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# Prevalence and impact of medication overuse headache on quality of life among health college's students in Jazan University, Jazan, Saudi Arabia

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## ABSTRACT

*Background:* Headache is one of the major health problems worldwide that impacted the quality of life. The aim of this study is to identify the prevalence and impact of medication overuse headache on quality of life among Jazan university health colleges' students. *Method of the study:* A cross-sectional study was conducted to collect data from 420 students at health colleges' in Jazan University. The study used a semi-structured questionnaire to attain the objective of the study. T-test and Chi Square were used for analysis. *Results:* A total of 614 students were enrolled in the study with mean age of 23.06 ± 3.92 years, most of them were female (63.5 %). Among the students, 57.1% of the participants reported having tension headache, while 30.5% had migraine type and 7.8% had cluster headache. The study reported that that 64.3% of the students used at least one pill daily to treat headache. The most common used medication was paracetamol (78.2%) this trend commonly seen among females (70.3%) (P=0.00001). There is a significant relation between medication overuse headache and satisfaction with overall quality of life (P=0.002, 0.003) and no significant relation with satisfaction to personal relationships and social life or with academic achievement (P=0.073, 0.627). *Conclusion:* The current study showed high prevalence of using analgesics for treatment of headache among health colleges' students especially females' students. Satisfaction with overall health and own energy was negatively impacted.

**Keywords:** Medication, analgesic, overuses headache, health colleges' students, prevalence, quality of life

## 1. INTRODUCTION

Headache is one of the commonest neurological disorders (Takeshima and Kikui, 2013). It's a global problem affecting many people worldwide regardless of their age, sex, income or geographical area. It can be disabling at some point according to its severity. Headaches can be primary, secondary or even due to medication-overuse. The types of primary headache are migraine, cluster and tension type headache. Secondary headache is due to an underlying disease (Takeshima and Kikui, 2013). The most common cause of primary headache is tension type headache (Khairoalsindi et al., 2018; Noor et al., 2016; Takeshima and Kikui, 2013). It can be episodic occurring for less than 15 days a month, which is common, accounting for 70% of population or can be chronic more than 15 days a month affecting 1-3% of adults and it is more disabling than episodic tension headache (Khairoalsindi et al., 2018; Takeshima and Kikui, 2013).

The character of this headache described as being band like tightness or pressure; sometimes it extends to the neck (Takeshima and Kikui, 2013). Migraine headache commonly affect females especially those between 35-45 years of age. It occurs in several recurrent attacks typically moderate to severe in intensity, unilateral, pulsating in character, aggravated by physical activity and associated with nausea (Takeshima and Kikui, 2013). Cluster headache is less common than the previously discussed headaches and commonly affecting males, characterized by severe pain around the eye, associated with redness, tearing, eyelid dropping and runny or closed nose on the affected side (Takeshima and Kikui, 2013).

Medication-overuse headache (MOH) as the name implies, it is due to the chronic and overuse of drugs that used to treat headache, oppositely leading to development of headache (Takeshima and Kikui, 2013). MOH is defined as headache that occurs for 15 days or more per month due to overusing medication for acute headache on a regular basis for more than three months (Olesen, 2018). According to a study conducted involving medical college students of Karachi, it showed that there were some predisposing factors or triggers that were statistically significant and related to headache such as disturbed sleep pattern, social stress, noise, light and anxiety (Noor et al., 2016).

Some students also reported that their headache worsened after enrolling into Health College, with increased frequency during exams (Nandi et al., 2012; Noor et al., 2016). In terms of searching for a cure to their headache most students used to take analgesia and self-medication without medical consultation (Khairoalsindi et al., 2018; Noor et al., 2016). Other measures included drinking tea/coffee, massaging and usage of other types of medications (Noor et al., 2016). Analgesics are a group of medications that could classified into narcotics and non-narcotics. They are used to relief pain by raising a person's threshold to pain, thus increasing medication titer according to patient's level of pain until patient becomes free of pain (Twycross, 1984).

