

RESEARCH ARTICLE

SELF-MEDICATION WITH ANALGESICS AMONG TECHNICAL ENGINEERING STUDENTS IN KIRKUK, IRAQ

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ABSTRACT

Self-medication with over-the-counter analgesics is a double-edged sword, with both advantages and disadvantages, and is common in developing countries. It helps patients, but it can also harm them. The aim of the current study was to estimate the prevalence of over-the-counter analgesics use among students in the department of environmental engineering and pollution technologies at the Technical College of Engineering / Kirkuk. A cross-sectional study was conducted among (50) participating students using a structured questionnaire. The questionnaire included data on self-administered analgesics use, types, symptoms, and the reasons for using these medications. The results showed that all participants used over-the-counter analgesics, with paracetamol being the most commonly used (98%), followed by ibuprofen (68%), diclofenac (34%), and finally aspirin (22%). Headache (92%) was the most common condition that prompted their use. Minor health conditions (48%) were also the most common reason for taking self-medications with analgesics. It was concluded that self-medication among students poses a significant threat to their health, as they are vulnerable to prescription drug abuse. Therefore, there is a real need to improve their awareness and education about this issue, thereby reducing potential health problems and consequences.

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INTRODUCTION

Self-medication with over-the-counter drugs is a common health problem in most developing countries (1). In general, self-medication with analgesics is defined as taking analgesics to relieve pain without consulting a doctor or without a prescription (2). Analgesics are among the most important medications used in many medical conditions and are available in various forms, such as tablets, topical preparations, and injections (3). Many people complain of headaches, muscle pain, and other daily pains that affect their quality of life and prevent them from carrying out their daily activities normally. Therefore, these people often resort to self-medication with analgesics to obtain quick relief from pain (4,5). However, using these medications recklessly and incorrectly can lead to serious side effects, especially when used repeatedly and for long periods (6). Analgesics relieve pain by inhibiting the production of prostaglandins, chemicals that cause pain and inflammation in the body (7). However, they can negatively impact kidney, liver, and digestive function and may also cause side effects such as nausea, diarrhea, headache, dizziness, drowsiness (8). In cases of

chronic and persistent pain, the true cause must be identified and appropriate treatment prescribed, rather than relying on analgesics constantly (9). Numerous in vivo studies have shown that continuous exposure to drugs and chemicals leads to the failure of vital organ functions (10-16). Non-steroidal anti-inflammatory drugs (NSAIDs) are drugs that have analgesic and antipyretic effects at normal doses and anti-inflammatory effects at higher doses. They are distinguished from other pain relievers by their non-narcotic properties, making them non-addictive (17). The most prominent members of this group of drugs are aspirin and ibuprofen, partly because they are available over-the-counter in many countries, while paracetamol is not (18). NSAIDs lack sedative or respiratory depressant effects and have a very low risk of addiction. Therefore, some NSAIDs are considered relatively safe and are available over the counter without a prescription in some countries (19). On the other hand, patients with chronic conditions such as diabetes, high blood pressure, and arthritis should consult a specialist before taking analgesics to avoid any interactions with other medications (20). Because statistical studies on self-medication with analgesics are limited and insufficient, especially in Iraq, this study was necessary. This study was designed to determine the

incidence of self-medication with analgesics among undergraduate environmental engineering and pollution technology students in Kirkuk, Iraq.

METHODS

In this cross-sectional study participated 50 undergraduate students from the Department of Environmental Engineering and Pollution Technologies at the Northern Technical University in Kirkuk, Iraq, from March 3 to April 9, 2024. A questionnaire was administered for this purpose. Participants were asked to complete the questionnaire and receive responses through face-to-face interviews. The questionnaire was divided into four parts as follows:

Part I: Basic data such as gender, age, and area of residence.

Part II: Type of analgesics drugs.

Part III: Symptoms that led to use analgesics drugs.

Part IV: Reasons for using analgesics.

