Original article :

Practice and Awareness of the General Population About Common Over the Counter Analgesics Dependence and Side Effects in Al-Madinah, Saudi Arabia

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Abstract

Background and aims:
Over the Counter (OTC) medication usually used for the management of minor illness and they are available for the patients and can be obtained from the community pharmacies. The most common OTC analgesics that were associated with dependence are those capable of causing tolerance. OTC analgesics are generally non-harmful if used appropriately.
The objectives of this study are to measure the prevalence and determine the pattern of using OTC analgesics among Al-Madinah population, and to assess their awareness and attitude regarding the related side effects and dependence.

Methods:
Cross-sectional study focused on Al-Madinah city, Saudi Arabia, from February 2019 to Augusts 2019, by using validated modified questionnaire distributed by using web-based link.
The sample size was 600 participants. Data was analyzed by SPSS.

الملخص

الخلفية والأهداف:
الأدوية اللاوصفية تستخدم عادة لعلاج الأمراض البسيطة، وهي متاحة للمرضى ويمكن الحصول عليها من صيدليات المجتمع. إن المسكنات اللاوصفية الأكثر شيوعًا والتي كانت مرتبطة بالاعتماد هي تلك القادرة على إحداث التحمل. عادة ما تكون المسكنات اللاوصفية غير ضارة إذا تم استخدامها بشكل مناسب.
تهدف الدراسة الى قياس مدى انتشار استخدام المسكنات اللاوصفية ووصف نمط استخدامها بين سكان المدينة المنورة بالمملكة العربية السعودية، وتقييم وعيهم فيما يتعلق بالآثار الجانبية ذات الصلة والاعتماد.

طريقة البحث:
هذه دراسة مقطعية أجريت في المدينة المنورة بالمملكة العربية السعودية في الفترة من فبراير ٢٠١٩ إلى أغسطس ٢٠١٩ باستخدام استبيان معدل تم توزيعه عن طريق رابط على شبكة الإنترنت. بلغ عدد المشاركين في الدراسة ٦٠٠ مشارك.

النتائج:
بلغت نسبة انتشار استخدام المسكنات اللاوصفية خلال الأشهر الستة الماضية ٨٥,٨٪ (٩٥٪ CI، ٨٣٪ - ٨٨,٧٪). كان الباراسيتامول والإيبوبروفين أكثر أنواع المسكنات استخداماً. أظهرت الدراسة أن الوعي بالآثار الجانبية للمسكنات اللاوصفية مرتفع (٦١,٨٪) في حين كان الوعي بشأن المخاطر المحتملة للاعتماد ٤٤,٢٪، كما

Results:
The prevalence of analgesics usage during the past 6 months was 85.8% (95% CI, 83% – 88.7%). The most common type of analgesics was paracetamol and Ibuprofen. Awareness regarding the side effects of OTC analgesics was high (61.8%) while the awareness regarding potential risk of dependence was 44.2%. The most common causes of taking OTC analgesics were headache and toothache, while the most common source of information was self-knowledge, whereas stomachache was the most common side effect from OTC analgesics.

Conclusion:
Even though most of the general population in this study have sufficient knowledge about the side effects of OTC analgesics and that it may cause dependence or addiction, however, OTC analgesic usage of the general population is highly prevalent.

Keywords:
Over the Counter, Medication, Analgesics, Awareness, side effects, dependence, General population.

أظهرت أن الأسباب الأكثر شيوعًا لأخذ هذه المسكنات هي الصداع وآلام الأسنان، بينما كان مصدر المعلومات الأبرز هو المعرفة الذاتية، في حين كان ألم المعدة هو التأثير الجانبي الأكثر حدوثاً.

الخلاصة:
على الرغم من أن غالبية المشاركين في هذه الدراسة لديهم معرفة كافية حول الآثار الجانبية للمسكنات اللاوصفية، والتي قد تسبب الاعتماد أو الإدمان، إلا أن استخدامها لعامة السكان لا يزال منتشرًا بشكل كبير.

الكلمات المفتاحية:
بدون وصفة طبية، الأدوية، المسكنات، الوعي، الآثار الجانبية، الاعتماد، عامة السكان.

