



Herbal Drug Use Frequency, Reasons, And Effects On Public Health: An Ethical Analysis

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ABSTRACT

Introduction: Herbal products are generally considered safe because of their natural origin with the belief that "herbs are harmless". Herbal medicines, teas, and mixtures can be purchased by consumers via the internet and telephone without the supervision of a doctor. The ease of direct sale of herbal products to consumers, potential toxicity, contamination, deception, and interactions with drugs and food pose a direct threat to public health.

Objective: In this study, we aimed to investigate the frequency of use of herbal medicines and the reasons for use in Sivas city center and its districts.

Method: The prepared questionnaires were approved by the Sivas Chamber of Pharmacists' board of directors and the questionnaires were administered to the patients under the supervision of a pharmacist. The results were evaluated with the chi-square test.

Findings: According to the research results; Herbal products are bought from herbalists, online, no one knows about their content, the dosage is not known, the side effects are not known, they are easily used with prescription drugs, and there is no information about eliminations. Worst of all, 70% of the society tends to use herbal products. Doctors do not know much about phytotherapy and therefore cannot recommend herbal products. In this case, the most ignorant and charlatans have a say. Pharmacists can't compete with herbalists who act recklessly in this regard. Herbal product licenses are unfortunately not given by the Ministry of Health.

Conclusion: In short, herbal products continue to pose a threat to public health as a "bomb with the pin pulled" unless precautions are taken.

Keywords: Herbal products, pharmacies, traditional treatment

Bitkisel İlaç Kullanım Sıklığı, Nedenleri ve Halk Sağlığına Etkileri: Etik Bir Analiz

Süreç

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Öz

Giriş: Bitkisel ürünler "bitkiler zararsızdır" inancı ile doğal kökenleri nedeniyle genellikle güvenli kabul edilir. Bitkisel ilaçlar, çaylar, karışımlar tüketiciler tarafından doktor gözetimi olmaksızın internet ve telefon yoluyla satın alınabilir. Bitkisel ürünlerin tüketicilere doğrudan satışının kolaylığı, potansiyel toksisite, kontaminasyon, aldatma, ilaçlar ve gıdalarla etkileşimleri toplum sağlığına doğrudan tehdit oluşturur.

Amaç: Bu araştırmada Sivas il merkezi ve ilçelerinde bitkisel ilaç kullanım sıklığını ve kullanım nedenlerini araştırmayı amaçladık.

Yöntem: Hazırlanan anketler Sivas Eczacı Odası yönetim kurulunca onaylandı ve eczacı gözetiminde hastalara anket uygulandı. Sonuçlar Ki-kare testi ile değerlendirildi.

Bulgular: Araştırma sonuçlarına göre; bitkisel ürünler aktarlardan, internetten satın alınıyor, içeriği hakkında kimse bilgi sahibi değil, kullanım dozu bilinmiyor, yan etkileri bilinmiyor, reçeteli ilaçlarla rahatça kullanılıyor ve eliminasyonlar hakkında bilgi yok. En vahim olan da toplumun %70'i bitkisel ürünleri kullanmaya eğilimli. Doktorlar fitoterapi hakkında fazla bilgi sahibi değil ve bu nedenle bitkisel ürünleri önermiyor. Bu durumda en bilgisizler ve şarlatanlar söz sahibi oluyor. Eczacılar da bu konuda futursuzca davranan aktarlara rakip olamıyor. Bitkisel ürünler ruhsatları maalesef sağlık bakanlığınca verilmiyor.

Sonuç: Kısaca bitkisel ürünler şu anda ve önlem alınmadığı sürece "pimi çekilmiş bomba" olarak halk sağlığına tehdit oluşturmayı sürdürüyor.