Both the study protocol and questionnaire were approved by the department's administration, ensuring confidentiality through data collection from students and coding the collected data in the database. Verbal consent was obtained from all participants. Statistical analysis was conducted using SPSS, version 21 (IBM). Descriptive statistics were used to analyze participants' baseline characteristics and calculate the prevalence of analgesics use. Continuous data were presented as frequencies and percentages.

RESULTS

Table 1. Basic characteristics of the students participating in the study

Characteristics		Frequency	Percentage (%)
Gender	Females	34	68
	Males	16	32
Total		50	100%
Age	≥ 20	15	30
	< 20	35	70
Total		50	100%
Residence area	Urban	32	53
	Rural	28	27
Total		50	100%

Basic Characteristics: A total of 50 participants from the Department of Environmental Engineering and Pollution Technologies were included, (68%) of whom were females and (32%) were males. The majorities of the participants were urban residents (53%) and were over 20 years old (70%), as shown in Table (1).

Incidence of self-medication with analgesics: The incidence of non-prescription analgesics was 100%, with all participating students having used self-medication with analgesics. The most commonly used analgesic was Paracetamol (98%), followed by Ibuprofen (68%), then Diclofenac (34%), and finally Aspirin (22%), as shown in Figure (1).

Clinical Symptoms of Participants: The most common health conditions that prompted the use of analgesics were headache (92%), influenza (72%), fever (60%), cough (60%),

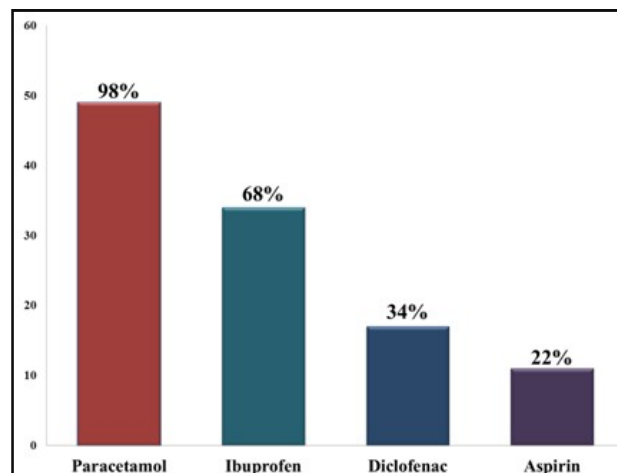


Figure 1. Non-prescription analgesics used by participating students

abdominal pain (44%), dysmenorrhea (42%), myalgia (38%), and arthralgia (18%), as shown in Figure (2).

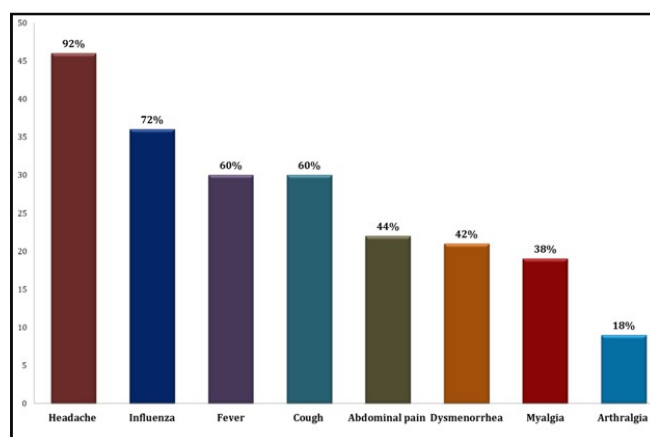


Figure 2. Clinical symptoms of students used non-prescription analgesics

Reasons for self-administered analgesics: Among students who used non-prescription analgesics, the majority (48%) claimed that they were suffering from a minor health problem that did not require consulting a physician, while (26%) of them had acquired personal knowledge (experience) about the medications they had previously used, (14%) because of the ease of treatment, and (12%) because of the lack of time, as shown in Figure (3).

