



Anti-Inflammatory Drugs and Usage of Them among Saudi Population: Knowledge and Attitude Assessment

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Authors' contributions

This work was carried out in collaboration among all authors. All authors read and approved the final manuscript.

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ABSTRACT

Aims: To measure knowledge and attitude among the Saudi population about non-steroidal inflammatory drugs.

Study Design: This is an observational cross-sectional study.

Place and Duration of Study: Conducted in the north region of Saudi Arabia between June 2020 and July 2021.

Methodology: The data collection done by using an electronic questionnaire. Total sample size of 1018 participants, aged between 15-60, Female and Male, agree to participate. Each person

meeting the inclusion criteria was provided informed consent, explaining the study aim, and ensuring the confidentiality of information. Data were obtained by filling out the designed Questionnaire.

Results: A total of 1018 participants completed the survey questionnaire. About 81% of the study participants stated that they have a history of analgesic use without physician prescription in the past six months. More than 30% of participants stated that the pharmacist is the frequent source of recommendation about medication. The most common indication for the participants to use analgesia was headache followed by insomnia.

Conclusion: The awareness and attitude of the participants to NSAIDs' usage and its complications was not that adequate. Paracetamol was the most usually used analgesic. It must to teach and strengthen the awareness among citizens about the proper method to use NSAIDs.

Keywords: Awareness; antipyretic; side effect.

ABBREVIATION

NSAIDs : *Non-Steroidal Anti-Inflammatory drugs.*

1. INTRODUCTION

Non-Steroidal Anti-Inflammatory drugs known as (NSAIDs) are commonly used as anti-inflammatory and analgesic agents around the world, also some NSAIDs are used to relieve the fever as antipyretic [1]. Clinically, they are useful in reducing pain and inflammation in many conditions, As a case of arthritis, headache, abdominal cramps, dental pain, muscle aches, and stiffness as analgesic agents [2]. Over the past three decades, the prescription rate and use of NSAIDs have been on the ascent in developed and developing countries. However, NSAIDs have many adverse effects on totally different body systems with the gastrointestinal being the most significant of them especially in high-risk patients for the development of ADEs. One of the most important ways to prevent many serious complications is to increase knowledge and awareness about the factors that cause gastrointestinal injuries. As in the case of Barrett's esophagus and gastrointestinal bleeding, obstruction, and perforation [3]. A study was Conducted in the USA showed that NSAID prescription represents 70,000,000 in 2001 [4]. In 2010 USA civilians dissipate about 29 million NSAIDs disclosed by A National Health Interview Survey was conducted among the U.S. the high consumption of NSAIDs cause complications to other organs like kidney problems, gastrointestinal injury, liver function failure, intracerebral hemorrhage [5]. A study in Saudi Arabia has assessed student's attitude and awareness toward the use of OTC in the examination. The sample size was 1,596 of the student, 829 were college students, and 767

were high school [6]. Another study, Koffeman et al., published on the high-risk use of over-the-counter nonsteroidal anti-inflammatory drugs in the Rotterdam region of the Netherlands since 2014. It has been reported that nearly one-third of the general population uses OTC NSAIDs. One in every eight high-risk patients used an over-the-counter NSAID. Continued efforts by health officials and healthcare professionals to educate patients about the risks of these drugs are required [7]. According to recent research in Saudi Arabia, future research should evaluate the same issue with a more diverse sample of multiple populations and more anti-inflammatory or anti-antipyretic medication. Furthermore, future research should concentrate on all Saudi university education facilities [8]. An observational cross-sectional study established in 2019 in Saudi Arabia. The study concluded that counseling of patients may diminish potentially inappropriate use and increase risk awareness. Healthcare providers can improve their role in identifying and counseling patients on NSAIDs [5]. A lot of people in Saudi Arabia are not able to identify what are the risk factor, complication, and contraindication of these drugs especially on those who did not receive sufficient education. The main objective of this study was to measure knowledge and attitude among the Saudi population about non-steroidal inflammatory drugs and how to use them.

