

# Knowledge Levels of Pregnant Women on Rational Drug Use and Determination of Effective Factors

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## What is already known on this topic?

- Drug use during pregnancy is an important issue of significant interest in public health and reproductive health due to the potential adverse effects it may have on the health status of both women and newborns.
- Rational drug use (RDU) is essential for both maternal and fetal health, ensuring that medications are clinically appropriate, used at the right doses, and for the appropriate duration.

## What this study adds on this topic?

- This study highlights that a high percentage of pregnant women (86.4%) use medications during pregnancy, with iron preparations, vitamins, and folic acid being the most commonly used drugs.
- More than half of pregnant women (60.5%) had knowledge of rational drug use.
- Age, employment status, family type, pregnancy planning status, checking expiration date before use, reading medication package insert, educational status, income-expenditure status, cost of medications were found to be associated with RDU.

## ABSTRACT

**Objective:** It is aimed to determine the knowledge levels of pregnant women regarding rational drug use and the affecting factors.

**Methods:** The sample of this descriptive and correlational study, which was conducted between March and June 2024 at İstanbul Başakşehir Çam and Sakura City Hospital, consisted of 377 pregnant women who applied to the antenatal clinic. The data were collected using personal characteristics and pregnancy information form and the Rational Drug Use (RDU) scale.

**Results:** The mean age of the pregnant women was  $29.16 \pm 5.35$  years. About 68.4% had a high school education or higher, 70.3% were not employed, 84.6% lived in a nuclear family type, and 64.7% of the pregnancies were planned. Among the pregnant women, 86.2% used medication during pregnancy, with 48.8% starting in the first trimester. The most frequently used medications were iron supplements, vitamin D+multivitamins, and folic acid. Additionally, 81.4% checked medication expiration dates, and 54.4% read the medication guides. The average score on the RDU scale for the pregnant women was  $34.22 \pm 5.36$ , with 60.5% scoring 35 points or higher. Age, employment status, family type, pregnancy planning status, checking expiration date before use, reading medication package insert, educational status, income-expenditure status, and cost of medications have an effect on RDU.


**Conclusion:** Medication use during pregnancy is common, but rational drug use (RDU) levels remain close to the cut-off value, indicating a need for improvement. Strengthening preconception and prenatal education on RDU is essential to ensure safe medication use for maternal and fetal health.

**Keywords:** Pregnancy, prenatal care, rational drug use

## Introduction

Drug use during pregnancy has become an increasingly widespread phenomenon worldwide in recent years.<sup>1</sup> In high-income countries, the prevalence of women taking at least 1 drug during pregnancy ranges from 27% to 99%. Access to medically necessary drugs and their optimal use is one of the fundamental human rights.<sup>2</sup> Drug use during pregnancy is an important issue of significant interest in public health and reproductive health due to the potential adverse effects it may have on the health status of both women and newborns.<sup>1,2</sup> Pregnant women may avoid using drugs during pregnancy due to potential adverse effects, guidance from older family members, and other reasons. However, sometimes drug use during pregnancy is unavoidable. Although most drugs can cross the placenta and reach the embryo and fetus,<sup>3</sup> some of them can cause fetal malformations or alter normal fetal development. These adverse

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effects usually result from chronic or long-term treatments.<sup>2,4</sup> Many pregnant women who need drugs may stop using them due to unrealistic perceptions of teratogenic risks, while some expectant mothers may use drugs that have not been prescribed due to social and familial pressures.<sup>1,5</sup>

