

Sedative drug self-medication practice, attitude, and knowledge among medical students at the University of Dongola during 2022

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Abstract:

Background: Self-medication with sedatives is a common problem worldwide, especially in developing countries. Medical students experience significant psychological stress and are therefore at higher risk of using sedatives. This study was undertaken to assess the prevalence and knowledge of sedative drug self-medication practice among medical students at the University of Dongola.

Methods: A university-based cross-sectional study was conducted among medical students at the University of Dongola. Data was collected using pretested, self-administered questionnaires developed by the researchers after intensive searching and expert consultation. A total of 248 students were selected by the nonprobability-convenient sampling technique.

Results: Sedative drug self-medication prevalence was 41.1% among medical students. The main reasons for practicing sedative drug self-medication were sleep disorders, allergies, saving time, and stress. Moreover, 54.8% of participants have knowledge about sedative drugs. The most common sources of information about sedative drugs were pharmacists (38.23%), doctors (36.27%), friends (10.78%), and family (8.82%). The most commonly utilized sedative drugs were anti-allergic (19.8%), antitussives (18.1%), diazepam (7.2%), thiopental (3.6%), and alprazolam (2.4%). Furthermore, 68.5% of participants accept that sedative drugs could be harmful and are associated with adverse effects.

Conclusion: Our study revealed that self-medication with sedative drugs was less prevalent among medical students at the University of Dongola, Sudan. Furthermore, the medical students showed more knowledge and attitude toward self-medication with sedative drugs.

Keywords: sedative drugs, self-medication, prevalence, medical students.

1. Introduction

It is a common human experience to be confronted with illnesses or disorders. Individual responses to such disorders, on the other hand, are influenced by a variety of personal beliefs as well as a number of other underlying factors (Ullah et al., 2013). Self-medication includes using medications to address ailments or symptoms that have

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been self-diagnosed as well as intermittent or continuous use of a prescription medicine to treat persistent or reoccurring ailments or symptoms (Albasheer et al., 2016). Self-medication involves taking medication without a prescription (over-the-counter), exchanging drugs with family or friends, or utilizing medicine that has been stored at a residence (Ullah et al., 2013). Self-medication may be gained as a consequence of a recommendation from those who have had success with a certain drug in a comparable situation or by taking the same medicine previously described. Low socioeconomic status, environmental variables, easy access to drugs, demographic and epidemiological characteristics, and lifestyle are all aspects to consider. For a number of reasons, including accessibility, time management, and the fact that they often find themselves with better pharmacological expertise, medical students frequently utilize self-medication (Mehta & Sharma, 2015).

Although many students see self-medication as an effective, convenient, and time-management technique, it comes with a number of risks. Well-researched negative effects of self-medication include misdiagnosis, delaying medical care when necessary, issues with low or excessive drug dose, extended usage and drug interactions, and drug misuse or dependency (Calabresi & Cupini, 2005; Ruiz, 2010).

In order to strengthen the health care system, self-medication is not entirely forbidden, and the WHO establishes standards for appropriate self-medication (Wiedenmayer et al., 2006). Medicine must be of proven safety, quality, and efficacy, and the conditions for which the drugs are used must be self-recognizable, including some chronic and recurrent conditions. This practice needs active participation from pharmacists and medical professionals (Baracaldo-Santamaría et al., 2022).

Due to the rigorous academic standards and demanding professionals, medical sciences are regarded as stressful areas of study since they have a negative influence on students' mental and physical health (Bray & Kwan, 2006).

Exams, classwork, and financial duties were regarded as the three main pressures. Dissecting cadavers, pathologic procedures, completing the first physical examination of a patient, fear of getting infections, feelings of inadequacy, medical hierarchies, bullying and harassment, and more have all been highlighted as important causes to medical student depression. They become susceptible to depression while dealing with difficult situations affecting patients, such as death and dying, as well as moral dilemmas (Moir et al., 2018).

Gender, a lack of family support, and a personal history of depression are risk factors, medical students who are overworked and in a competitive environment under constant exam and assessment pressure change their daily routines in a variety of ways to cope with the stress and workload, including skipping sleep, eating irregularly, and abusing drugs like excessive alcohol, smoking, and sedative use (Wang et al., 2016).

Sedatives are "agents that may lower the function of the central nervous system and promote calmness or sleepiness" (sedation) (Mihic & Harris, 2011). Some sedatives create amnesia, relax muscles, relieve spasticity caused by central nervous system pathology, or have anticonvulsant properties. Because of their amnestic and anxiolytic characteristics, benzodiazepines are commonly utilized intraoperatively (Lader, 2011). The sedative drugs come in a variety of strengths and are often taken orally as a tablet,

capsule, or liquid. Some people use sedatives to enhance the effects of alcohol or narcotics (Mihic & Harris, 2011).

