

Evaluation of the Knowledge and Attitudes of Dentists Working in a University Hospital in Afyonkarahisar Regarding Rational Drug Use

Afyonkarahisar'da Bir Üniversite Hastanesinde Çalışan Diş Hekimlerinin Akılcı İlaç Kullanımı Konusunda Bilgi ve Tutumlarının Değerlendirilmesi

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ABSTRACT

Background: This study aims to evaluate the knowledge and attitudes of dentists working in a dental faculty in Türkiye about rational drug use.

Methods: In this observational study, a 20-question questionnaire measuring participants' knowledge and attitudes towards rational drug use was administered face-to-face to 59 dentists working in a university hospital in Afyonkarahisar. The obtained data were analyzed with the SPSS-20 program.

Results: Fifty-two dentists (16 academics, and 36 research assistants) participated in the study (The participation rate was 89.65%). The most frequently used information sources by the participants while prescribing drugs were the internet (27.56%) and colleagues (24.35%), respectively. Allergic status and pregnancy status were the most frequently asked questions by the participants in the anamnesis of the patients while prescribing drugs (94.2%). Approximately one-third (32.7%) of the dentists stated that they did not inform the patient about the "side effects of the drug". The subjects that the participants felt most inadequate about the drugs were price information, bioequivalence, drug interactions and side effects, respectively. 63.5% of the participants think that both the level of medical drug knowledge and the level of knowledge about rational drug use are insufficient.

Conclusion: This study revealed the knowledge gaps and the need for training on rational drug use among dentists. Rational pharmacotherapy training should be given to dentists before and after graduation.

Keywords: Rational drug use; drug prescribing; survey; dentistry; dentist.

ÖZ

Amaç: Bu çalışmanın amacı, Türkiye'de bir dişhekimliği fakültesinde görev yapan diş hekimlerinin akılcı ilaç kullanımına ilişkin bilgi ve tutumlarını değerlendirmektir.

Gereç ve Yöntemler: Bu gözlemsel çalışmada, Afyonkarahisar ilinde bir üniversite hastanesinde görev yapan 59 diş hekimine, katılımcıların akılcı ilaç kullanımına yönelik bilgi ve tutumlarını ölçen 20 soruluk bir anket yüz yüze uygulandı. Elde edilen veriler SPSS-20 programı ile analiz edildi.

Bulgular: Çalışmaya 52 diş hekimi (16 öğretim üyesi ve 36 araştırma görevlisi) katıldı (Katılım oranı %89,65'tir). Katılımcıların ilaç yazarken en sık kullandıkları bilgi kaynakları sırasıyla internet (%27,56) ve meslektaşlarıdır (%24,35). Alerjik durum ve gebelik durumu, katılımcıların ilaç yazarken anamnezlerinde en sık sorulan sorulardır (%94,2). Diş hekimlerinin yaklaşık üçte biri (%32,7) "ilacın yan etkileri" konusunda hastayı bilgilendirmediğini belirtmiştir. Katılımcıların ilaçlar konusunda en yetersiz hissettikleri konular sırasıyla fiyat bilgisi, biyodeşerlik, ilaç etkileşimleri ve yan etkiler olmuştur. Katılımcıların %63,5'i hem tıbbi ilaç bilgi düzeyinin hem de akılcı ilaç kullanımına ilişkin bilgi düzeyinin yetersiz olduğunu düşünmektedir.

Sonuç: Bu çalışma diş hekimleri arasında akılcı ilaç kullanımı konusunda bilgi boşluklarını ve eğitim ihtiyacını ortaya koymuştur. Diş hekimlerine mezuniyet öncesi ve sonrası akılcı farmakoterapi eğitimi verilmelidir.

Anahtar Kelimeler: Akılcı ilaç kullanımı; ilaç reçeteleme; anket; diş hekimliği; diş hekimi.