Introduction

Over the counter (OTC) medication can be defined as "the practice of using drugs that have not been prescribed, recommended, or controlled by a certified health care professional"[1] .They are usually used for management of minor illness, and they are available for the patients and can be obtained from the community pharmacies. The most common over the counter medications are analgesics. Analgesics that were associated with dependence are those capable of causing tolerance. For example, codeine-containing analgesics [2,3]. The psychological aspects of addiction may occur with any substance, including OTC drugs [4]. Dependency "is defined as the repeated use of an OTC drugs in which the person has a need or desire to use the OTC drug and has difficulty in voluntarily stopping or altering their use [5]. OTC analgesics are non-harmful if used appropriately. There is need for people education in order to prevent the misuse of OTC analgesic [6]. Analgesics like non-steroidal anti-inflam-

matory drugs (NSAIDs) and acetaminophen (paracetamol) are the most commonly used OTC drugs in the world [7,8]. Twenty-five percent of the patients who take NSAIDs, faced adverse events, even with prescription. Several cases of deaths were associated with acetaminophen overdoses [9,10]. Paracetamol is a commonly used analgesic, which is acting on the hypothalamus center, through inhibition of prostaglandin synthesis to produce an antipyretic effect, it also may work in the periphery to block the pain impulses generation by inhibiting prostaglandin synthesis in the central nervous system and increasing pain threshold. It is commonly used for analgesia and fever. Its side effects include disorientation, dizziness, gastrointestinal hemorrhage, laryngeal edema, liver failure, and nephrotoxicity [11].

NSAIDs like Diclofenac, Ibuprofen, and Aspirin have analgesic effect by inhibiting cyclooxygenase (COX 1-2). It has anti-inflammatory and antipyretic activity, and it may inhibit platelet aggregation. Its side effects include headache, abdominal pain or cramps, constipation, diarrhea, dizziness, dyspepsia, nausea, vomiting, edema, and gastrointestinal ulceration or bleeding [12].

Anti-inflammatory drugs had their origins in the serendipitous discovery of certain plants and their extracts being applied for the relief of pain, fever, and inflammation. The chemical advances of the 20th centuries lead to the development of NSAIDs [13].

Al-Madinah is a large city which is in the west of the Kingdom of Saudi Arabia (KSA), its population is 1,700,000 according to the General Authority of Statistics at 2010 [14].

Usage of NSAIDs as analgesic is common. According to one of the studies, the top utilized medication class in KSA were analgesics specifically Diclofenac Sodium with percentage of (67%) [15].

One of the recently conducted cross sectional studies in Al-Madinah, showed that (72.5%) of the citizen reported the use of OTC drugs, and (24.3%) of the responses showed history of experiencing side effects from using OTC medication [1].

Other cross-sectional study was done on Riyadh city - KSA, showed a total of 285 medications were bought without a prescription. The most common medications dispensed without prescriptions were antibiotics (22%) and analgesics/antipyretics (19%). Also, it showed that (35%) of 538 patients does not know the side effects of the OTC drugs they use [16].

Another study done on KSA showed that the use of antibiotics and analgesics still accounted for the bulk, followed by proton pump inhibitors and anti-diabetics drugs

respectively[17]

According to a systematic review on the Middle East countries, showed that these areas have a high frequent use of OTC drugs, and KSA was in the fourth place by 35.4% (83% in Iran, 68.1% in Pakistan, and 42.5% in Jordan) [18].

Another study was on Jordan showed that NSAIDs use was (69%), Diclofenac was the most common type used, and 58% reported having side effects from NSAIDs use. Gastrointestinal upset was the most reported side effect. Patient's awareness regarding NSAIDs use was poor, and pharmacist role in counseling was inadequate [19].

A cross sectional study in United Kingdom general population showed that dependence rate was more common with analgesics, sleep aids, and nicotine products [17].

Studies showed high prevalence of OTC analgesics usage in Saudi Arabia in general. Also, there is limited data about dependence and side effects awareness of OTC analgesics especially in Al-Madinah. Also, the researchers have a clear observation of lack of awareness about common OTC analgesics dependence and its related hazards among general population, that may lead to severe side effects especially among the high-risk groups. The lack of awareness and knowledge highlighted the need for more researches in this area. This is the first paper in KSA that documented the relationship between potential side effect and awareness of dependence on OTC analgesics.

The objectives of the current study are to measure the prevalence and describe the pattern of using OTC analgesics among Al-Madinah population and to assess their awareness and attitude regarding the related side effects and dependence.

