

 <p>ISSN NO. 2320-5407</p>	<p>Journal Homepage: -<a href="http://www.journalijar.com">www.journalijar.com</a></p> <h2 style="text-align: center;">INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)</h2> <p style="text-align: center;">Article DOI:10.21474/IJAR01/3299 DOI URL: <a href="http://dx.doi.org/10.21474/IJAR01/3299">http://dx.doi.org/10.21474/IJAR01/3299</a></p>	 <p>INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR) ISSN 2320-5407 Journal homepage: <a href="http://www.journalijar.com">http://www.journalijar.com</a> Journal DOI:10.21474/IJAR01</p>
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### RESEARCH ARTICLE

#### ANALGESICS OVERUSE AMONG STUDENTS OF DAMMAM AND KING FAISAL UNIVERSITIES IN SAUDI ARABIA.

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#### Manuscript Info

##### Manuscript History

Received: 17 December 2016  
Final Accepted: 20 January 2017  
Published: February 2017

##### Key words:-

Migraine, Analgesia, Headache, Overuse

#### Abstract

**Background:** Migraine prevalence in KSA range from 2.5 to 5% according to a study conducted in 2010. Chronically affected migraine patients are more likely, than other headache patients, to overuse analgesics. Overuse of analgesics among patients with episodic migraine put them at great risk of getting chronic migraine. The Aim of this study is to determine whether students with migraine in Dammam and King Faisal universities overuse analgesics or not.

**Subjects and methods:** A cross sectional study was conducted in July 2016 among students with migraine in Dammam and King Faisal universities. Participants (n =195) completed a questionnaire to assess current migraine medication and how many days the medications are used per month.

**Results:** 143 (72.8%) students are using drugs to relieve headache once it has started. 12 (6.2%) students out of the total responders reported analgesia overuse. Panadol was the most commonly used medication by over users. 10 (83.3%) out of the 12 consumed it (P= .071). Panadol was followed by Ibuprofen that was taken by 5 (41.7%) overusers, followed by Aspirin which was taken by 2 (16.7%) of the overusers.

**Conclusion:** This study showed that small percentage of the participants were overusers. Even though most of the participants were from medical and medical related colleges, most of the overusers were from non-medical colleges. In general, Panadol was the most consumed drug by participants followed by Ibuprofen.

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#### Introduction:-

Migraine is the third prevalent disorder worldwide affecting 11% of the population. Globally, it is the seventh leading cause of disability. Migraine prevalence in KSA range from 2.5 to 5% according to a study conducted in 2010. In general, another study conducted in Al-Khobar in February 2010 showed that headache syndromes were the most common neurological complaints in adult. In addition, it is found that mean headache-attributed lost work-days per person/year for migraine was 24.0 days in KSA. <sup>[1-3]</sup>

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Unfortunately, chronically affected migraine patients are more likely, than other headache patients, to overuse analgesics.<sup>[4]</sup> Each year, 2.5% of patients with episodic migraine (EM) develop new-onset chronic migraine.<sup>[5]</sup>

Overuse of analgesics among patients with episodic migraine put them at great risk of getting transformed migraine, progression from episodic migraine(<15days/month) to chronic migraine. Analgesics overuse can cause medication overuse headache.<sup>[6]</sup> Medication overuse headache is a condition that can complicate any type of headache including migraine due to overuse of all kind of acute headache medications.<sup>[7]</sup> The Aim of this study is to determine whether students with migraine in Dammam and King Faisal universities overuse analgesics or not.

## **Subjects and Methods:-**

### **Study Design:-**

A cross sectional study was prepared to assess analgesics overuse among participants.

### **Study Area and population:-**

This study was conducted in July 2016 among students with and without migraine in Dammam and King Faisal universities.

### **Sampling procedure:-**

Sequential sampling was done. Sample collected through total coverage of the study population between 24<sup>th</sup> of July and 2<sup>nd</sup> of August 2016.

### **Questionnaire sheet:-**

A well-structured questionnaire was designed in English and Arabic languages, including biographical data; age, name of the university and college, year of study and gender. In addition, it includes questions about the characteristic symptoms of migraine and how many of them the participant is experiencing, was the participants with headache diagnosed by a physician and which type of headache was his/her diagnosis. In addition, the questionnaire contains questions about type of drugs used by participants to relieve headache and how many days the chosen drug/drugs is/are used per month. This questionnaire was distributed online using social media with a written briefing for the aim of the study.

### **Statistical Analysis:-**

The statistics were performed by using software program SPSS version 21. Data were presented as frequencies and percentages. Also, the chi-square test and t test were used for the comparison and to assess the possible associations between different variables.

## **Results:-**

During the study period, 218 university students participated in the questioner. Among the 218 responses that were collected, 23 were excluded because of incomplete informations. Finally, a total of 195 university students were enrolled in the study.

57 (29.2%) students are male and 138 (70.8%) are female with mean age  $22.18 \pm 1.95$  years. 95 (48.7%) students from King Faisal University and 100 (51.3%) from University of Dammam, 120 (61.6%) are studying in college of medicine and medical related colleges (including Dentistry, Applied Medical Sciences and pharmacy colleges) while 75 (38.4%) are studying in non-medical related colleges. 9 (4.6%) are studying in 1<sup>st</sup> year, 17 (8.7%) in 2<sup>nd</sup> year, 42 (21.5 %) in 3<sup>rd</sup> year, 38 (19.5%) in 4<sup>th</sup> year, 36 (18.5%) in 5<sup>th</sup> year, 19 (9.7%) in 6<sup>th</sup> year and 34 (17.4) in 7<sup>th</sup> year (medical interns).