INTRODUCTION

Today, one of the most important treatment methods in modern medicine is drug treatment. Appropriate use of drugs by patients and society is important in ensuring the quality of treatment and medical care. Access to quality, affordable, safe and effective medicines is an essential element of an effective healthcare system.¹ The World Health Organization (WHO) has defined rational drug use (RDU) as "taking drugs by the clinical needs of patients, in appropriate doses, for an adequate time, at the lowest cost to themselves and society"²

Irrational drug use (IDU) has consequences such as an increase in the incidence of side effects, resistance to some drugs, a decrease in patient compliance with treatment, an increase in treatment costs, and inaccessibility to even essential drugs due to incorrect consumption of resources.³ IDU is an important public health problem in Türkiye as well as in the rest of the world. According to WHO's estimations, more than half of all medicines used are used irrationally, while countries spend so much money on medicines, on the other hand, at least one-third of the world's population cannot access essential medicines.⁴ In a study, it is reported that most of the drugs used in Türkiye, similar to those in the world, are used irrationally.³

Although many people such as physicians, patients, pharmacists, nurses, medical chambers, and bureaucrats are responsible for rational drug use practices, the most important responsibility lies with the prescribing physician. A significant portion of prescriptions written

today is written by dentists. Dentists prescribe a variety of medications specific to their field, primarily analgesics and antibiotics. Irrational use of antibiotics is an increasing, global public health problem, appearing usually as excessive antibiotic utilization. In general, antibiotic prescribing rates are lower in dentistry than in general medicine but have increased dramatically in recent years.⁵ Globally, dentists have been reported to prescribe 11.3% of all antibiotics.^{6,7} It has been reported that dentists mostly tend to write analgesics in prescriptions for which they prescribe antibiotics.⁸ It has been observed that dentists prescribe these drugs irrationally.^{9,10} Although studies on rational drug use by physicians in medicine have increased in Türkiye in recent years, there are very few studies on this subject in dentistry.^{11,12} To ensure and disseminate the use of RDU, dentists' knowledge levels and attitudes on this issue should be revealed correctly. This study, it was aimed to evaluate the knowledge and attitudes of dentists working in a dental faculty in Türkiye towards rational drug use.

MATERIAL AND METHODS

This descriptive observational study was conducted on 1-31 December 2021 at Afyonkarahisar University, Faculty of Dentistry. Approval for the study was obtained from Afyonkarahisar University, Clinical Research Ethics Committee (November 11, 2021, issue 2021/508). Questionnaires were applied to 59 dentists working at the university's dental hospital who agreed to participate in the study. Informed consent was obtained from the participants and the study was conducted by the principles of the Declaration of Helsinki.

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For the study, similar to the form used in the "Study of Evaluating the Knowledge and Behaviors of Rational Drug Use of Physicians Working in Hospitals in Türkiye" prepared by the Ministry of Health¹³, a questionnaire with 20 questions was prepared by examining the studies in the literature. In the survey; First of all, questions were asked about the demographic characteristics of dentists such as age, gender, education level, time after graduation, as well as working conditions such as the number of patients looked after per day and the number of prescriptions written per day. Then, questions measuring their knowledge and attitudes about rational drug use were asked. In these questions, the subjects such as what kind of information the dentists give to the patient when prescribing drugs, which factors are questioned in the patient's anamnesis while prescribing drugs, the sources of information they frequently use, the criteria they consider in drug selection, were questioned. The questionnaire was administered to the dentists by face-to-face method and a 10-minute response time was given for each questionnaire.

The obtained data were analyzed with the statistics software (IBM SPSS Statistics 20, SPSS inc., an IBM Co., Somers, NY). The sample size of 48 subjects was calculated using the G*Power version 3.1.9.2 (Heinrich-Heine-Universität Dusseldorf, Germany; 1-B = 0.80, α = 0.05, effect size: 0.45). In addition to descriptive statistics (number, percentage distribution, standard deviation, etc.), Shapiro Wilk's test was used for the normal distribution of continuous variables to compare two means. The Mann-Whitney U test was used to compare two continuous variables that were not normally distributed. Chi-square test was used to compare categorical variables. The results were considered significant with a 95% confidence interval, p<0.05.

RESULTS

52 dentists (16 academics, and 36 research assistants) participated in the study (The participation rate was 89.65%). Since the research was voluntary, 3 dentists did not participate in the survey and 4 dentists were excluded from the study because more than half of the questions were not answered. The distribution of participants according to dentistry departments is given in Table 1. 60% of the participants were male and 40% were female. The age range of the participants was 23-44 (mean 29.82±4.60 years). The participants' working time as a dentist ranged from 1 to 20 years (mean 5.96±4.30 years). While the average number of patients treated per day by the participants was 11.44, the time allocated to each patient was 19.19 minutes. Participants reported that they prescribed drugs to an average of 14.67% of the patients, and the average number of drugs per prescription was 2.09.

