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Educational awareness about analgesic prescriptive used among people in Babylon Province.

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Certificate

The project entitled: Educational awareness about analgesic prescriptive used among people in Babylon Province.

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Has been carried out under my supervision and accepted for presentation & examination.

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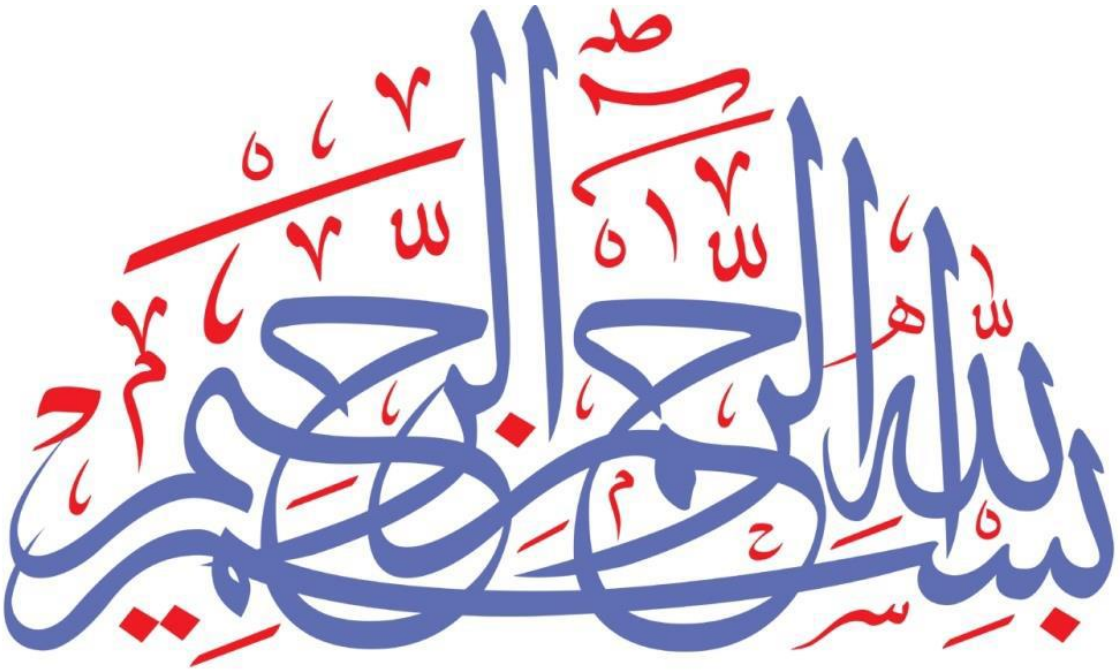

{وَإِذَا مَرِضْتُ فَهُوَ يَشْفِيْنِ}

صدقَ اللهُ العليُّ العظيم

To my parents...

To my supervisor...

To my friends...

With my love

and respect.

Acknowledgment

In the name of Allah, the Most Gracious, the Most Merciful.

First and above all, I praise **ALLAH**, the almighty for providing me this opportunity and granting the capability to proceed this project.

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Abstract

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly utilized to reduce pain, inflammation, and fever.

Despite the widespread use of nonsteroidal anti-inflammatory drugs (NSAIDs), many people lack sufficient awareness regarding their side effects and proper usage. Consequently, this study aimed to assess the knowledge, behavior, usage patterns of NSAIDs and the associations with sociodemographic factors among students and peoples enrolled in Babylon comprising people and pharmacy college students. The study was conducted in January to March 2024 using a cross-sectional design, and a convenience sampling method was employed to enroll a total of 304 students and people. The questionnaire comprised five sections, each containing approximately 2 to 5 closed-ended questions were used for data collection through Microsoft form link. The results were mainly described as frequencies and percentages.

Data were analyzed using Statistical analysis by Microsoft excel.