Sedative self-medication is increasingly becoming a worldwide health problem. A recent study showed that benzodiazepines alone accounted for nearly 30% of deaths from pharmaceutical agents, and 75 percent of overdose deaths were unintentional (Weaver, 2015).

Sedative self-medication is really getting to be an alarming issue, especially among medical students, and should be taken more seriously because their own attitudes towards substances may influence their professional behavior. Up to our knowledge, there has been no study done in the study area about self-medication with sedatives among medical students yet. The purpose of this research, therefore, was to determine how common and knowledgeable sedative drug self-medication was among University of Dongola medical students.

2. Methodology

A community-based descriptive cross-sectional study was conducted in the Faculty of Medicine and Health Sciences at the University of Dongola, Northern State, Sudan, during 2022. The faculty of medicine was established in 1998 and is located in Dongola City, the capital of Northern Sudan, which lies on the west bank of the Nile River, about 278 miles (448 km) northwest of Khartoum. The town is an agricultural center for the surrounding area. Dongola is linked by road with Wadi Halfa and Marawi and has a domestic airport. The academic system of the faculty is six years long and consists of basic, preclinical, and clinical levels. A sedative course is studied at the preclinical level in the 3rd year. The source population consisted of the medical students attending the University of Dongola, whereas the study population was medical students in their 3rd, 4th, 5th, and 6th years, those who signed written informed consent. A single population proportion formula was used to estimate the sample size. The sample was composed of 248 students from different batches, selected using a convenient nonprobability sampling technique.

$$n = N / 1 + N (e)^2; n = \text{sample size}, N = \text{population size} = 492, e = \text{level of precision} = 0.05$$

$$n = 492 / 1 + 492(0.05)^2$$

Finally, with the addition of 10% non-response, a total of 248 participants were included. The questionnaire was developed by the authors, and data was collected using a pre-designed, semi-structured questionnaire to collect the relevant information pertaining to the study variables. The questionnaire had two sections: the first section consisted of questions regarding age, gender, year level of the participating students, and other socio-demographic variables. The second section consisted of questions regarding the practice, attitude, and knowledge regarding sedative drug self-medication.

2.1. Data analysis

Data were analyzed by SPSS version 23 (SPSS Inc., Chicago, IL, USA). Statistical analysis involved descriptive statistics as well as inferential statistics. Descriptive

statistics included percentages and frequencies of categorical variables. Categorical variables were compared for significance using the chi-square test. A P value of 0.05 was used to indicate statistical significance.

2.2. Ethical consideration

Approval of this study was obtained from the Ministry of Health, Northern State. Written and informal consent was obtained from each study participant. The rights of the students to participate or withdraw at any time were explained. Data privacy and confidentiality were maintained throughout the research.

3. Results

A total of 248 medical students (65.3% male, 34.7% female) from 3rd, 4th, 5th, and 6th year levels were included in the study. The response rate was 100%. The majority of the participants were 20–25 years old (89.9%), 23% were in the 3rd year, 24.4% in the 4th year, 37.1% in the 5th year, and 14.5% in the 6th year of medical school. Most participants live in public dormitories (38.7%), private dormitories (31.5%), and with their families (29.8%). Only 6.9% of participants were smokers. The socio-demographic characteristics of the participants are described in Table 1.

Table 1. Socio-demographic characteristics of the participants

Variables		No (%)
Gender	Male	162 (65.3%)
	Female	86 (34.7%)
Age	Less than 20	1 (0.4%)
	20 – 25	223 (89.9%)
	More than 25	24 (9.7%)
Current residence	With family	74 (29.8%)
	Pubic dormitory	96 (38.7%)
	Private dormitory	78 (31.5%)
Study level	3rd year	57 (23%)
	4th year	63 (25.4%)
	5th year	92 (37.1%)
	6th year	36 (14.5%)
Family stability	Divorced parent	13 (5.2%)
	Not divorced	235 (94.8%)
Smoking	Yes	17 (6.9%)
	No	231 (93.1%)

The prevalence of sedative drug self-medication in this study was 78 out of 248 medical students (41.1%) (Figure 1A). Female medical students practiced self-medication with sedative drugs slightly more than male students (53.48% and 34.56%, respectively), as shown in figure 1B.