Table 1. Distribution of participants according to branches of dentistry

Branches of dentistry	Research Assistant (n)	Academics (n)	Total (n)
Oral and maxillofacial surgery	9	1	11
Oral and maxillofacial radiology	-	2	2
Endodontics	2	3	5
Restorative dentistry	-	2	2
Orthodontics	6	1	7
Pediatric dentistry	10	2	13
Periodontology	4	2	6
Prosthetic dentistry	5	3	8
Total	36	16	52

The attitudes and behaviors of the participants while prescribing are given in Table 2. While 78.8% of the participants stated that they always gave information about the patient's disease and its causes, 84.6% stated that they always informed the patient about the treatment applied. 92.3% of the participants stated that they did not prescribe any medication without examining the patient, and 34.6% of them stated that they did not prescribe the drugs that the patient specifically requested. Only 36.5% of the participants stated that they could evaluate the results of the treatment. 15.4% of the participants stated that they always and 71.2% stated that they sometimes recommend non-drug treatment to the patient. 69.2% of the participants reported that they were not affected by the promotions

of the pharmaceutical representatives when prescribing drugs (Table 2). No significant differences were found in this limited sample between academics and research assistants in terms of attitudes and behaviors when prescribing.

Table 2. General attitudes and behaviors of participants while prescribing medicines

	Always (%)	Sometimes (%)	Never (%)
1. Could you explain to the patient about the disease and its causes in detail?	78.8	21.2	-
2. Could you explain in detail the reasons for applying the treatment to the patient?	84.6	15.4	-
3. Do you prescribe medication to your patient without examining him/her?	1.9	5.8	92.3
4. Can you write down the drugs that the patients specifically want?	1.9	63.5	34.6
5. Do you recommend non-drug treatment to patients?	15.4	71.2	13.5
6. Can you evaluate the results of the treatment?	36.5	57.7	5.8
7. Is there a difference in the choice of the drugs you prescribe to patients with and without social security?	7.7	38.5	53.8
8. Are you influenced by the promotions of pharmaceutical representatives while choosing a drug?	1.9	28.8	69.2
9. Do you inform the patient about the drugs you prescribe?	73.1	25	1.9

Table 3 shows what information the participants gave the patient about the drug when they wrote a prescription. According to this table, it is seen that the participants always inform the patient about drugs how to use (82.7%), the treatment process (78.8%) and the daily dose (69.2%). The least information was given about the price of the drug, and 1.9% of the participants stated that they always informed the patient about the price of the drug, 15.4% of them sometimes (Table 3).

Table 3. Information given by participants to the patient while prescribing medication

	Yes (%)	Sometimes (%)	No (%)
Name of the drug	57.7	36.5	5.8
How to use	82.7	15.4	1.9
Daily dose	69.2	26.9	3.8
Treatment period	78.8	15.4	5.8
Effects of the drug	40.4	46.2	13.5
Side effects of the drug	26.9	40.4	32.7
Medication warnings	46.2	38.5	15.4
The price of the drug	1.9	15.4	82.7

The factors that the participants questioned in the patient's anamnesis while prescribing medication to the patient are listed in Table 4. Allergic and pregnancy status were the most frequently asked questions by the participants in the anamnesis of the patients while prescribing drugs (94.2%). Apart from this, chronic disease status (88.5%), age (80.8%), and other drugs used (71.2%) are always the most frequently questioned conditions. The least questioned factors were purchasing power (7.7%) and gender (21.2%), respectively (Table 4).

The factors considered by the participants in their drug selection are given in Table 5. The drug-related factors that the participants always considered when prescribing drugs were safety (73.1%), efficacy (67.3%), suitability(51.9%), and cost (7.7%), respectively. It is noteworthy that here the cost is the factor that is taken into account the least (Table 5).

