Knowledge and Attitude about Misuses of Over-The-Counter (OTC) Medications among Saudi Adults

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Abstract
Aims and objectives: To assess the knowledge and attitude about misuses of over the counter medications among Saudi adults**Background:** The consumption of Over-The-Counter (OTC) medications, i.e., drugs that are sold without doctors' prescriptions, has increased. People think that OTC drugs are safe, but they can be dangerous and have adverse effect. To assess the knowledge and attitude about misuses of over the counter medications among Saudi adults was very crucial. **Design:** A descriptive correlational cross section design was utilized. **Methods:** 500 adult Saudi male and female were recruited in the current study in Riyadh city, from general public at different sites. The data has been collected by a questionnaire developed by the researchers. It contains 3 sections: Section 1: contained questions covering socio-demographic characteristics of the participants, Section 2: consisted of 8 questions to assess the participant's attitude towards un-prescribed OTC and Section 3: this section contained 7 questions for knowledge assessment. **Results:** More than half of participants (58.2%) used medications without prescription and the reason behind it the easiness to get it (35.4%). The most common reason for uses of OTC medications was Sore throat (61.8%). 72.4% reported that they obtain it from the pharmacy. The majority of participants (94.8%) reveled the misuse of OTC medications could be harmful. 89% of participants agreed that the OTC can cause adverse effects. In addition, majority of participants (76%) used pain killer's medications while the minority (5.6%) used sleeping aids. **Conclusions**: The misused of OTC medications among Saudi adults in Riyadh was high, which needs more awareness campaigns about the uses of medications. **Relevance to clinical practice:** Accurate assessment of knowledge and attitude about misuses of OTC medications among Saudi adults could help in preventing the side effect and dangerous from such medications.
Keywords: Over-The-Counter medication (OTC), Misuse.
What does this paper contribute to the wider global clinical community?
- Assessment of knowledge and attitude about misuses of OTC medications among Saudi adults could help in preventing the side effect and dangerous from such medications.
- Lack of knowledge regarding the dangerous of misuses of OTC medications is a common contributing factor to this problem.
- Accurate identification of level of knowledge and attitude about misuses of OTC medications among Saudi adults could help in raising the awareness of population accordingly.

BACKGROUND:

In recent years, the consumption of Over-The-Counter (OTC) medications, i.e., drugs that are sold without doctors' prescriptions, has increased. The misuse OTC drugs are universal health concerns (Zaprutko, 2016). Today, they are used to treat different health problems, ranging from cough and cold, to headache and dysmenorrhea. People think that OTC drugs are safe, but they can be dangerous and have adverse effect for whom take these medications that have been prescribed for other people and sharing the medications, or taking the medications for other uses such as taken antibiotic to relieve the pain (National institute of drugs abuse, 2015).

The terms 'misuse' and 'abuse' are often used interchangeably, but they have precise meanings in this article. Misuse was defined as using an over the counter (OTC) medications for reasonable medical reason but in higher doses or longer period than required, e.g. people can take more Laxative than recommended for constipation treatment, using some OTC for weight gain or lose (Lessenger, & Feinberg, 2008).

Moreover, there are a lot of reasons that lead to OTC medications abuse\misuse. Several studies have indicated that patients who have a love-hate relationship with medications always misuse it (Greenhalgh & Gill, 1997). Many of the medications which are abused have legitimate medical uses for people with a variety of

illnesses and injuries. They may even be used in high doses for selected medical problems (Lessenger & Feinberg, 2008).Several key factors drive drug abuse. Ease of access of prescribed and OTC medications via medicine cabinets at home, or other person's prescriptions. The internet in recent years has also led to easier accessibility of medicine (Mcintosh, 2011). Study in 2006 showed that 89% of internet sites selling controlled prescription drugs in US have no prescription requirement (Kuehn, 2007)

Furthermore, There are additional reasons for increasing misuse of OTC medications: one of them is "pharmacy shopping" (visiting multiple pharmacies) and online pharmacies(The pharmaceutical journal, 2013).Also, Lack of awareness and drug's information among public could be one of the most famous reason of misusing of OTC drugs. For example, many people use Aspirin to relieve pain and fever, but they do not know about the side effect which include nausea, heartburn or development of bleeding ulcers. (Tabitha, 2003)

In addition, several different types of populations are more susceptible to prescription abuse. These include patients in pain who abuse opiate medications (Campbell, 2008).it is obvious in the recent years there are great rise in the misuse of some medications as laxatives, steroids, diuretics and dietary supplementation to improve the personal appearance. Mass media encourages "idealistic" body which leads to body awareness issues and it is most frequently in girls. It is generally due to a complaint in body image leads to low self-esteem, sadness, suicide attacks (Berge, 2009).