Rational Drug Use (RDU) is defined by the World Health Organization (WHO) as the practice of ensuring that patients receive medications that are clinically appropriate, in doses that meet their specific needs, for the appropriate duration, and at the lowest possible cost to both themselves and society.<sup>6</sup> Rational drug use is important at every stage of a woman's life, but its significance increases by 200% during pregnancy. The scope of rational drug use in pregnancy ranges from the prescribing physician to the correct and effective use by pregnant women.<sup>1</sup> Medications prescribed by the physician should ensure the healthy progression of pregnancy, protect against potential risks, and contribute to the maintenance of the current well-being through effective benefit/risk assessment for both the fetus and the mother.<sup>1</sup> Pregnant women frequently take medications with or without a prescription.<sup>1</sup> A study conducted in the Italian population to determine the prevalence of drug use before, during, and after pregnancy found that 73.1% of pregnant women were prescribed medications during pregnancy.<sup>7</sup> Similarly, a study including 18 279 pregnant women determined that 93% of them were prescribed an average of  $7.4 \pm 5.5$  different medications during pregnancy.<sup>8</sup> According to a study conducted in Türkiye, 76.1% of pregnant women used medication during pregnancy, mostly vitamins (60.5%) and iron preparations (49.5%).<sup>5</sup> Another study found that 90.2% of pregnant women used medication during pregnancy and 77.8% of them took vitamin/mineral medications.<sup>9</sup> As a different result, Değer et al<sup>10</sup> (2020) found that analgesics were the most commonly used drugs during pregnancy (71.0%) and the most commonly prescribed drugs for home storage (86.9%). Untreated illnesses and/or irrational drug use during pregnancy can lead to irreversible health issues for both the mother and the fetus. When drug use is necessary during pregnancy, risk assessment for the medications and adherence to the principles of rational drug use must be meticulously applied.<sup>1</sup> This is crucial because rational drug use during pregnancy is very important for maternal and fetal health. Healthcare professionals, especially midwives and nurses, are primary sources for accessing health information for all women of childbearing age, particularly pregnant women, and play a significant role in promoting rational drug use through preconception counseling and prenatal care services.<sup>1</sup> Properly informing expectant mothers about drug use during pregnancy and tailoring the details to their cultural context are important.<sup>1</sup> This study was designed to determine the prevalence of drug use during pregnancy, identify commonly used medications, evaluate the level of rational drug use among pregnant women, and explore related factors.

### Research Questions

1. How frequently does drug use occur during pregnancy?
2. What are the most used types of medications during pregnancy?
3. What are the knowledge levels of pregnant women on rational drug use during pregnancy?
4. Is there a difference between the knowledge levels of pregnant women on rational drug use during pregnancy and sociodemographic and obstetric characteristics?
5. What are the factors associated with the knowledge levels of pregnant women on rational drug use during pregnancy?
6. What are the factors affecting the knowledge levels of pregnant women on rational drug use during pregnancy?

### Materials and Methods

#### Purpose and Type

This study was designed to determine the frequency of drug use during pregnancy, identify commonly used medications, assess the level

of rational drug use among pregnant women, and examine related factors. It was conducted prospectively using a descriptive and correlational approach.

#### Location and Time

The study was conducted at the antenatal follow-up clinics between March and June 2024.

#### Population and Sample

The study population consisted of a total of 19140 pregnant women who attended the antenatal follow-up clinics in the past year. The minimum sample size for the study was calculated to be 377, with a prevalence of 50%, a  $\pm 5\%$  margin of error, a design effect of 1.0, and a 95% confidence interval. Inclusion criteria for the study were willingness to participate, being pregnant, being at least 18 years old, being literate, understanding Turkish, having mental competence, not having any psychiatric diagnoses, and not having visual or hearing impairments.

#### Data Collection and Tools

To collect the data for the study, the researchers used a "Personal Characteristics and Pregnancy Information Form," which was prepared by the researchers, and the "Rational Drug Use Scale." The data were collected from pregnant women who met the inclusion criteria at the antenatal follow-up clinics of the hospital between March and June 2024. Data collection was conducted face-to-face in a private room to ensure confidentiality. Before starting data collection, the purpose of the study was explained to the participants verbally and in writing, and an "Informed Consent Form" was provided. The principles of "Confidentiality and Privacy Protection" were upheld, and the "Respect for Autonomy" principle was observed by ensuring voluntary participation. The data collection process took approximately 15-20 minutes.