Methods

Through a cross sectional study focused on Al-Madinah city, KSA, started from February/2019 to Augusts/2019. The study sample was drawn from a total of 1,700,000 individuals lives in Al-Madinah with 95% confidence interval and 5% marginal error. The calculated sample size was 384. During data collection, we collect 600 responses and stopped receiving data after that.

Inclusion criteria: adults older than 18 years old, male and female, resident in Al-Madinah city. Exclusion criteria: less than 18 years old and those who lives outside Al-Madinah region.

The study tool was a modified validated questionnaire that consist of three sections: 12 questions on participant’s demography, 18 questions regarding practice and awareness of side effects, and 7 questions about

practice and awareness of dependence.

Group of medical students, belonging to medical college, distributed electronic self-administered structured questionnaire in Arabic language to get the responses from participants through public social media (WhatsApp, twitter, and Facebook). All responses who met the inclusion criteria for age and residency were included. Source of the validated modified questionnaire is from Babakor SD et al [17] and Fingleton N et al [18]. The consent has been taken from the authors, and the questions were translated to Arabic language and double reviewed by two doctors at Taibah University.

The data had been gathered through MS Excel and after data cleaning and data re-coding, it was then exported to statistical packages for social science's version 20 for further tabulation and subsequently for statistical data analyses. Both descriptive and inferential statistics had been performed where numbers and percentages were used to present all categorical variables and mean ± standard deviation for all continuous variables. A p-value cut off point of 0.05 at 95% CI used to determine statistical significance. The analyses measure the relationship between a dependent variable against independent factors by using chi square test.

An official permission was taken from the scientific ethical committee of Taibah medical college. An informed consent for this study was obtained from all participants after describing the aim of the study. The privacy and confidentiality of the participants were assured.

Results

The total sample size was 600, 53.5% females and 46.5% males. The age range was from 18 to 73 years old (mean 32.5). Nearly all participants were Saudis (92.3%) with 51.2% of them being married. Most of them were university degree (67.3%) and are currently working (46.7%). Parents were mostly less educated and unemployed. More than a half of them were high earner (57.8%) (Table 1).

Table 1: Socio demographic characteristics of participants

Study Variables	N (%) (n=600)
Age group in years	
18 – 20 years	65 (10.8%)
21 – 30 years	270 (45.0%)
31 – 40 years	105 (17.5%)
41 – 50 years	109 (18.2%)
>50 years	51 (08.5%)
Gender	
Male	279 (46.5%)
Female	321 (53.5%)
Nationality	
Saudi	554 (92.3%)

Non-Saudi	46 (07.7%)
Marital Status	
Single	273 (45.5%)
Married	307 (51.2%)
Divorced	11 (01.8%)
Widowed	09 (01.5%)
Level of education	
Primary	13 (02.2%)
Secondary	109 (18.2%)
Diploma	28 (04.7%)
University	404 (67.3%)
Postgraduate	46 (07.7%)
Occupation	
Employed	280 (46.7%)
Unemployed	98 (16.3%)
Retired	27 (04.5%)
Student	195 (32.5%)
Education of mother	
Less than university	383 (63.8%)
University or higher	217 (36.2%)
Mother employment status	
Employed	154 (25.7%)
Unemployed	446 (74.3%)
Education of father	
Less than university	351 (58.5%)
University or higher	249 (41.5%)
Father employment status	
Employed	298 (49.7%)
Unemployed	302 (50.3%)
Monthly household income (SAR)	
<3,000	47 (07.8%)
3,000 – 5,000	81 (13.5%)
5,001 – 10,000	125 (20.8%)
>10,000	347 (57.8%)

The prevalence of OTC analgesic usage for the past 6 months was 515 (85.8%). Of those (33.8%) of them were using OTC analgesics more than 3 times. Regards pain intensity (60%) of them suffered from severe pain, 33.8% were moderate and 7.8% were mild. The commonest analgesic medication for the last 6 months was paracetamol (85.6%), followed by ibuprofen (43.9%) and diclofenac (22.1%), the least of them was aspirin (12.4%). There were (18.7%) of the participants with chronic diseases. (Table 2).