Out of the 195 students, 158 (81%) stated that they have 2 or more headaches in last 3 months. From these 158 students, 129 (81.6%) have headache that limits their ability to work, study or enjoying life, 97 (61.4%) students want to talk to a healthcare professional about headache they have, 66 (41.8%) already consulted their healthcare professional about their headaches, and their physician told them what kind of headache they suffer from. Table 1 summarizes the frequency of diagnoses that students gave. The most common diagnosis was migraine where 38 students (9 males and 29 females) report it followed by headache due to stress in which 11 students (2males and 9 females) and tension headache in which 7 students (3 males and 4 females) report them. 104 students (65.8%) out of the 158 felt nauseated or sick to stomach with headache, 111 (70.3%) experienced photophobia with headache, and

122 (77.2%) had headaches that limited their ability to work, study or do what they need to do for at least one day in the last 3 months.

Out from 195 students whom participated in the study, 143 (72.8%) students are using drugs to relieve headache once it has started. The most commonly used medications by students was Panadol (Paracetamol), which was consumed by 114 (79.7%) students followed by Ibuprofen which was used by 54 (37.8%) students. Table 2 summarizes the medications used by the students.

Students also asked regarding number of days per month they take medications to relieve headache. Results are shown in table 3. 12 (6.2%) students out of the total responders reported analgesia overuse according to the revised criteria of the International Classification of Headache Disorders 2<sup>nd</sup> Edition (ICHD-IIR) for medication-overuse headache. A medication over user was defined as a person overusing acute headache medication in terms of treatment days / month ( $\geq 10$  days/ month for ergotamine, triptans, and combination analgesics;  $\geq 15$  days/month for paracetamol, ASA, and NSAIDs) during the previous 3 months.<sup>[8]</sup> The mean age of the over users was  $22.833 \pm 1.337$  years ( $P = .231$ ). 8 of the over users (66.7%) are female while 4 are male (33.3%) ( $P = .747$ ). 9 (75%) are from non-medical colleges while 3 (25%) from medical and medical related colleges ( $P = .007$ ). Regarding the kind of headache in the over users, 3 (25%) of the over users have headache due to stress, 2 (16.67%) of them due to migraine, another 2 (16.67%) due to tension headache, 1 (8.33%) due to neck problem and 4 (33.33%) did not consult a healthcare professional about their headaches ( $P = .141$ ).

Panadol was the most commonly used medication by over users. 10 (83.3%) out of the 12 consumed it ( $P = .071$ ). Panadol was followed by Ibuprofen that was taken by 5 (41.7%) over users, followed by Aspirin which was taken by 2 (16.7%) of the over users.

**Table 1:-**Number of diagnosed students and their headache diagnoses

Diagnosis		Number of students	Percent
	Migraine	38	57.6
	tension headache	7	10.6
	Cluster	3	4.5
	Stress	11	16.7
	neck problem	2	3.0
	I don't remember	3	4.5
	Other (e.g. sinusitis)	2	3.0
	Total	66	100.0

**Table 2:-**Summary of medications used by students

Name of medication		Number of students using it	Percent
	Aspirine, Aspro, Aspégic	13	9.1%
	Dafalgan	3	2.1%
	Panadol	114	79.7%
	Panadol + Codéine	17	11.9%
	Ibuprofen, Brufen, Nurofen	54	37.8%
	Primpéran	1	0.7%
	Motilium	1	0.7%
	Imitrex	2	1.4%
	MaxaltRelert	1	0.7%
	Naramig	2	1.4%
	Family recipe	8	5.6%
	Varapamil	1	0.7%
	Corticosteroids	1	0.7%
	Ergotamine	1	0.7%
	Propranolol	1	0.7%
	Eletriptan	1	0.7%

**Table 3:-**Number of days per month in which medications are used by students to relieve headache

Number of days	Number of students	Percent
Less than one day per month	81	41.5
1-3 days per month	56	28.7
4-9 days per month	37	19.0
10-14 days per month	11	5.6
15 days or more per month	10	5.1
Total	195	100.0

**Discussion:-**

This is the first study to evaluate Overuse of analgesics among students with migraine in King Faisal and Dammam Universities. The present study demonstrate high consumption of paracetamol by participants. It is consumed by 114 (79.7%) students followed by Ibuprofen which is consumed by 54 (37.8%) students. These results are in agreement with another study conducted in Belgium between December 2009 and May 2010, shows that paracetamol is the most purchasing OTC analgesic by pharmacy customers. Low percentage were consider overusers 12 (6.2%) out of the total responders. In contrast to the previous study, there were high prevalence of medication overuse (24%) among pharmacy customers.<sup>[9]</sup> In addition, another study conducted in china shows that overuse of Acetaminophen-containing agents are common in Chinese patients with chronic Migraine. Those patients are found to have a longer duration of headache, more severe pain intensity and a higher frequency of elevated BP.<sup>[10]</sup>

**Conclusion:-**

This study showed that small percentage of the participants were overusers. Even though most of the participants were from medical and medical related colleges, most of the overusers were from non-medical colleges. In general, Panadol was the most consumed drug by participants followed by Ibuprofen.

**Study limitation:-**

The participants were not interviewed by neurologist to confirm the diagnosis.

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