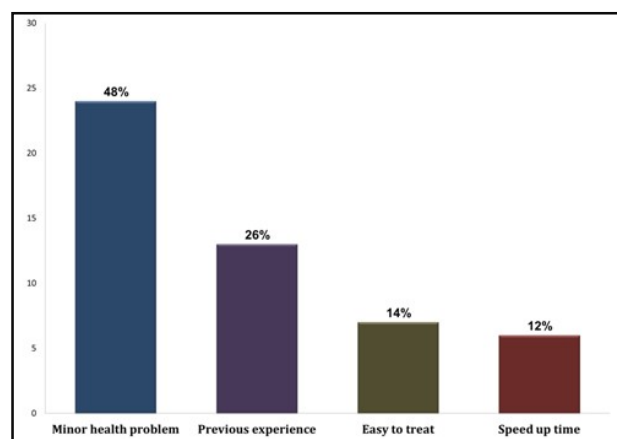


Figure 3. Reasons for the use of non-prescription analgesics by students

DISCUSSION

The results of the current study showed that all participants consumed over-the-counter analgesics, with headache being the main health condition reported by 92% of users. The prevalence and pattern of over-the-counter analgesics varies between countries due to differences in assessment methods. In Norway, the prevalence of over-the-counter analgesic use was reported at 47%, which is lower than in Arab countries (21). However, in the Netherlands and Spain, the prevalence was lower, with up to 30% of participants reporting it (22). In some Arab countries, paracetamol (Panadol) can be purchased from numerous convenience stores. Most studies in several countries have reported that paracetamol is the most frequently used over-the-counter medication. This is relevant to the results of the current study. The availability and effectiveness of over-the-counter paracetamol not only makes it the most commonly used over-the-counter analgesic, but it is also often associated with the risk of misuse or overuse, which can raise serious safety concerns (23). In a previous study, headache was reported as the primary symptom leading to self-medication among college students, similar to the findings of the current study. Self-medication of headaches, particularly migraines, has long been considered problematic, predisposing to addiction and rebound headache syndrome, as well as liver and gastrointestinal toxicity. Furthermore, the use of over-the-counter analgesics may delay appropriate care and predispose to medication interactions (24).

On the other hand, access to self-medication with analgesics, combined with a specific educational program for patients with migraines, has been shown to improve their quality of life and enhance migraine relief. These observations demonstrate that both the safety and effectiveness of analgesics are contingent upon adequate patient education and knowledge about the appropriate use of these medications (25). Similar to the findings of the current study, a previous study reported that minor symptoms and prior knowledge of the desired treatment were the primary reasons for over-the-counter medication use. All of these factors depend on consumer judgment and interpretation, and are significantly influenced by knowledge and attitude, as well as prior experience with both the condition and the medication's efficacy and safety. Furthermore, there is a strong relationship between health beliefs and the frequency of use of over-the-counter medications, as well as medication choice (26).

CONCLUSIONS AND RECOMMENDATIONS

There is an alarming prevalence of self-medication of analgesics among the participating engineering students, with paracetamol being the most commonly used medication and headache being the most common reason. Non-prescription analgesic use was more prevalent among students over 20 years of age, females, and urban residents. Minor health problems and previous medication use were the main reasons for non-prescription analgesic use among the study participants. Awareness of health risks was insufficient in the study population, so we recommend a broader investigation to determine the need for specific information to improve the risk-benefit ratio of non-prescription analgesics. Physician-patient communication regarding non-prescription medications

should also be encouraged, as it plays a significant role in patient education and appropriate use of non-prescription medications. This high rate of use is coupled with insufficient awareness of the associated health risks, raising numerous concerns about consumer safety. Further investigation into the awareness and knowledge of non-prescription analgesic users is needed to determine the need for information for specific or broader population groups.

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