

## Pattern of self-medication with analgesics among Iranian University students in central Iran

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ABSTRACT

**Background:** Self-medication is defined as the use of drugs for the treatment of self-diagnosed disorders. It is influenced by factors such as education, family, society, law, availability of drugs and exposure to advertisements. This study was performed to evaluate self-medication with analgesics and its pattern among different groups of Iranian University Students. **Materials and Methods:** A randomized, cross-sectional, multicenter study was conducted from December 2009 to February 2010. The target population of this study was 564 students out of 10,000 students attending four medical and non-medical science universities in Qom state. Data was analyzed using SPSS version 16, and analysis was conducted with descriptive analysis procedures. **Results:** 76.6% of the students had used analgesics in self-medication in the previous 3 months. The frequency of analgesic use in the study period was once in 19.2% of the participants, twice in 22.2%, three times in 16.3% and more than three times in 35.5% of the participants, although 6.8% of them were not sure when they were used. Of all the respondents, 49.8% reported headache as the problem. This was the most common problem, after which came Dysmenorrhea, headache and stomach ache. Bone and joint pains were other problems that led to the use of analgesics. The most commonly used source of information for self-medication with analgesics was advice from friends and family (54.7%), previously prescribed medications (30.1%), their medical knowledge (13.3%) and recommendation of a pharmacist (1.9%). **Conclusion:** Self-medication with analgesics is very high among Iranian students in Qom city. This could be an index for other parts of the Iranian community. Because the source of information about analgesics is inappropriate, we would recommend education courses about analgesics and self-medication on the radio and television for the entire population.

**Key words:** Analgesics, Iran, students, self-medication

### INTRODUCTION

Self-medication is an old problem worldwide,<sup>[1]</sup> and is defined as the use of drugs for the treatment of self-diagnosed disorders or symptoms. It is also the intermittent or continued use of a drug prescribed by a physician for chronic or recurrent symptoms.<sup>[2]</sup>

It is influenced by various factors, such as education, family, society, law, availability of drugs and exposure to advertisements.<sup>[3]</sup>

Governments and health authorities have to ensure that self-medication is performed in a responsible manner, and establish that only safe drugs are made available over the counter (OTC) and that patients are given adequate information about drug usage, their contraindications and side-effects.<sup>[4]</sup>

Appropriate self-medication can relieve medical problems and save time spent waiting to see a doctor. This could save money and even lives in acute conditions. It is also accepted that responsible self-medication for self-care could be beneficial to healthcare providers, pharmaceutical

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industries, governments and patients.<sup>[5]</sup> It has also been pointed out by the WHO that responsible self-medication could be helpful in the prevention and treatment of ailments that do not require medical consultation and provide a cheaper alternative treatment for common illnesses.<sup>[6]</sup>

The use of analgesics is widespread worldwide.<sup>[7]</sup> Some analgesics are categorized as OTC drugs and some are not. Side-effects experienced may vary with different people, and overuse could be harmful.<sup>[8]</sup> These problems could be minimized by raising people's awareness of the indications, contraindications and side-effects of these drugs. The level of self-medication reported in Iran and comparable countries is high.<sup>[2,8-12]</sup> However, there is no report on self-medication of analgesics in Iran, especially in the young population.

The aim of this study was to determine the prevalence and quality of self-medication with analgesics and assess this problem among different college students in Qom city as a sample community in the central part of Iran.

## MATERIALS AND METHODS

A random cross-sectional study was conducted in four medical sciences (Qom University of Medical Sciences and Azad University) and non-medical sciences (Qom University, Azad University and Mofid University) universities in Qom state from December 2009 to February 2010. These four universities, with a total population of about 10,000 students, are the most important universities in Qom province. A total of 564 students chosen by simple random sampling participated in this study.

The questionnaire that consisted of open- and closed-ended questions in the Persian language was used for this study. All respondents were native Persian speakers. There was a total of 18 questions on socio-demographic characteristics, patterns of self-medication with analgesics, type of the most used analgesics, source of information regarding analgesics, health condition that led to the use of an analgesic without prescription and source of analgesics preparation.<sup>[10,11]</sup> The questionnaire was pre-tested and validated,<sup>[8-11]</sup> and the Ethics Committee of Qom University of Medical Sciences approved the study protocol.

The survey was conducted by two trained paramedical sciences students. The respondents completed a self-administered questionnaire and the researcher was present during completion in case the respondents required assistance. On completion, the data was reviewed, organized, tabulated and analyzed by SPSS version 16. Descriptive analysis was conducted by calculating means and proportions for continuous and discrete data,

respectively. The  $\chi^2$  test and independent T test were used to test statistical significance. The limit for statistically significant differences was  $P < 0.05$ .