Table 4. Factors questioned by dentists in patient anamnesis while prescribing medication

	Always (%)	Sometimes (%)	Never (%)
Age	80.8	19.2	-
Gender	21.2	30.8	48.1
Chronic disease status	88.5	11.5	-
Pregnancy status	94.2	1.9	3.8
Other drugs used	71.2	28.8	-
Allergic status	94.2	5.8	-
Purchasing power	7.7	65.4	26.9

Table 5. Criteria considered by participants in drug selection

	Always	Often	Sometimes	Rarely/Never
Efficiency	67.3	32.7	-	-
Safety	73.1	26.9	-	-
Suitability	51.9	38.5	7.7	1.9
Cost	7.7	11.5	50	30.8

The distribution of information sources used by the participants while prescribing drugs is given in Figure 1. The most frequently used information sources by the participants while prescribing drugs were the internet (27.56%) and colleagues (24.35%), respectively. The least used information sources were pharmaceutical software programs and pharmaceutical company promotions (1.92%), respectively (Figure 1).

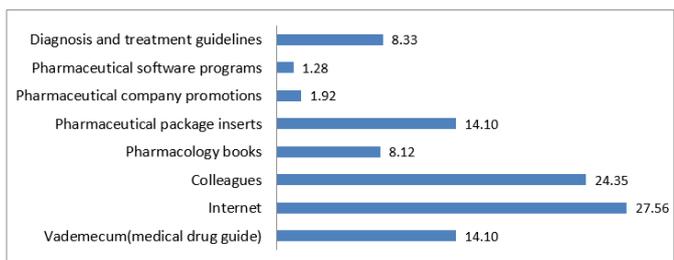


Figure 1. Distribution of information sources used by participants while prescribing drugs

The opinions of the participants about their drug knowledge levels are given in table 6. When the average scores of the answers given by the participants were examined, the subjects that they found themselves most competent in terms of drug knowledge level were indications (3.63), daily dose and administration (3.61). The subjects they considered the least sufficient were price information (1.98), bioequivalence (2.71), drug interactions (2.75) and side effects (2.92), respectively. The number of people who consider themselves very competent in terms of drug knowledge level remained below 10% in all categories (Table 6).

Table 6. Opinions of the participants about their own medical drug knowledge level

	Very Sufficient (%)	Sufficient (%)	Moderate (%)	Insufficient (%)	Very insufficient (%)	
Indications	9.6	59.6	30.8	3.8	5.8	3.63
Daily dose and administration	9.6	53.8	36.5	-	5.8	3.61
Mechanism of action	7.7	30.8	53.8	1.9	5.8	3.32
Contraindications	7.7	30.8	61.5	7.7	5.8	3.26
Side effects	5.8	15.4	50	23.1	5.8	2.92
Drug interactions (Other drug, food etc.)	3.8	13.5	48.1	23.1	11.5	2.75
Warnings/precautions	5.8	34.6	30.8	21.2	7.7	3.09
Exceptions (pregnancy, child etc.)	7.7	42.3	34.6	7.7	7.7	3.34
Bioequivalence	5.8	17.3	38.5	21.2	17.3	2.71
Price information	-	9.6	17.3	36.6	36.5	1.98

When the education levels of the participants about rational drug use were questioned, 44.2% of the participants stated that they did not receive any training on rational drug use before graduation from the faculty of dentistry, and 59.6% in the last 5 years. 63.5% of the participants think that both the level of medical drug knowledge and the level of knowledge about rational drug use are insufficient. Along with these, 75% of the participants stated that they wanted to receive training on rational drug use.

DISCUSSION

Medicines are generally used to improve the quality or quantity of life or to cure or prevent disease. However, the unnecessary use, misuse and even underuse of drugs cause serious economic losses and health risks. Although the field of use of drugs in dentistry is quite narrow, the prescribed drugs, especially antibiotics, are quite high. For example, it has been reported that 9-10% of all antimicrobial drugs prescribed in the United Kingdom were prescribed by dentists.¹⁴ Recent studies about systemic antibiotic use in Europe reported Türkiye as the country having the highest antibiotic consumption across the continent.¹⁵ It is well known that overuse or misuse of antibiotics will lead to antimicrobial resistance. Furthermore, dentists tend to empirically prescribe broad-spectrum antibiotics for the treatment of oral/dental infections or prophylaxis.¹⁶ In this study, the knowledge and attitudes of dentists working in a faculty of dentistry about rational drug use were comprehensively revealed.