Table 2: Self Medication and Analgesics History

Statement	N (%) (n=600)
Did you take any OTC Analgesics during the past 6 months?	
Yes	515 (85.8%)
No	85 (14.2%)
How many times did you take OTC Analgesics during the past 6 months?	
Once	66 (11.0%)
Twice	97 (16.2%)
Three times	156 (26%)
More than 3 times	203 (33.8%)
Not sure	78 (13%)
Do you suffer from any chronic diseases?	
Yes	112 (18.7%)
No	488 (81.3%)
Pain Intensity (VAS)	
Mild (0 – 3)	47 (07.8%)
Moderate (4 – 6)	203 (33.8%)
Severe (≥7)	350 (58.3%)
Type(s) of analgesics used for the last 6 months? *	
Paracetamol	441 (85.6%)
Ibuprofen	226 (43.9%)
Diclofenac	114 (22.1%)
Aspirin	64 (12.4%)

OTC – Over the counter.

Table 3 presented the patients' knowledge about OTC analgesics, its side effects and

dependency. More than (60%) of them had enough knowledge regarding the side effects, while (42%) of them had previously encountered side effect from OTC analgesics. When asked about the side effect of excessive use of OTC analgesics, majority of them accounted kidney toxicity (44.2%), followed by liver toxicity (38%), and gastrointestinal irritation and bleeding (25%). A high proportion of the participants (44.2%) agreed that OTC analgesics might cause dependence or addiction. Most of them did not consider themselves an OTC analgesic dependent. Few of them (14.3%) experienced withdrawal symptoms when they stopped using OTC analgesics.

When assessing the relationship between the use of OTC analgesics against the socio demographic characteristics of participants, a relationship was found between age group and the use of analgesic. Prevalence in 21 – 30 age group was higher (p-0.013). Those who were working are higher of using analgesic (p-<0.001). Those individuals who do not have a history of chronic diseases are more using OTC analgesics (p-0.039). Other social, demographic factors had no relationship.

We also evaluated the relationship between

Table 3: Patient knowledge about OTC Analgesics side effects and dependency

Statement	N (%) (n=600)
Do you know the side effects of OTC analgesics?	
Yes	371 (61.8%)
No	229 (38.2%)
What are the side effects of excessive use of OTC analgesics? *	
Liver toxicity (Hepatotoxicity)	228 (38.0%)
Kidney toxicity (Nephrotoxicity)	265 (44.2%)
Cardiac toxicity	50 (08.3%)
Gastrointestinal irritation and bleeding	150 (25.0%)
Rash	117 (19.5%)
Did you encounter any side effect(s) from self-medication with analgesics?	
Yes	252 (42.0%)
No	348 (58.0%)
Some OTC Analgesics may cause dependence or addiction	
Strongly disagree	71 (11.8%)
Disagree	135 (22.5%)
Neither	55 (09.2%)
Agree	265 (44.2%)
Strongly agree	74 (12.3%)
Have you ever considered yourself dependent on or addicted to OTC Analgesics?	
Yes – in the past month	44 (07.3%)
Yes – more than a month ago	57 (09.5%)
No - never	499 (83.2%)
Have you ever experienced withdrawal symptoms (feeling sick) when you stop using OTC Analgesics?	
Yes	86 (14.3%)
No	514 (85.7%)

OTC – Over the counter.

* Variable with multiple responses.

the awareness of OTC analgesic side effects and the socio demographic characteristics of participants. Female participants were aware of side effects (p-<0.001). The Saudis have more knowledge regarding the side effects (p-0.042). Those who were working and who earned more than 10,000 Saudi Arabian Riyal (SAR) monthly detected to be more knowledgeable about the side effects (p-0.028), (p-<0.001) respectively. History of chronic diseases has a relationship to the side effects awareness (p-0.036).