2. MATERIALS AND METHODS

2.1 Study Design

This cross-sectional, survey-based study was conducted among Among Saudi Population in north Province, Saudi Arabia from January to December 2020. The study's population consisted of Male and Females age between 15-60. Inclusion criteria are as follows: patients aged

15 to 60 years old, female and male, willing to participate, Saudi nationals from the northern region of Saudi Arabia. Participants who were younger than 15 years old or older than 60 years old, refused to participate, lived outside of Saudi Arabia's northern region, or were not Saudi were all excluded from the study.

2.2 Data Collection

The data was collected using an Arabic-language validated structured questionnaire. After consulting relevant studies conducted in Saudi Arabia's northern border, closed ended questionnaire consisted of 21 questions divided into four sections. The first section contained demographic data such as age, gender, and Nationality. Questions about socioeconomic background make up the second section. The third section included questions about the use of NSAIDs in the past and current attitudes, while the fourth section included questions about NSAIDs side effects knowledge. Questionnaires were distributed to populations by a researcher in pharmacy's, hospitals and shopping centers. The data were analyzed by descriptive test to know the percentages of level of knowledge, attitude of NSAIDs. The response rate of our study was 78%, survey is distributed to 1305 people and 1018 of them complete it.

2.3 Statistical Analyses and sample Size Calculation

Data were represented in the form of frequencies (number of responders) and valid percentages for categorical variables. Mean (SD) and frequency and percentage were calculated. All P values < 0.05 were considered statistically significant. IBM SPSS (Statistical Package for the Social Science; IBM Corp, Armonk, NY, USA) was used to perform all statistical calculations, version 23 for Microsoft Windows. Considering a population of 30000,000 persons, with a confidence level of 95% and a 0.5% margin of error, this gave an estimated minimum sample size of 384. A total of 1018 eligible participants responded to the questionnaire included in the statistical analysis.

3. RESULTS AND DISCUSSION

Data was collected during the period from January to December, 2020. A total of 1018 participants completed the survey questionnaire. The results showed that the average of study participant's age is 26.67 years. Moreover, more

than half of the study participants (n=653;64.1%) were females, while (n=365;35.9%) were males. In terms of nationality, the majority of the participants were Saudi in origin. The results also indicated that 41.4% of them reside in Hail city followed by 24.6% of them live in Tabuk. However, the least proportion of participants allocated in Jouf and Tarif. It seems that one third of study participants attained university level of education or higher compared to one third who obtained secondary level of education or less. Moreover, half of study participants were unemployed. Also, 38.2% of them were employed and the least proportion was retired. Table 1 presents the socio demographic characteristics of the study participants.

Regards the study participants history of use analgesia, the result of survey showed that 81.1% used analgesia without physician prescription in the past six months. However, around 39% used two doses of medication daily or less in the last six months. The study participants reported that the main cause to use analgesia was headache (46.4%) followed by insomnia (17.1%). In addition, 11.4% used analgesia to encounter menstrual related pain. However, the least number of participants utilized analgesia to handle fever or toothache. Similarly, 17.8% of study subjects had chronic illness and only 37% of them relied on information manual to obtain information related to analgesia compared to 63% who did not read the information manual as illustrated in Table 2.

The results of study participants revealed that the majority of study participants believed analgesia could yield side effect (77.8%) compared to 22.2% thought there is no adverse effect of taking analgesia. Hepatotoxicity and nephrotoxicity were most frequent side effect reported among study participants followed by skin rash and cardiotoxicity. Additionally, 36.1% stated the pharmacist is the main source of information about medication. Another common source of information is from media and family compared to the less common source of information was friend or self-knowledge. Interestingly, 75.6% of study participants did not experience any side effect as a result of using analgesia. Table 3 summarizes study participants knowledge about the analgesia side effect.

