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PRACTICE OF OVER-THE-COUNTER DRUGS AMONG PEOPLE WHO LIVE IN BAHRI LOCALITY IN OCTOBER 2018

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ABSTRACT

Background: Over-the-counter drugs are drugs that are purchased without prescription. The WHO has pointed out that OTCs drugs can help prevent and treat aliments that do not require medical consultations. The nature and extent of using OTCs drugs indeed varies in different cultural contexts and socio-economic and educational influence of medical practice. **Methods:** this is a cross-sectional community-based study conducted with people who live in Bahri locality and done in many pharmacies in 2018 through conventional selection. Data was collected using self-administered questionnaires and analyzed using SPSS. **Results:** A total of 288 participants, about half of them (47.9%) were using OTCs drugs usually. The most common source of information about drugs was from previous prescription (44.1%) and most of them (82.6%) had got heir drugs from pharmacy. The most important reasons for using OTCs drugs was that there is no need to visit the doctor for minor illnesses (50%) and less cost (30%). About (77.8%) of the participants took analgesics followed by (52.8%) using antimicrobials. The results showed about 61% took OTCs drugs for headache and cough. The majority of participants hadn't exposed to adverse effects by using OTCs drugs(90.6%). The participants had been asked about their personal opinion in using OTCs drugs, about two third (61%) of them answered 'yes'. **Conclusion:** the most common types of OTCs used by the participants are analgesics and antimicrobials and the most common indications for using were headache and cough. The most important reasons of using OTCs drugs that is there is no need to visit the doctor for minor illnesses and to minimize the cost. The percentage of side effect was low among the participants (7.6%). Two third of the participants agreed with using OTCs drugs in their personal opinion.

INTRODUCTION

1.1 Background

The non- descriptive drugs or over-the-counter drugs (OTCs) are the drugs that are purchased without prescription. As the general rule OTC drugs have to be primarily to treat a condition that does not require the direct supervision of a doctor and must be proven to be reasonably safe and well tolerated.[1] Non-doctor prescribing of medicines is common in developing countries, also in economically deprived communities due to poor socioeconomic status,the high cost of modern medicines and non-availability of doctors in rural areas.[2] The misuse of drugs has become a serious aliment arising the concern of incorrect diagnosis and drug interaction as well.[3] There are several reasons to increase the practice of OTCs, these include products being shifted from prescription to non-prescription status, trend toward self-care, consumer convenience, saving in time and money in not having to visit a physician and growing consumer sophistication.[4]

Medicines for self medications are often called ‘non-prescription ‘or ‘OTCs’ products and are available through pharmacies and in some countries in supermarkets, chemists and other outlets. It’s sometimes referred to as ‘responsible ‘self medication to distinguish this from the practice of purchasing and using of a prescription medicine without a doctors. Responsible self-care using medications can have positive effects on the individual and health care system when practiced correctly. However, this practice require a certain level of knowledge. It can increase the health awareness among people and allow them to build confidence and take charge to manage their own health. On the other hand, it can have drawbacks when inappropriately practiced.[5]

The world health organization (WHO) has pointed out that OTCs drugs can help prevent and treat aliments that do not require medical consultation and provide a cheaper alternative for treating common illnesses. It’s therefore necessary to develop tools in every environment to evaluate the appropriateness of self medication.[15] The challenge and opportunity for governments, healthcare professionals and providers of healthcare products all over the world and in developing nations particularly, then to have a responsible framework in place for self medication as a practice.

The nature and extent of self medication indeed varies in different cultural contexts and the socioeconomic and educational influence of medical practice. Without doubt, by mean of

non-prescription medicines is a growing trend of self care which have their positive and negative aspects.[13]

1.2 Problem statement

Self medication by using OTCs is becoming an increasingly important component of health care in both developed and developing countries. It's have the potential to do good as well as cause harm. Several studies indicate that there are risks such as misdiagnosis, drug resistance, use of drugs in excessive amounts, use of expired drugs, prolonged duration of use, drug interactions, poly-pharmacy and other toxicological and pharmacological risks.[13]

At the community level, good self medication practices can provide benefits such as saving scarce medical resources from being wasted on minor conditions, controlling chronic diseases, and reducing absenteeism from work due to minor aliments. However, inappropriate self medication with OTCs drugs can have a serious implications (including deaths), especially in extremes of ages (pediatrics and geriatrics), pregnant and lactating mothers, and patients with co-morbidities.[16]

It's evident with research that self care improves the health care awareness and reduce the economy related to health care. Although OTC drugs are believed to be safe and effective, indeed they are not. They mask the underlying disease and may cause several adverse effects.[1] Therefore the study was taken up to analyze the population at risk, rate and extent of OTCs use and awareness of adverse effects among the participants.