Anahtar sözcükler: Bitkisel ürünler, eczaneler, geleneksel tedavi

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Introduction

Historically, herbs have been a good source of cure for infections, and herbs have been used for thousands of years as traditional treatments for ailments of countless people in many parts of the World^{1,2}. The earliest information about the herbs is written in Egyptians' Ebers Papyrus. Its origins date back to 1500 BC. The Ebers Papyrus is a medical "handbook" documenting therapeutic treatments and pharmaceutical plant preparations. After the Egyptians, the Greeks played an essential role in documenting the use of medicinal plants^{3,4}. In the Middle Ages, aromatic plants were widely used against the plague. Yet, after the discovery of antibiotics in 1939, plants were being ignored. These discoveries led to an era of wonder drugs, targeting the "one, golden lead" approach to control diseases. In this process, products that were produced under appropriate conditions deserved the definition of drugs and completed the experimental stages, which were used for treatment purposes.

However, medicinal plants still continue to be used as the primary source of medicine in rural areas of developing countries. World Health Organization reports also support this remark that 80% of the world's population benefits from medicinal herbs in treatment^{5,6}. When various statistics and product sales figures are being examined, it seems that the use of herbal medicines has increased rapidly in many countries⁶.

Herbal medicines and products (HP) are a subclass of traditional medicines that include herbs, herbal materials, herbal preparations, and finished herbal products containing plant parts or other plant materials as active ingredients¹. With the belief which claims that "herbs are harmless", it has become a popular choice for health, as it is generally considered safe due to its natural origins and long-term use. Consumers can purchase medicinal products in the form of herbal medicines and dietary supplements via the Internet and telephone without medical supervision. The easiness of direct sale of HP's to consumers can cause potential toxicity, contamination, deception, interactions with drugs, and food posing a direct threat to public health⁵⁻⁸.

Numerous scientific studies have been carried out in various countries and Turkey, regarding the usage of herbal medicines⁹⁻¹⁵. HPs' qualifications and purposes of use need continuous monitoring, and evaluation of this health behavior is a public health priority.

Although the use of HP is broad in Turkey; the education level of the users, the frequency of their records at the hospitals, their demographic and socioeconomic data, how they use the HP's, by whom it is recommended to them, why they trust the HP's, the medical conditions of the participants, the use of other prescription drugs together, the usage of HP the issue of whether users of HP have knowledge about the causes and possible side effects or not, have not been studied much in Turkey.

In this research, we aimed to investigate the frequency of herbal medicines' use and the reasons for their usage by people in Sivas city center and its districts. In addition, we wanted to create a resource for researchers who plan to conduct research later and record our data.

Material and Methods

Pharmacies are health institutions that citizens apply and trust from every education level and every socio-cultural level. We thought that it would be good to investigate the frequency of herbal medicine usage and the reasons for their use by individuals, who come to the pharmacy under the supervision of a pharmacist. We presented the questionnaire forms which we prepared to the Sivas Chamber of Pharmacists. The prepared questionnaires were approved by the decision of the Sivas pharmacy association board of directors, and it was allowed to conduct questionnaires to the patients in pharmacies. (Sivas Cumhuriyet University Ethics Committee Approval Number: 2021-09/12, Date:14.09.2021).

People over the age of 18 were included in our study, which started before the pandemic. All data were collected from questionnaires made with both patients and their relatives who applied to pharmacies.

Only those who agreed to participate and signed the consent form were included in the study. All the interviews were conducted face to face. Participants were asked to give only one answer to each question.

In the questionnaire, demographical questions, questions measuring the information of people about herbal medicines' usage, investigating the methods of obtaining HP's, and examining the level of awareness about HPs' side effects were asked. This research's data were evaluated statistically by its researcher.

This questionnaire was applied to 1502 people who came to the pharmacy under the supervision of pharmacists. The results were evaluated statistically with % and χ^2 tests¹⁶.

Results

1502 people participated in the study. This study's participants' genders were, 750 (49.9%) male and 752 (50.1%) female (χ^2 : 0.003, $p < 0.959$). Age groups of participants were examined. A regular distribution was found: 625 people (21.6%) between the ages of 18-29, 512 people (34%) between the ages of 30-39, and 352 people (23.4%) over the age of 39 (χ^2 :297,880; $p < 0.001$). When the educational status of the participants was examined, it was determined that 374 (24.9%) primary school, 593 (39.8%) high school, 448 (29.8%) university, 72 (4.8%) of them were graduated from MSc.