#### Personal Characteristics and Pregnancy Information Form

The form, prepared by the researchers based on the relevant literature, consists of 39 questions covering various aspects. These include sociodemographic characteristics such as age, education level, economic status, and employment status; pregnancy and childbirth characteristics including the number of pregnancies, births, and abortions, gestational age, and mode of delivery; and details related to drug use during pregnancy.<sup>5,7-10</sup>

#### Rational Drug Use Scale

The scale, developed by Demirtaş et al,<sup>11</sup> is a 21-item tool designed to assess individuals' knowledge of rational drug use. Each statement has options for correct, incorrect, and unknown responses. The scale consists of 10 correct and 11 incorrect statements, with correct answers scored as 2 points, unknown responses as 1 point, and incorrect answers as 0 points. The total score ranges from 0 to 42, with higher scores indicating greater knowledge. The cutoff score for the scale is 35, and individuals scoring 35 or above are considered to have adequate knowledge of rational drug use. The Cronbach's alpha of the scale is 0.79<sup>11</sup> and for this study, the Cronbach's alpha value was found to be 0.77.

#### Ethical Aspect of the Research

Ethical approval for the study was obtained from the Ethics Committee of Başakşehir Çam and Sakura City Hospital (Approval no: 2024-223, Date: 28.03.2024).

#### Data Analysis

The data obtained from the study were analyzed using the SPSS for Windows (Statistical Package for Social Sciences for Windows) 22.0 software package (IBM SPSS Corp.; Armonk, NY, USA). To determine whether the data showed a normal distribution, Kurtosis, Skewness values, and Shapiro-Wilk's Test were examined. The descriptive data in the study were expressed as numbers, percentages, means, SDs, median, and

minimum and maximum values. The Mann–Whitney *U* test was used to compare the scale scores of the independent variables, and the Kruskal–Wallis *H* Test was used for comparisons involving more than 2 independent groups. The Pearson correlation coefficient was used for the relationship, and logistic regression analysis was used for the effect. The reliability of the scale was assessed using Cronbach's Alpha coefficient. In this study, a statistical significance level of  $P < .05$  was considered.

## Results

The average age of the pregnant women was  $29.16 \pm 5.35$  (min: 18 - max: 47). A total of 36.3% of the women had graduated from high school, 70.3% were not working, and 69.8% described their income and expenses as balanced. The family structure was predominantly nuclear at 84.6%, and 64.7% of the pregnancies were planned. The majority of the women did not have chronic illnesses, and 80.6% had not attended pregnancy school. It was found that 86.2% of the women used medication during pregnancy. When examining the distribution of when women started using medications, it was found that 48.8% began using medications in the first trimester, and that 10.1% used medications before pregnancy. Among women who used medications before pregnancy, 23.4% used thyroid medication, 47.8% used folic acid, and 28.8% used medications for existing chronic illnesses. When the medications used during pregnancy were evaluated, it was determined that iron preparations at 55.6%, vitamin D + multivitamins at 16.6%, and folic acid at 13.2% were the most frequently used. It was found that 81.4% of the women checked the expiration date of the medications before use, and that 54.4% read the medication guides (Table 1). More than half of the women described the medication prices as reasonable, and 4.5% used herbal supplements during pregnancy.

Upon examining the obstetric characteristics of the pregnant women, the following averages were found: the average number of pregnancies was  $2.10 \pm 1.29$  (min: 1, max: 8), the average number of births was  $1.13 \pm 0.92$  (min: 0, max: 5), the average number of miscarriages was  $0.27 \pm 0.58$  (min: 0, max: 4), and the average number of living children was  $0.82 \pm 1.04$  (min: 0, max: 6). The average age of their previous children was  $2.81 \pm 3.64$  years (min: 0, max: 15), and the average week at which they learned they were pregnant was  $5.56 \pm 1.27$  weeks (min: 0, max: 12 weeks). Additionally, the average gestational week was  $26.36 \pm 9.48$  weeks (min: 5, max: 39 weeks), and the average number of prenatal visits was  $6.96 \pm 4.00$  (min: 1, max: 30). It was also found that 57.8% of the pregnant women were in their third trimester (Table 1).