3.1 Discussion

The extent of NSAIDs use across the world and the critical unfavorable outcomes associated with

their use is the cause of NSAIDs serious problems [9]. To the best of the authors' knowledge, this is the first research study to investigate the knowledge and awareness about non-steroidal inflammatory drugs and how to use them in the north region of Saudi Arabia. The findings of our study revealed that 81.1% used analgesia without physician prescription in the past six months. In line with our study, a study conducted among Thai population showed that most of their participants (69.6%) used NSAIDs regularly or usually [10]. In 2018, research has

been conducted on analgesics use among the Saudi population on 504 participants. Paracetamol was the common analgesics used as OTC (73.4%) then Ibuprofen (13.1%) [11]. Our results also support their finding as Paracetamol was cited as the most frequent analgesic medication (77.1%) compared to 23.6% administered Brufen. Contrary, only 8.6% of participants used Voltaren medicine this maybe because community difference. However, about 70% of the overall use of NSAIDs in Jordan was diclofenac [12].

Table 1. Sociodemographic characteristics of study participants (n = 1018)

Characteristics	(Mean ± SD)	
Age	26.67	
Gender	Frequency	Percentage
Male	365	35.9%
Female	653	64.1%
Nationality		
Saudi	991	97.3%
Non-Saudi	27	2.7%
City		
Arar	133	13.1%
Rafha	130	12.8%
Tarif	31	3.0%
Qurayyat	38	3.7%
Tabuk	250	24.6%
Jouf	15	1.5%
Hail	421	41.4%
Educational Level		
Primary	18	1.8%
Intermediate	31	3.0%
Secondary	253	24.9%
University	671	65.9%
Postgraduate	45	4.4%
Employment status		
Employed	391	38.2%
Not employed	492	48.3%
Retired	135	13.2%

Table 2. History of use analgesics

History of use analgesia	Frequency	Percentage
Do you used any analgesics over the counter during the past six months?		
a. Yes	826	81.1%
b. No	192	18.9%
How many times have you used analgesics over the counter during the past six months?		
a. Once	231	22.7%
b. Twice	171	16.8%
c. Three times	288	28.3%
d. More than three times	212	20.8%

History of use analgesia	Frequency	Percentage
e. I do not remember	116	11.4%
How long do you use analgesics over the counter?		
a. From a week ago	277	27.2%
b. Week	397	38.9%
c. More than one week	344	33.7%
What is the health problem that lead you to use analgesics over the counter?		
a. Headache	472	46.4%
b. Fever	66	6.5%
c. Pain in the bones and joints	0	0
d. Cold	87	8.5%
e. Toothache	54	5.3%
f. Menstrual pain	116	11.4%
g. Insomnia	174	17.1%
Do you have any chronic diseases?		
a. Yes	181	17.8%
b. No	837	82.8%
Have you read the manual accompanying medicine before use?		
a. Yes	377	37%
b. No	641	63%
What prompted you to use analgesics over the counter?		
a. The health problem was simple	444	43.6%
b. Lack of transportation to visit the doctor	39	3.8%
c. There is no time to visit the doctor	138	13.5%
d. Advice from a friend	101	9.9%
e. The high cost of a doctor's examination	48	4.7%
f. Easy availability of the drug without a prescription	180	17.6%
g. Previous experience with the same medicine	68	6.6%
What type of analgesics have you used during the past six months?		
a. Paracetamol (Panadol)	785	77.1%
b. Ibuprofen (Brufen)	239	23.5%
c. Diclofenac (Voltaren)	88	8.6%

Table 3. Patient's knowledge of the side effects of analgesics

History of use analgesia	Frequency	Percentage
Do you think that over-the-counter analgesics may cause side effects?		
a. Yes	792	77.8%
b. No	226	22.2%
What are the side effects that you think could happen after excessive use of analgesics without prescription?		
a. Hepatotoxicity	348	34.2%
b. Nephrotoxicity	301	29.6%
c. Gastrointestinal irritation and bleeding	92	9.0%
d. Skin rash	151	14.8%
e. Cardio toxicity	126	12.3%
What are your sources of information about these side effects of over-the-counter analgesics?		
a. Family	188	18.5%