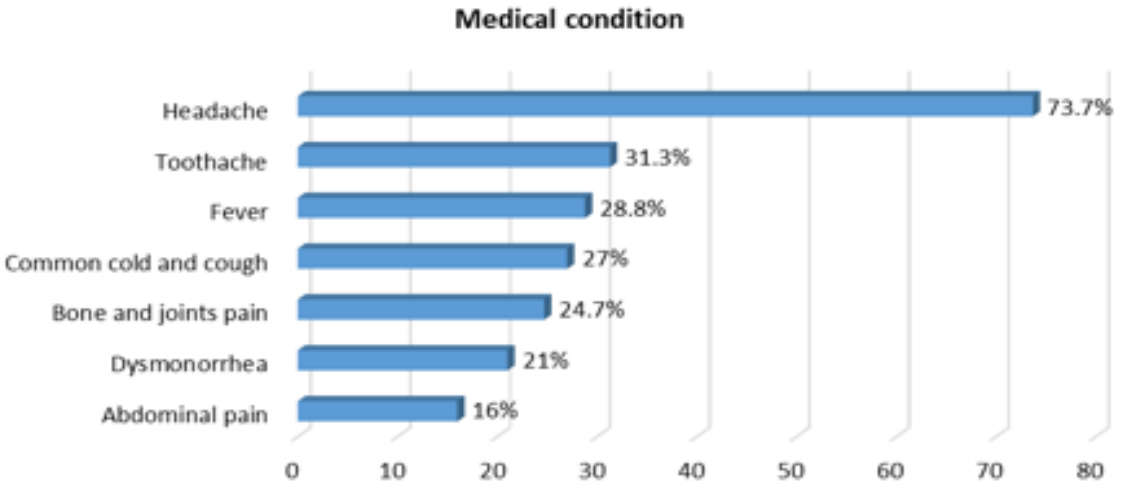
We further measured the association between the awareness of dependence on OTC analgesics and the socio demographic characteristics of participants. Those in 21 – 30 years old group and females were aware about the potential risk of dependence on OTC analgesics (p-0.038), (p-<0.001) respectively. Those who were working have lack of knowledge regarding OTC analgesic dependence. P-0.003 as shown in table 4.

Table 4: Relationship between "use of OTC analgesics", "awareness of OTC analgesics side effect", "awareness of dependence on OTC analgesics" and the Socio demographic characteristics of participants (n=600)

	OTC Analgesic			Side effect of Analgesic			Dependency to OTC			
	Yes N (%) (n=515)	No N (%) (n=85)	P-value §	Yes N (%) (n=371)	No N (%) (n=229)	P-value §	Disagreed N (%) (n=206)	Neutral N (%) (n=55)	Agreed N (%) (n=339)	P-value §
ɔup in years										
18 – 20 years	51 (09.9%)	14 (16.5%)		37 (10.0%)	28 (12.2%)		15 (07.3%)	07 (12.7%)	43 (12.7%)	
21 – 30 years	229 (44.5%)	41 (48.2%)		164 (44.2%)	106 (46.3%)		87 (42.2%)	23 (41.8%)	160 (47.2%)	
31 – 40 years	97 (18.8%)	08 (09.4%)	**0.013** **	60 (16.2%)	45 (19.7%)	0.285	34 (16.5%)	08 (14.5%)	63 (18.6%)	**0.038** **
41 – 50 years	99 (19.2%)	10 (11.8%)		75 (20.2%)	34 (14.8%)		44 (21.4%)	10 (18.2%)	55 (16.2%)	
>50 years	39 (07.6%)	12 (14.1%)		35 (09.4%)	16 (07.0%)		26 (12.6%)	07 (12.7%)	18 (05.3%)	
Male	237 (46.0%)	42 (49.4%)	0.561	150 (40.4%)	129 (56.3%)	**<0.001** **	118 (57.3%)	36 (65.5%)	125 (36.9%)	**<0.001** **
Female	278 (54.0%)	43 (50.6%)		221 (59.6%)	100 (43.7%)		88 (42.7%)	19 (34.5%)	214 (63.1%)	
ılity										
Saudi	474 (92.0%)	80 (94.1%)	0.505	349 (94.1%)	205 (89.5%)	**0.042** **	186 (90.3%)	49 (89.1%)	319 (94.1%)	0.172
Non-Saudi	41 (08.0%)	05 (05.9%)		22 (05.9%)	24 (10.5%)		20 (09.7%)	06 (10.9%)	20 (05.9%)	
Status										
Single	232 (45.0%)	41 (48.2%)	0.156	177 (47.7%)	96 (41.9%)	0.104	80 (38.8%)	26 (47.3%)	167 (49.3%)	0.246
Married	268 (52.0%)	39 (45.9%)		181 (48.8%)	126 (55.0%)		118 (57.3%)	29 (52.7%)	160 (47.2%)	
Divorced	07 (01.4%)	04 (04.7%)		05 (01.3%)	06 (02.6%)		04 (01.9%)	0	07 (02.1%)	
Widowed	08 (01.6%)	01 (01.2%)		08 (02.2%)	01 (0.40%)		04 (01.9%)	0	05 (01.5%)	
f education										
Primary	10 (01.9%)	03 (03.5%)	0.093	07 (01.9%)	06 (02.6%)	0.080	04 (01.9%)	03 (05.5%)	06 (01.8%)	0.384
Secondary	88 (17.1%)	21 (24.7%)		55 (14.8%)	54 (23.6%)		33 (16.0%)	15 (27.3%)	61 (18.0%)	
Diploma	26 (05.0%)	02 (02.4%)		19 (05.1%)	09 (03.9%)		11 (05.3%)	03 (05.5%)	14 (04.1%)	
University	347 (67.4%)	57 (67.1%)		262 (70.6%)	142 (62.0%)		140 (68.0%)	30 (54.5%)	234 (69.0%)	
Post graduate	44 (08.5%)	02 (02.4%)		28 (07.5%)	18 (07.9%)		18 (08.7%)	04 (07.3%)	24 (07.1%)	
tion										
Employed	252 (48.9%)	28 (32.9%)	**<0.001** **	170 (45.8%)	110 (48.0%)	**0.028** **	114 (55.3%)	30 (54.5%)	136 (40.1%)	**0.003** **
Unemployed	86 (16.7%)	12 (14.1%)		51 (13.7%)	47 (20.5%)		33 (16.0%)	07 (12.7%)	58 (17.1%)	
Retired	17 (03.3%)	10 (11.8%)		15 (04.0%)	12 (05.2%)		12 (05.8%)	02 (03.6%)	13 (03.8%)	
Student	160 (31.1%)	35 (41.2%)		135 (36.4%)	60 (26.2%)		47 (22.8%)	16 (29.1%)	132 (38.9%)	
y household income										
<3,000	38 (07.4%)	09 (10.6%)	0.265	22 (05.9%)	25 (10.9%)	**<0.001** **	12 (05.8%)	06 (10.9%)	29 (08.6%)	0.622
3,000 – 5,000	65 (12.6%)	16 (18.8%)		40 (10.8%)	41 (17.9%)		30 (14.6%)	07 (12.7%)	44 (13.0%)	
5,001 – 10,000	108 (21.0%)	17 (20.0%)		68 (18.3%)	57 (24.9%)		37 (18.0%)	13 (23.6%)	191 (56.3%)	
>10,000	304 (59.0%)	43 (50.6%)		241 (65.0%)	106 (46.3%)					
of chronic diseases										
Yes	103 (20.0%)	09 (10.6%)	**0.039** **	79 (21.3%)	33 (14.4%)	**0.036** **	41 (19.9%)	16 (29.1%)	55 (16.2%)	0.065