Acetaminophen is a mild analgesic, antipyretic medication that is most commonly sold as an over-the-counter drug (Ogemdi, 2019). It formed initially by the conversion of phenol into nitro phenol by electrophilic aromatic substitution, then reduction of the nitro group of para-substituted nitro phenol via either sodium borohydride or direct hydrogenation into an amine. The final conversion to acetaminophen carried out by converting para-aminophenol via acetic anhydride to acetaminophen (Ogemdi, 2019). Analgesics including acetaminophen commonly used among people for treatment of acute headache since they decrease the pain duration and activity interference; hence, their overuse results in MOH (Chagas et al., 2015).

## 2. METHODOLOGY

**Study Design**

This is a descriptive observational cross-sectional study conducted among health colleges' students at Jazan University over a period of six months started on May 2022.

**Sampling size**

The single population proportion statistical formula n= [Z2 (1−$\alpha$/2) ×P (1−P)/d2] was used to measure the sample size. We used 50% prevalence of MOH among health college students at Jazan University because there was no previous recent study conducted in the region, 5% marginal error and 95% confidence level. After accounted for 10% anticipated non-response rate, so the total samples size was 420 students.

**Data collection tools**

In this study, the data was collected by using validated English language self-administered electronic questionnaire that requires acceptance by the participants. The questionnaire consisted of five parts; first part aimed to assess the demographic factors of the participants while part two used to estimate the prevalence of MOH, part three for estimate the frequency and chronicity of primary

headache that leads to MOH, part four to evaluate awareness of MOH among students and part five to estimate the impact of MOH on the quality of life.

**Data presentation & statistical analysis**

Data was manually collected and then entered into a personal computer and analyzed by using the Statistical Package for the Social Sciences (SPSS version 25). The t-test and Chi-squared test were used to determine the prevalence and impact on quality of life of MOH among health college students in Jazan University. Multivariate analysis was used to evaluate the relationship between variants.

## 3. RESULTS

In this study, 614 students from different health colleges were participated, with mean age of 23.06 ± 3.92 years old. Moreover, 63.5% of the participants were females and 87.6 % of them were singles. Nursing College, 13.8% at College of Applied medical science and 7.3% were from Pharmacy College. Considering GPA of the students at the previous semester, 46.6% of them reported having of GPA of 3.6-4.5 points, while 33.9% reported having GPA of above 4.5 point (Table 1).

**Table 1** Demographic factors of the participants

| | | Frequency | % |
|---|---|---|---|
| Gender | Male | 224 | 36.5% |
| | Female | 390 | 63.5% |
| Marital status | Single | 538 | 87.6% |
| | Married | 73 | 11.9% |
| | Divorced | 3 | 0.5% |
| College | Medicine | 295 | 48.0% |
| | Dental | 103 | 16.8% |
| | Nursing | 86 | 14.0% |
| | Applied medicine science | 85 | 13.8% |
| | Pharmacy college | 45 | 7.4% |
| GPA in previous semester | < 2.5 | 11 | 1.8% |
| | 3.5–2.5 | 109 | 17.8% |
| | 3.6 to 4.5 | 286 | 46.6% |
| | > 4.5 | 208 | 33.8% |

Among the students, 57.1% (n=350) of the participants reported having tension headache, while 30.5% (n=187) had migraine type and 7.8% had cluster headache. More than half of the students 53.4% (n=328) reported having moderate intensity of headache while 32.6% (n=200) had mild and only 14.0% (n=86) of them reported having severe headache. In 39.7% (n=244) of the participants, headache had moderate impact on time wasting and grading while 12.9% (n=79) reported severe impact.

Considering using of medications in treatment of headache, we found that 64.3% of the students would use at least one pill daily to treat headache (indicating a prevalence of MOH of 64.3%) where 31.3% of the students would use one pill daily while 25.6% would use 2 pills daily and 6.5% reported using 3-4 pills daily to control the headache. Moreover, 33.6% of the students reported that the longest period they could stay without taking medications for headache was only 6 hours. The most common used medication for headache in the current study was paracetamol (78.2%) (Table 2).

Among the participants, 39.1% of the students reported that headache began for more than 2 years while 38.3% for less than 6 months. Moreover, 45.6% of the participants reported having headache weekly while 43.3% reported monthly exposure to headache. More than half of the contributors described that the frequency of headache increased during the last 6 months where 70.5% reported having headache during weekdays. Moreover, 38.9% reported that the headache started gradually while 33.4% reported beginning of headache at afternoon and 31.6% at evening.