It was observed that 851 (56.7%) of the participants were working, and 615 (40.9%) of them were not working. Despite this, 1280 (85.2%) of 1502 participants were found to have social security (Table 1).

Table 1. Employment and social security status of the participants.

Participants were asked;	YES	%	NO	%	Not answered	%	Total	X ²	p
Do you work?	851	56.7	615	40.9	36	2.4	1502	702.505	<0.001
Do you have social security	1280	85.2	222	14.8	-	-	%100	745.249	<0.001

This is an indication that health insurance is widespread in our country, and social state principles are applied in Turkey.

We asked participants where they bought herbal products. 476 (31.7%) of participants said that they

bought these herbal products from herbalists and the others (17.3%) said that they are buying from pharmacies. Although pharmacists are experts in this domain, they are less preferred by the public than uneducated and inexperienced herbalists (Table 2).

Table 2. Where do you get the herbal product?

Where do you get the herbal product?	Number of people	%	X ²	p
Herbalist	476	31.7	939.577	<0.001
Pharmacy	288	17.4		
Internet	309	20.6		
Tv	188	12.5		
Book	50	3.5		
Family	110	7.3		
Print Release	50	3.3		
Other	31	2.0		
Total	1502	100		

In fact, this situation can be shown as the reason why society does not get accurate information about herbal products.

We asked: "Why do you use herbal products?". 465 people (31%) said that they use herbal products

because they believe that herbs have few side effects. This is an absolutely mistaken belief. Herbs can have many side effects; they can interact with prescription medications, and even be toxic (Table 3).

Table 3. Why are herbal products preferred?

Why are herbal products preferred?	Number of people	%	X ²	p
Few Side Effects	465	31	366.888	<0.001
Reach More Easily	228	15.2		
Nearby's Advice	236	15.7		
Transfer Polite	95	6.3		
Not Answered	478	31.8		
Total	1502	100		

514 people (34.2%) gave a generally positive answer to the question, "How is the attitude of the society towards herbal products in general?" This indication

showed that 70% of the society tends to use herbal products. Pharmacists should take these data very seriously (Table 4).

Table 4. What is the society's view of herbal products?

What is the society's view of herbal products?	Number of people	%	X ²	p
Positive	514	34.2	619.897	<0.001
Negative+Positive	514	34.2		
Negative	165	11.0		
I do not know	285	19.0		
Unanswered	24	1.6		
Total	1502	100		

We wanted to determine the frequency of use of herbal products, and then we asked;

"Are you currently using herbal products?" (60%) 901 people said "no". The "no" answer to this question

was surprising because they said oppositely in subsequent questions. Participants preferred to hide their use of herbal products.

"Are herbal products medicine?" was asked people. 807 people (53.7%) answered this question "no".

The level of prescription drug usage is high in Turkey. Hence, we asked participants, "Do you know that herbal products can interact with prescription drugs?". 704 (46.9%) participants answered "yes" to this question.

"Do you think it will harm the fetus if herbal products are used during pregnancy?" was asked the participants. 755 people (50.3%) answered "yes" to this question.

We asked that if prescription drugs were safe during pregnancy: "Is herbal medicine safe?". 797 people (53.1%) said that prescription drugs are safe.

We asked, "Would you encourage your family to use herbal products and seek treatment". 649 (43.2%) people said yes. 501 people (33.4%) said they used herbal treatment.

We asked, "Do you think herbal products are beneficial?". (43.9%) of the participants answered "yes"

We asked whether the belief "If a product is herbal, it will be beneficial" is true or not. 973 participants (64.8%) said "no". However, 18.7% of the group still think that this idea is correct, which is a grave finding.

We asked "Whether the product you bought from the pharmacy or the product you bought from the

herbalist is reliable?". 785 people (52.3%) said that the product purchased from the pharmacy is reliable. Despite this response, pharmacies cannot compete with herbalists.

In order to evaluate the knowledge level of physicians about herbal products in the view of society, we asked this: "Do physicians generally have knowledge about herbal products?" 692 people (46.1%) answered the question "insufficient, very weak".

