

# Knowledge, Attitude, and Practice towards Over-the-Counter Drugs (OTC) use among adult population in Jeddah, Saudi Arabia

Fathi El-Gamal (1)  
 Badr Atia Alsahafi (2)  
 Ibrahim Alsammak (2)  
 Emad Darwesh (2)  
 Raad Albogami (2)  
 Abdullah Taha (2)

(1) Chairman of Family Medicine Department, IbnSina National College, Jeddah, KSA  
 (2) IbnSina National College, Jeddah, KSA

## Corresponding author:

Prof. Fathi M. El-Gamal,  
 Department of Family Medicine,  
 Ibn Sina National College,  
 Al Mahjer Street. Jeddah, Kingdom of Saudi Arabia.  
 Tel: 6356555-6355882 / Fax: 6375344 – P.O. Box 31906 Jeddah 21418  
 Email: drfathimhelgamal1996@hotmail.com

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## Abstract

**Background:** Despite all their benefits, improper use of medicines can bring potential health hazards. Though it was previously considered unnecessary, responsible self-medication is regarded as an essential aspect of self-care.

**Objectives:** To explore the Knowledge, Attitude, and Practice on Over-the-Counter Drugs (OTC) use, and its determinants among the adult population in Jeddah, Saudi Arabia

**Method:** It was a cross sectional study, where data were collected through online Google form to collect information on 503 subjects; where the sample type was a convenient one. A predesigned questionnaire was used to collect information on personal, socio-demographic and clinical information, as well as on the knowledge, attitude and practice on use of OTC drugs.

**Statistical analysis:** SPSS version 24 was used, and the Subroutine Chi square test of significance was used. The level of significance was 0.05.

**Results:** The majority of the enrolled subjects (83.3%) used OTC drugs (419/503). About 60% were under the age of 40 years old. Lower educational level, and increased salary over 10,000 SR were significantly associated with the use of OTC

drugs ( $p < 0.05$ ). About 80% were advised on the use of the OTC drugs by pharmacists; and 53.7% read about indications, side effects and contraindications of the OTC drugs before their use. About 80% used them for emergency; and 71% used them for treatment of mild illnesses. About 90% used them because of their past experience with their use, and 30% used them to avoid consultation fees. Painkillers were used by 97.4% of the subjects; in addition, cough suppressants (71.8%), dietary supplements (69.2%), antihistamine (40.3%) and digestive and laxative drugs (48.9%) were used. About 30%, considered that OTC drugs were cheaper and convenient. About 45% of the subjects considered that OTC drugs were safe and effective. About 80% considered it was wrong. to use the OTC drugs with other medications

**Conclusion:** In Saudi Arabia, OTC medications can easily be obtained at pharmacies for the purpose of self-treatment. Approximately 83% of Jeddah survey respondents reported that they had used OTC drugs. The most commonly used OTC medications were antipyretics, analgesics and anti-inflammatory drugs, and these drugs were more commonly used by respondents aged <40 years than those aged ≥40 years. The awareness level of the survey respondents on the side effects resulting from the use of OTC medications was relatively low.

**Keywords:** OTC drugs, KAP, Saudi Arabia, mild illnesses

## Introduction

The use of over the counter (OTC) drugs is highly common in both developed and developing countries (1). According to the SFDA, paracetamol, antacid, antihistamine, and laxatives, are available as OTC in Saudi Arabia (2). The irrational use of OTC drugs leads to increased morbidity and deterioration of the quality of life and increasing healthcare costs (1). A patient with a milder illness, such as a fever, cold/cough, diarrhea, indigestion, or wound infection, may receive pharmaceutical advice from friends, relatives, or strangers, in the manner of a healthcare professional, particularly, regarding scheduled medications (3).

