

# Knowledge and attitude of analgesics use among Saudi population: A cross-sectional study

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## ABSTRACT

**Background:** Most of the peoples in Saudi Arabia can easy take medication without a prescription like over-the-counter (OTC) analgesics such as paracetamol ibuprofen and aspirin. Low knowledge about the accurate use of nonsteroidal anti-inflammatory drugs medication may develop a toxicity and dangers adverse effect if they take an inaccurate dose or if they do not understand the right way for the medicine used. **Objectives:** This study was performed to evaluate knowledge and attitude of analgesics use among Saudi population. **Materials and Methods:** This cross-sectional study was conducted in Saudi Arabia by sending electronic questionnaire among the population from February 2017 to March 2017. The questions were in the Arabic language because most people in Saudi speak and understand the Arabic language. The questionnaire divided into three sections contains 11 questions about demographics of respondents, knowledge, attitude, side effect, and source of information. For data analysis, SPSS version 18.00 was used. **Results:** Total patient answer 504 were accepted mostly were a female response (69%) and male response were 31%. Most of the answers were from Makkah (20%), Hail (18.5%), and Al Qatif (15.3%). Paracetamol was the common analgesics used as OTC (73.4%) then Ibuprofen (13.1%). Almost 94.4% of participants use from one to two tablets of analgesics per day. More than half (60.7%) believed that analgesics must be taken after meals. There was a significant relationship between time of taking analgesics and source of information ( $P = 0.003$ ). **Conclusion:** People use analgesic drugs for many reasons such as a headache, fever, and toothache. Paracetamol was the most analgesic used to relieve the pain of Saudi population. The pharmacist has a very important role in passing the information about analgesics use for patients.


**KEY WORDS:** Over-the-counter; Nonsteroidal Anti-inflammatory Drugs; Analgesic; Pharmacist; Saudi

## INTRODUCTION

Use of analgesics has been increasingly recognized as a major public health issue with important consequences.

The frequency of analgesic use has greatly increased over the past three decades in both developed and developing countries.<sup>[1]</sup>

In previous studies performed in the UK and Australia, around one-quarter of all over-the-counter (OTC) analgesic users were found to do so at a dosage exceeding the maximum dose, and one-third of OTC nonsteroidal anti-inflammatory drugs (NSAID) users had a warning or contraindication for the use of these drugs or used concurrent interacting medication.<sup>[2]</sup> Similarly, among the developing countries like Turkey, the studies have shown the high rates of irrational use

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of prescribed and non-prescribed analgesics. Analgesics are the most frequently consumed products in treatment groups.<sup>[1]</sup>

According to the SFDA, the following analgesics are available as OTC on the Saudi market: Paracetamol, aspirin, ibuprofen, naproxen, and diclofenac.<sup>[3]</sup>

Paracetamol, acetaminophen or acetyl-para-aminophenol, is used primarily as a non-opioid analgesic and antipyretic medication. It is distributed through the OTC sale and prescription medication when compounding with other ingredients.<sup>[4]</sup> It is available in many product and dosage forms whether (orally injections, etc.).<sup>[2]</sup> There are little side effects for healthy adults taking regular doses of up to 4000 mg (e.g., gastrointestinal upset) but there is some administration cautions especially in cases of liver diseases, hypersensitivity to acetaminophen, severe renal impairment, I.V administration, chronic high dose and risk of hepatotoxicity is higher in alcoholism.<sup>[5,6]</sup> Due to paracetamol present in many OTC drugs and checking of drugs labels is significant necessity to ensure that total daily dose of paracetamol from different products does not encroach maximum daily dose.<sup>[6]</sup>

NSAID is used to treat pain and reduce inflammation. It is used to treat headaches, muscle aches, dental pain, menstrual cramps, arthritis, or athletic injuries. Some NSAIDs are also used to reduce fever.<sup>[7]</sup>

The improper or irrational use of analgesics lead to increased morbidity and mortality rates and deterioration of the quality of life, also it can give rise to misusing of healthcare resources and increasing of healthcare costs.<sup>[1]</sup> However, to the best of our knowledge little studies were examined or conducted regarding analgesics awareness among the public in the Middle East and Saudi Arabia. Hence, such study is needed. The objectives of the current study were to determine and explore the awareness of analgesic use among Saudi population.

## MATERIALS AND METHODS

A cross-sectional survey study was conducted using electronic questionnaire sand among the population in Saudi Arabia from February 2017 up to March 2017.

### Ethics Approval

The ethics approval was obtained from the Human Research Ethics Committee, Al Noor Hospital, Makkah, Saudi Arabia (Reference no.32838).

### Questionnaire Design

A website search was performed on Medline and PubMed and previous studies were reviewed to design the electronic questionnaire.<sup>[8-12]</sup> The questionnaire was prepared in the

Arabic language because most of the Saudi people speak Arabic. The validity of questionnaire content was performed by two doctors in Al Noor hospital.