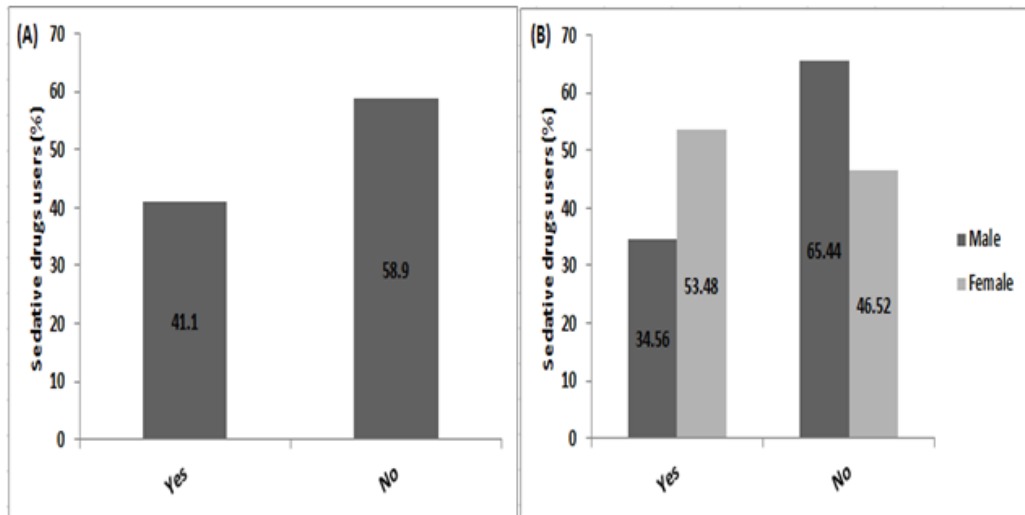


Figure 1. Prevalence of sedative drug self-medication among medical students (A) and comparison between male and female physicians in the prevalence of sedative drug self-medication (B)

Figure 2 shows the main reasons sedative drugs were used: 23.7% sleep disorder, 15.6% stress, 9.8% anxiety, 4.3% panic attack, and 24.3% allergy. The most common adverse effect in sedative drug users in this study was dizziness (13%), followed by lack of concentration (9.6%), shortness of breath (SOB) (9.6%), vomiting (4.8%), and numbness of the extremities (4.8%).

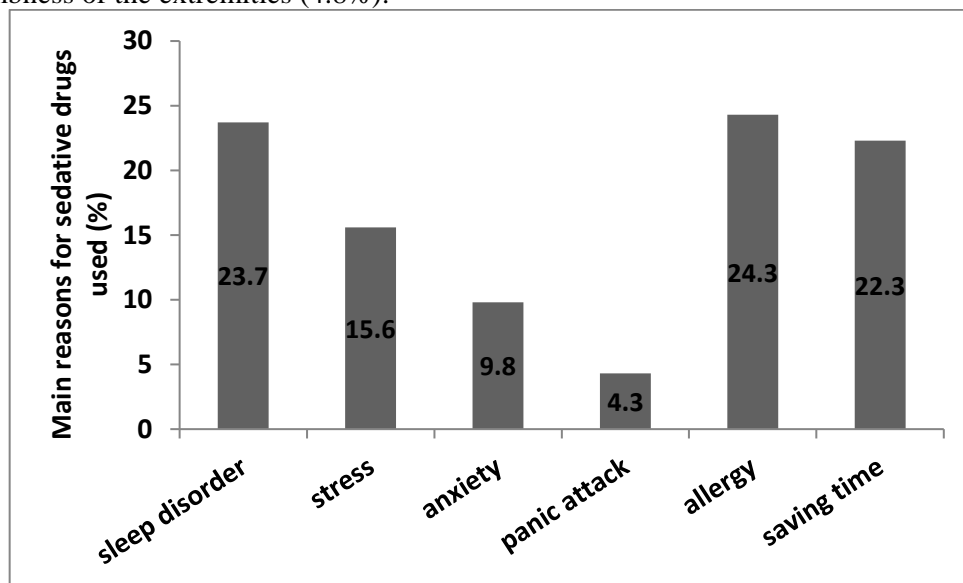


Figure 2. The main reason for sedative drugs being used among medical students

As shown in Figure 3B, the most common sedative drugs used by sedative drug users in the present study were anti-allergic (19.8%), followed by antitussive (18.1%), diazepam (7.2%), thiopental (3.6%), and alprazolam (2.4%).