History of use analgesia	Frequency	Percentage
b. Friends	114	11.2%
c. Pharmacist warnings	368	36.1%
d. self-knowledge	153	15.0%
e. From the media (television, magazines, the Internet)	195	19.2%

Have you ever had any side effects from using over-the-counter analgesics?		
a. Yes	159	15.6%
b. No	770	75.6%
c. Not sure	89	8.7%

What side effects did you suffer from?		
a. Nausea, vomiting	144	14.1%
b. Diarrhea	107	10.5%
c. constipation	53	5.2%
d. stomach pain	148	14.5%
e. stomach ulcers	34	3.3%
f. Difficulty breathing	23	2.3%
g. Itching, rash	37	3.6%
h. Headache	894	9.2%
i. Dizziness.	85	8.3%
j. Jaundice or discoloration of urine Other	44	4.3%

What did you do when these symptoms occurred?		
a. Call the doctor	229	22.5%
b. Keep taking the medicine	189	18.6%
c. Reduce the dose	73	7.2%
d. Stop taking the medicine	127	12.3%
e. Stop taking the drug and replace it with another type	40	3.9%
f. Continue to take the medicine and treat the symptoms with another drug	360	35.3%

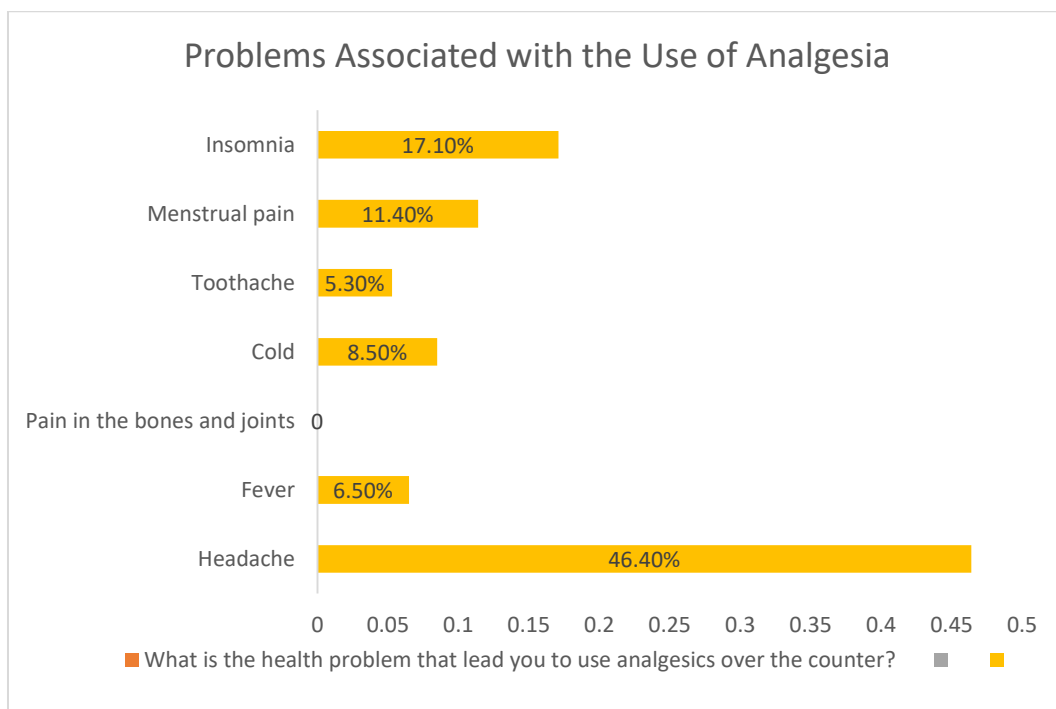


Fig. 1. Problems associated with the use of analgesia

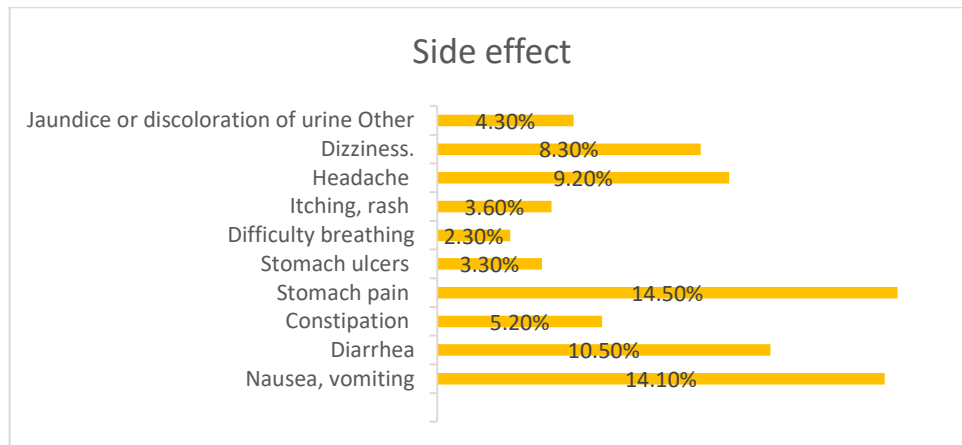


Fig. 2. Frequency of NSAIDs side effect

In our study, findings demonstrated that around 39% used two doses of medication daily or less in the last six months. However, a study by Karami et al reported that almost 94.4% of participants use from one to two tablets of analgesics per day and more than half (60.7%) believed that analgesics must be taken after meals [11]. In our study headache (46.4%) followed by insomnia were the main cause to use analgesia among the participants. Such findings were in line with Porteous et al, highlighting the most common reason for OTC use of NSAIDs was headache (59%) [13].

In another study undertaken in the United States Wilcox et al reported that musculoskeletal pain was the most common reason for OTC use of NSAIDs, and 73% of the users consumed them as needed [14].

The most common side effects reported by study participants in the current study were hepatotoxicity and nephrotoxicity, followed by skin rash and cardiotoxicity. However, the most commonly reported side effects were gastrointestinal irritation and bleeding. According to Asiri et al, the most common complication reported by participants due to NSAID use was heartburn (46.6%), followed by peptic ulcer disease (PUD) (45.2 %) [3]. It is obvious that patient instruction aids in improving the proper use of medicines, which may direct to successful therapeutic results and medication adherence. In the present study, more than 30% declared the pharmacist is the main source of recommendation about medication.