"Do you get enough information about herbal products from the pharmacies?" 47.1% answered "yes" to the question. It is a pity that pharmacies provide so little information about herbal products. Pharmacists should be the owner of herbal products-medicine, which they are experts about. Hence, pharmacists should have a word to say.

We asked, "Would you tell your doctor that you use herbal products?". 45.7% of the participants answered, "I did not tell my doctor".

Then we asked this, "Does your doctor ask you if you use herbal products or not?" 68.9% of participants said, "my doctor did not ask me".

"Does your doctor recommend herbal products in addition to prescription products?" we asked. 74.4% of the participants said that their doctor did not recommend herbal products (Table 5).

Table 5. Participants were asked for their opinions on herbal products.

Participants were asked for their opinions on herbal products.	YES	%	NO	%	I do not know	%	Unanswered	%	X ²	p
What do you think; Are herbs medicine?	695	42.3	807	53.7					8.352	<0.004
What do you think; Are herbal products safe during pregnancy?	225	15	797	53.1	424	28.2	56	3.7	811,571	<0,001
What do you think; Does HP interact with prescription drugs	704	46.9	353	23.5	403	25.8	42	2.8	586.943	<0.001
What do you think; If HP is used by pregnant women, will their baby be affected?	755	50.3	205	13.6	400	26.6	142	9.5	607.758	<0.001
Have you recommended herbal treatment to your family?	649	43.2	715	47.6	100	6.7	38	2.5	1011,635	<0,001
Have you applied herbal treatment to your family?	501	33.4	841	56	110	7.3	50	3.3	1088,897	<0,001
What do you think; HP, Herbal product is natural, "useful" is it true?	660	44	586	39	220	14.6	36	2.4	704.903	<0.001
What do you think; If HP is herbal, it won't hurt, right?	255	17	973	64.8	220	14.6	54	3.6	1329.079	<0.001
Have you used herbal products?	601	40	901	60					59.920	<0.001
What do you think; Is herbal product from pharmacy safer?	785	52.3	400		235	15.6	82	5.5	730.154	<0.001
Did the pharmacist give you information about the herbal products you take?	715	47.6	620	41.3	92	6.1	75	5	920.674	<0.001
Did you tell the doctor that you used herbal products during the examination?	513	34.1	686	45.7	151	10.1	152	10.1	574,352	<0,001
Did the doctor ask you "do you use herbal medicine"?	257	17.1	1035	63.9	97	6.5	113	7.5	1585,755	<0,001
Has the doctor recommended herbal products for your treatment?	109	40	901	60					1964,605	<0,001
Do you think the physicians have enough knowledge about HP?	153	10.2	1077	71.7	272	18.1	-	-	427.379	<0.001
Did the herbal product you use have any side effects?	1047	69.7	152	10.1	250	16.6	53	3.5	680.919	<0.001

We asked about the level of knowledge about the use of herbal products. 946 people (63%) stated that the society had little knowledge on this subject, 182 people (18%) had moderate knowledge, and 104 people (12.1%) said that the society had good

knowledge about the use of herbal products ($X^2:1192$; 423; $p<0.001$).

Such products can cause immediate poisoning or have long-term side effects. Endocrine, liver, and kidney damage occurs over the years and these side effects may not be evaluated as a result of herbal

product use. Therefore, the person who uses the medicine, tea, or mixture cannot know this exactly.

Discussions

This study was conducted by applying a questionnaire to 1502 people who came to pharmacies in Sivas province and its districts under the supervision of a pharmacist. In recent years, the increase in herbal products produced in an uncontrolled manner, with or without a license from the Ministry of Agriculture, is remarkable. By herbal product (HP), we mean food supplements, teas, mixtures prepared by herbalists, etc. Misinformation by a group of sellers, who just think about their economic interests, via advertisements has led to the widespread consumption of counterfeit products, especially in Turkey, which threatens public health.