The percentage of respondents who admitted that NSAIDs were used for less than a week was 66% and for several times in the year was 3%. Less than half of the participants (42%) believed that NSAIDs were generally safe. Thirty-two percent of the participants were aware of the side effects of NSAIDs on the gastrointestinal system (peptic ulcers), shortness of breath (23%), allergy (20%) and (25%) of the respondent's answers for another cases.

The knowledge score increased significantly with age ($p < 0.001$), with educational level ($p < 0.001$). The college students surveyed in this study possess a general awareness of NSAIDs. Nonetheless, there remains a necessity to enhance their behavior and practices concerning the utilization of NSAIDs through the implementation of programmed educational strategies.

Key word: ANALGESIC Nonsreroidal anti-inflammatory educational strategies.

Introduction

Nonsteroidal anti-inflammatory drugs (NSAIDs) are presently regarded as one of the most widely used medications due to their antipyretic, anti-

inflammatory, and analgesic properties. These drugs are conveniently available as over-the-counter (OTC) medications[1,2]. Epidemiological research indicates that there is a significant usage of both prescribed and OTC analgesics among individuals[3]. Many young adults frequently resort to NSAIDs and paracetamol for self-therapy to alleviate diverse ailments, such as pain, fever, and inflammatory disorders. However, there is a concerning trend wherein NSAIDs are utilized in numerous instances where they are contraindicated, owing to the rising usage of analgesics[4]. Salicylic acid derivatives: Aspirin (Acetylsalicylic acid) exhibits analgesic, fever reducing, and anti-inflammatory action and it also reduces aggregation of thrombocytes. It is believed that the primary mechanism of action is the irreversible acetylation of cyclooxygenase, which results in the inability to synthesize prostaglandin, prostacyclin, and thromboxane. Aspirin is widely used in head and neuralgic pains, rheumatic conditions, painful symptoms of various etiologies and eliminating painful feelings during menstruation. It is used in conditions such as fevers, prevention and treatment of thrombosis and embolism, and for prevention of ischemic abnormalities and cerebral blood circulation[5,6].

Gastrointestinal (GI) complications in conjunction with cardiovascular, hepatic, renal, and other toxicities will continue to be reported[2]. Furthermore, several studies have shown that patients lack sufficient information and awareness about the risks that may occur due to therapy itself and how good monitoring should be applied concurrently with treatment[5,6]. According to one study, over one-third of orthopedic patients reported insufficient information regarding side effects. Additionally, more than 90% of the participants agreed that pharmacists and physicians should actively educate patients about ADRs [10]. The findings of a systematic literature search across various databases revealed a significantly low level of awareness regarding NSAIDs [11].

Recently, some studies have focused on consumption and awareness among students [4,12]. While there are no recent data available on the most commonly used over-the-counter medications, it has been reported that NSAIDs are frequently used in various populations [13]. Ibuprofen and diclofenac were the most used NSAIDs, mainly purchased without a prescription. On the other hand, the study found that selective cyclooxygenase-2 (COX-2) inhibitors were the most prescribed NSAIDs [14]. A previous study revealed a high prevalence (79.3%) of NSAID usage. Importantly, the study also reported a lack of awareness regarding the side effects of NSAIDs[15]. Furthermore, it documented a significant deficiency

in the information provided by local NSAID package inserts, including details about side effects, warnings, and contraindications [16].

No studies have been conducted in Iraq to assess medical students' awareness and attitudes toward using NSAIDs. Therefore, we surveyed to investigate the knowledge, consumption, and awareness of NSAIDs among people and pharmacy students in Babylon Province and to determine the factors that influence this knowledge. This study aims to document and identify how university students from health fields and elderly people use and misuse NSAIDs, evaluate their understanding of these medications, and evaluate their awareness of NSAIDs. Given that these students will play a crucial role in the future as healthcare providers in our society, it is important to guide them in promoting the correct use of medications. Additionally, the findings from this study will aid in developing and implementing educational strategies focused on improving medical students' knowledge about appropriate usage and potential side effects.

Methods:

Study design:

The study was cross-sectional and was conducted in January to March 2024. A questionnaire with closed-ended questions was used for data collection through Microsoft form link was posted in social media sites.