**Table 2** Types, Severity of Headache types, among students of health profession as well as time wasting & dependence on medications

| | | Count | Column N % |
|---|---|---|---|
| What type of headache do you have? | Migraine | 187 | 30.5% |
| | Tension type | 350 | 57.1% |
| | Cluster | 48 | 7.8% |
| | Other | 28 | 4.6% |
| How do you describe the intensity of your headache? | Mild | 200 | 32.6% |
| | Moderate | 328 | 53.4% |
| | Severe | 86 | 14.0% |
| How does your headache attributes to time wasting and grading? | Minimal or infrequent impact | 126 | 20.5% |
| | Mild or Infrequent impact | 165 | 26.9% |
| | Moderate impact | 244 | 39.7% |
| | Severe impact | 79 | 12.9% |
| How many pills do you take for your headache per day? | I don't use medications for headache | 219 | 35.7% |
| | One pill/ day | 192 | 31.3% |
| | 2 pills/ day | 157 | 25.5% |
| | 3 – 4 pills / day | 40 | 6.5% |
| | > 4 pills/ day | 6 | 1.0% |
| What is the longest period you can stay without taking medications to relieve your headache? | 6 hrs | 206 | 33.6% |
| | 7 - 24 hrs | 103 | 16.8% |
| | > 24 hrs | 110 | 17.9% |
| | I don't use medications for headache | 195 | 31.7% |
| What type of medication do you use to alleviate/decrease your headache? | Paracetamol | 295 | 78.2% |
| | Paracetamol+ Caffeine | 34 | 9.0% |
| | Ibuprofen | 21 | 5.6% |
| | Other NSAID medication | 13 | 3.5% |
| | Others | 14 | 3.7% |

Furthermore, 58.1% of the students reported peak severity of headache within hours and 34.9% reported forehead at the main affected part. Stress (81.6%), sleep disturbance (73.3%) and noise (45.2%) were the main causes or tigers of headache while lying down/sleeping (84.4%), massage their head (45.9%) and being in dark quit room (44.8%) were the main alleviating factors (Table 3).

**Table 3** Characteristics of the Headache among the participants

| | | Count | Column N % |
|---|---|---|---|
| When did your current headache began? | Less than 6 months | 235 | 38.3% |
| | 6 months –2 year | 139 | 22.6% |
| | More than 2 years | 240 | 39.1% |
| How Frequent do you experience headache? | More than 2 years | 68 | 11.1% |
| | Weekly | 280 | 45.6% |
| | Monthly | 266 | 43.3% |
| Did the frequency Increased in the last 6 months? | No | 301 | 49.0% |
| | Yes | 313 | 51.0% |
| What is the frequent period of its occurrence? | Weekdays | 433 | 70.5% |
| | Weekends | 59 | 9.6% |
| | Spring | 15 | 2.4% |
| | Summer | 47 | 7.7% |
| | Rainy | 6 | 1.0% |
| | Winter | 46 | 7.5% |

| | | | |
|---|---|---|---|
| | Fall/autumn | 8 | 1.3% |
| Onset of headache as explained by the participants | Gradually | 239 | 38.9% |
| | Sudden | 171 | 27.9% |
| | Varies | 204 | 33.2% |
| Time of occurrence of headache | Morning | 138 | 22.5% |
| | Afternoon | 205 | 33.4% |
| | Evening | 77 | 12.5% |
| | Night | 194 | 31.6% |
| My headache reaches its maximum intensity within | Minutes | 257 | 41.9% |
| | Hours | 357 | 58.1% |
| Where do you feel the headache? | Left/Right side | 155 | 25.2% |
| | Both sides | 164 | 26.7% |
| | Forehead | 214 | 34.9% |
| | Back of head | 81 | 13.2% |
| What is the character of your headache? | Throbbing/Pulsating | 271 | 44.1% |
| | Tightness/Pressure | 230 | 37.5% |
| | Sharp/Stabbing | 57 | 9.3% |
| | Dull ache | 56 | 9.1% |
| Aggravating factors (Multiple responses) | Stress | 498 | 81.6% |
| | Sleep disturbance | 447 | 73.3% |
| | Missing a meal/food related | 158 | 25.9% |
| | Weather change | 71 | 11.6% |
| | Noise | 276 | 45.2% |
| | Bright light | 237 | 38.9% |
| Alleviating factors (Multiple responses) | Lying down/Sleeping | 509 | 84.4% |
| | Being in a dark quit room | 270 | 44.8% |
| | Massage your head | 277 | 45.9% |
| | Tying something around head | 145 | 24.0% |
| | Cold/hot pack on head | 65 | 10.8% |