The average score on the Rational Drug Use Scale among the pregnant women was  $34.22 \pm 5.36$  (min: 13, max: 48) (Table 1). About 60.5% of pregnant women scored 35 or higher, and although the skewness and kurtosis values remained within normal limits, the normality test showed that the data were nonparametric ( $P = .0001$ ). (Table 1). When the difference between the demographic characteristics of pregnant women and the mean scores of the Rational Drug Use Scale was examined, it was found that there were significant differences according to age groups, employment status, family type, pregnancy planning status, chronic disease status, having a child, number of pregnancies, drug use during pregnancy, checking the expiration date before use, reading the drug prospectus, education level, income-expenditure balance, and opinions on drug prices. Pregnant women who were in the 18-35 age group, who were employed, who had a nuclear family type, who planned pregnancy, who had a chronic disease, who had a child, who had a high number of pregnancies, who used drugs during pregnancy, who checked the expiry date before use, and who read

**Table 1.** Distribution of Demographic, Obstetric and Pregnancy-Related Drug Use Characteristics of Pregnant Women (n = 377)

Variables	Mean $\pm$ SD	Min.	Max.
Age	$29.16 \pm 5.35$	18	47
Number of pregnancies	$2.10 \pm 1.29$	1	8
Number of births	$1.13 \pm 0.92$	0	5
Number of miscarriages	$0.27 \pm 0.58$	0	4
Number of living children	$0.82 \pm 1.04$	0	6
Age of previous child	$2.81 \pm 3.64$	0	15
Time of learning about pregnancy (weeks)	$5.56 \pm 1.27$	0	12
Gestational week	$26.36 \pm 9.48$	5	39
Number of antenatal visits	$6.96 \pm 4.00$	1	30
Rational Drug Use Scale	$34.22 \pm 5.36$	13	48
		<b>n</b>	<b>%</b>
Age group	18-34 years	161	42.7
	35 years	216	57.3
Educational status	Primary school	55	14.6
	Middle school	63	16.7
	High school	138	36.6
	University	121	32.1
Husband's educational status	Primary school	41	10.9
	Middle school	64	17.0
	High school	147	39.0
	University	125	33.1
Income-expenditure status	Less than expenditure	63	16.7
	Equal to expenditure	263	69.8
	More than expenditure	51	13.5
Employment status	Employed	112	29.7
	Unemployed	265	70.3
Family type	Nuclear	319	84.6
	Extended	58	15.4
Pregnancy planning status	Planned	244	64.7
	Unplanned	133	35.3
Number of pregnancies	Primiparous	161	42.7
	Multiparous	216	57.3
Pregnancy trimester	First trimester	39	10.4
	Second trimester	120	31.8
	Third trimester	218	57.8
Chronic disease status	Yes	34	9
	No	343	91
Participation in pregnancy school	Yes	73	19.4
	No	304	80.6
Drug use during pregnancy	Yes	325	86.2
	No	52	13.8
Score on rational drug use scale	35 points and below	149	39.5
	35 points and above	228	60.5
Prescription status of medications	Yes	319	84.6
	No	58	15.4
Timing of drug use (n = 325)	1st month	50	15.4
	2nd month	20	6.1
	3rd month	89	27.3
	4th month	110	33.8
	5th month	8	2.6
	6th month	4	1.3
	Before pregnancy	33	10.1
	Started before pregnancy and continued during pregnancy	11	3.4

(Continued)