Sample size and sample technique:

In the current study, the total number of Babylon university students in pharmacy college was approximately 1000 and elderly people in social media about 400. The sample size was determined to be 304 using an electronic sample size calculator called Raosoft. Consequently, a convenience sample of 304 people and students from the pharmacy college in Babylon province were selected, comprising 134 males and 170 females.

Data collection instrument:

Data were collected by Microsoft form questions and were extensively trained to follow the data collection protocol. The questionnaire comprised a tables listing some of the commercial names of NSAIDs, analegesics currently accessible in Babylon. Participants were needed to select at least one medication they had previously consumed. The questionnaire was divided into five sections to facilitate organization, each consisting of multiple questions derived from prior research studies [4,10,17].

knowledge scale with a higher score ($p < 0.001$) indicating good knowledge. After modifying the content and design of the questionnaire. The final questionnaires were conducted in Arabic, and each participant receive a questionnaire comprised five sections, each containing approximately (2 to 5) closed-ended questions which were used for data collection.

We provided the participants through the questionnaire with explanation about the study objectives to provide accurate and correct information and confirmed that the data would not be used for purposes other than scientific research.

Statistical analysis:

Data were analyzed using Statistical analysis by Microsoft excel. The results were mainly described as frequencies and percentages.

A statistically significant p-value was assumed to be less than 0.001.

Results

The questionnaire was divided into five sections to facilitate organization, each consisting of multiple questions derived from prior research studies [4,10,17]

Results were summarized using descriptive statistics, including frequencies and percentages (%).

Section one: Demographic data

The present study was conducted among different age groups, the questionnaire comprised 304, the distribution of age was as following: between (15-30) years (68%), (31–45) years (23%) and above 45 years (9%) in various fields. Specifically, we found that most students who are using anlagesics were aged between 15 and 30 years (68%). The reason for this result might be because senior respondents are more confident to select medication for minor illness.

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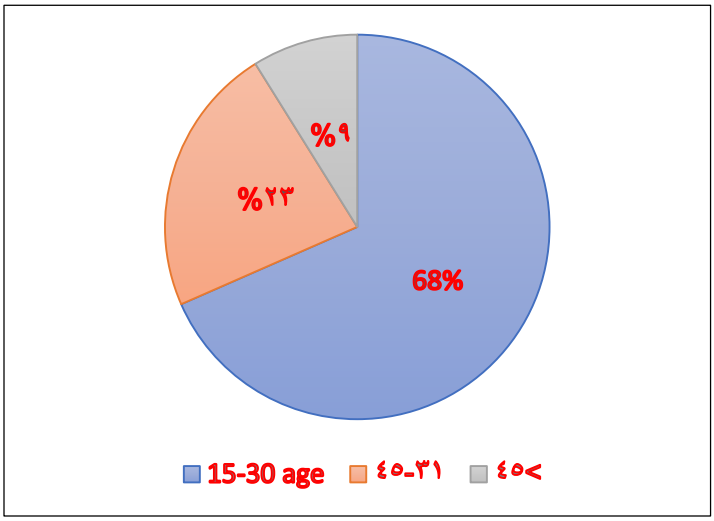

Fig.1: Pie chart representing distribution of the participants according to the age groups.

In this study, most of the respondents (62%) were students, (32%) people's employee and (6%) retired.