1.3 Justification of the study

Information is available now about the evaluation of problems mentioned above. The focus will be on the use of OTCs drugs, identifying what are the most common types used and the side effects of them if founded. The recommendations have a good chance to be implemented in pharmacies and this will promote the wellbeing and the health as a whole.

This research will make contributions in the area of consumer socialization and the study of OTC medicines from both academic and practical perspectives. From an academic perspective, this research is a blend of medical and pharmaceutical fields and also in social sciences. It's also has an effect on empirical field by studying the usage of these drugs.

On a practical standpoint, knowing where people obtain their medications, with whom they interact about medicine and which information they use, can assist healthcare providers in identifying where they need to target their information disseminations.

1.4 OBJECTIVES OF THE STUDY

1.4.1 General Objectives

To study use of self medication by using OTCs drugs in Khartoum Bahri, Khartoum, Sudan 2019.

1.4.2 Specific Objectives

1. To determine what are the most common types of OTCs drugs that are used and for which indications they are used for.
2. To clarify the reasons that make the consumer decide to use non-descriptive drugs.
3. To identify the side effects which the consumers can exposed to them from using OTCs drugs and how can get rid from these side effects.
4. To clarify the personal opinion of the consumer about using OTCs.

Literature Review

Self medication by using OTCs drugs constitute one of the most modern expressions of the always present need of men and women to care for their health.[13] Responsible self care using OTCs can have positive effects on the individual when practiced correctly.[5] It's evident with research that self care improves the health care awareness and reduces the economy related to health care.[1] It's a common practice especially in countries where there were no strict regulations and prescription drugs were freely dispensed.[5]

Globally, increasing inappropriate self medication is seen as a public health concern.[16] Potential risks of elf medication include incorrect self-diagnosis, incorrect dosage, incorrect choice of therapy, masking of severe disease, drug interaction, adverse reactions, dependence and abuse[15], hence need for a certain level of knowledge and health orientation which produces responsible self medication.[13]

High levels of self medication practices with OTCs medications have been reported for minor illnesses.[6] However, it's important to have baseline data on drug use so that future interventions can be planned and changes documented.[2]

2.1 Information about using OTCs drugs

On one hand people become more and more cautious in practicing self medication, knowing that irrational and inappropriate usage of them might be more harmful than useful, so they even in situations of minor illnesses prefer taking any medication only after consultation from a qualified practitioner. On the other hand, they may become confident, and in most cases overconfident, regarding their knowledge.[3] A study in Asmara, Eritrea about prevalence of risky practice of OTCs and its associated factors (81.8% were at risky practice) reported that inappropriate self medication practice with OTCs drugs requiring early intervention to minimize the risks.[16]

Various studies have shown that lack of information can lead to inappropriate or incorrect taking of medication. A study about OTCs medication in a pregnant women about use of OTCs, preserved safety, and decision-making behaviors in 2011, they found their information about drugs from a pharmacist as from family and friends.[8] Another study in south India about self medication patterns among medical students, the participants who are medical students consulted their textbooks, and seniors or classmates for the medications.[12]

In addition to that, there are a lot of studies that discussed sources of drugs, one study in UAE among pharmacist in 2015 and another descriptive study among athletes in Sri Lankan national level about practice of self medication revealed that the majority obtained their medication from pharmacies.[5][15] Another questionnaire based study of non-doctor prescription practice in Pokhara valley, Western Nepal showed that the compounder and health assistant were common sources of medicines.[2]

Some articles represented various reasons for taking OTCs drugs. And the study in Sri Lankan national level athletes was an assumption that symptoms were not serious enough to warrant a visit to the doctor (31.0%), unavailability of a prescriber when needed (4.7%), busy schedule(6.3%) and lack of effectiveness of previously prescribed medicines (0.8%).[15] Another study regarding knowledge, attitude and practice of self medication among second year medical studentsin India showed that the most common reason is there was no need to visit the doctor for minor illnesses.[3]

