Original Article

Knowledge and Attitudes Regarding the Self-Use of Pain Medications in Saudi Arabia: A Cross-Sectional Study

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Abstract

Objective: The objective of the study was to examine the knowledge and attitudes of the population in the Kingdom of Saudi Arabia regarding the use of over-the-counter (OTC) analgesics. **Methods:** A prospective cross-sectional study used an electronic survey questionnaire comprising 18 questions. An electronic survey was distributed through social networking sites during the period from November 1 to November 15, 2014, followed by data analysis. **Results:** Data from 1808 questionnaires were collected and analyzed. The results showed that 61% of the participants used analgesics without prescription; 67% used analgesics only for severe pain; 72% stated that analgesics could be administered with other medications; 68% reported that analgesics had an antipyretic effect; and only 1% reported that they had an anti-inflammatory effect. Further, 80% of the participants had the habit of reading drug product information and 77% were careful about the expiry date. **Conclusions:** The general population showed inadequate knowledge and attitudes toward OTC analgesics. Therefore, more programs to increase awareness and health education among patients are needed.

Keywords: Kingdom of Saudi Arabia, knowledge, over-the-counter analgesics, self-use of pain medications

Introduction

One of the major reasons for the unnecessary use of drugs is self-medication using over-the-counter (OTC) drugs. Causes of this behavior may be associated with economic situations or social habits that force people to take medications without a physician's diagnosis.[1] Nonsteroidal anti-inflammatory drugs (NSAIDs) are among the most widely used OTC analgesic drugs.[2] These drugs are self-prescribed, even though they can induce side effects.[3,4] Nearly 20% of the patients cannot tolerate NSAIDs because of heartburn, abdominal pain, and/or diarrhea. Chronic NSAID use may cause duodenal or gastric ulcers.[5] Furthermore, unintended overdose of paracetamol could cause liver failure and poses serious side effects.[6]

Although the burden on the medical service sector has decreased because of the use of OTC analgesic medications, some problems have emerged. These problems are related to the pharmacological effects of drug misuse, adverse effects due to overdoses, and economic costs associated with drug misuse.[7] Pain medications need to be selected based on the type, cause, and severity of pain.[8] Self-medication with OTC analgesics is reported as a community health problem affecting numerous people worldwide.[3,9,10] A study conducted in central Saudi Arabia reported that 41.8% of OTC medications involved analgesics.[11]

Therefore, the public needs to have increased awareness regarding OTC analgesic medications. To establish a public awareness program, it is essential to study population knowledge and attitude regarding OTC analgesics to identify risk factors for a target audience. Thus, this study aimed to examine knowledge and attitudes among the population in Saudi Arabia regarding the use of OTC analgesics.

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Methods

Study design

This cross-sectional study was conducted to assess the knowledge and attitudes of a sample of the general population in Saudi Arabia regarding the use of OTC analgesics from November 1 to November 15, 2014. The study protocol was approved by the King Abdul-Aziz University's Hospital Ethics Committee.

Population

The sample size was calculated based on the prevalence of OTC analgesic used as mentioned by Aljadhey *et al*.,[11] using an error margin of 5%, a confidence interval of 99%, and Saudi population size of 33,582,116. Participants included males and females in Saudi Arabia aged between 18 and 60 years. Participants were invited to take part by sending each of them a link to the electronic survey questionnaire through several social networking sites.

Questionnaire

The study used an electronic questionnaire comprising 18 questions. The questionnaire was written in two versions (English and Arabic) and reviewed by a bilingual expert. The Arabic version was distributed to ten randomly selected undergraduate medical students as a pilot survey to assess the questionnaire's reliability. In addition, the questionnaire was reviewed by two pharmacologists to evaluate its reliability. The aim of the study and confidentiality were clarified in a statement at the beginning of the questionnaire, including a statement that the questionnaire is considered being a participation agreement. The participants did not receive any reward or payment for participation. The link to the questionnaire was accessible from November 1 to 15, 2014. Only completed questionnaires were included in the study. The questionnaire was composed of three parts, as shown in Table 1.

Statistical analysis

Statistical analysis of the data was performed using Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA) for Windows 23.0 software package. Data were presented as frequencies and percentages for each answer.