Considering awareness toward MOH, 47.2% of the participants thought that MOH is defined as the headache caused because of high doses of medications followed by combination of medications (19.1%), attacks of headache more than 3 months that not relieving by medication (14.0%), due to using different type of medication (11.7%) and attacks of headache for than 15 days per month (8.0%). Moreover, 68.4% of the participants reported that stress is the main cause of MOH followed by lack of sleep (54.6%), dehydration (42.4%) and hunger (32.1%) (Figure 1). Furthermore 64.2% of the students thought that avoiding triggers is the main preventive methods followed by cessation of all medications (Figure 2).

Among the participants, 37.1% and 17.4% of the students were satisfied and very satisfied with their overall health status while 31.6% and 9.0% were satisfied and very satisfied with their own energy for everyday life, 30.3% and 18.6% were satisfied and very satisfied with their personal relationships and social life and 33.1% and 17.1% were satisfied and very satisfied with their academic achievement. Moreover, 40.7% of the students reported sleeping for 6-7 hours per night while 43.2% of more than two hours per day and 49.3% of them reported having problem falling sleep. Only 14.2% of the students reported smoking, while 53.4% reported consuming 1-2 cup of coffee/tea daily and 44.0% consumed 1-2 cup of soft drink/ soda/carbonated drinks daily (Table 4).

According to Table 5, the prevalence of MOH among females (70.3%) was significantly higher than males (54.0%) (P=0.00001). Moreover, no significant difference was reported among students of different colleges or GPA (P=0.189, 0.941) however, the least prevalence was reported among students of pharmacy college (48.9%). Considering the effect on quality of life, we found significant relations between MOH and satisfaction with overall health and oneself daily living energy (P=0.002, 0.003) and no significant relation with satisfaction to personal relationships and social life or with academic achievement (P=0.073, 0.627).