2.2 PRACTICE OF OTCS DRUGS

2.2.1 Drugs used in self medications

A study by the World Health Organization, Action Committee on Essential Drugs indicated that more than 60% of illnesses were self medicated with the use of OTCs drugs.[13] A study on examination of OTCs drug misuse among youth showed that Analgesics (56.2%), sedatives(48.3)and stimulants (45.8%) are the most commonly reported drugs.[10] In addition, the most frequently preferred OTC drugs were analgesics(Paracetamol and NSAIDs being the most used), antipyretics and cough and cold preparations in several surveys.[16][3][2]

Also there is another study about complementary medicines and OTCs drugs in south Australia's elderly population in 2009 approved that analgesics, laxatives and low dose aspirin are the most frequent classes.[6] Another study in pregnant women showed that the majority of women surveyed regarded OTCs medications as safe but would talk to a healthcare professional before using, and the most common products included prenatal vitamins, acetaminophen, cough drops, antacids, calcium, vitamin D and DHA.[8]

Several studies show that the medications commonly used are analgesics. However in developing countries antibiotics are the commonly sold medications, with revealing studies show that 15% use antimalarial in combination with analgesics and 10% use analgesics alone.

2.2.2 Indications (symptoms/diseases) for drugs used in self medication

Many studies of self medication practice provide us by information about indications of using OTCs drugs. the most common symptom for which self medication was practiced in athletes was musculoskeletal pain (37.2%).[15] In Malaysia, the most common symptom in female students was otohrhinolaryngology problems (22.5%), followed by respiratory disease (19.6%), Gastrointestinal disease(18.1%) and fever/headache (16.8%).[11]

A survey study among medical students, nursing and clerical staff of a tertiary care teaching rural hospital reported illnesses that prompted self medication included headache, cough and cold, fever, generalized weakness, acidity, dysmenorrhoea and sleep disturbances.[1] The same study done was done among medical students in South India who used OTCs drugs for common cold (69%), fever(63%) and headache (60%).[12] Another study in Southwest Ethiopia also reported that students practiced OTCs drugs for commonly perceived illnesses such as headache (36.85%), abdominal pain(30.55%), cough (23.16%).[9]

In a retrospective research on OTCs, patient often could not return the name of drug, let alone the dosage and course of treatment. Patient who are depend on self medication should be educated about the potential risk and side effects.[13]

2.3 Information about demerits and adverse reactions of OTCs

Though studies showed that the self medication result in a desired outcome but still there are reported evidences of unfortunate outcomes due to improper practice of self medication. the risk of misdiagnosis, overdosing, prolonged course of treatment, undesirable or fatal drugs interaction, poly-pharmacy and pharmacological and toxicological risks are associated with improper use of OTCs drugs coupled with the problems related to wastage of resources, increased resistance of pathogens, which generally entails serious health hazards such as adverse reactions and prolonged suffering in the future.[13]

An article which presents cases of self medication thoroughly analyzed in Volgograd regional center of drug safety monitoring, some of them may be considered as unfavorable and even lethal. Therefore it should be mentioned that there is one more benefit of rational pharmacotherapy with priority of prescriptions made by doctors. Medical professionals can estimate potential pharmacological risk with individual pharmacokinetics and pharmacodynamic features, allergic anamnesis and carry out monitoring of pharmacotherapy.[7]

Some OTCs medicines may be abused, with addiction and harms being increasingly recognized. A comprehensive search of international empirical and review literature between 1990 and 2011 found that the five key groups emerged: codeine-based (especially compound analgesics), sedative antihistamines, anti congestion and laxatives. Associated harms included direct physiological or psychological harm(e.g. opiate addiction), harm from another ingredient (e.g. ibuprofen-related gastric bleeding) and associated social and economic problems.[17]