## RESULTS

A total of 564 university students agreed to participate in our random cross-sectional study (simple randomized sampling) and filled the questionnaire, giving the response rate of 99.8%. Table 1 shows the demographic characteristics of participants, 54.6% of whom were females ( $n = 308$ ) and 45.4% males ( $n = 256$ ). Of the students, 44.9% were studying in medical courses (Medicine, Para Medicine, Hygiene, Nursing, Midwifery, etc.) and 55.1% were in different fields of non-medical courses (Basic Sciences, Engineering, Financing, Literature, Law, etc.). Most of the participants (66.8%) lived with their families, while 33.2% of them were in dormitories and other students' accommodation [Table 1].

The prevalence of analgesic self-medication within the 3 months of the study period was 76.6% ( $n = 432$ ) of the respondents [Table 2], with 73.4% male and 79.2% female students [Table 3]. There was no significant difference ( $P = 0.1$ ) in self-medication with analgesics between male and female students.

This problem was found in 44.7% of medical and 55.3% of non-medical sciences students. There was no significant difference ( $P = 0.91$ ) between these two groups.

The frequency of analgesic use was once in 19.2% ( $n = 82$ ), twice in 22.2% ( $n = 95$ ), three times in 16.3% ( $n = 70$ ) and more than three times in 35.5% ( $n = 152$ ) of the students in the study period. Also, 11.4% of them self-medicated with analgesics once a day, 8.6% once a week, 24.8% once a month and 55.2% more than once a month [Table 2].

As shown in Table 4, analgesic use via self-medication was not significantly different between students who lived with their families (78.5%) and those who lived in dormitories (74.9%) ( $P > 0.05$ ).

Of the illnesses that led the respondents to self-medicate with analgesics, the most common were 49.8% headache (52.7% of female and 47.3% of male students), 9.5% dysmenorrhea, 7.4% head and stomach ache, 5.5% joint pain and pain in the bones, 4.2% stomach ache and 4.1% fever [Figure 1].

The most common source of information relied on by respondents was friends and family or advice from other people (54.7%). Previous prescriptions of medications by practitioners (doctors) (30.1%) were the other sources of information in self-medication with analgesics [Figure 2].

Also, most participants obtained the analgesics they used from drugstores (64.9%), and residual drugs in the home (17.9%), friends and family (12.8%) or other sources (4.4%).

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

Variable	Number
Gender	
Male	256 (45.4)
Female	308 (54.6)
University	
Qom University of Medical Sciences	211 (37.4)
Islamic Azad University Qum University	158 (28)
Mofid University	107 (19)
Mofid University	88 (15.6)
Faculty	
Basic Sciences	108 (19.1)
Medicine	86 (15.2)
Nursing and Midwifery	82 (14.5)
Engineering	59 (10.5)
Hygiene	53 (9.4)
Para Medicine	33 (5.9)
Finance	32 (5.7)
Persian Literature	22 (3.9)
Law	21 (3.7)
Other	68 (12.1)
Residence	
Home	360 (66.8)
Dormitory	179 (33.2)

Others include: Psychology, philosophy and missing data, Figures in parentheses are in percentage

**Table 2: Self-medication characteristics of participants in the previous 3 months**

Self-medication variables	
Did you self-medicate with analgesics	
Yes	432 (76.6)
No	132 (23.4)
How many times have you self-medicated with analgesics in the past 3 months	
Once	82 (19.2)
Twice	95 (22.2)
Thrice	70 (16.3)
More than three times	152 (35.5)
Not sure	29 (6.8)
Frequency of self-medicating with analgesics	
Once a day	48 (11.4)
Once a week	36 (8.6)
Once a month	104 (24.8)
Other	232 (55.2)

Figures in parentheses are in percentage

**Table 3: Correlation of gender and self-medication with analgesics**

Variable	Practiced self-medication	Did not practice self-medication
Male	188 (73.4)	68 (26.6)
Female	244 (79.2)	64 (20.8)

There was no significant difference ( $P = 0.1$ ) between males and females, Figures in parentheses are in percentage

Acetaminophen (59.6%) was the most common self-medicated analgesic used by students, followed by acetaminophen codeine (28.7%) and Ibuprofen (4.8%) [Figure 3].