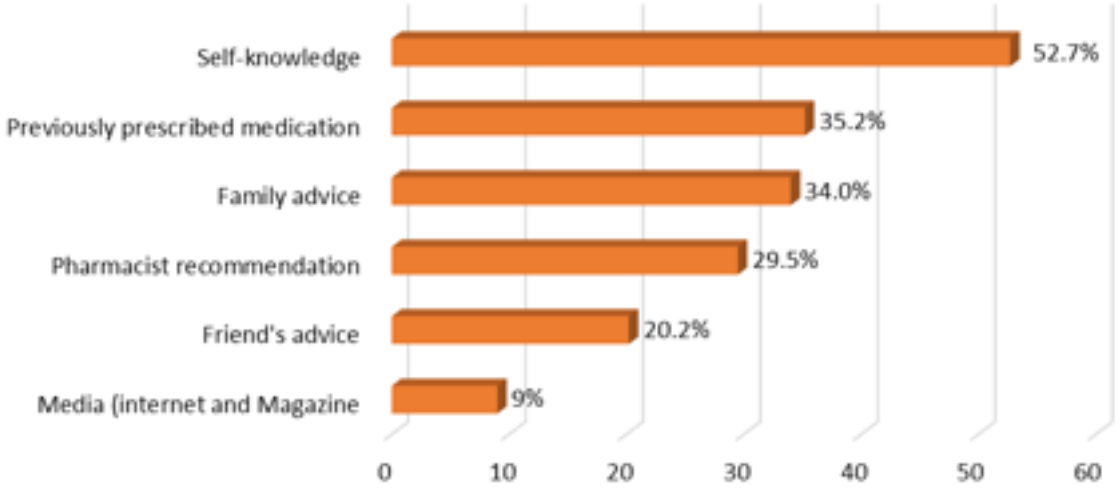
Figure 1 described the causes for taking up self-medication. The most common causes were headache (73.7%), followed by toothache (31.3%) and the least of them was abdominal pain (16%).