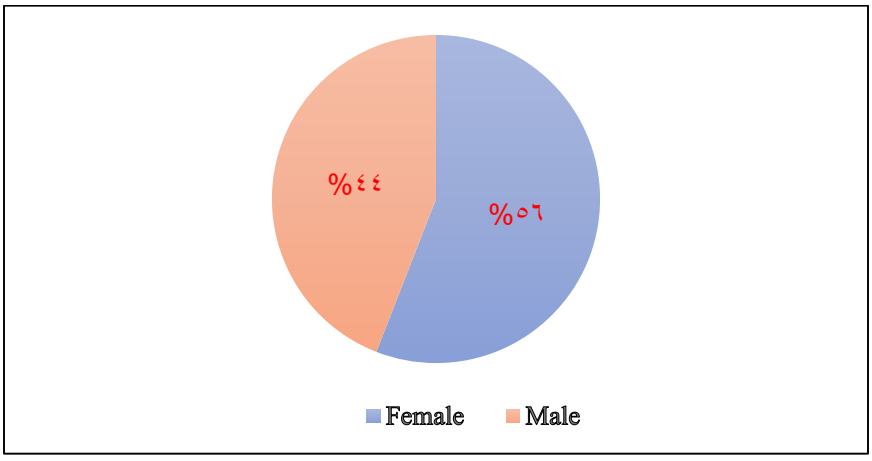

Fig. 2: Pie chart representing distribution of the participants according to the gender.

Additional demographic data educational level and Monthly income are shown in the following Tables,

Table 1: The number and percentage of participants according to the educational level.

Educational level?	The number and percentage of participants.
Studies student {Master's/PhD}	25 (8%)
University degree {university/institute}	246 (81%)
Mid School degree.	19 (6%)
Less than that	14(5%)

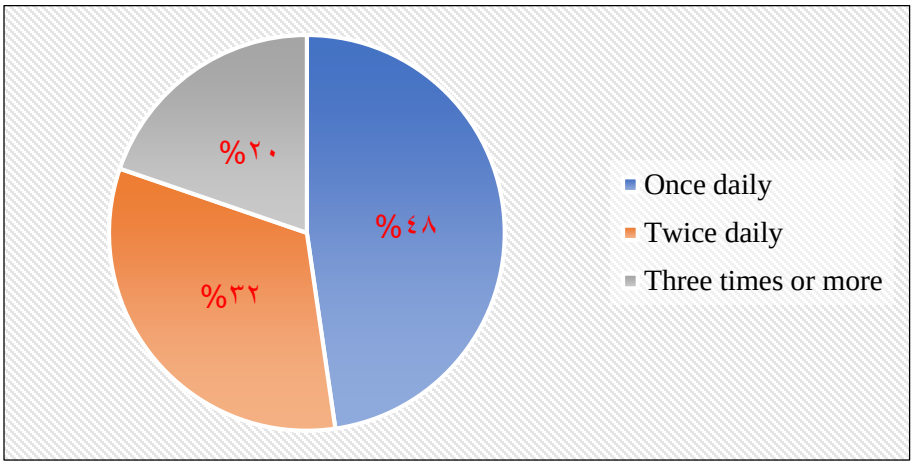

Fig. 3: Pie chart representing distribution of the participants according to the frequency of daily taking anaelgesic.

The indications for anaelgesic to be use by patients were as follows: (27%) to reduce the fever, (14%) helping to get sleep, (20%) for anti-inflammatory, (25%) for Fatigue and flu symptoms and (14%), for another stress disorder.

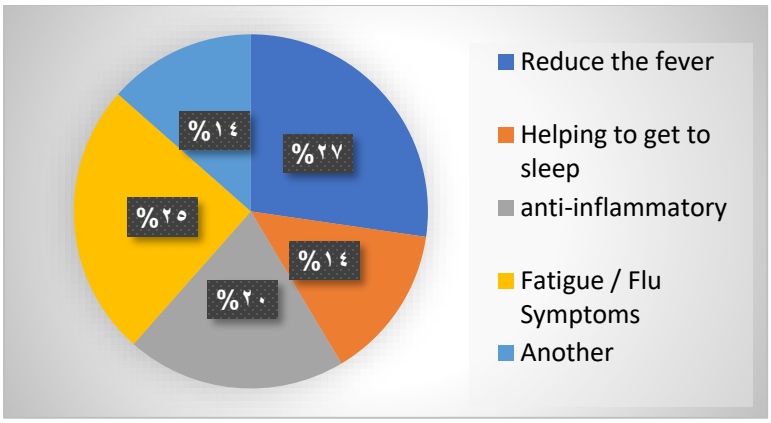

Fig. 4: Pie chart representing distribution of the participants according to the reasons for using the anaelgesic.

