

## Research Article

# Factors for preferring OTC drugs in Aydin, Turkey

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## Abstract

**Aim:** Over-the-counter (OTC) drug use is rather common all around the world. This study aims to find out the relationship between the sociodemographic features and preferred drugs, and to identify drug preferences of individuals in Aydin.

**Method:** This study was designed as a voluntary-based, cross-sectional, descriptive study. The target population was 18 year old and above who resides in Aydin. The questionnaires were applied face to face to the individuals who came to buy OTC drugs from pharmacies. The data were assessed by SPSS 18 package program. A p value smaller than 0.05 ( $p<0.05$ ) was accepted as statistically significant.

**Results:** Totally 851 individuals (393 women), ages ranged 18-87 took part in the study. The mean age was  $40.3\pm13.9$ . Analgesics were the most common preferred drugs and the flu drugs followed them. Of the total, 85.4% followed the recommendations of their doctors, especially family physicians. Of the total, 37.5% of them stated that they used herbal drugs or herbal treatments. Female gender, higher income, chronic disease presence, and being under supervision of family physicians were the factors that played role in use of more herbal treatment and drugs.

**Conclusion:** Analgesics were the most commonly preferred nonprescription drugs. Participants, who were supervised by their family physicians, were more likely compatible with their doctors' recommendations.

## Introduction

The Chinese herbal treatment as a cure has been used since 770 BC [1]. The beginning of the diagnostic and alternative medicine lays back to old Chinese and Ayurvedic medicine [2]. Before the modern drugs we use today, herbs had been used to cure and protection. The number of the herbs used as remedies has been increased since the ancient times [3]. People had created a culture in their living areas in by finding which herb treated which illness via trial-error-observe technique [3]. With the progress of Chemistry in the 19th century, some pure active compounds were started to be extracted from plants and used as drugs [4].

Phytotherapy, which means treatment with medical herbs, was first used by French physician Henri Leclerc (1870-1955) in the journal 'La Presse Médical' in 1939 [5]. The whole number of the herbs around the world is estimated between 750000 and 1000000 nowadays. Approximately 20000 of them are being used for medical purposes all around the world. There are about 9000 species in Turkey and 500 of them can be used for medical purposes. Although the number of the recorded herbs is 140 in codex, they are grown in very limited areas compared to other cultural plants [6].

In Turkey where the alternative medicine is widely preferred, the control mechanism on alternative medicine has many problems. After some attempts, the authority of yielding herbal drug license has been transferred from the Ministry of Agriculture to the Ministry of Health [7]. In our country, some regulations were implemented in 2005, according to the European Union harmonization standards. The Human Medicine Products Classification Code (February 17, 2005) describes the criteria those differentiate which products should be taken by prescription and which products are classified as nonprescription drugs [8].

Pharmacological and non-pharmacological industries deliver their products to the individuals via pharmacies or different kinds

of retail markets all around the world. These products have different kinds of classifications. The classification is formed as; refundable prescription and nonprescription drugs, nonrefundable prescription and nonprescription drugs and pharmaceuticals. A study conducted in 2012 stated that there were 44 herbal medications in Turkey, according to RxMediapharma [9]. Some of these medications are in the scope of equivalents. Preparations that include Ginkgo biloba extract (5 boxes) and Passiflora incarnata extract (5 boxes) are the most common equivalents in the pharmacies.

OTC represents "Over the Counter" drugs that can be used according to the recommendations of the pharmacist without requirement to be prescribed by a doctor, for a short time. They are safe and effective for simple indications, which can be encountered frequently on daily bases [10]. These products' market share is predicted to increase within the next five years [11]. According to 2006 IMS (Institute of Mathematical Statistics) data, the total share of OTC in the pharmacological market reached up to 54 million Euros [8].

In the light of all these information, this study was planned to determine the attitudes and beliefs of the people, especially after the legal regulations in Turkey. Besides, this study aims to call attention to this important issue, identifying people's nonprescription drug choices and their expectations, their orientation to alternative medical drugs, family physicians' role and implementations on the issue. According

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to our knowledge, our study is the first study searching about all these subjects in our country. In this study, our main goals can be described as; 1. to determine and to evaluate the possible relationship between people's sociodemographic features and their product preferences 2. to identify what kinds of drugs they use, the reasons and the amount 3. to find out the family physicians' role and effect on drug use, drug habits and their consistency with the treatment.

## Materials and method

The study has been designed as a voluntary-based, cross-sectional, descriptive study. There are 101 pharmacies in Aydin according to the data acquired from Pharmacy Department of Aydin Provincial Health Directorate. 15 pharmacies have been chosen randomly for the study. The universe population was 18-year-old and above who resides in Aydin. The number of the population has been determined as 842, according to the EPI INFO STATCALC statistics program which identifies prevalence %50 (p %50), and reliability %95 by confidence interval, type 1 alpha tolerance as 0.05. Before starting the study, required permissions were obtained from Aydin Pharmacists Association and The Ethical Board of Non-invasive Clinical Research, Adnan Menderes University, School of Medicine (Approval date: 27.02.2014, protocol number 2014/347, decision number 9).