Figure 1: Causes for taking analgesics



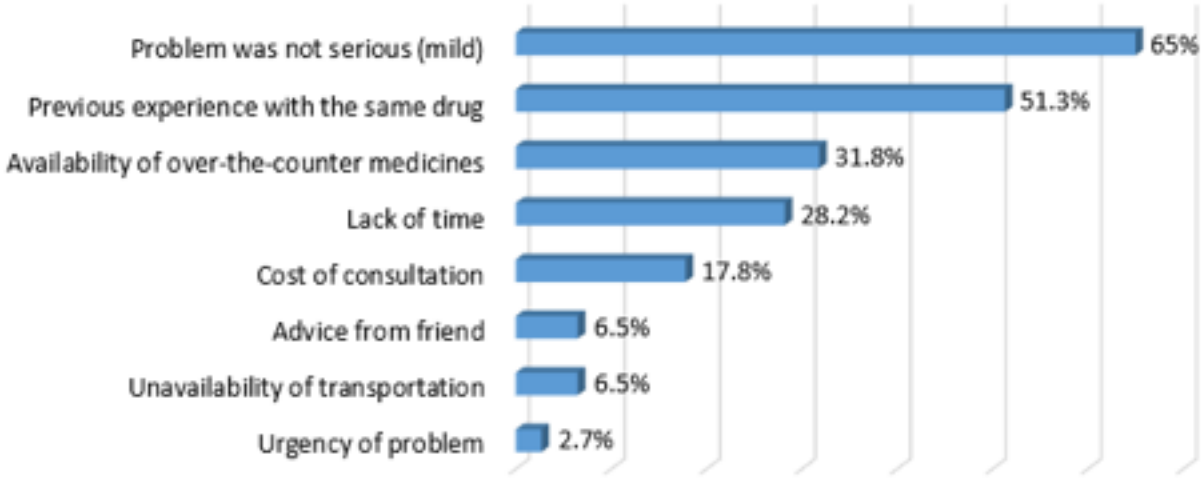
The most common sources of information were self-knowledge (82.7%) and previously prescribed medication (35.2%), media was the least (9%) (Figure 2).

Figure 2: Sources of information



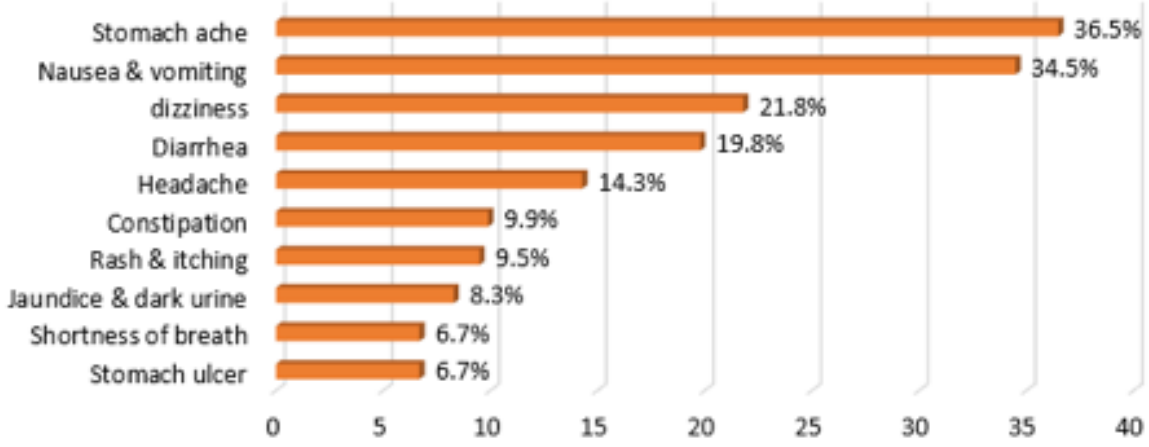
The commonest reasons for using self-medication were a problem that wasn't serious (65%), followed by previous experience with the same drug (51.3%), the least of them was urgency of problem (2.7%) (Figure 3).

Figure 3: Reason for using self-medication with analgesics



The most common side effects of self-medication with analgesics were stomachache (36.5%), followed by nausea & vomiting (34.5%), the least of them was shortness of breath and stomach ulcer (each 6.7%) (Figure 4).