Even if OTCs are used correctly, there can be problems. Some drugs should not be taken by people with certain health conditions or combined with other drugs because of the possibility of adverse reactions. For example, acetaminophen taken to relieve pain or fever, in excessive amounts can cause severe liver damage. When NSAIDs are taken too long, they can likewise pose dangers including bleeding ulcers, kidney and liver damage and increased risk of heart attack or stroke. Laxatives are said to be among the most misused OTCs remedies. OTC

sleeping pills that contain antihistamines can lose their effectiveness over time, which can results in people taking more than recommended dose, so they should not be used more than two weeks. Some people with chronic heartburn take antacids that counter the effects of stomach acid, but these can also cause diarrhea or constipation and block the absorption of certain medications.[18]

2.4 Personal opinion or social perspective about OTCs medicines

OTCs drugs are increasingly used but such products can be misused or abused. There is a study done in 2005 about the general public's opinion of OTCs use. Data collected using a survey administered in 1000 members in 10 study sites in Northern Ireland, almost one third of participants buying OTCs at least once per month (32.2%). The conclusion of the study revealed that the general public had a high level of awareness of the abuse potential of OTCs use.[19]

In developing countries, this level of awareness is decreased depending on many factors like socioeconomic status, educational level, lack of health services and so on. A real public health problem is using Antibiotics as OTCs. A survey which done in 2016 about antibiotic resistance with existing evidence linking this to their widespread use and unregulated use of Antibiotics, which make them easily accessible OTC in these countries.[20]

MATERIALS AND METHODS

3.1 Study design

The study was conducted as a community-based cross sectional survey. It's a descriptive convenience study.

3.2 Study area

The study was carried out in six pharmacies in Khartoum Bahri locality, Khartoum, Sudan. The fisrt pharmacy is Al-hilaly pharmacy which is located in Al-moassasa and covers the center of the locality. The second one is Al-baraha pharmacy which located in Shambat near Al-baraha hospital so it will be crowded by a lot of patients and consumers. The third and fourth pharmacies are Jamma'a and Ibn-alyaman respectively, which are located in Halfayat Almulouk and cover the north of the locality. The fifth one is Babil pharmacy which is located in Al-doroshab and also cover the north of the locality. The last pharmacy is Alrashideen which is located in Al-samrab and cover the east of the locality.

3.3 Study population

The population comprised of people who live in Khartoum Bahri locality.

3.3.1 Inclusion criteria

- Any consumer who came to buy a drug without prescription from a doctor.

3.3.2 Exclusion criteria

- Any consumer came by a prescription from a doctor.
- Any one came to buy anything rather than drugs from the pharmacy.

3.4 Sample size and Sampling

The desired sample size for the study was determined using the formula:

$$n = z*z(p*q / e*e)$$

Where:

n = the minimum sample size required

z = probability that be not exceeded

p = expected prevalence of non-adherence in a given population

q = precision, prevalence of adherence in a given population (1-p)

e = maximum acceptable random sampling or margin of error (0.05)

So, n = (1.96*1.96)*0.75*(1-0.75) / (0.05*0.05) = 288

The sample selection of the study was cluster random sampling.

3.5. Study variables

1. The information included social demographic variables: age, gender, educational level, marital status, employment, number of children, residency and monthly income.
2. Source of information about drugs: classroom teacher, textbooks, advertisements, internet, previous prescription and someone you know.
3. Source of drugs: pharmacy, home, doctor you know, someone you know.
4. Reasons for using OTCs drugs: no need to visit the doctor for minor illnesses, quick relief, time saving, confidence on you knowledge about medicines, economical ease and convenience and crowd avoidance.
5. Types of drugs used: analgesic, antimicrobials, anti convulsions, anticoagulants, anti congestion, multivitamins and lozenges.
6. Indication of using OTCs drugs: headache, cough, fever, abdominal pain, diarrhea, vomiting and eye pain.

7. The adverse effect that related to using OTCs drugs: unrecognized heart beats, dizziness skin rash, fatigability, diarrhea, constipation, difficulty of breath and psychological or neurological problems.
8. How to get rid from these side effects: doing nothing, advice a doctor, searching in internet, searching in books and asking someone.
9. The personal opinion about using OTCs: no need to see doctors, enough knowledge about drugs, less cost and time saving
10. Various drugs according to the personal opinion: antihistamine, antimicrobials, pain killers, anti cough, diabetes drugs, HTN drugs, anti depressive drugs and sedative drugs.

3.6 Data collection

This study instrument was an anonymous self-administered questionnaire based-survey in a sample of initially 6 pharmacies, carried out in October 2018.