Results

Demographic characteristics of participants

A total of 1808 questionnaires were collected and analyzed. As shown in Table 2, most patients were females (72%). More than a third of the participants (37%) were aged between 26 and 35 years, and 72% of the participants were married. University graduates accounted for 68% of the population, whereas only four participants were noneducated. Occupations of the respondents were represented approximately equally by students, government workers, and others such as businessmen and retired workers. About 36% of the participants had an average monthly income of >10,000 Saudi Riyals, whereas only 13% had an average monthly income of <3000 Saudi Riyals.

Table 1: Main topics addressed by the study questionnaire

Part	Main questions
Part I: demographic data	Participants were asked about their (1) age, (2) sex, (3) marital status, (4) level of education, (5) field of work, and (6) monthly income. Participants were also asked if they had any chronic medical condition
Part II: knowledge regarding analgesics	Participants were asked about (1) sources of painkiller prescriptions, (2) frequently used painkillers, (3) whether painkillers harm pregnancy, (4) indications for painkiller use, (5) their adverse effects, (6) knowledge of the correct dose of painkillers, (7) appropriate age to use aspirin, and (8) time of intake of painkillers
Part III: Attitudes regarding the use of analgesics	Participants were asked about (1) symptoms requiring painkiller use without consultation, (2) severity of pain forcing painkiller use, (3) reading product information before using painkillers, and (4) knowing the expiration date of painkillers

Table 2: Demographic data of the study participants (n=1808)

Characteristics	Frequency (%)
Age (years)	
15-25	582 (32)
26-35	677 (37)
36-45	353 (20)
46-59	154 (9)
≥60	42 (2)
Gender	
Male	509 (28)
Female	1299 (72)
Marital status	
Unmarried	510 (28)
Married	1298 (72)
Education level	
Uneducated	4 (0)
Primary	23 (1)
Intermediate	83 (5)
Secondary	466 (26)
University	1232 (68)
Occupation	
Student	550 (30)
Governmental workers	661 (37)
Other	597 (33)
Average monthly income	
<3000	240 (13)
3000-5000	356 (20)
5000-10,000	568 (31)
>10,000	644 (36)

Participants' knowledge regarding the use of analgesics

As shown in Table 3, analgesics without prescriptions were used by 71% of the participants. The top three most frequently used OTC analgesics in the study population were Adol (hydrocodone–acetaminophen), fevadol (paracetamol), and ibuprofen, with a frequency of 35%, 28%, and 10%, respectively. The majority of the participants (80%) agreed that analgesics are harmful to pregnancy. When participants

Table 3: Participants' knowledge regarding the use of analgesics (*n*=1808)

Question	Frequency (%)
Source of painkillers	
Prescription	523 (29)
Recipe from a pharmacist	702 (39)
Advice from friend or relative	455 (25)
Media	80 (4)
Other	48 (3)
The most frequently used OTC painkiller	
Panadol	120 (7)
Fevadol	696 (38)
Adol	501 (28)
Lenadol	20 (1)
Tylenol	106 (6)
Ibuprofen	178 (10)
Advil	122 (7)
Sabofen	46 (3)
Voltaren	8 (0)
Aspirin	2 (0)
Solpadeine	6 (0)
Rofenac	3 (0)
Painkillers can cause harm to pregnancy	
Yes	1448 (80)
No	360 (20)
Other indications of painkillers	
Reduce the fever	1224 (68)
Help to get sleep	9 (0)
Fatigue	5 (0)
Flu symptoms	490 (27)
Anti-inflammatory	11 (1)
Blood thinner	69 (4)
Adverse effects of painkillers	
Peptic ulcer	774 (43)
Shortness of breath	339 (19)
Allergies	528 (29)
Drug-drug interactions	167 (9)
Do you know the correct dose that you need from the painkillers?	
Yes	1383 (76)
No	425 (24)
Appropriate age for a child to use aspirin (years)	
<12	184 (10)
≥12	1624 (90)
Timing of intake of painkillers	
With meals	1652 (91)
On empty stomach	156 (9)

OTC: Over the counter

were asked if they were aware of other indications of analgesics (other than pain), 68% were aware that analgesics could be used as antipyretics, and 27% were aware of the effective use of analgesics to relieve flu symptoms. Still, only 1% acknowledged the anti-inflammatory effects of analgesics. Forty-three percent of the participants knew that analgesics might cause peptic ulcers as an adverse effect. Ninety percent of the participants believed that analgesics must not be given to children aged <12 years. Only 9% of the participants believed that analgesics could be taken on an empty stomach, whereas the majority of participants (90%) were aware that analgesics must be taken with meals.