It is reported that, the use of the OTC drugs was common in older persons and among those who lived independently; it was also commonly used when children get simple illnesses like a mild headache, allergies, fever, flatulence, or indigestion (4). A study of 1596 students in Saudi Arabia, Riyadh who used OCT during exams revealed that 85.2 % were aware that long-term usage of OTC medicines such as aspirin, ibuprofen, and paracetamol can cause major negative effects. Furthermore, 60.7% of respondents agreed that simple access to OTC medications was a possible explanation for their use (5). Females usually take OTC drugs for dysmenorrhea, and headache, pain, influenza, and for allergy (6). A previous study revealed that friends or family, internet businesses, and pharmacies were the sources of OTC medicines. (7). In Ethiopia, a study revealed that the main OTC drugs used were antibiotics, analgesics, appetite suppressants, anti-emetics and anti-influenzas (8, 9). A previous study in a Malaysian urban area reported that, self-prescription was found to be more convenient, easier to access, and time-saving, than consulting a doctor (9). A study was conducted in Qassim province, Saudi Arabia, which found that the majority of the participants read the drug brochures and followed the directions for usage (10). A study, in Jazan, showed that over 30% of those who self-medicate was because access to hospitals is difficult, while a tiny fraction blamed excessive expenses (6). A study in Japan revealed that Dietary supplements and over-the-counter medications were commonly used by older patients with chronic conditions, and their use was linked to female sex, gender education, and affluence (11). According to a study conducted in Poland, the use of OTC was more widespread in those with secondary and higher education than in those with primary education (12). The aim of the present study was to explore the knowledge, attitude and practice of the population in Jeddah, Saudi Arabia, about the use of OCT drugs.

## Subjects and Methods

It was a cross sectional study, and the sampling method was a non-probability convenient one. Sample size was determined using G\*power software, where  $\alpha = 0.05$ , Power = 0.95 effect size = 0.3, and degree of freedom= 5 (13). The minimal sample size required was 194 subjects; thus, 503 subjects were enrolled in the present study. Data were collected using predesigned questionnaire which provided information on personal, sociodemographic and clinical aspects of the participants, and information, also, on the knowledge, attitude and practice towards OTC use.

Data were analyzed using SPSS version 22, and Chi square test of significance. Level of significance for the study was 0.05.

Availability of the data: the raw data are available at the research center of ISNC and all results of the data were included in the paper.

## Results

Table 1 shows the relationship between use of OTC drugs and socio-demographic and clinical characteristics of the studied subjects. The total number of subjects studied was 503; among them 419 (83.3%) used OTC drugs, while 84 (16.7%) subjects didn't. The majority of those used OTC drugs were under the age of 40 years old (59.9%). Age, gender, nationality and occupation were not significantly associated with use of OTC drugs ( $p > 0.05$ ). Lower educational level, and increased salary over 10,000 SR were significantly associated with the use of OTC drugs ( $p < 0.05$ ). History of having chronic diseases was not significantly associated with use of OTC drugs ( $p > 0.05$ ). Use of the OTC drugs was irrelevant to having health insurance ( $p > 0.05$ ).

Table 2 reveals the distribution of the subjects using OTC drugs according to gender and source of advice on the use of OTC drugs and reason for their use. The majority of the subjects were advised on the use of the OTC drugs by pharmacists (80.2%); however, 58.9% were advised by friends or members of patients' families, or used them after searching the net on management of symptoms (40.1%), or through using old prescriptions (48.4%). No significant differences were found between males and females in the previous findings ( $p > 0.05$ ). A minority of subjects depended on advertisements to use OTC drugs (16.2%); it was significantly more common in females than males ( $p < 0.021$ ). Among the studied subjects only 53.7% read about indications, side effects and contraindications of the OTC drugs before their use; this was significantly more common among females ( $p < 0.002$ ). However, great proportions of the subjects never, or sometimes read about this information before their use (6.2% and 40.1% respectively).

The majority of the subjects used the OTC drugs for emergency situations (81.1%), and it was significantly more common among females than males ( $p < 0.05$ ). A large proportion of subjects admitted that they used them for treatment of mild illnesses (70.9%); and this was similar in both males and females ( $p > 0.05$ ).

The vast majority of the subjects used the OTC drugs because they had past experience with their use for certain illnesses (90.2%); this was similar among males compared to females ( $p > 0.05$ ). About one third of the subjects used the OTC drugs to avoid consultation fees (32.2%). This was similar between males and females ( $p > 0.05$ ).

Table 3 displays distribution of the studied subjects by gender and type of the OTC drug used. Almost all subjects (97.4%), used Painkillers e.g. paracetamol and NSAIDs as OTC drugs; this was similar in both males and females ( $p > 0.05$ ). Cough suppressants were used by 71.8% of the subjects and this was significantly more common in males compared to females ( $p < 0.001$ ). On the other hand dietary

supplements was used by 69.2% of the subjects; it was significantly more common among females compared to males ( $P < 0.001$ ). Antihistamine (40.3%) and digestive and laxative drugs (48.9%), were similarly used by males and females ( $p > 0.05$ ).