**Table 1.** Distribution of Demographic, Obstetric and Pregnancy-Related Drug Use Characteristics of Pregnant Women (n = 377) (Continued)

Variables	Mean ± SD	Min.	Max.
Medications used during pregnancy* (n = 325)	Iron	181	55.6
	Vitamin D + multivitamin	54	16.6
	Folic acid	43	13.2
	Folic acid + multivitamin	20	6.1
	Iron + multivitamin	18	5.5
	Thyroid medication	11	3.3
	Progesterone	6	1.8
	Clexan	4	1.2
	Vitamin D	4	1.2
Reading medication package insert	Yes	205	54.4
	No	172	45.6
Checking expiration date before use	Yes	307	81.4
	No	70	18.6
Use of herbal supplements/medications	Yes	17	4.5
	No	360	95.5
Cost of medications	Cheap	60	15.9
	Moderate	226	59.9
	Expensive	91	24.2

\*Choosing more than 1 type of medication.

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the package insert had significantly higher levels of rational drug use (Table 2).

The correlation between age, employment status, family type, pregnancy planning status, chronic disease status, status of having children, number of pregnancies, drug use during pregnancy, checking expiration date before use, reading medication package insert, educational status, income-expenditure status, cost of medications, and RDU levels is statistically significant ( $P < .05$ ). Age, employment status, family type, pregnancy planning status, checking expiration date before use, reading medication package insert, educational status, income-expenditure status, cost of medications has an effect on RDU ( $P < .05$ ) (Table 3).

Discussion

In this study, it was determined the knowledge levels of pregnant women regarding rational drug use and the affecting factors. It was found that 86.4% of the pregnant women used medication, that the most commonly used drugs were iron preparations (52.8%), vitamin D + multivitamins (15.7%), and folic acid (12.5%), and that the highest medication usage rate was in the first trimester. As a result of a study conducted in the country, it was determined that most pregnant women (91.2%) used at least 1 medication (prescription and non-prescription) and most frequently (83.7%) used vitamin-mineral supplements (62.5% folic acid, 48.1% iron, 17.3% vitamin D).<sup>12</sup> In the study conducted by Tamirci et al<sup>13</sup> (2022), it was found that two-thirds of pregnant women used medication during their pregnancies, and that the 3 most commonly used medications were vitamin/mineral prophylaxis, agents controlling nausea/vomiting, and folic acid. Another similar study found that 73.1% of pregnant women were prescribed at least 1 medication during pregnancy. The most frequently prescribed medications were folic acid (34.6%), progesterone (19.0%), iron sulfate (18.8%), and amoxicillin/clavulanic acid (11.5%). It was reported that the prevalence of medication prescriptions increased with maternal age, particularly during the first trimester of pregnancy.<sup>1</sup> In a cross-sectional population-based study including 447,096 pregnant women, 97.2% of the sample group were prescribed medications, with the most frequently prescribed medications being blood and hematopoietic