3.6.1 Tools

A self developed questionnaire containing a total of 20 questions, consisting of mainly closed ended questions was used for data collection.

3.7 Data management

Following completion of data collection, it was reviewed, organized and entered in an excel sheet into a micro computer running the Statistical Package of Social Science (SPSS version 20) software for windows vista to validate and analyze the entries. The survey was statistically descriptive and the data was summarized as counts ‘frequencies’ and percentages. The inferential statistics was applied by using Chi squire test to examine relationships among the variables in the study.

3.8 Ethical considerations

The study was approved by department of community medicine, University of Khartoum. Permission was taken from the client by oral consent in all cases in addition to the written consent in questionnaire. No information that can lead to identification of a specific subject will be taken.

RESULTS

4.1 Socio-demographic characteristics

The age and gender distribution of the participants are shown in **Table-1**. The ages of 15-24 represent 31.2% of the participants. There were 149 male (51.7) and 136 female (47.2). about 70% of the participants had at least university education with the uneducated accounting for less than 3%. The number of single participants (55.6) was slightly more than married participants (43.4). About half of the participants had not children (52.8). There were 205 participants from Bahri locality. About 45.8 of the participant were in a private work and unemployed making up the minority. It's had been founded that 63.5% of the participants had medium income (**Table-2**).

Table 1: Age, sex and educational level characteristics of the participants who live in Bahri locality at the pharmacies in October2018, n=288.

Characteristics(n=288)	Frequency	Percentage
Age (years) :		
6-14	3	1.1
15-24	90	31.2
25-34	64	22.2
35-44	53	18.4
45-64	63	21.9
65 and higher	6	2.1
Sex :		
Male	149	51.7
Female	136	47.2
Educational level :		
Uneducated	7	2.4
Khalwa	3	1.0
primary	17	5.9
Secondary	53	18.4
University	199	69.1
Postgraduate studies	9	3.1

Table 2: Marital status, children, residency and employment of the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Characteristics (n=288)	Frequency	Percentage
Marital status :		
Unmarried	160	55.6
Married	140	43.4
Children :		
No children	152	52.8
3 or less	63	21..9
More than 3	82	28.6
Residency :		

In Bahri locality	205	71.2
Outside Bahri locality	11	4.3
Employment :		
Regular forces	11	3.8
Governmental sector	29	10.1
Private sector	132	45.8
Pension	5	1.7
Free business	23	8.0
Housewife	15	5.2
Student	86	19.1
Unemployed	183	0.3
Monthly income :		
Low	86	29.9
Medium	183	63.5
High	6	2.1

4.2 Practice of self medication by using OTCs drugs

About half of the participants (47.9) were using non-prescribing medications usually and 38.2% for rarely use. **Table-3** show that the most common source of information about these drugs was a previous prescription (44.1) and **Table-4** show that the most common source of drugs is from the pharmacy (82.6%).

Table 3: Source of information of the drugs used for self medication in the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Source of information	Frequency	Percentage
Teacher	16	5.6
Text books	43	14.6
Advertisements	3	1.0
Internet	43	14.6
Previous prescription	127	44.1
Someone you know	57	19.8
Others	25	8.6

Table 4: Source of drugs used for self medication in the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Source of drug	Frequency	Percentage
Pharmacy	238	82.6
Home	31	10.8
Doctor you know	18	6.2
Someone you know	13	4.5

Most common reasons for taking OTCs drugs were that there is no need to visit the doctor for minor illnesses (50%) and less cost (30.6%), shown in **Table-5**. About 77.8% of the participants took analgesics followed by 52.8% for antimicrobials (**Table-6**). The results

show that 61.8% took OTCs drugs for headache and 61.5% for cough which are represented in **Table-7**.

Table 5: Various reasons for favor of OTCs drugs told by the participants who live in Bahri locality at the pharmacies in October2018, n=288.