The steps of rational drug use; making the correct diagnosis, monitoring the prognosis, determining the treatment goals, reviewing the treatment options, correct prescription and follow-up if necessary. In this whole process, it is essential to consider non-drug treatment approaches, to analyze the effectiveness, suitability, safety and cost of drugs, to provide accurate information and patient participation.¹⁷ Following the treatment results of current patients is an important step in determining the treatment method for the next patients. In this study, 36.5% of the participants stated that they could evaluate the treatment results "always", and 57.7% "sometimes". In addition, 13.5% of the participants reported that they did not never recommend non-drug treatment to the patient. Non-drug treatment is an important element of rational drug use. While non-drug therapy may be the first choice in the treatment of some diseases, it can sometimes be recommended as an adjunct treatment to drug treatment (For example, behavioral therapy and exercise are recommended in addition to drug treatment in temporomandibular joint treatment).

In rational drug use, it is very important for the dentist to consider the individual characteristics of the patient while arranging the treatment and to determine the drugs to be used accordingly. Variables such as gender, age, socioeconomic level, weight, and sociocultural characteristics of patients may affect the physician's choice of treatment.¹⁸ In this study, the dentists most frequently questioned the pregnancy(%94.2) and allergic status(%94.2) of the patients while taking anamnesis, followed by the chronic disease status(%88.5) and the age(%80.8) of the patients. The least questioned situation during the anamnesis was the purchasing power of the patient (7.7%). Similar to the results of this study, in a study conducted among family physicians in Turkey in 2018, it was reported that physicians questioned drug allergy as a first and chronic disease as second in the anamnesis.¹⁹

When the factors that dentists consider while prescribing in this study, it was observed that they always considered the safety of the drug (73.1%) the most, followed by the effectiveness of the drug (67.3) and suitability (51.9). Dentists most recently stated that they consider the price of the drug(%7.7). Similar to the results of this study, in a similar study conducted recently, it was seen that dentists considered safety (68.3%) the most when prescribing, followed by effectiveness (62.4%), suitability (60.7), and price of the drug (6.0%).¹² In conducted on physicians before, it has been observed that physicians mostly consider the effectiveness of the drug when prescribing drugs.^{18,20} In light of these studies conducted in Türkiye, we can conclude that dentists mostly consider the safety of the drug when prescribing drugs, while medical practitioners mostly consider the effectiveness of the drug.

Physicians or dentists use many sources of information when

prescribing drugs. When the information sources used by dentists while prescribing drugs are examined, internet use is the first in this study. Similarly, in a study conducted on family physicians in Düzce, the internet was the most common source of information for family physicians when prescribing medication.²¹ Today, the Internet is one of the most important sources of information used by both physicians and the public. It is easier to access the drug indexes, which were previously only published as a book, or the information on the prospectus included in the drugs, via the internet. In addition, the internet offers the user the opportunity to access more information such as scientific articles, reports and user comments about the questioned drug. Remarkably that colleagues are the second source of information in this study, this result shows that dentists consult their colleagues while prescribing drugs and are in close communication with them in a clinical setting.

One of the factors preventing rational drug use is the drug demands of the patients. Sometimes, patients may insist on physicians to write down the drugs recommended by their relatives, which they have used before and which are "good" or that they have bought from the pharmacy before.²² In this study, 63.5% of the dentists stated that sometimes, and 1.9% always prescribed the drugs that the patients specifically requested. Also in this study, 92.3% of dentists stated that they never prescribe medication without examining the patient. Physicians' fear of being exposed to violence, efforts to please the patient, patient intensity and feelings of burnout may be the reasons for prescribing the drugs requested by the patient at such a high rate. In a study conducted in Türkiye, a significant proportion of physicians stated that they prescribed drugs that patients wanted to avoid discussions with patients. To reduce these demands that put physicians in a difficult situation, strategies such as hanging informative posters in health institutions and broadcasting informative public service ads for patients on television and radio have been suggested.²⁰

The patient must be informed about the drug accurately and completely by the physician. In this study, approximately one-third (32.7%) of the dentists stated that they did not inform the patient about the "side effects of the drug". Similarly, it is seen that 15.4% of the dentists do not inform the patient about "warnings about the drug", 13.5% about the "effects of the drug" and 82.7% about the "price of the drug". The rate of physicians who tell the "name of the drug", "how to use" and "treatment process" to the patient is also not 100%. However, it is the most natural right of patients to be adequately informed about diagnosis and treatment, and for a successful treatment, patients should be a participant in the diagnosis and treatment process.