Table 2. Comparison of Some Demographic and Obstetric Characteristics of Pregnant Women and Their Rational Drug Use Scale Mean Scores				
Variables		n	RDU Scale Mean ± SD (M)	<sup>a</sup> Z/ <sup>b</sup> χ <sup>2</sup> ; P
Age groups	18-34 years	321	34.50 ± 5.56 (37)	-2.261 <sup>a</sup>
	35 years	56	32.62 ± 6.13 (34)	.024 <sup>*</sup>
Employment status	Employed	112	35.88 ± 4.70 (38)	-4.153 <sup>a</sup>
	Unemployed	265	33.52 ± 6.03 (36)	.0001 <sup>*</sup>
Family type	Nuclear	319	34.80 ± 5.32 (32)	-4.512
	Extended	58	31.05 ± 6.06 (37)	.0001 <sup>*</sup>
Pregnancy planning status	Planned	244	35.36 ± 5.10 (34)	-5.173 <sup>a</sup>
	Unplanned	133	34.14 ± 6.32 (38)	.0001 <sup>*</sup>
Chronic disease status	Yes	34	36.17 ± 5.64 (40)	-2.309 <sup>a</sup>
	No	343	34.03 ± 5.75 (36)	.021 <sup>*</sup>
Participation in pregnancy school	Yes	73	34.69 ± 6.072 (38)	-1.486 <sup>a</sup>
	No	304	34.11 ± 5.69 (36)	.137
Number of pregnancies	Primiparous	161	35.03 ± 5.37 (38)	-2.205 <sup>a</sup>
	Multiparous	216	33.62 ± 5.98 (36)	.027 <sup>*</sup>
Drug use during pregnancy	Yes	323	34.36 ± 5.82 (37)	-2.066 <sup>a</sup>
	No	54	33.28 ± 5.54 (35.5)	.039 <sup>*</sup>
Checking expiration date before use	Yes	307	35.24 ± 4.92 (30)	-6.241 <sup>a</sup>
	No	70	29.77 ± 6.99 (37)	.0001 <sup>*</sup>
Reading medication leaflets	Yes	205	36.29 ± 4.06 (33.5)	-7.623 <sup>a</sup>
	No	172	31.76 ± 6.50 (38)	.0001 <sup>*</sup>
Educational status	Elementary school <sup>1</sup>	56	30.69 ± 6.71 (32.5)	69.462 <sup>b</sup>
	Middle school <sup>2</sup>	63	31.39 ± 6.31 (33)	.0001 <sup>*</sup>
	High school <sup>3</sup>	138	34.49 ± 5.13 (36) <sup>1</sup> 63 <sup>2</sup> 63	
	University <sup>4</sup>	121	37.03 ± 3.88 (40) <sup>1</sup> 64 <sup>2</sup> 64	
Income-expenditure status	Less than expenditure <sup>1</sup>	262	31.85 ± 6.52 (33)	15.215 <sup>b</sup>
	Equal to expenditure <sup>2</sup>	64	34.75 ± 5.19 (36.5) <sup>1</sup> 62	.0001 <sup>*</sup>
	More than expenditure <sup>3</sup>	51	33.94 ± 5.93 (38) <sup>1</sup> 63	
Pregnancy trimester	First trimester	39	33.82 ± 6.34 (38)	.711 <sup>b</sup>
	Second trimester	120	34.86 ± 5.24 (37)	.701
	Third trimester	218	34.59 ± 6.8 (36)	
Cost of medications	Cheap <sup>1</sup>	60	36.03 ± 4.37 (36)	11.204 <sup>b</sup>
	Moderate <sup>2</sup>	226	34.51 ± 5.55 (37) <sup>1</sup> 62	.004 <sup>*</sup>
	Expensive <sup>3</sup>	91	32.31 ± 5.76 (38.5) <sup>1</sup> 63 <sup>2</sup> 63	

M, median, RDU, rational drug use.  
<sup>a</sup>Mann–Whitney *U* Test (Z).  
<sup>b</sup>Kruskal–Wallis *H* Test (χ<sup>2</sup>).  
<sup>\*</sup>Statistically significant (*P* < .05).

agents, including folic acid, heparin, and iron-based preparations. It was noted that drug use increased with age, reaching 60.0% among women over 40 years old.<sup>14</sup> In this study, 86.4% of the pregnant women were found to use medication, with the most frequent drug use occurring in the first trimester, and the most commonly used agents being iron preparations, vitamins/multivitamins, and folic acid. The results of this study were similar to the other studies in terms of the rate of drug use during pregnancy, the most frequently used trimester for medications, and the most commonly used medications being vitamin supplements, iron, and folic acid. Although the use of vitamin and mineral supplements during pregnancy varies at various rates in studies on the subject, it is seen that pregnant women in the country take vitamin and mineral supplements at a very high rate. The