The final version of the questionnaire was divided into three sections consist of 11 questions. The section one collected data about demographics of respondents including gender, age, city, and education. Section two evaluated the attitude of respondents toward analgesics and NSAIDs use including the type of analgesics, rate of use, number of tablets per day and time of taking analgesics. Section three consisted of three questions reason to take analgesics, side effect, and source of information about the user. Respondents could be choosing from the given choices or add any additional answers.

### Sampling and Data Collection

The survey was sent only to Saudi Arabia, its located in Asia continent and consist of 12 governorates with a population density of 45/km<sup>2</sup>.<sup>[13]</sup>

Since no up-to-date list of community pharmacies was available to authors, a 4-step sampling approach was used for this study to ensure generalizability and minimize selection bias. First, two most populous governorates (Makkah Al-Mukarramah and Jeddah) covering more than 70% of the total provincial population were selected. Second, each of these governorates was divided into four zones (South, North, East, and West). Third, a list of districts within each of these eight zones (2 governorates × 4 zones) was compiled, and six districts from each zone were randomly selected using random numbers. Finally, community pharmacies were selected conveniently within each of the six randomly selected districts.

Gathering data were done by pharmacists they send the electronic questionnaire through Google drive.

### Statistical Analysis

Data were analyzed using Statistical Package for the Social Sciences software (SPSS version 18.0). Descriptive data were presented in frequencies and percentages. Chi-square test was used to detect the association between demographic, side effect, and source of information about the analgesic use ( $P < 0.05$  was considered statistically significant).

## RESULTS

### Demographic and Characteristics of Respondents

Total of respondents were 513 we excluded 9 of respondents' due to their inappropriate answers, these excluded because of the take analgesic by prescription of the healthcare professional for the long-term because they have a medical issue. Total of 504 complete the questionnaire appropriately

and more than half of respondents was female (69%) and (31%) were male. Most of them were from Makkah (20%), Hail (18.5%), and Al Qatif (15.3%). More than two-third of respondents have a bachelor degree education (76.4%). The demographic and characteristics more detailed in Table 1.

### Knowledge and Attitude toward Analgesics Use

Many respondents use paracetamol as OTC analgesic (73.4%) and (13.1%) use Ibuprofen. More than two-thirds (77.2%) used the analgesic only as needed. Almost 94.4% of participants use from one to two tablets of analgesics per day. More than half (60.7%) believed that analgesics must be taken after meals [Table 2].

### Reason to take, Side Effect and Source of Information about Analgesic Use

The most common reasons for taking analgesics were a headache, fever, period, and toothache, (61.3%), (33.3%), (26.4%), and (26.0%), respectively. Around (84.7%) of respondents did not face any side effect after taking analgesics, but (7.3%) of them had stomach burn, (3.8%) had dizziness, and (2.8%) had nausea and vomiting. (36.5%) of participants bring their information for analgesics use from the pharmacist, followed by doctors

**Table 1:** Demographic and characteristics of participants

Characteristics	Number (%)
Age (years)	
≤30	331 (65.4)
31–50	156 (31.2)
>51	17 (3.4)
Gender	
Male	156 (31.0)
Female	348 (69.0)
City	
Makkah	101 (20.0)
Hail	93 (18.5)
Al Qatif	77 (15.3)
Al Riyadh	71 (14.1)
Jeddah	38 (7.5)
Jazan	37 (7.3)
Abha	33 (6.5)
*Others	54 (10.8)
Education level	
Primary school certified	2 (0.4)
Elementary school certified	14 (2.8)
High school certified	81 (16.1)
Bachelor degree	385 (76.4)
Master, PhD	22 (4.4)

*n*: Number of participate (%) percentage of participate, \*Random city of Saudi Arabia

(24.8%) and family and friends (19.3%) more details found in Table 3.

There was a significant association between age of participants, the rate of use analgesic and number of tablets taking by participants and side effects. There was also a significant association between time of taking analgesics and source of information ( $P = 0.003$ ) [Table 4].

### DISCUSSION

As far as we know, this was the first study on the awareness of the analgesics uses among large general population sample in Saudi Arabia. It was conducted to measure the knowledge and attitude of the Saudi Arabia population toward the use of analgesics.

As the respondents show that most OTC drugs users are the young females which agrees with a study conducted in Norway and disagrees with another study where conducted

**Table 2:** Knowledge and attitude toward analgesics and NSAIDs use

Items	<i>n</i> (%)
Analgesic and NSAIDs	
Paracetamol	370 (73.4)
Ibuprofen	66 (13.1)
Solpadine	31 (6.2)
Diclofenac sodium and potassium	19 (3.8)
Aspirin	14 (2.8)
*Others	4 (0.8)
How long take of analgesic	
Daily	19 (3.8)
Weekly	35 (6.9)
Monthly	61 (12.1)
As needed	389 (77.2)
Frequency use of tablets per day	
1	248 (49.2)
2	228 (45.2)
3	10 (2.0)
4	12 (2.4)
6	3 (0.6)
8	3 (0.6)
Time of taking analgesics	
Before meal	24 (4.8)
During meal	10 (2.0)
After meal	306 (60.7)
Before sleep	65 (12.9)
Time of pain	60 (11.9)
No specific time	39 (7.7)