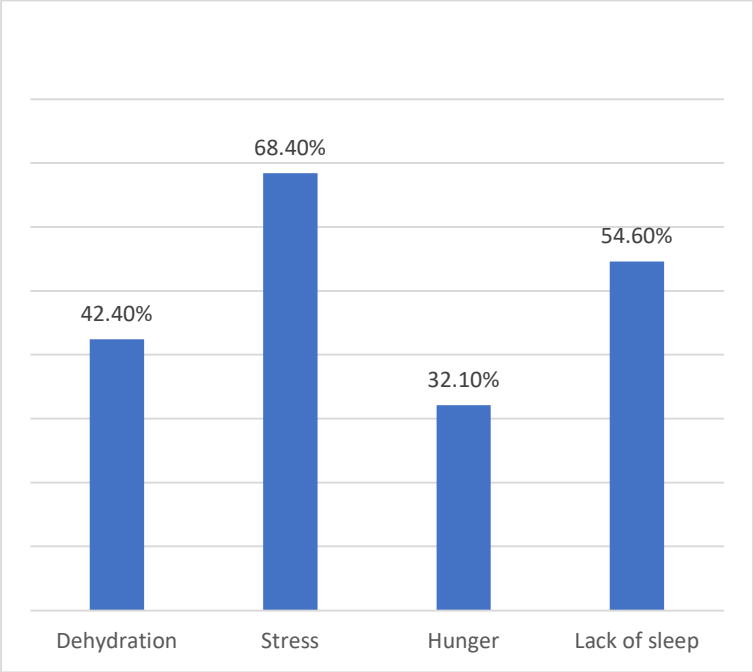


**Figure 1** Medication overuse headache is triggered by dehydration, stress, hunger, lack of sleep

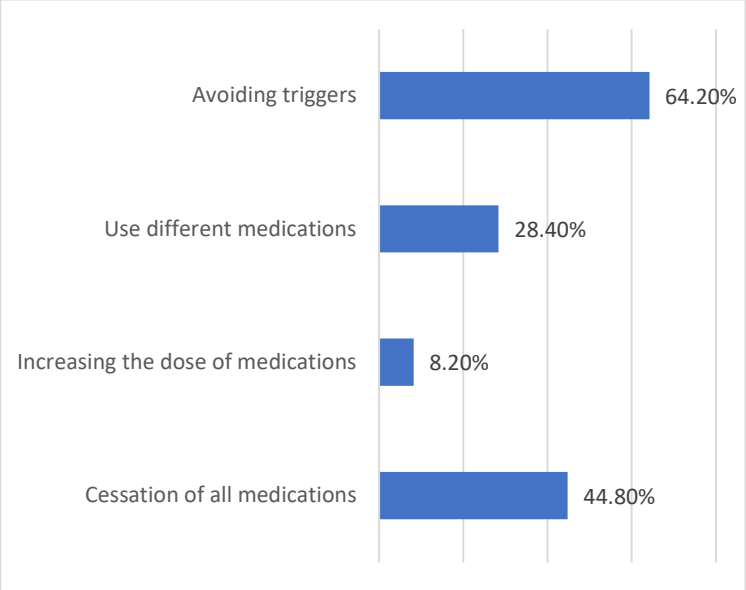


**Figure 2** Medication overuse headache preventive methods

The higher the prevalence of MOH, the worse the satisfaction of the students, where the prevalence of MOH among students with strongly dissatisfaction with their overall health status and own energy was 82.4% and 78.3% compared with 56.1% and 49.1% of those who were very satisfied with their health status and own energy (Table 5).

**Table 4** The quality of life among students

| | | Count | Column N % |
|---|---|---|---|
| How is your satisfaction of your overall health status? | Very unsatisfied | 51 | 8.3% |
| | Unsatisfied | 75 | 12.2% |
| | Neutral | 153 | 24.9% |
| | Satisfied | 228 | 37.1% |
| | Very satisfied | 107 | 17.5% |
| How is your satisfaction of your own energy for everyday life? | Very unsatisfied | 69 | 11.2% |
| | Unsatisfied | 109 | 17.8% |
| | Neutral | 187 | 30.4% |
| | Satisfied | 194 | 31.6% |
| | Very satisfied | 55 | 9.0% |
| How is your satisfaction of your personal relationships and social life? | Very unsatisfied | 54 | 8.8% |
| | Unsatisfied | 76 | 12.4% |
| | Neutral | 184 | 30.0% |
| | Satisfied | 186 | 30.3% |
| | Very satisfied | 114 | 18.5% |
| How is your satisfaction of your academic achievement? | Very unsatisfied | 56 | 9.1% |
| | Unsatisfied | 99 | 16.1% |
| | Neutral | 151 | 24.6% |
| | Satisfied | 203 | 33.1% |
| | Very satisfied | 105 | 17.1% |
| How many hours do you sleep per night? | < 6 | 241 | 39.3% |
| | 6-7 | 250 | 40.7% |
| | > 7 | 123 | 20.0% |
| How many hours do you sleep per day? | Nil | 203 | 33.1% |
| | < 2 | 146 | 23.7% |
| | >2 | 265 | 43.2% |
| Are you having Problems falling asleep? | Yes | 311 | 50.7% |
| | No | 303 | 49.3% |
| Are you having Problems staying asleep? | Yes | 275 | 44.8% |
| | No | 339 | 55.2% |
| Do you Smoke? | Yes | 87 | 14.2% |
| | No | 527 | 85.8% |
| What is your daily consumption of coffee/tea? | Nil | 167 | 27.2% |
| | 1-2 cup/day | 328 | 53.4% |
| | > 2 cups/day | 119 | 19.4% |
| What is your daily consumption of soft drinks/soda/carbonated drinks? | Nil | 296 | 48.2% |
| | 1-2 cup/day | 270 | 44.0% |
| | > 2 cups/day | 48 | 7.8% |