Table 4 reveals distribution of the subjects using OTC drugs according to gender and Knowledge about OTC drug use. About one third of the subjects (29.8%), considered that OTC drugs were cheaper and convenient. It was significantly higher among males compared to females ( $p < 0.001$ ). About 45% of the subjects considered that OTC drugs were safe and effective; this was similar in both males and females ( $p > 0.05$ ).

The majority of the subjects did not consider it right to take the OTC drugs which had an expired date. About 80.0% considered it wrong to use the OTC drugs with other medications. The largest proportion of the subjects (47.0%), preferred to store

**Table 1: Distribution of studied subjects by OTC drug use and socio-economic and health characteristics**

Variable	Categories	OTC drug use				Total		X2 (p-value)
		YES		NO		N	%	
		N	%	N	%			
Age	40 years or less	242	58%	58	69%	300	59.9%	(4.313) P< 0.116
	41 – 60	149	35.7%	24	28.6%	173	34.5%	
	61 +	26	6.2%	2	2.4%	28	5.0 %	
Sex	Male	177	42.2%	41	48.8%	218	43.3%	(1.228) P< 0.268
	Female	242	57.8%	43	51.2%	285	56.7%	
Nationality	Saudi	380	90.74%	77	91.7%	457	90.9%	(0.080) P< 0.777
	Non-Saudi	39	9.3%	7	8.3%	46	9.1%	
Qualification	>University	104	24.8%	34	40.5%	138	27.4%	(8.614) P< 0.003
	<University	315	75.2%	50	59.5%	365	72.6%	
Occupational	Unemployed	214	51.1%	38	45.2%	252	50.1%	(0.953) P<0.329
	Manual	205	48.9%	46	54.8%	251	49.9%	
Salary per month in SR	4000 or less	137	32.7%	24	28.6%	161	32%	(7.190) P< 0.027
	4000-10000	101	24.1%	32	38.1%	133	26.4%	
	> 10000	181	43.2%	28	33.3%	209	41.6%	
Do you have health insurance	Yes	247	58.9%	42	50%	289	57.5%	(2.293) P< 0.130
	No	172	41.1%	42	50%	214	42.5%	
Do you suffer from chronic disease	Yes	102	24.3%	14	16.7%	116	23.1%	(2.324) P< 0.127
	No	317	75.7%	70	83.3%	387	76.9%	



**Table 2: Distribution of subjects using OTC drugs according to gender and source of advice on the use of OTC drugs and reason for its use**

Variable	Categories	OTC drug use				Total		X2 (p- value)
		Male		Female		N	%	
		N	%	N	%			
Advised by friends/ family	Yes	110	62.0%	137	56.6%	247	58.9%	1.294* (<0.150)
	No	67	37.9%	105	43.4%	172	41.1%	
Advised by a pharmacist	Yes	143	80.8%	193	79.8%	336	80.2%	.069* (< 0.446)
	No	34	19.2%	49	20.2%	83	19.8%	
Search the symptoms online	Yes	66	37.3%	102	42.1%	168	40.1%	1.006* (< 0.184)
	No	111	62.7%	140	57.9%	251	59.9%	
Using old prescription	Yes	75	42.4%	128	52.9%	203	48.4%	4.530* (< 0.021)
	No	102	57.6%	114	47.1%	216	51.6%	
Known drug from advertisement	Yes	38	21.5%	30	12.4%	68	16.2%	6.189* (< 0.010)
	No	139	78.5%	212	87.6%	351	83.8%	
Read the list of indication contraindication doses information	Never	17	9.6%	9	3.7%	26	6.2%	12.853* (< 0.002)
	Sometime	81	45.8%	87	36.0%	168	40.1%	
	always	79	44.6%	146	60.3%	225	53.7%	
For emergency situations	Yes	136	76.8%	204	84.3%	340	81.1%	3.720* (< 0.036)
	No	41	23.2%	38	15.7%	79	18.9%	
For mild illness	Yes	122	68.9%	175	72.3%	297	70.9%	.568 (< 0.259)
	No	55	31.1%	67	27.7%	122	29.1%	
Have prior experience with illness or with the medication	Yes	165	93.2%	213	88.0%	378	90.2%	3.136* (< 0.053)
	No	12	6.8%	29	12.0%	41	9.8%	
To avoid consultation fees	Yes	64	36.2%	71	29.3%	135	32.2%	2.177* (< 0.086)
	No	113	63.8%	171	70.7%	284	67.8%	