Indeed, adults show high levels of trust in media and that considered as the most reliable sources of information. Advertisement in media is an influential source of information, which may affect the consumer decision-making process concerning the purchase and use of OTC medicines (McIntosh, 2011).

OTC drugs are usually taken for pain relief, common cold, musculoskeletal pain, allergies, sore throat, fever, headache, heart burn and other digestive problems. The benefits of OTC drugs if taken appropriately is : saving individuals time and money, convenient access and give a sense of self control over their health (Brody, 2015), but even if OTC are used correctly, it can cause problems if it is contraindicated with certain medical conditions or other drug interactions, food interaction or overdose. For example, the misuse of acetaminophen, which is the most common OTC drug for pain relief, can lead to liver failure by the time.(Regist, 2016).

Self-prescribed medications had become a major global public health problem which leads to some risks are: misdiagnosis and incorrect choice of treatment, delay seeking medical advice, incorrect dosage and manner of administration. In addition, researches expanded in the era of pharmacy concluded that the increasing of adverse drug reaction and misuse of medications lead to increase in morbidity and mortality (Ruiz, 2010).

Additionally, long term use of OTC could cause a serious problem which is inadvertent dependence. Some individuals initially seek out the drugs for recreational use and may later become dependent.(Roberts, 2016).When OTC is taken in different quantities this may affect the brain in ways very similar to illicit drugs (National institute of drugs abuse, 2015). Even available and common medications in every home that people think these are not dangerous such as Codeine phosphate is a weak opioid analgesic, which is widely available in Australia, Codeine is a pro-drug of morphine, hence it may produce euphoria at high doses and dependence serious and life-threatening injuries may occur with regular use (Dobbin, 2013).

It is a common misunderstanding that only illegal drugs are dangerous and only illegal drugs cause addiction. There are many different OTC drugs with psychoactive or mind-altering properties that may lead to a number of serious medical and mental health consequences (Brande, 2016). The National Institute on Drug Abuse (NIDA) indicates that 7 million people of all ages used psychotherapeutic drugs for nonmedical purposes in 2006(Substance Abuse and Mental Health Services Administration (SAMHSA), 2009).

Around the world, OTC addiction increased because many patients believe that OTC medications are safer than prescription or illicit drugs (Partnership for a Drug-Free America, 2005). Drug addicts may also abuse OTC medications, when other substances are unavailable (Margaret, 2011). In last few years, Awareness OTC medications are abuse by patients especially teenagers and young adults has increased (National Institute on Drug Abuse, 2011). Today's teens are more likely to have abused OTC drugs than most illicit drugs. (Gonzale, 2006).

In 2006, according to the Substance Abuse and Mental Health Services Administration, about 3.1 million persons between 12 and 25 years of age (5.3%) reported using OTC cough and cold medications to get high (SAMHSA, 2011).

According to researches, 81% of adults use OTC medicines as a first line treatment to minor ailments. In 2014, it is estimated that OTC sales is reached around 31 billion dollars In the U.S.(Drug store/pharmacy market in the U.S, 2015).

The prevention of misusing OTC medications require an intervention from Ministry of Health which must raise the awareness to people on Riyadh city to know which medicine they have to take and how much should it be to prevent misusing. Therefore, the aim of this study is to assess knowledge and attitude about misuse of OTC drugs among Saudi adults.

OBJECTIVES OF THE STUDY:

Aim

The aim of this study is to assess the knowledge and attitude about misuses of over the counter medications among Saudi adults

Specific Objectives:

1. To investigate the extent use of over the counter medications among Saudi adults
2. To explore the Saudi adults' attitude toward misuse of over the counter medications.
3. To explore the factors affecting Saudi adults to use over the counter medications.

Secondary Objectives:

To assess if there are correlation between misuse of OTC medications and some selected demographic data.

MATERIALS AND METHODS:

Study Area/Setting:

The current study will be conducted in Riyadh, Saudi Arabia in general public at different sites (e.g. shopping malls, supermarkets, general gardens, etc.) covering the main 4 regions in Riyadh north, south, east & west.

