in patients with bronchopneumonia. Altern Ther Health Med. 2022;28:60–4.
20. François J, Audrain-Pontevia A-F, Boudhraâ S, Vial S. Assessing the influence of patient empowerment gained through mental health apps on patient trust in the health care provider and patient compliance with the recommended treatment: cross-sectional study. J Med Internet Res. 2024;26:e48182.
21. Say Şahin D, Özer Ö, Zubaroğlu Yanardağ M. Investigation of elderly individuals' behaviors regarding drug use in terms of Socio-Demographic variables. Investigation of elderly individuals' behaviors regarding drug use in terms of Socio-Demographic variables.Mehmet Akif Ersoy university health sciences. Inst J. 2018;6:15–25.
22. Erkoç B, Güner TA. Determining the attitudes and behaviors of families with disabled individuals regarding rational drug use. Determining the attitudes and behaviors of families with disabled individuals regarding rational drug use. Health Academicians J. 2021;8:14–20.
23. Saygılı M, Kandemir A, Kaya M, Sönmez S. Rational drug use among patients visiting pharmacies. Int J Health Manag Strateg Res. 2020;6:529–40.
24. Dinç L, Korkmaz F, Karabulut E. A validity and reliability study of the multidimensional trust in health-care systems scale in a Turkish patient population. Soc Indic Res. 2013;113:107–20.
25. Çakmak V, Çınar Pakyüz S. A Methodologıcal study: development of the Ratıonal drug use scale. J Anatolia Nurs Health Sci. 2020;23:498–507.
26. Tabachnick BG, Fidell LS. Review of using multivariate statistics. 2013.
27. Karaman A, Ayoglu T, Aydogan MN, Kugu E. Rational drug usage status of nursing students. Florence Nightingale Hemşirelik Dergisi. 2019;27:143–56.
28. Şengül BN, Akyil S. The relationship between smartphone addiction, depression, and anxiety in medical students. J Nurs Sci. 2022;5:169–78.
29. Sarıca Darol E, Karapınar A. Gender and the relationship between marital status and some stress-based diseases. Sakarya Med J. 2022;12:263–72.
30. Gümüştekin M, Balatlı A, Kantarcı MA, Tunç YE, Aykır ME, Yozcu A, et al. Determination of health literacy levels of people in a university health campus. Dokuz Eylul Univ Med Fac J. 2024;38:32–45.
31. Borah P, Hwang J. Trust in doctors, positive attitudes, and vaccination behavior: the role of doctor–patient communication in H1N1 vaccination. Health Commun. 2022;37:1423–31.
32. Gilson L. Trust and the development of health care as a social institution. Soc Sci Med. 2003;56:1453–68.
33. Usta D, Korkmaz F. Trust levels in the healthcare system of the patients receiving services from tertiary care institutions in Turkey. Cukurova Med J. 2020;45:860–70.

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