Although, the study was voluntary-based, an informed consent form was also signed to individuals. The questionnaires were applied to the individuals who came to buy OTC drugs from pharmacies, chosen among the Aydin Pharmacists Association records by randomized sampling. The questionnaire forms were applied face to face and filled

by the pollsters. The study period was from September 1st 2014 until December 31st 2014. During the pollsters visit, 851 volunteer people over 18 years old who were present in the pharmacy on the visiting day, participated in the study. Being under 18 and not being voluntary for the participation were accepted as exclusion criteria. Individuals were informed about the study. Afterwards, the data were evaluated by using SPSS 18.0 package program. A P value<0.05 was considered as statistically significant.

## Results

### Sociodemographic features of the participants

Out of 851 participants, 393 were female (46.2%). The age of female participants' ranged from 18 to 87 and the mean age was  $40.3 \pm 13.9$ . Female participants were younger than the male participants and it was statistically significant ( $\chi^2=28.086$ ;  $p<0.001$ ) (Table 1).

Of the total, 29.5% (n=251) of the participants were not under clinical supervision of a physician. Among them, 41.8% (n=356) of them were under the clinical supervision of a family physician, 6.7% (n=57) of them were supervised by internal medicine, 4.9% (n=42) of them were supervised by both a family physician and a branch specialist, 4.1% (n=35) were under the supervision of family medicine specialist, 1.1% (n=9) were being supervised by both family medicine specialist and another medical specialist. Of the total, 46.2% (n=392) of the participants were diagnosed by a chronic disease. While the ratio of the chronic diseases for the female participants were 49.0% (n=192), it was 51.0% (n=200) for male participants. The difference between them was not statistically significant ( $\chi^2=2.290$ ;  $p>0.05$ ).

**Table 1.** Demographic features of the participants

Demographic Features		Number of the Female participants (%)	Number of the Male participants (%)	Total number of Participants (%)
Age (Mean $\pm$ SS)		37.6 $\pm$ 13.3	42.6 $\pm$ 13.9	40.3 $\pm$ 13.9
Gender [Number (%)]		393 (46.2)	458 (53.8)	851(100)
Marital Status	Married	273 (69.5)	368 (80.3)*	641 (75.3)
	Single	120 (30.5)	90 (19.7)	210 (24.7)
Education	Illiterate	3 (0.8)	0	3 (0.4)
	Literate	13 (3.3)	5 (1.1)	18 (2.1)
	Primary Education (8 years)	69 (17.6)	65 (14.2)	134 (15.7)
	High School (12 years)	95 (24.2)	124 (27.1)*	219 (25.7)
	Collage (2-4)	213 (54.2)	264 (57.6)*	477 (56.1)
Occupation	Housewife	115 (29.3)	0	115 (13.5)
	Worker	25 (6.4)	46 (10.0)	71 (8.3)
	Government Agent	82 (20.9)	206 (45.0)*	288 (33.8)
	Self- Employment	42 (10.7)	86 (18.8)	128 (15.0)
	Medical Worker	63 (16.0)*	34 (7.4)	97 (11.4)
	Student	44 (11.2)	24 (5.2)	68 (8.0)
	Retired	22 (5.6)	62 (13.5)	84 (9.9)
Income	Under 900 TL	73 (18.6)	47 (10.3)	120 (14.1)
	901-3000 TL	213 (54.2)	345 (75.3)*	558 (65.6)
	3001-9000 TL	98 (24.9)*	61 (13.3)	159 (18.7)
	Over 9000TL	9 (2.3)	5 (1.1)	14 (1.6)
Settlement	Aydin City Center	378 (96.2)*	392 (85.6)	770 (90.5)
	Countryside	15 (3.8)	66 (14.4)	81 (9.5)
Social Security	Available	381 (96.9)	449 (98.0)	830 (97.5)
	Not available	12 (3.1)	9 (2.0)	21 (2.5)
Smoking Habits	YES	81 (20.6)	132 (28.8)	213 (25.0)
	NO	299 (76.1)	254 (55.5)	553 (65.0)
	Quit	13 (3.3)	72 (15.7)	85 (10.0)
Alcohol Drinking	YES	31 (7.9)	93 (20.3)	124 (14.6)
	NO	361 (91.9)	348 (76.0)	709 (83.3)
	Quit	1 (0.3)	17 (3.7)	18 (2.1)