**Table 3: Distribution of studied subjects by gender and type of the OTC drug used.**

Variable	Categories	OTC drug use				Total		X2 (p- value)
		Male		Female		N	%	
		N	%	N	%			
Dietary supplements and vitamins	Yes	108	61.0%	182	75.2%	290	69.2%	9.660 (<0.001)
	No	69	39.0%	60	24.8%	129	30.8%	
Pain killer like paracetamol or NSAIDS	Yes	172	97.2%	236	97.5%	408	97.4%	.048 (<0.530)
	No	5	2.8%	6	2.5%	11	2.6%	
Cough suppressants	Yes	142	80.2%	159	65.7%	301	71.8%	10.659 (<0.001)
	No	35	19.8%	83	34.3%	118	28.2%	
Antihistamines	Yes	78	44.1%	91	37.6%	169	40.3%	1.775 (<0.109)
	No	99	55.9%	151	62.4%	250	59.7%	
Digestive and laxative	Yes	92	52.0%	113	46.7%	205	48.9%	1.142 (<0.166)
	No	85	48.0%	129	53.3%	214	51.1%	

Table 4: Distribution of subjects using OTC drugs according to gender and Knowledge about their use

Variable	Categories	OTC drug use				Total		X <sup>2</sup> (p- value)
		Male		Female		N	%	
		N	%	N	%			
OTC drugs are cheaper and convenient	Yes	62	35.0%	63	26.0%	125	29.8%	13.776 ( $< 0.001$ )
	No	50	28.2%	46	19.0%	96	22.9%	
	I don't know	65	36.7%	133	55.0%	198	47.3%	
All OTC drugs are safe and effective	Yes	88	49.7%	102	42.1%	190	45.3%	3.029 ( $< 0.220$ )
	No	34	19.2%	46	19.0%	80	19.1%	
	I don't know	55	31.1%	94	38.8%	149	35.6%	
OTC drugs could be taken after expiry date	Yes	9	5.1%	8	3.3%	17	4.1%	.886 ( $< 0.642$ )
	No	154	87.0%	216	89.3%	370	88.3%	
	I don't know	14	7.9%	18	7.4%	32	7.6%	
One can use OTC drugs with other medication	Yes	39	22.0%	51	21.1%	90	21.5%	3.764 ( $< 0.152$ )
	No	102	57.6%	122	50.4%	224	53.5%	
	I don't know	36	20.3%	69	28.5%	105	25.1%	
Where do you usually store the OTC drugs	Bedroom	81	45.8%	116	47.9%	197	47.0%	1.559 ( $< 0.669$ )
	Medication box	23	13.0%	32	13.2%	55	13.1%	
	Kitchen	3	1.7%	8	3.3%	11	2.6%	
	Refrigerator	70	39.5%	86	35.5%	156	37.2%	
For which illnesses do you usually go for OTC drugs	Fever	4	21.1%	5	15.6%	9	17.6%	4.503 ( $< 0.342$ )
	Headache	11	57.9%	20	62.5%	31	60.8%	
	Dysmenorrhea	0	0.0%	2	6.3%	2	3.9%	
	Cough	3	15.8%	1	3.1%	4	7.8%	
	Abdominal cramps	1	5.3%	4	12.5%	5	9.8%	
What do you do if the drugs show change in shape odour or colour?	Immediately discard the drugs	169	95.5%	237	97.9%	406	96.9%	2.704 ( $< 0.259$ )
	Continue using until it expires	7	4.0%	5	2.1%	12	2.9%	
	Continue using even after it expires	1	0.6%	0	0.0%	1	0.2%	
When someone goes to the pharmacy, they should bring all medication	Yes	70	39.5%	125	51.7%	195	46.5%	14.024 ( $< 0.001$ )
	No	77	43.5%	63	26.0%	140	33.4%	
	I don't know	30	16.9%	54	22.3%	84	20.0%	