Reason	Frequency	Percentage
No need to visit doctor for minor illness	144	50
Quick relief	51	1707
Time saving	49	17
Confidence on your knowledge about medicines	34	11.8
Economical	88	30.6
Ease and convenience	25	8.7
Crowd avoidance	12	4.2
Others	2	0.7

Table 6: Different drugs used for self medication in the study used by the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Drug	Frequency	Percentage
Analgesics	224	77.8
Antimicrobials	152	52.8
Anti convulsions	4	1.4
Anti coagulants	3	1.0
Anti congestion	67	23.3
Multivitamins	54	18.8
Lozenges	76	26.4
Others	15	5.2

Table 7: Various indications for OTCs drugs among the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Indication	Frequency	Percentage
Headache	178	61.8
Cough	177	61.5
Fever	87	30.2
Abdominal pain	45	15.6
Diarrhea	37	12.8
Vomiting	17	5.9
Eye pain	32	11.1
Others	22	7.6

4.3 The adverse effects that related to using of OTCs drugs

The results of the study show that the majority of the participants do not exposed to adverse effects by using OTCs drugs (90.6). The rest of them who are exposed to some adverse effects (7.6%) are shown in **figure-1**.

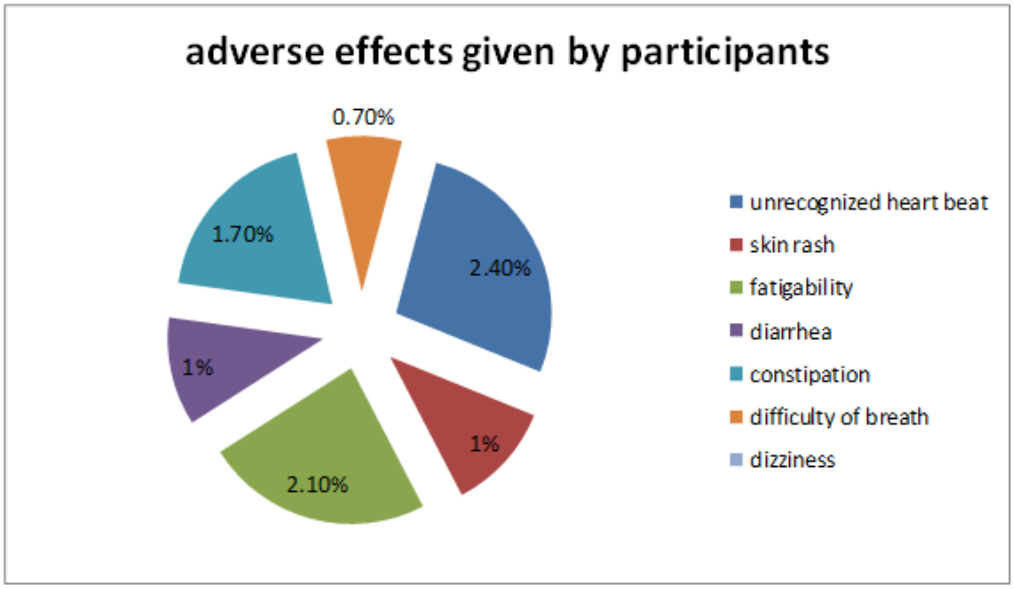

Figure 1: various adverse effects from using OTCs drugs told by the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Regarding the participants who exposed to these adverse effects, 45.5% of them didn't do anything to get rid of these symptoms, while 36.4% went to doctor, 9% asked someone about treatment and 5% searched at internet for the solution.

4.4 The personal opinion about using of OTCs

The participants had been asked about their personal opinion in using non-prescribing drugs in treatment of symptoms or diseases. About 61% of them answered "yes" and they had reasons for their answer shown in **Table-8**. Also they had been asked about types of drugs that they can use them without a prescription, represented in **Figure-2**.

Table 8: various reasons about non-prescribing drugs use told by participants who live in Bahri locality in October 2018, n=288.

Reason	Frequency	Percentage
No need to visit doctor for minor disease	59	20.5
Enough knowledge about drugs	100	34.7
Less cost	66	22.9
Time saving	45	15.6