**Table 3.** Factors Affecting and Related to the Mean Scores of Rational Drug Use Scale of Pregnant Women

	Correlation		Logistic Regression				
	<i>r</i>	<i>P</i>	<i>B</i>	<i>P</i>	Exp(B)	95% CI for EXP(B)	
						Lower	Upper
Age	−0.117	.024*	−0.044	.025*	0.957	0.920	0.995
Employment status	−0.214	.0001*	−0.075	.0001*	0.928	0.891	0.966
Family type	0.233	.0001*	0.094	.0001*	1.099	1.057	1.142
Pregnancy planning status	0.267	.0001*	0.079	.0001*	1.083	1.047	1.119
Chronic disease status	0.119	.021*	0.061	.070	1.063	0.995	1.136
Participation in pregnancy school	−0.077	.138					
Number of pregnancies	−0.114	.027*	−0.031	.058	0.970	0.939	1.001
Drug use during pregnancy	−0.107	.039*	−0.035	.085	0.965	0.927	1.005
Checking expiration date before use	0.322	.0001*	0.122	.0001*	1.129	1.087	1.174
Reading medication package insert	0.393	.0001*	0.144	.0001*	1.155	1.109	1.203
Educational status	0.424	.0001*					
Middle			0.012	.603	1.012	0.966	1.061
High			0.086	.0001*	1.090	1.042	1.141
University			0.207	.0001*	1.230	1.156	1.308
Income-expenditure status	0.195	.0001*					
Less			0.070	.0001*	1.073	1.033	1.114
Equal			0.084	.004*	1.087	1.027	1.151
Pregnancy trimester	0.032	.531					
Cost of medications	0.172	.0001*					
Moderate			0.047	.008*	1.048	1.012	1.085
Cheap			0.101	.001*	1.106	1.044	1.172

*r*, Spearman's rho.

\*Statistically significant ( $P < .05$ ).

recommendation of iron supplementation during pregnancy and folic acid support starting from the preconception period by the Ministry of Health explains these rates.

One of the important factors affecting the success of drug treatment is paying attention to the usage recommendations of the medications.<sup>15</sup> When the drug use behaviors of pregnant women were examined in the study, it was determined that the majority of pregnant women checked the expiration date of their medication, while only nearly half of them read the medication package insert. Kahraman et al<sup>16</sup> (2023) found that 43.1% of pregnant women paid attention to the expiration date of the drug and 39.4% read the medication package insert.<sup>16</sup> As a different result of a study, it was determined that the majority of pregnant women (91.3%) normally checked the contents of the package insert provided with the medication.<sup>12</sup> Similar to the study by Kahraman et al<sup>16</sup> (2023), this study considers that pregnant women do not have sufficient habits of reading medication package inserts, and their awareness and knowledge on this matter need to be improved.

In this study, it was found that the mean score of the Rational Use of Drugs scale of pregnant women was  $34.22 \pm 5.36$ , with 60.5% had a scale score above the cut-off score of 35 and possessing knowledge of rational drug use. In the study by Değer et al,<sup>10</sup> the mean total score of the RDU scale of pregnant women was found to be  $32.43 \pm 6.37$ , and it was determined that the RDU knowledge level of pregnant women was low according to the cut-off score.<sup>10</sup> The same study found that an increase in educational level, participation in the workforce, and an increase in income level significantly increased the RDU level.<sup>10</sup> In another study conducted in the country, 77.7% of pregnant women were found to have rational drug use knowledge was higher among pregnant women with higher education levels.<sup>17</sup> In a study conducted using the self-awareness scale for rational drug use among pregnant women, the total mean score was determined to be  $54.25 \pm 9.79$ , indicating high awareness of rational drug use among pregnant women. This study showed that awareness of rational drug use was low among

those with lower educational levels and those living in extended families.<sup>2</sup> This study aligns with previous research regarding the average RDU score and corroborates the positive influence of higher educational attainment, employment status, income levels, and the presence of a nuclear family structure on RDU outcomes. It is thought that pregnant women with higher education levels have higher awareness of rational drug use and engage in more information-seeking behavior on the subject. Sociodemographic variables such as employment status and economic status, which correlate with high education levels, support this result.