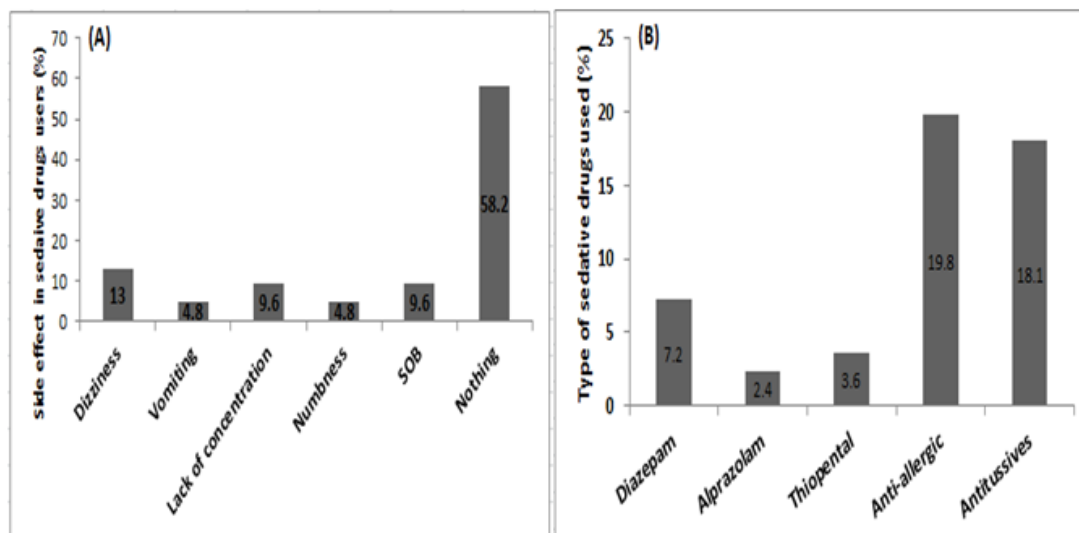


Figure 3. Most common adverse effect in sedative drug users (A) and most common sedative drug used by sedative drug users (B)

The data shown in Table 2 revealed the knowledge and attitude of medical students towards self-medication with sedative drugs. It demonstrated that all medical students know the definition of self-medication. Furthermore, 31.5% of participants accept that self-medication could be useful, and 68.5% accept that it could be harmful. There were significant differences, greater in males than females, in the benefits of self-medication. Moreover, 54.8% of medical students have good knowledge about sedative drugs; females have 71.42% more knowledge about sedative drugs than males (48.14%). The present study revealed that 39.9% of participants accepted that self-medication with sedative drugs could be serious and associated with adverse effects. In addition, 38.23% of sedative drug users obtained information about sedative drugs from a pharmacist, 36.27% from a doctor, 10.78% from friends, 8.82% from their family, and 5.88% from the internet. Regarding sedative drug product leaflets, 46.08% of sedative drug users read them. Moreover, most of the sedative drug users in this study used it for their needs (87.25%). Regarding the form of sedative drug used, 58.82% were tablets, 39.22% were syrups, and 1.96% were injections. Furthermore, 20.9% of participants know benzodiazepine as a sedative drug, 3.6% know barbiturate, 2.4% know anti-allergy, and 1.6% know antitussive.

Table 2. knowledge and attitude of medical students towards self-medication with sedative drugs.

Variables	Male	Female	Total	P value
Definition of self-medication				
Yes	162 (65.3%)	84 (34.3%)	248 (100%)	0.00
No	000	000	000	
Benefits of self-medication				
Useful	52 (32.09%)	26 (30.95%)	78 (31.5%)	0.031
Harmful	110 (67.91%)	58 (69.04%)	168 (68.5%)	
Knowledge about sedative drugs				
Yes	78 (48.14%)	58 (71.42%)	136 (54.8%)	0.023
No	84 (51.85%)	26 (28.71%)	112 (45.2%)	
Sedative drugs cause adverse effects				
Yes	68 (41.97%)	31 (36.90%)	99 (39.9%)	0.011

No	94 (58.02%)	53 (63.10%)	149 (60.1%)
Source of information on sedative drug use			
Doctor			37 (36.27%)
Pharmacist			39 (38.23%)
Family			9 (8.82%)
Friends			11 (10.78%)
Internet			6 (5.88%)
Read sedative drug product leaflets			
Yes			47 (46.08%)
No			55 (53.92%)
Number using per day			
Once time per day			6 (5.88%)
Two time per day			7 (6.86%)
On needed			89 (87.25%)
form of sedative used			
Injection			2 (1.96%)
Tablet			60 (58.82%)
Syrup			40 (39.22%)
Knowledge about types of sedative drugs			
Benzodiazepines			52 (20.9%)
Barbiturates			9 (3.6%)
Anti-allergy			6 (2.4%)
Antitussive			4 (1.6%)
Others			31(12.5%)