*n*: Number of participants (%) percentage of participants. NSAIDs: Nonsteroidal anti-inflammatory drugs

in the USA which showed that women are having a more protective attitude toward analgesics more than men.<sup>[14,15]</sup>

We found that the most commonly used analgesic in KSA is paracetamol, followed NSAID. This agrees with results from previous studies.<sup>[14,16]</sup> there is another study in Germany shown the opposite result.<sup>[17]</sup>

Most of the analgesics user in this study are taking one tablet mostly for minor pains such as fever and headache which shows lack of information about appropriate adult dose which agrees with a Norwegian study which says that their respondents were using a lower dose of OTC drugs and had not exceeded the maximum dose.<sup>[18,19]</sup>

We also encountered most participates who were convinced that NSAIDs and paracetamol have no side effects. Similar observations come from Poland study and papers of

Matoulková *et al.* and Reguła *et al.*, where similarly around 16% of the subjects shared the same belief.<sup>[10,20,21]</sup>

Our findings generally revealed no significant difference in use of analgesics between male and female as the previous study in Iran and that converse to other studies in Riyadh, Taif, turkey, Germany, and Norway.<sup>[1,14,15,17,22,23]</sup>

Like our findings in Saudi, many studies have also shown there is a significant age difference in the prevalence of analgesic use among the population. Studies conducted in Taif, Sweden, United States, and Norway have shown an association between age and analgesic use.<sup>[23-27]</sup> Corroborating this finding, our study found a higher prevalence of analgesic use in the young population ( $\leq 30$ ). While some studies have indicated that there is no significant association between age and analgesic use.<sup>[14,28]</sup>

As a drug expert, the pharmacist is considered as a valuable source of information about medication use and its safety. This result coincides with the result of the study done in Taif, Kingdom of Saudi Arabia.<sup>[23]</sup> Also in a study conducted in New Zealand, the public preferred the doctor and pharmacist as top sources of information about medicines and the internet were ranked as a lower trusted source.<sup>[23,29]</sup> While the study in Iran that shows the most common source of information relied on by respondents was friends and family or advice from other people (54.7%).<sup>[16]</sup>

Our study has strength and weakness. The strengths include the use of a large area of the general population; it is not limited to the specific cities or level of education like other studies.<sup>[10,22,23,30,31]</sup>

On the other hand, the electronically distributed questionnaire gave a great opportunity to the young female to take part in the study. Furthermore, higher education was predominating among electronically recruited individuals. People with a higher level of education normally prefer communication through social media, and they constitute the majority of those who access such communication channels. A comprehensive estimate of the use of analgesics cannot be done without the use of different way of interview or questionnaires. Furthermore, the main limitation of this study is that it was a cross-sectional survey. Therefore, it illuminates the current situation which may differ in other seasons.

**Table 3:** Reason to take, side effect and source of information about analgesic and NSAIDs use

Reason to take*	n (%)
Fever	168 (33.3)
Flue	88 (17.5)
A cough	30 (6.0)
Period	133 (26.4)
A headache	309 (61.3)
Muscle pain	78 (15.5)
A toothache	131 (26.0)
Any pain	23 (4.5)
Side effect	
Nausea and vomiting	14 (2.8)
Stomach burn	37 (7.3)
Shortness of breath	7 (1.4)
Dizziness	19 (3.8)
Nothing	427 (84.7)
Source of information	
Doctor	125 (24.8)
Pharmacist	184 (36.5)
Family and friends	97 (19.3)
Internet	60 (11.9)
Benfleet	6 (1.2)
Nobody	32 (6.3)

\*Participants could choose more than one option. NSAIDs: Nonsteroidal anti-inflammatory drugs

**Table 4:** Association between demographic and side effect of analgesic use and source of information about the use

Item	Gender	Age	Education	City	Time of taking analgesic	Rate of use analgesic	Number of tablet
Side effect ( <i>P</i> -value)	0.086	0.000	0.065	0.998	0.194	0.019	0.000
Source of information ( <i>P</i> -value)	0.160	0.919	0.526	0.868	0.003	0.441	0.785

\**P*-value calculated through Chi-square test. *P*<0.05 considered statistically significant. *P* values presented in bold

## CONCLUSION

Most people use analgesic drugs for many reasons such as a headache, fever, and toothache. Paracetamol was the most common OTC analgesic used among Saudi Arabia population. The young population was used analgesics in high rate compared to other ages. However, most people had a lack of information about the appropriate dose of analgesics and they did not exceed one tablet on the day. Furthermore, Saudi population considered pharmacist as a valuable source of information about medication use and its safety. Which increase patient confidence in pharmacists and increase the responsibility of pharmacists.

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