Participants' attitude regarding the use of analgesics

Data on participants' attitudes regarding the use of OTC analgesics are summarized in Table 4. When participants were asked about the symptoms for which they could take OTC analgesics without medical consultation, 50% of them stated headaches, followed by 32% who stated menstrual pain as a symptom. Sixty-seven percent of the participants used analgesics only for severe pain. Seventy-two percent of the participants stated that analgesics could be administered with other medications. Eighty percent of the participants had the habit of reading the drug product information, whereas 77% were careful about the expiry date.

Discussion

Our study results revealed a widespread self-medication with OTC analgesics among this population, with users exhibiting inadequate knowledge and attitudes regarding OTC analgesics.

The present study showed that females used OTC pain medications more frequently than males and were more knowledgeable than males, which is consistent with other studies conducted on different populations such as Norwegian[12] and American.[10] This general observation may be because pain perception in females differs from that in males, indicating that females comparatively need more painkillers.[13] Further, most OTC analgesic users were between 26 and 35 years of age, with 30% being students. Almalak *et al*.[14] reported that 48.1% of university students used OTC analgesics and found that 76% of the respondents reported receiving therapeutic doses. On the contrary, Wongrakpanich *et al*.[15] showed that OTC analgesics were used more commonly among >60-year-old individuals. However, the direct comparison between studies is difficult due to the differences in methodologies.

Thirty-eight percent of the respondents used fevadol without a prescription, 28% used Adol, 10% used ibuprofen, and a negligible number used aspirin as an OTC analgesic. Paracetamol was the most common OTC analgesic used in the Norwegian[12] and the USA[16] studies. However, these results differ from those reported by Wolf *et al*.,[17] who surveyed athletes and found that 80% of them self-administered ibuprofen, whereas paracetamol and aspirin were used by 29% and 71%, respectively. The differences in results are more likely because Wolf *et al*. conducted their research on athletes who were commonly suffering from muscle/joint pain, whereas in our study, headache was the most common cause for the use of OTC analgesics.

Seventy-one percent of our study participants used OTC analgesics without prescriptions. This prevalence is comparable to that observed in an earlier study which reported that 87.2% of medical students use analgesics without prescriptions.[18] An

Table 4: Participants' attitude regarding the use of analgesics (*n*=1808)

Question	Frequency (%)
Symptoms needing painkillers without medical consultation	
Abdominal pain	231 (13)
Headache	917 (51)
Menstrual pain	584 (32)
Allergies	48 (3)
Any symptoms	28 (2)
Severity of pain which forces the use of painkillers	
Mild	51 (3)
Moderate	538 (30)
Sever	1219 (67)
Use of painkillers concomitant with other types of medication	
Yes	1293 (72)
No	515 (28)
Read product information before using painkillers	
Yes	1439 (80)
No	369 (20)
Do you know the expiration date of the analgesic being used?	
Yes	1393 (77)
No	415 (23)

alarming finding was that three-quarters of the respondents in this study reported taking analgesics concomitant with other drugs, putting them at risk of analgesic drug–drug interactions.[19] Therefore, physicians should be encouraged to inquire their patients about the use of OTC analgesics routinely.

Individuals self-medicate by obtaining OTC medicines from pharmacies.[20] However, this may be harmful because of inaccurate or insufficient knowledge about the use, indications, adverse effects, and contraindications of some OTC drugs.[21]

Conclusions

We conclude that inadequate knowledge and attitude regarding the use of OTC analgesics are prevalent among individuals in Saudi Arabia. The US Food and Drug Administration has established an awareness program regarding the safe use of OTC analgesics.[22] The need for local awareness programs is emphasized for increasing knowledge among the public about taking analgesics based on prescriptions and discontinuing the habits of self-prescription. Thus, we believe that the findings of our study are valuable in recognizing the target audience and the health education program.

Study limitations

The main limitation in the present study was the use of an online questionnaire, which enabled a selective sample of the population to use it and excluded those who do not use computers.

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Availability of data and material

Data that support the findings are available in "figshare," http://doi.org/10.6084/m9.figshare. 5500237.

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Conflicts of interest

There are no conflicts of interest.

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