Study Subjects:

500 adult Saudi male and female will be recruited in the current study considering the following inclusion criteria: 18 years old and above, live in Riyadh city, able to read and write in Arabic language, willing to participate in the study and not engaged in any health professions.

Study Design:

To achieve the aim of the current study a descriptive correlational cross section design will be utilized.

Sample Size:

Using the sample size calculator available on : http://www.surveysystem.com/sscalc.htm to calculate the sample size for the current study, With the confidence level 95% and confidence interval 5 and the estimated total number of population in Riyadh is 6000000in 2016, the calculated sample size was 384.To ensure proper representation of population the researchers increased the number to 500.

Sampling Technique:

Subjects from the 4 previously mentioned different regions in Riyadh and meet the inclusion criteria will be recruited using the convenience sampling technique.

Data Collection methods, instruments used, measurements:

The data will be collected by a questionnaire developed by the researchers it contains 3 sections:

Section 1: contained questions covering socio-demographic characteristics, which are age, gender, marital status, educational level, occupational status and monthly income.

Section 2: consisted of 8 questions to assess the attitude of Saudi adults towards un prescribed OTC, such as conditions for which OTC was used, frequency of use, basis of using it .and source of antibiotics etc.

Section 3: this section contained 7 questions for knowledge assessment as, awareness of misuses OTC medications, and type of medications were used etc.

All the participants have just to choose the answers from the given options and will take around 15 min from their time to fill the questionnaire. Two bilingual Arabic-English speakers did the translation from English to Arabic to be used .content and item Validity were assessed by 3 experts in the field and suggested modifications were done. In addition, the questionnaire was pilot tested with 50 participants to determine the clarity of the language and questionnaire structure and the required medications are done accordingly. Reliability of the study instrument will be examined before starting the data collection.

Data Management and Analysis Plan:

The data pertinent to the current study will be entered and analyzed by the Statistical Package for the Social Science (SPSS, version 21). Descriptive statistical analysis as percentage, frequency distribution, mean, and median will be used to describe the research sample and participant responses to questionnaire items. Moreover, Pearson Product moment Correlation will be sued to examine the relationship between selected study variables and the Statistical significant will set atp= < 0.05.

Ethical Considerations:

The research proposal will be submitted to the ethical committee of college of Nursing, king Saud bin Abdul-Aziz university for health sciences in Riyadh then the institutional review board (IRB) in King Abdullah International Medical Research Center (KAIMRC) for approval. After approvals, researchers will begin to conduct the study. Written informed consent will be obtained from each participant prior starting the data collection. Each participant will be informed about the purpose of the study. Participant's anonymity will be kept as well as data will be kept highly confidential.

RESULTS:

Table 1: socio-demographic data (No. =50)

Section 1: socio-demographic data	**No .**	**%**
Age Mean±26.47 SD 8.8		
Gender		
• Male	65	13
• Female	435	87
Marital status:		
• Single	298	59.6
• Married	184	36.8
• Divorced	17	3.4
• Widowed	1	0.2
Educational level:		
• Elementary	4	0.8
• Intermediate	17	3.4
• Secondary	138	27.6
• Diploma	36	7.2
• Bachelor	287	57.4
• Master	16	3.2
• PHD	2	0.4
Employment status:		
• Not employed	296	59.2
• Retired	5	1
• Housewife	87	17.4
• Employed: specify	112	22.4
• Accounting	5	1
• Administrative	18	3.6
• Community and social service	3	0.6
• Education	65	13
• Health care services	2	0.4
• Other	2	0.4
Current monthly income:		
• Less than 2000 SR	303	60.6
• 3000 – 6000 SR	77	15.4
• 7000 – 10000 SR	58	11.6
• More than 10000 SR	62	12.4

Table 1 shows the socio-demographic characteristics of the participants. It reveals that majority of participants were female (87%), and the mean of participants age was + 26.47. Regarding marital status most of them were single (59.6) and regarding educational level majority have a bachelor degree (57.4%). Moreover, regarding employment status majority of participants were not employed around (59.2%). Finally, regarding the monthly income (60.6%) of participants have 2000 SR.