In another related study, more than half of all the participants gained NSAID information use either

by physicians or pharmacists. However, less than 35% of the purchasers had been informed by the physicians or pharmacists about drug interactions, adverse effects and proper use of NSAIDs [14]. Similarly, more than thirty percent of participants took their information about NSAIDs from physicians and twenty percent were from pharmacists. Showing that they have an excellent understanding of the reasonable use of NSAIDs [15].

Our study has a few limitations, the location of the study which is north region, we cannot generalize our findings. We recommend future research to replicate our methodology with little improvements including performing interviews instead of self-administered questionnaires.

4. CONCLUSION

The use of NSAIDs' in north region of Saudi Arabia among the general population is considered as high. The knowledge of the Saudi population about the use of NSAIDs was considered satisfactory in well-educated individuals. However, awareness campaigns are required in order to improve the knowledge of the whole population about the dangers of unnecessary use of NSAIDs. In addition, future studies with larger sample size and a larger set of questions are mandatory to explore the exact awareness.

Level of the population about the use of NSAIDs'. The Knowledge and Attitude related to NSAIDs' usage and its complications was not that adequate. Paracetamol was the most commonly used analgesic. The majority of the study population (80%) used analgesia without a physician prescription.

DISCLAIMER

The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

CONSENT

All authors declare that 'written informed consent was obtained from the patient (or other approved parties) for publication of this case report and accompanying images'.

ETHICAL APPROVAL

The present study was approved by the regional bioethical committee. Investigators were ascertained sufficient protections to respect and safeguard the privacy of the research subjects throughout the study procedures. Ethical approval was obtained from Research Ethics Committee at Taif, Saudi Arabia.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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