**Table 5** The relation between prevalence of MOH and demographic factors and quality of life

| | | MOH | | | | |
|---|---|---|---|---|---|---|
| | | No | | Yes | | P-Value |
| | | No | % | No | % | |
| Gender | Male | 103 | 46.0% | 121 | 54.0% | 0.00001* |
| | Female | 116 | 29.7% | 274 | 70.3% | |
| College | Medicine | 99 | 33.6% | 196 | 66.4% | 0.189 |
| | Dental | 38 | 36.9% | 65 | 63.1% | |
| | Nursing | 27 | 31.4% | 59 | 68.6% | |
| | Applied medicine science | 32 | 37.6% | 53 | 62.4% | |
| | Pharmacy college | 23 | 51.1% | 22 | 48.9% | |
| GPA in previous semester | < 2.5 | 3 | 27.3% | 8 | 72.7% | 0.941 |
| | 3.5–2.5 | 38 | 34.9% | 71 | 65.1% | |
| | 3.6 to 4.5 | 103 | 36.0% | 183 | 64.0% | |
| | > 4.5 | 75 | 36.1% | 133 | 63.9% | |
| How is your satisfaction of your overall health status? | Very unsatisfied | 9 | 17.6% | 42 | 82.4% | 0.002* |
| | Unsatisfied | 25 | 33.3% | 50 | 66.7% | |
| | Neutral | 44 | 28.8% | 109 | 71.2% | |
| | Satisfied | 94 | 41.2% | 134 | 58.8% | |
| | Very satisfied | 47 | 43.9% | 60 | 56.1% | |
| How is your satisfaction of your everyday life energy? | Very unsatisfied | 15 | 21.7% | 54 | 78.3% | 0.003* |
| | Unsatisfied | 38 | 34.9% | 71 | 65.1% | |
| | Neutral | 58 | 31.0% | 129 | 69.0% | |
| | Satisfied | 80 | 41.2% | 114 | 58.8% | |
| | Very satisfied | 28 | 50.9% | 27 | 49.1% | |
| How is your satisfaction of your personal relationships and social life? | Very unsatisfied | 10 | 18.5% | 44 | 81.5% | 0.073 |
| | Unsatisfied | 30 | 39.5% | 46 | 60.5% | |
| | Neutral | 65 | 35.3% | 119 | 64.7% | |
| | Satisfied | 68 | 36.6% | 118 | 63.4% | |
| | Very satisfied | 46 | 40.4% | 68 | 59.6% | |
| How is your satisfaction of your academic achievement? | Very unsatisfied | 17 | 30.4% | 39 | 69.6% | 0.627 |
| | Unsatisfied | 32 | 32.3% | 67 | 67.7% | |
| | Neutral | 51 | 33.8% | 100 | 66.2% | |
| | Satisfied | 78 | 38.4% | 125 | 61.6% | |
| | Very satisfied | 41 | 39.0% | 64 | 61.0% | |

## 4. DISCUSSION

Headache is becoming the most common health issue that negatively affects quality of life. The prevalence of moderate to severe headache in the current study was 67.4% which is lower than reported by a community-based report from Addis Ababa (83.1%) (Mengistu and Alemayehu, 2013) and Singapore (82.7%) (Ho and Ong, 2003), Brazil (Barea et al., 1997; Ferri-de-Barros et al., 2011) and Nigeria 88% (Onwuekwe et al., 2014). In study of Panigrahi et al., (2020), the authors reported frequency rate of 73.1%. In another two studies conducted by Birru et al., (2016) and Ferri-de-Barros et al., (2011); the authors reported that the last year prevalence rate of headache among undergraduate medical and health science students was 67.2% and 91% among medical and psychology students respectively.

Moreover, several studies confirmed our results of increased frequency of headache among health colleges students with range between 46% and 91% (Bhat et al., 2016; Deleu et al., 2001; Nandha and Chhabra, 2013; Ojini et al., 2009). Moreover, in the current study, 30.5% had migraine and this was less than those who reported tension headache (57.1%). The epidemiological studies showed that the prevalence of migraine among medical students varies between 6.4% and 28.7% (Al-Hashel et al., 2014; Al-Nasser et al., 2019; Ghorbani et al., 2013; Ojini et al., 2009), while that of tension type of headache ranges from 18.1% and 59.9% (Ferri-de-

Barros et al., 2011; Ghorbani et al., 2013; Ojini et al., 2009) which is similar to our results. This prevalence of migraine is higher than reported among general population where most of the study reported a rate lower than 15% (Adoukonou et al., 2014; Baykan et al., 2015; Mengistu and Alemayehu, 2013; Woldeamanuel et al., 2014).