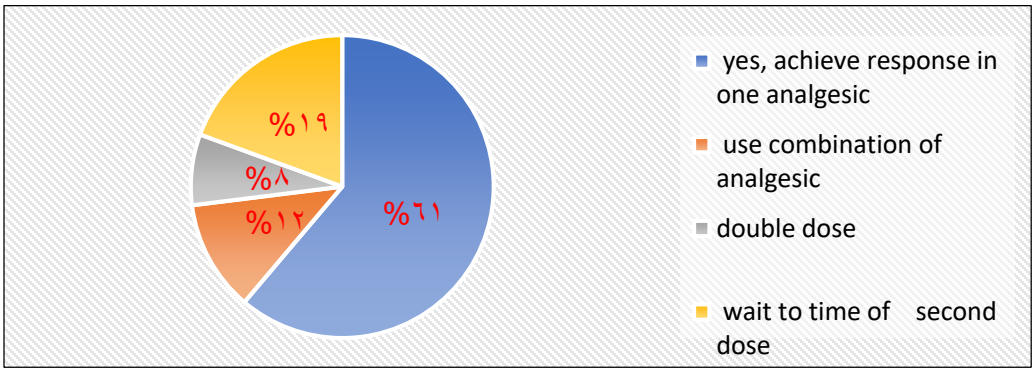

Fig. 5: Pie chart representing distribution of the participants according to the achievement of response in one analegesic or combination of with other analgesicor.

Discussion

The side effects associated with NSAIDs are deemed significant and occur alarmingly. These agents are widely known to cause gastrointestinal toxicity, including peptic ulcers. NSAID users should be aware of this side effect, especially patients who have a prior history of peptic ulcers [18]. Furthermore, they can trigger hypersensitivity reactions, manifesting as rhinosinusitis and asthma. In severe cases, these reactions can escalate to anaphylaxis. Additionally, NSAIDs, particularly selective COX-2 inhibitors, can elevate the risk of blood thrombosis through their mechanism, leading to numerous

complications that may result in myocardial infarction[4]. In the past, NSAIDs' gastrointestinal (GI) side effects posed a significant limitation to their usage. NSAIDs have been associated with various cardiovascular and renal conditions, including sodium and water retention in individuals with hypertension and acute and chronic kidney disease [19]. Although these agents can cause various side effects when used regularly and in patients with comorbidities, their effectiveness and the advertising efforts of pharmaceutical companies contribute to their high popularity among the public[12].

In addition, little data on the level of knowledge, attitudes, and characteristics of the population that uses them, especially younger individuals, are available [9]. Therefore, in this study, our objective was to evaluate the knowledge of pharmacy college students who are expected to be the most educated about NSAIDs and to assess their behavior around their use and misuse, which is essential to developing and targeting a suitable educational intervention. In this context, it is worth noting that pharmacy students and medicine students achieved the highest knowledge scores [21]. In Iraq, the prescription of NSAIDs should be monitored, and a strict policy should be followed, as healthcare workers, such as physiotherapists and nurses, sometimes prescribe these medications.

In the present analysis, the percentage of participants who had previously used NSAIDs was as high as 92% (fig.8), most of them (62%) were students (fig.2). A previous study conducted among university students reported that 98.8% emphasized their active utilization of OTC medications, including NSAIDs and paracetamol [4]. Likewise, a study indicated that 94% of Irish student-athletes had previously utilized NSAIDs [12]. However, the prevalence of NSAID use among Jordanian university students showed that 31.3% used NSAIDs, while 46.5% did not, and 22.2% did not know if they used NSAIDs or not [22]. Moreover, the utilization rate of NSAIDs among Polish medical students was recorded at 77%[23] and 68% among Iranian university students [20]. Our research observed a total of 66% of respondents emphasized their Less than a week use of NSAIDs, 20% for a month, 6% for three months. 5% for more than three months and a low percentage (3%) reported for use as annually (fig.20), and that the frequency of NSAID usage, either once daily was (48%), twice daily was (32%) and three times or more a day was (20%) (fig.9). Compared to the Jordanian population, the majority of users (81%) took NSAIDs once a month or less, while 10.5% used them

weekly, 4.6% used them two to three times a week, and 3.7% used them daily [25].