In this study, 73.1% of dentists consider themselves inadequate regarding drug price information. Again, 30.8% of the dentists stated that they did not consider the cost of the drug when choosing a drug. 26.9% of dentists stated that they do not consider the purchasing power of the patient when prescribing drugs. 82.7% of the dentists stated that they did not inform the patient about the price of the drug. 53.82% of the dentists answered "absolutely no" to the question "Does the patient's insurance affect your drug choice or not". These findings show that dentists do not sufficiently consider drug prices and patient purchasing power. Although the resources allocated to health in Türkiye are low, it is noteworthy that the share allocated to drugs is as high as 29%.²⁰ Considering this situation, it is better understood that physicians should consider the cost when prescribing. To reduce prescription costs, comprehensive projects should be put forward at the national level to include all physicians.

Informing society and physicians about rational drug use has an important place among the recommendations offered by the World Health Organization to countries to prevent the negative effects of irrational drug use on health and the economy.¹⁷ The underlying cause of IDU problems is that healthcare professionals do not receive adequate training on RDU within the scope of their pre-graduate and post-graduate continuing education. In this study, 44.2% of the dentists stated that they did not receive any training on rational drug use before graduation and 59.6% in the last 5 years. In addition, 63.5% of dentists think that both their medical drug knowledge and their knowledge about rational drug use are insufficient. It is very important to teach rational drug use to dentists while they are still students. In Türkiye, RDU has been included in the core curriculum of dentistry education since 2016. In addition to the theoretical pharmacology course seen in the 3rd grade, applied training in the 4th and 5th grades can enable

dentistry students to be trained more sensitively and competent in this subject. The inadequacies of physicians' therapeutic competencies, including not informing their patients, are among the leading causes of IDU problem.²³ Educational activities related to rational drug use, such as choosing drugs, prescribing, informing the patient about their treatment, and communicating well can increase the therapeutic competence of physicians. In addition, after graduation, training on rational drug use should be given to dentists at regular intervals.

The small study population is the most important limitation of the study. Although dentists go through similar educational processes and work in similar conditions, the findings are limited to the study sample examined, the results cannot be generalized to dentists all over the country. In addition, in this study, dentists' knowledge and attitudes regarding rational drug use were evaluated instead of their rational behaviors, and the results may be subjective. Despite this, this study is one of the first studies to comprehensively reveal the knowledge and attitudes of dentists regarding rational drug use. Future studies should focus on the causes and costs of irrational drug use by dentists and solution methods such as pharmacotherapy training in dentistry.

CONCLUSION

Dentists should determine treatment and drug selection according to the principles of rational drug use, according to the selection criteria of "effectiveness, safety, suitability and cost" in line with current evidence-based information. This study shows that irrational drug use among dentists is an important issue that needs to be addressed and there is a significant knowledge gap and training need in this area. Rational pharmacotherapy training should be given to dentists before and after graduation. Dentists should follow RDU principles and use the best scientific evidence when prescribing. It is very important for dentists to constantly update their competencies to provide quality treatment in dental services. Because knowledge is dynamic and constantly changing, continuous follow-up of clinical guidelines, systematic reviews and meta-analyses in evidence-based drug use is necessary.

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Etik Beyan / Ethical statement

Bu makale, sempozyum ya da kongrede sunulan bir tebliğin içeriği geliştirilerek ve kısmen değiştirilerek üretilmemiştir.

Bu çalışma, yüksek lisans ya da doktora tezi esas alınarak hazırlanmamıştır.

Bu çalışmanın hazırlanma sürecinde bilimsel ve etik ilkelere uyulduğu ve yararlanılan tüm çalışmaların kaynakçada belirtildiği beyan olunur.

This article is not the version of a presentation.

This article has not been prepared on the basis of a master's/ doctoral thesis.

It is declared that during the preparation process of this study, scientific and ethical principles were followed and all the studies benefited are stated in the bibliography.

Benzerlik Taraması / Similarity scan

Yapıldı - ithenticate

Etik Bildirim / Ethical statement

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