Moreover, in the current study, the students used different non-pharmacological headache relieving strategies such as sleeping, head massage or resting in quit dark place which is similar to the results of (Panigrahi et al., 2020). Furthermore, in the current study, stress, sleep disturbance and noise were the main causes and triggers of headache. This is similar to the results of Birru et al., (2016) who reported that stress, sleep disturbance and reading for longer period were the top three triggers factors of headache. Also, other studies reported the same impact of stress, sleep disturbance and noise on prevalence of headache (Haimanot et al., 1995; Zivadinov et al., 2003). Therefore, the proper monitoring and understanding of the triggering factors would be helpful to understand the distribution of headache and its complications.

In the current study, most of the participants reported using of medications to control the headache (64.3%). This is similar to the results of some previous studies (Ferri-de-Barros et al., 2011; Nandha and Chhabra, 2013; Ojini et al., 2009). Using of self-medications could be associated with the frequent and high dose intake of analgesics and then may be associated with medication over use headache (Williams, 2005). The most common used medication in the study was paracetamol (78.2%) followed by ibuprofen and other NSAID.

In a survey in Denmark, the authors showed that paracetamol was the most common overused medication (41.5%) followed by combination of analgesic (25.3%), ibuprofen (21.9%), opioids (17.0%) and triptans (9.1%) (Straube and Rauch, 2010). Paracetamol use by the majority of students in this study is similar to that reported by Mehuys et al., (2012). Although this contrasts with data reported by Barea et al., (1997) and Ray et al., (1986) in which the majority of headache sufferers used aspirin over paracetamol by a ratio of approximately 6:1. This difference in pain medication use patterns probably reflects differences in the experience of pain medication use between communities and health care providers in different countries.

Moreover, the current study showed that the prevalence of MOH was higher in females in comparison to males which is reported by Domingues et al., (2006), Mitsikostas et al., (1996), Straube and Rauch, (2010) and Vandenbussche et al., (2018) which reported that females had higher risk for developing headache. Basically, this difference might be due to endocrine factors and the way they response to stressors in addition to psychosocial burdens on females (Rafi et al., 2022). Furthermore, in this study, as students become older and older there was a relative increase in prevalence of headache even if it is not yet statistically associated which may be due to narrow age gaps within the samples. This agrees with other reports Straube and Rauch, (2010) and Wang et al., (2015) which stated that the occurrence of headache increases from school age upwards.

Considering the impact of MOH on quality of life, the current study showed that MOH had negative impact on some of aspects of quality of life. The prevalence of MOH among students with strongly dissatisfaction with their overall health status and own energy was 82.4% and 78.3% compared with 56.1% and 49.1% of those who were very satisfied with their health status and own energy. Panigrahi et al., (2020) stated that, the students who were dissatisfied with their physical well-being reported headaches more often compared to their counterparts.

However, the authors found no significant correlation between headache and other psychosocial variables like an individual's relationship, economic status or their satisfaction with their own level of energy for daily life. Moreover, Lebedeva et al., (2017) reported that there is a significant association between psychological factors including depressive mood and anxiety with occurrence of headache among students.

## 5. CONCLUSION

The current study showed high prevalence of medication overuse headache among health colleges' students especially among females' students. Stress and sleep disturbance were the most frequent triggering factors. Quality of life considering satisfaction with overall health and own energy was negatively impacted with incidence of MOH. Designing comprehensive awareness and educational programs, for students on the importance of proper drug intake under medical supervision and the adverse effects related to considerable analgesic consumption as well as the possibility of development of chronic headaches with excessive medication use, is crucial.

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**Author Contribution**

All authors contributed in the process of data collection, analysis and reporting. All authors contributed in supervision, methodology, writing and editing and final revision and drafting of manuscript for publication.

**Informed consent**

Written informed consent was obtained from all individual participants included in the study; this was stated in the first section of electronic questionnaire.

**Ethical approval**

The study was approved by the Medical Ethics Committee of JAZAN University (ethical approval code: (HAPO) -10-Z-001 with reference number of REC-43/05/084). We took the permission to use the questionnaire from similar adapted study conducted by Ansuman Panigrahi, Basanta Kumar Behera and Nibir Nath Sarma.

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**Conflict of interest**

The authors declare that there is no conflict of interests.

**Data and materials availability**

All data sets collected during this study are available upon reasonable request from the corresponding author.

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