Sibutramine active ingredients are found in many products offered for sale with the slogan stating "weakens"¹⁷. Sildenafil active ingredients are found in many products offered for sale with the slogan "Increases sexual power"¹⁷⁻¹⁹. These are deliberate adulterations.

In addition, accidentally using the wrong plant species, contamination of herbal products with toxic or dangerous substances (Products collected from roadsides are polluted by exhaust gas). It can be dangerous to use herbal products with overdose and use herbal remedies with prescription drugs. In addition, plants can produce different amounts of alkaloids depending on the climate of the region where they grow, the volume of the sun, and rain. In other words, the plant collected from the Mediterranean region (exposed to much sunlight) and the plant collected from the Black Sea region (exposed to much rain) does not contain the same alkaloids.

Investigating the safety and effectiveness of herbal medicines is more complex research than traditional prescription drugs. A single medicinal herb may contain hundreds of natural ingredients, and a mixed herbal medicinal product contains several times this number. Each active ingredient can have an opposite effect, or even they can have a toxic effect. Also, plants can become contaminated during storage. According to WHO research results, an increase in the use of herbal products has been reported^{5,6}. According to the same research data, adults who use and trust herbal products also prefer herbal products for their children¹².

Studies have been conducted in various countries on the use of alternative and complementary medicine. Eisenberg and his friends had reported that the rate of herbal use in the USA, which was 3% in 1990, increased to 12% in 1997¹⁰. Again in 1997, in another survey conducted with 1500 people in the USA, 17% of individuals reported that they used herbal products¹³. The use of herbal products is increasing rapidly not only in the USA but also in Europe.

In a survey conducted with 478 people in Italy's Toscana region in 2012, it was determined that 49% of the participants were inclined to use herbal products. In this study, it was reported that the usage of herbal

products is common among women and people with high education¹¹.

In Turkey, 1053 people were surveyed by mail in 28 provinces, and it was determined that 645 of these people used herbal products^{9,15}.

In a study conducted in Germany in 2010, the habits of 413 parents giving herbal preparations to their children were examined. The children of the families that participate in the survey are between the ages of 4-6. 85% of the parents reported that they gave herbal medicine to their children at least once¹². In a study conducted in Saudi Arabia, it was noted that pregnant women are also using herbal products¹⁴. Although the usage of herbal products is common in the normal population, it is also frequently used by health professionals too. In the USA's state of Texas, 69 health workers were asked if they are using the herbal products or not; %90 of them used herbal products. They told that they benefit from herbs, and also recommend these herbal products to patients¹³.

In our study, it was determined that the use of herbal products is common in Sivas, but there is very limited information about these products. It was seen that HP was used frequently even during pregnancy with the idea of "it is natural and harmless" and it was not even thought that it could interact with prescription drugs. Although they found herbal products to be reliable when bought from pharmacies, it was determined that they were obtained from herbalists, not from pharmacies. In our study, it has been determined that people are not given enough information about these products, even in pharmacies. This is a finding that we, as pharmacists, should criticize ourselves.

Considering all the findings; it was determined that those who used herbal products did not inform the doctors about this issue during the examination, and the doctors did not ask the patient. It was observed that physicians did not know enough about herbal medicines' side effects and their (herbs) interactions with prescription drugs. It has been observed that physicians in Turkey do not treat their patients according to the fact of herbal products.

In fact, the public is aware of herbal products and their dangers, but knowing these dangers does not prevent them from using these products. They still see these products as a treatment option. The idea that says, "it is a natural product" causes them to perceive these products as harmless. This is absolutely an incorrect belief. It should be known that plants also act with alkaloids, in other words, the chemicals they contain. Herbs can have many side effects; they can interact with prescription medications, and can even be toxic.

In addition, some dishonest manufacturers can be offered for sale under the name of "food supplement" even though active drug ingredients are added. This has happened many times in Turkey.

As a result of our study; everything that contains an active substance (even alkaloid) is a drug and must be licensed by the Ministry of Health, and an annual analysis must be done. Urgent measures are needed to

raise public awareness of the risks of using herbal medicines without professional advice. Pharmacists should have a word in the production and consumption of herbal products.

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