Table 2: participants' attitude toward the misuse of OTC medications (No. =50)

Section2: Attitude toward the misuse of OTC medications	No.	%
Response to minor illness:		
• No action	94	18.8
• Home remedy	168	33.6
• Over The counter medications (OTC)	135	27
• Seek health care services	103	20.6
Using medications without prescription:		
• Yes	291	58.2
• No	209	41.8
If yes, What is the reason to buy the medications without prescription?		
• Easier to get	177	35.4
• Delayed hospital appointments	58	11.6
• The cost of private hospitals	41	8.2
• Lack of transportation	15	3.0
If you have children do you use OTC medications for them:		
• Yes	56	11.2
• No	444	88.8
Different age groups abuse different types of OTC medications:		
• Yes	460	92
• No	40	8
How many times have you used OTC medications over the past SIX months:		
1-2 times	349	69.8
3-4 times	77	15.4
5-6 times	30	6.0
More than 6 times	44	8.8
Symptoms make you to buy and use OTC medications:		
• Common cold	286	57.2
• Headache	216	43.2
• Sore throat	309	61.8
• Teeth ache	153	30.6
• Muscle aches	100	20
• Insomnia	37	7.4
• Menstrual pain	186	37.2
• Stomach ache	67	13.4
• Constipation	49	9.8
• Hair loss	63	12.6
Basis for using OTC medications:		
• Previous experience	264	52.8
• Pharmacist advice	162	32.4
• Advice of a friend/relative	43	8.6
• Physician's prescription to a friend/relative	21	4.2
• Advertisements	10	2
Source of using OTC medications:		
• Pharmacy	362	72.4
• Home drug cabinet	127	25.4
•Other	11	2.2

Table 2 shows the attitude of participants toward OTC medication. Regarding the response to minor illness (33.6%) reported that they used home remedy. Majority of participants (58.2%) used medications without prescription and the reason behind it the easiness to get it (35.4%). (88.8%) of parents reported that they did not use OTC medications for their children. Majority of participants (69.8%) use OTC medications for 1-2 times over six months. Also, the majority (61.8%) of participants uses OTC medications for Sore throat and the minority (7.4%) used OTC for insomnia. However, half of the participants (52.8%) used the OTC medication upon previous experience. So, regarding the Source of using OTC medications, majority (72.4%) reported that they obtain it from the pharmacy.

Table 3: participants' knowledge regards OTC medications

Section 3: knowledge regards OTC medications	No.	%
misuse of OTC medications could be harmful:		
• Yes	474	94.8
• No	26	5.2
Side effects of using OTC medication:		
• Yes	445	89
• No	55	11
If yes, what are		
• Dependence	180	36
• Headache	156	31.2
• Vomiting	106	21.2
• Nausea	187	37.4
• euphoria	156	31.2
• heartburn	25	5
• bleeding	44	8.8
• Allergy reaction	209	41.8
• Other	402	79.4
Experiencing a negative reaction or side effect from taking an OTC medications:		
• Yes	85	17
• No	415	83
Reading the information on an OTC medicine's package:		
• Yes	432	86.4
• No	68	13.6
If yes, what information do you read:		
• Directions for use	197	39.4
• The symptoms it treats	352	70.4
• Active ingredients	56	11.2
• Warnings	247	49.4
• Possible side effects	267	53.4
Source of your information about the dose of OTC medications:		
• Internet	46	9.2
• Leaflet	203	40.6
• Past experience	82	16.4
• Pharmacist	167	33.4
• Other	2	0.4
Which of the following OTC medications have you used over the past SIX months:		
• Painkillers	380	76
• Antibiotics	79	15.8
• Antihistamine	66	13.2
• Sleeping aids	28	5.6
• Laxatives	31	6.2
• Vitamins	126	25.2
• Cold remedies	157	31.4
• Cough remedies	131	26.2
• None	45	9
Health rating:		
• Excellent	210	42
• Very good	211	42.2
• Good	65	13
• Fair	13	2.6
• Poor	1	0.2

Table 3 shows the participants knowledge about misuse of OTC medications. The majority of participants (94.8%) reveled the misuse of OTC medications could be harmful. Regarding the adverse effects of OTC medication (89%) of participants agreed. Moreover, the majority of participants (83%) were not experiencing negative reaction of OTC misusing. Regarding the reading of information on an OTC medicine's package the

majority (86.4%) they read. In addition, 40.6% of participants obtained the desired dose of OTC medications from the leaflet. In addition, majority of participants (76%) used pain killer's medications while the minority (5.6%) used sleeping aids. In conclusion, majority of the participants (42.2%) rated their health "Very good".