\*Statistically significant

## Features of the products bought by the participants

Among total, 70.5% (n=600) of the participants bought their refundable drugs by purchasing it directly from pharmacy instead of buying it with prescription. Rest of the participants bought nonrefundable drugs or products during their visit to the pharmacy. There was not a statistical significance between the participants who preferred nonrefundable drugs or products in terms of gender, having a social security, settlement, or having a chronic disease. When the participants buying OTC drugs were compared according to their education, income and occupation, the difference was not significant. Comparing the participants, who were under the clinical supervision of a family physician, with to the others in terms of preferring nonrefundable drugs, no statistical significance was obtained. 31.1% (n=213) of participants whose body mass index (BMI) 29.9 and under, and 22.9% (n=38) of the participants whose BMI 30 and over, preferred nonrefundable OTC drugs. There was a statistical significance between them ( $\chi^2=4.324$ ,  $p=0.04$ ).

Among total, 34.5% (n=110) of the participants who had used an herbal drug in their life time and 26.5% (n=141) of the participants who had never used an herbal drug before preferred nonrefundable OTC drug on their visit to the pharmacy. There was a statistical significance between them ( $\chi^2=6.105$ ;  $p=0.01$ ) (Table 2).

Among the reasons those brought the participants to the pharmacy; there were visiting a physician and being suggested to use a medicine and being suggested by other kind medicine for life style 25.4% (n=102) of the participants had visited a physician and an OTC drug was suggested. 39.1% (n=27) of the participants were suggested some alternative drugs for diet, exercise or change in their life style. The latter group preferred nonrefundable OTC drugs. The difference between both groups was statistically significant ( $\chi^2=5.544$ ;  $p=0.02$ ) (Table 3).

## Drug use of the participants

Our participants were usually buying painkillers mostly from the pharmacies, accounted for 41.6% (n=354). Flu drugs followed the painkillers by 10.5% (n=89), antihypertensive drugs 4.6% (n=39), 4.0% (n=34) of them bought vitamin, gastric pills 3.2% (n=27), diabetic pills 3.1% (n=26), antibiotics 2.6% of (n=22), heart medications 2.6% (n=22), thyroid pills 1.8% (n=15), antidepressive drugs 1.6% (n=14), blood thinner 1.2% (n=10), both diabetic pills and painkillers 1.2% (n=10), both painkillers and flu medicine 1.6% (n=14). When the participants were asked what they bought on that day, 35.4% (n=301)

**Table 2.** OTC drugs buying of the participants who used herbal drugs in their life time

Have you ever used herbal drugs	Medicine with Prescription N (%) <sup>*</sup>	OTC N (%)	Total S (%)	p value**
Yes N (%)	209 (65.5)	110 (34.5)	319 (100)	p=0.01**
No N (%)	391 (73.5)	141 (26.5)	532 (100)	
Total N (%)	600 (70.5)	251 (29.5)	851 (100)	

<sup>\*</sup>Statistically significant

**Table 3.** OTC drugs buying according to the suggestion of the physician

What did the Physician suggest?	Prescription Drugs N (%)	OTC N (%)	Total S (%)	p value**
Drug N (%)	299 (74.6)	102 (25.4)	401(100)	p=0.02**
Other than Drugs exercise, diet etc... N (%)	42 (60.9)	27 (39.1)	69 (100)	
Total N (%)	341 (72.6)	129 (27.4)	470 (100)	

<sup>\*\*</sup>statistically significant

of them stated that they bought painkillers. Other ratios are listed in the table below. (Table 4)

Other than the products mentioned above, 17.4% (n=148) of the participants bought different kinds of drugs. Among them, 1.8% (n=16) of them bought iron medication, 1.5% (n=15) of them bought cosmetic cream, 0.8% (n=7) of them bought allergy pills, 0.8% (n=7) of them bought asthma medication, 0.8% (n=7) of them bought fish oil tablets, 0.7 % (n=6) of them bought shampoo, 0.5 % (n=5) of them bought birth control pills, 0.4 % (n=4) of them bought black cumin oil tablets, 0.7 % (n=6) of them bought obesity drug , 0.4 % (n=4) of them bought acne medication, 0.4 % (n=4) of them bought glycosaminoglycan, 0.4 % (n=4) of them bought hormone regulators. Besides these products, some other products were bought in fewer amounts. Vertigo medication, nasal spray, throat spray, artichoke tablets, muscle relaxants, eye drops, fungicide, calcium, colchicine, nettle soap, juniper soap, thyme oil, propolis, green tea, green coffee, flu vaccine, garlic shampoo, constipation drug, Vicks can be listed among the other products.

Nearly half of our participants were under clinical supervision of a family physician. It was statistically significant that the ones who were supervised by a family physician had less amount of chronic diseases ( $\chi^2=8.840$ ;  $p=0.003$ ). They were using less amount of herbal drugs, ( $\chi^2=7.631$ ;  $p=0.006$ ), they also tried alternative methods other than medical methods ( $\chi^2=6.686$ ;  $p=0.01$ ). They were also taking their pills in the correct time and correct amount by the ratio of 87%. Only 29% of them bought drugs without prescription.