It has been indicated that medication adherence is better among pregnant women who read medication package inserts and those with planned pregnancies,<sup>17</sup> and that women who plan their pregnancies have lower medication usage rates and better medication adherence.<sup>12</sup> In a study conducted using the Self-Awareness Scale for Rational Drug Use among pregnant women, it was found that medication awareness was higher in planned pregnancies and statistically significantly higher in first pregnancies.<sup>2</sup> In a study has shown that primiparous pregnant women have more knowledge about rational drug use.<sup>17</sup> In another study on the subject, it was determined that primiparous pregnant women were significantly more likely to read medication package inserts and check the expiration date of drugs than multiparous pregnant women. In this study, it was observed that reading the medication guide, checking the expiration date, being primiparous, and having planned pregnancies significantly increased the average score for rational drug use during pregnancy. This study showed similar results to the other studies in terms of reading medication package inserts, planning pregnancies, and rational drug use/medication adherence in first pregnancies. It was hypothesized that reading medication package inserts enhanced knowledge about medication usage guidelines. Additionally, the excitement associated with first pregnancies is thought to stimulate a higher level of interest and information-seeking behavior regarding this new experience, resulting in greater awareness and understanding of rational drug use.

### Strengths and weaknesses of the study

The study collected comprehensive data on various sociodemographic, obstetric, and medication-related characteristics, allowing for a more detailed examination of factors influencing rational drug use during pregnancy. However, certain limitations should be considered. Since the study was conducted in a single hospital in Istanbul, its findings may not be fully generalizable to other regions or healthcare settings. A multi-center approach could provide a broader perspective on rational drug use among pregnant women. Additionally, the exclusion of illiterate pregnant women and those with visual or hearing impairments presents a limitation, as these groups may have distinct challenges in understanding medication use. Given that RDU tends to increase with higher education levels, future studies should evaluate RDU among illiterate and low-education-level pregnant women. Furthermore, since visual and hearing impairments may negatively impact the comprehension of oral and written medication-related information, research focusing on RDU in these special populations would be beneficial.

### Conclusion

This study, which was conducted to determine the frequency of RDU, the most commonly used drugs, and the related factors among pregnant women, found that the participants scored an average of  $34.22 \pm 5.36$  points on the RDU scale, very close to the cut-off score of 35, with 60.5% of them scoring 35 or above. It was determined that drug use during pregnancy was common, with a predominance of vitamin, iron, and folic acid preparations. The trends in drug use were found to be similar to those in other studies. The most frequent drug use was observed in the first trimester, with approximately 85% of the drugs being prescribed. It was found that RDU levels were significantly higher among working women, those with higher education levels, those who planned their pregnancies, first-time mothers (primiparas), those with children, and those living in a nuclear family structure. Drug use during pregnancy is important for the health of both the mother and the baby. It is necessary to inform all women of reproductive age, especially those in the preconception period, about the importance and necessity of rational drug use during pregnancy for maternal and baby health. During the pregnancy period, prenatal care visits should be used as an opportunity to question the use of RDU, address identified deficiencies and errors, and provide necessary education. It is recommended to include RDU education in counseling sessions provided at maternity schools and/or prenatal care clinics and to prepare brochures on RDU during pregnancy.

**Data Availability Statement:** The data sets generated during and/or analyzed during the current study are available from the corresponding author upon reasonable request.

**Ethics Committee Approval:** Ethical committee approval was received from the Ethics Committee of Basaksehir Cam and Sakura City Hospital (Approval no: 2024-223, Date: 28.03.2024).

**Informed Consent:** Written and verbal informed consent was obtained from participants who participated in this study.

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