## Discussion

A drug is a substance intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease. Prescription drugs are prescribed by a doctor; bought at a pharmacy; prescribed for and intended to be used by one person, and regulated by the FDA through the New Drug Application (NDA) process. On the other hand OTC drugs are drugs that do not require a doctor's prescription, are bought off-the-shelf in stores, and regulated by the FDA through OTC Drug monographs (14). Use of the OTC drugs is common among the population of Saudi Arabia (10). This study was conducted to assess the Knowledge, Attitude, and Practice (KAP) towards OTC drugs use among the adult population in Jeddah, Saudi Arabia. In the present study the prevalence of use of OTC drugs (without doctors' prescriptions) was 83.3%. This was in line with previous studies conducted in Saudi Arabia, and globally (10, 15, 16). A previous report from Japan revealed that dietary supplements and over-the-counter medications were commonly used by older patients with chronic conditions, and their use was linked to female sex, greater education, and affluence (11). However, in the present study age, gender, nationality and occupation were not significantly associated with use of OTC drugs. On the other hand, lower educational level, and increased salary over 10,000 SR were significantly associated with the use of OTC drugs. This was in line with findings from a previous study (12).

In the present study, the pharmacists were the main source for guiding the people on use of OTC drugs. This was in line with a previous study (7). Almost half of the subjects who use OTC drugs do not read information about the OTC drugs they use. Another study revealed that 20% do not read this information (10). The OTC drugs were used mainly for management of mild illnesses, and emergencies. This is inconsistent with other studies (4, 10, 11). The present study revealed that about one third of the subjects used the OTC drugs to avoid the consultation fees. This is similar to a previous study conducted in Jazan, Saudi Arabia (7). In the present study, almost all subjects (97.4%), used painkillers e.g. paracetamol and NSAIDs; cough suppressants were used by 71.8% of the subjects and this was significantly more common in males compared to females ( $p < 0.001$ ). On the other hand dietary supplements were used by 69.2% of the subjects; it was significantly more common among females compared to males ( $P < 0.001$ ). Antihistamine (40.3%) and digestive and laxative drugs (48.9%), were similarly used by males and females ( $p > 0.05$ ).

This trend was similar to findings from other studies (7, 10, 16). In the present study, about one third of the subjects, considered that OTC drugs were cheaper and convenient. It was significantly higher among males compared to females ( $p < 0.001$ ). This is in line with previous studies from regional and international studies (1, 4). The simple access to OTC medications is a possible explanation for their use (1). In addition, self-prescription was found to be more convenient, easier to access, and more time-saving

than consulting a doctor in a study with 364 participants from Malaysian urban areas (4). In the present study almost half of the subjects considered that OTC drugs were safe and effective. This was in line with another study (5). However, in another study in Saudi Arabia that involved high school and university students only, 85.2% were aware that long-term usage of OTC medicines such as aspirin, ibuprofen, and paracetamol could cause major negative effects (1). In the present study, the majority of the subjects did not consider it right to take the OTC drugs which had an expired date or if they had changes in odour or colour. This is in line with findings from a previous study (8). In the present study almost half of the participants preferred to store the OTC drugs in the bed room. This is in line with findings from a previous study (8).

**Limitations:** This study has some limitations which must be considered when interpreting the data. The first limitation of this study is the representativeness of the survey respondents, as the study was conducted online. The results from this study may have overestimated the perspectives of the rest of the population because we excluded subjects who did not use the internet.

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**Conclusions:** In Saudi Arabia, OTC medications can easily be obtained at pharmacies for the purpose of self-treatment. Approximately 83% of Jeddah survey respondents reported that they had used OTC drugs. The most commonly used OTC medications were antipyretics, analgesics and anti-inflammatory drugs, and these drugs were more commonly used by respondents aged  $< 40$  years than those aged  $\geq 40$  years. The awareness level of the survey respondents on the side effects resulting from the use of OTC medications was relatively low. Based on these results, we believe this study can be pivotal in identifying starting points for interventions by health care professionals such as doctors, pharmacists and other health care workers. In particular, pharmacists should inform their consumers of possible adverse effects from OTC medications when counseling them. However, information about OTC medications should be tailored to consumers' needs, with consideration of his or her circumstances.



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