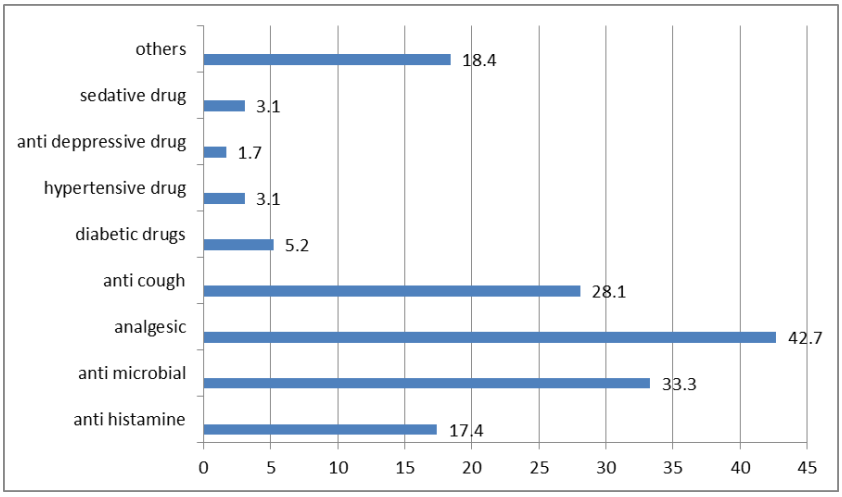

Figure 2: Various drugs that thought to be taken without a prescription from doctor by the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

4.5 Association between study variables

According to the specific objectives of this study.

4.5.1 Association between the types of OTCs drugs and age, gender, level of education and monthly income

All p values of the types of OTCs drugs and socio-demographic data were statistically significant (less than 0.05), which indicate that there is an association between them shown in **Table-9**.

Table 9: Association between the types of OTCs drugs and age, gender, level of education and monthly income in the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Characteristic	Taking many types	Taking moderate types	Taking few types	Chi squire test value	P value
Age groups:					
6-14	0	0	1		
15-24	1	47	42		
25-34	0	6	58	47.954	<0.001*
35-44	1	8	44		
45-64	1	12	50		
64 – above	0	2	4		
Gender:					
Male	2	28	119	10.8	0.005*
Female	1	49	89		
Education:					
Illiterate	0	0	7		
Khalwa	0	0	3		

Primary	0	14	9		
Secondary	0	0	30	17.72	0.023*
University	2	52	145		
Post graduate	1	10	6		
Income:					
Low	0	25	61		
Moderate	2	51	130	16.132	0.003*
High	1	0	5		

4.5.2 Association between the major indications of using OTCs drugs and age, gender, level of education and monthly income

Chi squire test reveled that there is no association between the major indications of using OTCs drugs (headache, cough, fever) and the socio-demographic data (p value is more than 0.05) except for the age which the p value was significant (p value=0.001) shown in **Table-10**.

Table 10: Association between the major indications of using OTCs drugs and age, gender, level of education and monthly income in the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Characteristic	All of the major indications	2 of the major indications	None\one major indication	Chi squire value	P value
Age groups:					
6-14	1	0	0		
15-24	33	19	38		
25-34	9	9	46		0.001*
35-44	5	17	31	33.37	
45-64	10	15	38		
64 – above	2	0	4		
Gender:					
Male	28	32	89		
Female	33	29	74	1.35	0.51
Education:					
Illiterate	1	2	4		
Khalwa	0	0	3		
Primary	0	6	0		
Secondary	15	0	32	10.9	0.21
University	40	47	112		
Post graduate	2	7	8		
Income:					
Low	19	18	49		
Moderate	39	43	101	.723	0.95
High	2	1	3		

4.5.3 Association between reasons of taking OTCs drugs and age, gender, level of education and monthly income

There is an association between the reasons of using OTCs drugs and the gender and the monthly income (p value = 0.037 and 0.003 respectively), whereas there is no association with age and educational level(insignificant p value) which represented in **Table-11**.

Table 11: Association between reasons of taking OTCs drugs and age, gender, level of education and monthly income in the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Characteristic	has many reasons	Has few reasons	Chi squire test value	P value
Age groups:				
6-14	0	1		
15-24	30	60		
25-34	11	53		
35-44	9	44	10.8	0.095
45-64	19	44		
64 – above	3	3		
Gender:				
Male	30	119	4.35	0.037*
Female	42	94		
Education:				
Illiterate	3	4		
Khalwa	0	3		
Primary	4	0	9.4	0.052
Secondary	10	39		
University	46	153		
Post graduate	9	8		
Income:				
Low	18	68		
Moderate	51	132	11.36	0.003*
High	5	1		

4.5.4 Association between the personal opinion about using OTCs drugs and the age, gender, level of education and monthly income

By using chi squire test, the p value of both gender and educational level were statistically significant, which indicate that they have an association with the personal opinion of the participants about using non-prescribing drugs(p value = 0.04 and 0.01 respectively) shown in **Table-12**.