Figure 4: Side effect of self-medication with analgesics



Discussion

The current study investigated the practice and awareness of the general population about common OTC analgesics dependence and their side effects. In this study, the practice of OTC analgesics for the past 6 months was high (85.8%). Several published papers documented the usage of OTC analgesics was highly prevalent among people with minor health issues [18,21]. In Saudi Arabia, OTC analgesics us-

age among medical students has a range of (55% - 77%) [22-24]. Among patients attending primary health care (PHC) center the prevalence was (84.4%)(20). In abroad the prevalence of OTC analgesics usage has a range of (45% - 65.5%) [25,26]. However, one paper showed a prevalence of OTC analgesics usage of (47%) only in a week duration [21].

In our study, (85.6%) of the participants indicated the usage of paracetamol in the past 6 months. Various articles reported paracetamol as the most common OTC analgesic being used to treat many kinds of illnesses, Babakor reported (86.1%) of patients attending PHC centers in Jeddah used paracetamol for self-medication [18]. In Jazan University (62%) of the female students used paracetamol as headache treatment [22]. In India (47.2%) of the medical students used paracetamol as self-medication [27]. In Norway they reported (40%) of paracetamol usage. The availability of paracetamol in many convenience stores helps many patients in the treatment of minor illness ignoring the risk of dependence or overuse. Moreover, ibuprofen and diclofenac were the secondary choice of the general population among OTC analgesics. The finding is concurrent from the study published by Babakor and Alghamdi as well as Shivamurthy et al [18,27]. It is mostly used for more severe pain like toothache and pain that does not respond to paracetamol.

The most common reasons for taking OTC analgesic were “the problem was not serious” and “it was previously prescribed medication.” This is consistent from the study published both local and abroad [18, 24,25,27]. In Bangladesh, the most common reason was the “remedy is known” and “high fee of doctor” [28]., which could be related to the health care system there. Albasheer reported “sufficient information” and “previous experience” were the most common reasons for students to take self-medication [26].

The most common symptoms were headache and toothache were the most common symptoms being identified by the participants in this study, which is like most of the published papers. Different papers documented headache as the most common reason for OTC analgesics usage [20, 24,25,27]. Menstrual pain was the most common symptoms being indicated by the female students in Jazan University [22]. Aashi as well as Ira reported fever as the most common reason for self-medication [23,28]. Albasheer, documented that pain management was the main reason for medical students to take self-medication like sedatives [27].

The knowledge of participants regarding the potential side effects of taking OTC an-

algesics was enough, where stomachache as well as nausea and vomiting were widely prevalent among them, this is expected by high level of educated participants. Shivamurthy, detected (61.2%) of the undergraduate medical students were aware of the side effect of analgesic self-medication [27]. Similarly, Albasheer reported that undergraduate medical students were knowledgeable about the harmful effect of self-medication(26). Babakor and Salih [18,22]., reported lack of knowledge in patients and female students about the harmful effect of OTC analgesics.

Young adult (21 – 30 years) detected to be more associated with the use of OTC analgesic. We further determined that those who were working and without history of chronic diseases were more associated with the use of analgesics self-medication. Babakor revealed those illiterate and highly educated were associated with the highest prevalence of OTC analgesic usage [18]., because they are more liable for minor work injuries or headache that may need analgesics. Ibrahim reported age group, educational year, residual status and father occupation were the significant factors of self-medication with analgesics in the past 6 months [24]. Subhashini accounted gender, locality and socio-economic status were having relation with self-medication [27].

Females, Saudis, those who were working, those who were high earners, and those without history of chronic diseases have higher knowledge of the side effects. Concerning to the awareness of dependence on OTC analgesics, females and young adult were more agreed of the potential cause of drug dependency. Those who were working were more disagreed of the potential effect of drug dependency. Females are more attractable to details especially in health, young and high earners are more likely to have technology that can assist them, and they have better access to IEC materials.

Conclusion

Even though most of the general population in this study have enough knowledge about the side effects of OTC analgesics and that it may cause dependence or addiction, however, OTC analgesics used in the general population is high. Paracetamol is the most common OTC analgesic used by the population. Headache is the most common symptoms. Stomachache and vomiting are the most common side effects. Age group, occupation, and history of chronic disease are the predictors of OTC analgesics usage.

The study recommends that, medical practitioners' effort is necessary in order to educate the general population about the

proper medication for a certain illness to allow safe use of OTC analgesics. Also, the knowledge, attitude, and practice of OTC analgesics misuse is advised to be further investigated in the future studies.

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