## Discussion

The interest in OTC drugs has been increasing in Turkey, like all around the world. It is estimated that most of the pharmacies' endorsement will be from OTC drugs within the five years [12]. According to Cegedim 2011 strategic data, 501 pharmacies have endorsed OTC drugs as they accounted for 18% of overall sales and this is predicted to increase up to 27% within 5 years [13]. 29.5% of our participants preferred nonrefundable OTC drugs on their visit to pharmacy. Sociodemographic features and being under clinic supervision of a family physician have an effect on using OTC drugs. For example, patients under supervision of family physicians tend to use less herbal therapy.

Most of our participants were male and their age groups were mostly in 18-30 and 31-40. The average age of women was significantly younger than the men. Many of our participants had social security and our data were consistent with the Aydin Social Security Center. The level of education was higher in our sample group. 80% of them got high school or higher education. The male group was significantly more educated than the females in our sample group. Another study conducted in Turkey also has shown that individuals who have high school or higher education tend to buy significantly more nonprescription drugs [14,15].

Male participants tended to smoke and drank alcohol significantly more than the women. And the data we gathered is compatible with the data of Turkish Institute of Statistics (TUIK). Ministry of Health, General Directorate of Primary Health Care offered a report on "Global Adult Use of Tobacco" for Turkey in 2010. The report states that 31.2% of the 15-year-old and older children and adults are still smoking. Our findings are compatible with this report [16]. Considering alcohol intake, a 2008 study has shown that prevalence of alcohol intake among young population is 42.6%, and 20.5% of the adult population drink alcohol regularly. Similar data were obtained in our study. With the

**Table 4.** Type of products

Medicine Bought from the Pharmacy	N	%
Painkillers	301	35.4
Vitamin	82	9.6
Flu Medicine	69	8.1
Blood Pressure Medicine	38	4.5
Blood Thinner	37	4.3
Gastric Medicine	35	4.1
Diabetic Pills	31	3.6
Antibiotics	28	3.3
Heart Medicine	24	2.8
Antidepressants	21	2.5
Pastille	21	2.5
Thyroid Medicine	16	1.9

Note: More than one product was marked

light of all the data above, it is possible to say that our sample group represents the population [17].

Participants who had lower BMI and who stated that they used the product before, preferred more OTC drugs, and this is statistically significant. Besides, the participants who were suggested to use drugs for diet, exercise, or life style changes, preferred OTC more than the participants who were suggested to take OTC drugs by a physician. In a 2008 study conducted in Erzincan, 50.5% of the participants had used drugs during the last month and 23.2% of them obtained the drugs without prescription [18].

Nearly half of our participants were under the clinical supervision of a family physician. In a study conducted in 2008, only one third of the participants had been under the clinical supervision [19]. In a study conducted in a Family Health Care Centre in Mersin 2010, similar results were found [14]. According to their data, 90% of the participants were using just the way their drugs as their doctors suggested, in terms of amount and time. Only 31% of them had bought drugs directly from the pharmacies without prescription. The reason of the high rates can be due to the increase in the number of the individuals under family physicians' supervision. So, this data show that with the gradual spread of primary care system in Turkey, people have grown awareness on being under the medical supervision. The study conducted in 2013 in Kayseri supports our data above. The study concludes that 83.1 % of the participants agree that the family physician system is suitable for Turkey [20].

Another similar study was conducted in Bolu in 2011 on diabetic patients in a Family Health Care Centre [21], and similar results were found. In this study, 88% of the patients were found to use their drugs regularly within an appropriate time and amount. Especially, the individuals who were under the clinical supervision of a family physician had significantly less chronic diseases and used less amount of herbal treatment. When the participants' medical compliance was checked, it has been found that the ones who were under supervision had more compliance than the others. All these can be due to family physicians' life style suggestions and regular periodic health care follow-ups.

The fact that our study was based on voluntary participation can be considered as a limitation of the study. However, with having a systematic sampling and high number of participants, we think that our study represents the population. Also, reaching our goals can be considered as another powerful side of our study.

In conclusion, our OTC buyers prefer herbal drugs if they used them before, they have high level of education, have high income, mostly

live in the city centre, and have social security. Painkillers are mostly preferred. The participants who are under the clinical supervision of a family physician have more medical compliance. It can be concluded that our population follows their family physicians' suggestions. We consider that knowing the patient population, in terms of habits, drug use, and medical compliance will help the physicians to improve health care of their patients. We also think that postgraduate education and training of the family physicians about these issues will be helpful. Therefore, conducting similar studies across the country in different regions will be helpful to display the whole population's profile and calling family physicians' attention on this important issue.

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