DISCUSSION

The aim of this study was to assess the knowledge and attitude about misuses of over the counter medications among Saudi adults. This study showed that there was a good attitude toward OTC use. Participants reported a variety of responses to minor illnesses. One third of participants were trying home remedies responding to minor illnesses similar to study conducted in Pakistan (2015) it showed the response to minor illnesses (Anwar, et. al, 2015). Also, study was done in Germany (2014) showed that the most frequently used home remedies were steam-inhalation, hot lemon drink, honey, chamomile tea and chicken soup and more than three-quarters of respondents tried home remedies before pharmaceutical options. Information about home remedies was most commonly gained from family members, rather than from written guides or media (Parisius, et. al, 2014). More than half of participants used medications without prescription and the most revealed reason was the easy access to these medications. There is a study agreed with our study in these points which are the easy access, convenience and time saving were the most frequent reasons for self-medication (Patil, 2015). In addition, Half of participants they used OTC medications based on their previous experience, similar to study was done in Jordan (2008) showed that patients selected products based on their previous experiences (Youssef, et.al, 2008). In this research, around three-quarters of participants reported that theirs main resource of OTC medication are pharmacies. (Wazaify, et. al., 2006) reported that six pharmacists identified 196 clients suspected of OTC misuse over 6 months. However, these days online pharmacies shop increased especially in developed country. More than half of homes in the UK now have Internet access and there is a large number of sources that supply medicines by mail order (Journal of Antimicrobial Chemotherapy, 2007).

In this research, more than two thirds of the samples reported that they used OTC medications one to two times over six months. In another hand, some researchers have relived more than this average of using. Study was done in Northern Ireland reported that more than a quarter of those receiving regular prescriptions reported buying OTC medicines at least monthly (Wazaify, 2005). Moreover, more than three-quarters of participants reveled that they did not use OTC medications for their children. Incongruent with these results, previous study was conducting in Canada showed that every week 10% of American children use over-the-counter cough and cold medications (Shefrin, 2009). Two thirds of participants used OTC medications for sore throat. Unmatched with these results, study was conducting in Dhule showed that minor illnesses such as fever, pain, cough, cold were the most common indication for using OTC medications (Patil, S., 2015).

In this study, the participants had a good knowledge about OTC using. More than three- quarters of participants reported that misuse of OTC medications could be harmful. It is similar to a previous study which was done in Tanzania (2010) reported that participants demonstrated high awareness on the potential misuse of OTC medicines. Furthermore, more than one third of participants refer to leaflets to obtain the desired dose of OTC medication same as the previous study which conducted in Tanzania (Nyaki,et. al, 2010). The most misused medication according to this research is painkiller. (Ndungu, 2003) reported that, analgesics were the most misused group of OTC medication in Kenya. Over the past 15 to 20 years, approximately 187 billion tablets of acetaminophen have been consumed by 170 million US adults, 50-70 tablets per person per year (Strom, 1994). All those lead us to prove that there is a huge consuming of painkiller without prescription.

This study showed that the participants had knowledge of side effects of OTC medications. More than three-quarters of them believed that there are side effects of using OTC medications. Unmatched with these results, study was done in UK (2002) showed that patients generally had poor knowledge of the potential side-effects of their medication (Hughes, et. al., 2002). The participants obtained information about medications from many sources, including Internet, leaflet, past experience and pharmacist. More than one third of participant obtained medications information from leaflet. Unlike our results, the previous study also showed that patients were rarely used. The leaflets were usually only read if the medications were new or if a side-effect was experienced (Hughes, et. al., 2002).

Conclusions

The misused of OTC medications among Saudi adults in Riyadh was high, and knowledge and attitude about misuses of OTC medications were unsatisfactory, so they need more awareness about the side effect and dangerous from such medications

Recommendations

Based upon the findings of the current study, the following recommendations were concluded;

1. Awareness campaign regarding misuses of OTC medications among Saudi adults.
2. Further studies may be needed to assess the knowledge and attitude about misuses of OTC medications

among Saudi adults in different regions.

Relevance to clinical practice

Accurate assessment of knowledge and attitude about misuses of OTC medications among Saudi adults could help in preventing the side effect and dangerous from such medications.

Conflicts of interest disclosure:

The authors declare that there is no conflict of interest statement.

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