Table 12: Association between the personal opinion about using OTCs drugs and the age, gender, level of education and monthly income in the participants who live in Bahri locality at the pharmacies in October 2018, n=288.

Characteristic	No	Yes	Chi squire test	P value
Age groups:				
6-14	1	0	10.64	0.100
15-24	14	53		
25-34	20	40		
35-44	18	34		
45-64	23	36		
64 – above	0	6		
Gender:				
Male	49	84	4.12	0.04*
Female	30	90		
Education:				
Illiterate	3	4	13.25	0.01*
Khalwa	2	1		
Primary	4	7		
Secondary	20	20		
University	49	123		
Post graduate	1	15		
Income:				
Low	26	52	2.9	0.24
Moderate	52	110		
High	0	6		

DISCUSSION

The study was carried out among participants of Bahri locality with most of them being well learned over 50% were aged between 15-35 years. About half of the participants were working in a private business, and 60% had medium monthly income, which constitute the core of people who participated.

Majority of the participants thought of self medication by OTCs drugs has been more affordable, readily available and time effective practice just like in similar studies in developing countries and hence practiced it frequently. The commonest reasons given by the participants for practicing self medication by OTCs drugs were no need to visit doctor for minor illnesses, time and cost effectiveness owing to the long delays in government hospitals and the exploitation by private hospitals. These are important factors particularly in developing countries. This would mean that health services need to be improved to the point where treatment becomes more accessible and the patient's waiting time is minimized.

About 45% of the participants had a previous prescription of these drugs, which puts them in a position to understand the risk and side effects of the drugs used, in addition to media adverts, internet and textbooks also proved to be valuable sources of information. Up to 80% of the participants confess that local pharmacy personnel were their source of drug, and a good proportion of the reminder received it from medical personnel. The reports showed that the main channel of information was the patient medical dealers and chemists probably due to the relatively limited number of registered pharmacist and medical doctors in the developing countries.

As was recorded in most studies headache, cough and fever were the most common conditions for which the participants practiced OTCs drugs. The participants largely believed that pain relievers, antimicrobials and anti congestion were particularly safe enough to be used to treat aliments without consulting a doctor, this is comparable to report in other studies in which were the most common drugs kept at home.

The percentage of the participants who exposed to side effects from using OTCs drugs is not so large in this study, but this is still an important aspect in using self medication as a whole. The participants did not have enough knowledge about these side effect, so they just depend on their previous experiences even from the doctor or reading the drug leaflets.

The response rate of this study was 100% so there is no very big limitations, but may be the reliance of self reported data and the inability to establish the occurrence of side effects following drug use made some data to be missed in parts of some questions.

5.1 CONCLUSION

According to the objectives of this study, the most common types of OTCs used by the participants are analgesics (77.8%) and antimicrobials (52.8%), and the most common indications for using OTCs drugs were headache (61.8%) and cough (61.5%). The most important reasons of using OTCs drugs that is there is no need to visit the doctor for minor illnesses (50%) and to minimize the cost (30.6%). The percentage of side effect was low among the participants (7.6%). Two third of the participants (61%) agreed with using OTCs drugs in their personal opinion.

5.2 RECOMMENDATION

1. There should be increasing awareness and education by the health providers at all levels including medical students by doing educational campaigns and convoys regarding the importance of professional consultation before drug use, the implications and the place of responsible self medication.
2. Strict policies need to be implemented by the government on the advertising and selling of medications to prevent problems.
3. Lows and rules to reach high control enforced from ministry of health to prevent the supply of medicines without prescription by pharmacies.
4. Enough funds in governmental and private hospitals should be put in place to ensure efficient health services that receiving health care becomes much less difficult and time consuming.
5. Further researches from all medical fields should be carried out on this issue as a problem that should not be ignored.

Dedication

I dedicate this research project:

To my mother, who give me love and care.

To my father, who always supports me.

To my brothers and sisters, who share all moments with me

To my teachers, who give me a lot in my life

To my all friends who stay beside me.

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