The same previous study results also indicated that 36.0% of the students consistently read the information provided in the leaflet, and only 4.0% read it when using a new medication [4], While, in our study (73%) of participants read the product information before use (fig.26).

Importantly, 13.9% of Irish college athletes exceeded the recommended daily dose, particularly when using NSAIDs as over-the-counter drugs. Furthermore, 6.6% and 12.5% of the participants used NSAIDs for more than 14 and 10 days, respectively [12]. Additionally, previous research revealed that more than 50% of the participants were unaware of the potential side effects[12].

Regarding attitudes toward receiving information about NSAID side effects, most participants expressed the significance of knowing NSAIDs, (69%) knew the right dose (fig.25), (62%) knew the expired date of product (fig.22), the period allowed to continue taking anaelgesic (fig.20), how to take the medicine (fig. 11), the symptoms that require an analgesic without medical consultation (fig. 23), the most anaelgesic that commonly used over-the-counter (fig. 24), the use of an analgesic in conjunction with other medicines (fig. 14), the achievement of response in one analgesic or combine with other analgesicor double dose or wait for the time of second dose (fig. 15) and aware of the side effects of NSAIDs on the gastrointestinal system (32%), short of breath (23%) and allergy (20%) (fig. 27). This aligns with a study conducted in patients in Thailand that aimed to assess attitudes toward receiving information about NSAIDs. In that study, a significant proportion agreed that they should be aware of the potential side effects and indicated a preference for receiving information about their initial prescription through leaflets. Also, acknowledged the crucial role of doctors and pharmacists in delivering information regarding side effects[9].

Conclusions

This study shows high prevalence of self-medication of analgesics. Panadol, Ibuprofen, voltarin and NSAIDS were the most frequently used medications, particularly to treat headaches, colds, cramps, anti-inflammatory and fever.

Iraqi health college students at Babylon university generally possess a good understanding of NSAIDs. However, there remains a need to enhance their knowledge and behavior regarding the use of NSAIDs. Moreover, the highest level of knowledge was observed among pharmacy students.
knowledge scale with a higher score ($P< 0.001$) indicating good knowledge.

It is crucial to note that many patients acquire NSAIDs from pharmacies, underscoring the pivotal role of pharmacists in delivering accurate, specific, and understandable information to patients. This finding emphasizes the importance of pharmacists being highly qualified and well informed. Despite the widespread use of NSAIDs among medical college students and populations in Babylon province, increasing their awareness regarding the appropriate utilization of these medications considering their significance within our society is imperative.

More studies are required to estimate the prevalence of self-medication among populations in other cities and to explore the various factors affecting self-medication such as awareness and knowledge about of advantages and disadvantages of self-medication among health sciences students and populations.

We recommend the distribution of educational brochures related to NSAIDs in hospitals and medical colleges at the university, along with organizing lectures on this subject. These educational strategies should primarily focus on the appropriate use of NSAIDs through a prescription from physicians or pharmacists (as over-the-counter) and include information about the risk of using self-medication without appropriate consultation.

Recommendations:

The administration of Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) requires healthcare professionals to adhere to specific guidelines to ensure their safe and effective use. These guidelines include:

1. Conducting a thorough medical evaluation to determine the necessity and dosage of NSAIDs, selecting the most appropriate NSAID based on the patient's condition and history.

2. Instructing patients on the correct dosage and treatment duration, educating them about potential side effects and when to seek medical attention.
3. Considering special precautions for patients with pre-existing conditions and discussing alternative treatments if NSAIDs are not suitable.
4. Following these recommendations helps ensure the responsible use of NSAIDs.

Abbreviations

NSAIDs: Nonsteroidal anti-inflammatory drugs
OTC: Over-the-counter
COX-2: Cyclooxygenase-2
GI: Gastrointestinal.

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