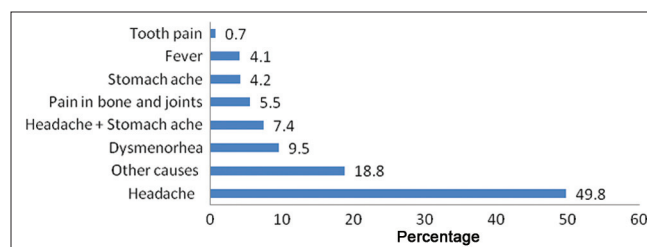
## DISCUSSION

The population of this study consisted of medical and non-medical university students. They were all Iranian, and most lived with their families. They were, therefore, all young people, with similar sociocultural backgrounds.<sup>[10]</sup>

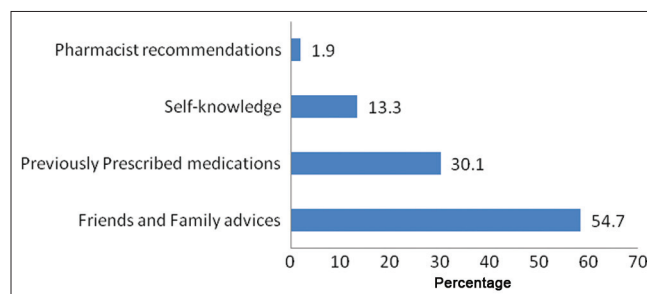
**Table 4: Correlation of self-medication with analgesics and residence**

Variable	Practiced self-medication	Did not practice self-medication
Live in a dormitory	134 (74.9)	45 (25.1)
Live with family	288 (78.5)	79 (21.5)

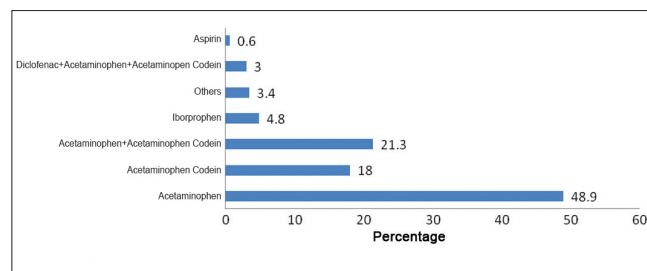
There was no significant difference ( $P = 0.34$ ) between residences, Figures in parentheses are in percentage



**Figure 1: Medical conditions that caused students to self-medicate with analgesics** Other causes: common cold, influenza, pain in muscles and other reasons.



**Figure 2: Source of information on self-medications with analgesics as reported by students**



**Figure 3: Type of self-medicated analgesics used by students** Others: Mefenamic acid, Naproxen, Tramadol

The data demonstrates that analgesic self-medication was high among students of universities in Qom state (a central state of Iran). The study showed that 76.6% of the respondents self-medicated with analgesics once or more than once in the 3 months of the study. Some higher rates were reported by Bahrain university students (81.3%)<sup>[13]</sup> and some lower rates reported by students in the UK (20%)<sup>[14]</sup> and Germany (40%).<sup>[15]</sup> This variation could be partly due to the differences in study design; both studies in UK and Germany were of high school children, but ours and the Bahraini study were of college students.

However, the selection of samples with sociocultural backgrounds, study design and the measurement timeframe can influence study results.<sup>[1]</sup>

Our findings generally revealed no significant difference in self-medication with analgesics between male and female students. However, the symptoms that led to self-medication were different (headache for men and dysmenorrhea and headache for women). These findings are in agreement with an earlier study of university students in Bahrain.<sup>[13]</sup> However, there are data from Spain,<sup>[16]</sup> Brazil,<sup>[17]</sup> and Kuwait,<sup>[18]</sup> indicating higher self-medication among women.

It was rather unusual that there was also no significant difference in the prevalence of self-medication between medical and non-medical students. This finding is in agreement with three studies done in Pakistan,<sup>[19]</sup> Slovenia,<sup>[20]</sup> and Mozambique,<sup>[21]</sup> and in contrast with a study in Palestine.<sup>[22]</sup>

The reason could be that non-medical students, their friends and families are as knowledgeable about medicines as medical students.

Residence in this study had no significant association with self-medication with analgesics among students. Results of other studies vary, in that in a study in Spain, self-medication was more frequent among those who lived alone,<sup>[16]</sup> but there was no significant association of self-medication with residence in the study in Brazil.<sup>[23]</sup>

In summary, self-medication with analgesics is highly prevalent among Iranian college students in Qom city, and we believe that it could represent college students in general in Iran. However, we suggest a complete study on self-medication in Iran. We suggest that students be made aware of the potentially dangerous effects of self-medication and the side-effects of various analgesics. Student health groups in universities could help in promoting awareness of these issues in their friends with the help of pharmacists or physicians. The production of

multimedia programs or animations could be helpful in improving the knowledge of the entire community about the potential dangers of self-medication.

### Limitations

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.

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