4. Discussion

Due to the rigorous academic standards and demanding professionals, the medical professions are seen as a difficult subject of study since they have a negative influence on students' mental and physical health (Dyrbye et al., 2005). Sedative self-medication is increasingly becoming a worldwide health problem. A recent study showed that benzodiazepines alone accounted for nearly 30% of deaths from pharmaceutical agents, and 75 percent of overdose deaths were unintentional (Weaver, 2015). Although the use of sedatives for self-medication is widespread in both industrialized and developing nations, this phenomenon is generally seen to be equivocal. However, neither a qualitative nor a quantitative study of it has been done in great detail (Banerjee & Bhadury, 2012). This study demonstrated that the practice of sedative drug self-medication among medical students at the University of Dongola is slightly lower than several studies that documented different prevalence rates ranging from 43.24 to 98% (Banerjee & Bhadury, 2012; Mannasaheb et al., 2022). The present study revealed that all medical students find themselves lacking knowledge about self-medication and drugs and these findings were documented by a previous study (Meaurio et al., 2009). Sedative drug usage did not seem to be significantly correlated with gender, marital status, family income, site of residence, smoking, stimulant use either during or after examinations, or sleep patterns (Al-Sayed et al., 2014). This study revealed that sedative drug use was more common in male medical students.

As documented in previous studies, the most common problems for which students used self-medication were vague pain (69%), cold symptoms (45%), heart burn (34%), migraine headache (23%), and skin problems (19%) (Gutema et al., 2011; Nalini, 2010). Sedatives are the most popular drugs used for self-medication. The study demonstrated that the main reasons for medical students to use sedative drugs were

allergies, sleep disorders, saving time, stress, anxiety, and panic attacks. These results are consistent with those of other previous studies, which also documented time savings by not visiting the physician (Mekuria et al., 2021; Mustafa & Rohra, 2017). This finding is in keeping with other studies, which posited that the commonest groups of medications prone to self-medication include sedatives, antibiotics, and anti-allergy (Afolabi, 2008; Saeed et al., 2014). The ready availability of these groups of drugs, even without prescription, is the particular reason why they are consumed most by medical students.

Sedative self-medication was considered serious and associated with adverse effects by the majority of medical students, both male and female, in this study. This could be because medical students know that no drug is totally safe and that each can have side effects ranging from mild to severe. Knowledge about sedative self-medication was found to be appropriate in male and female medical students, as the majority of them try to read about the drugs before use, and they even read the bulletins attached to the drugs; still, measures should be taken to ensure the proper safety of the drugs and that the drugs are used for the right condition. Furthermore, the present study showed that the source of information for sedative drugs is self-medication. Sedative users get information from pharmacists, doctors, friends, their family, and the internet, respectively. A study done by Osman and his colleagues documented that gender is essential in deciding the source of information for self-medication. Female students depend more on reading and the internet, while male students depend more on doctors and pharmacists (Albasheer et al., 2016).

This study demonstrated that medical students have had a more conservative attitude towards sedative drug self-medication, as reflected by the fact that the majority of them accept that sedative drug self-medication could be serious and most of them disagree with advising others to practice sedative drug self-medication. This result is in contrast to research done in central Saudi Arabia to assess the knowledge, attitudes, and perceptions of consumers towards self-medication, where the participants exhibited poor knowledge and a negative attitude towards self-medication (Aljadhey et al., 2015). This evident difference in attitude and knowledge is expected, as medical students have more knowledge about the use and side effects of sedative drugs as they study them in their faculty.

Depending on availability and cultural factors, different sedative medication use rates among medical students vary among nations. To the best of our knowledge, this is the first study reporting the frequency of sedative drug use among medical students in Dongola City, the capital of Northern State. This study revealed that the most commonly used sedative drugs among sedative drug users were anti-allergic, followed by antitussive, diazepam, thiopental, and alprazolam. In line with our findings, a recent research revealed that the most popular sedative medications used by study participants to treat mild ailments like fever and headaches were antispasmodics, followed by analgesics and antipyretics (Loni et al., 2023). Several studies carried out in India, Pakistan, Bangladesh, Ethiopia, and Iran also showed similar results pertaining to the consumption of analgesics and antipyretics (Al Essa et al., 2019; Tesfaye et al., 2020).

5. Conclusion

Our study revealed that self-medication with sedative drugs was less prevalent among medical students at the University of Dongola, Sudan. Furthermore, the medical students showed more knowledge and attitude toward self-medication with sedative drugs. Further studies should also be done on people's attitudes toward sedative drug self-medication, their knowledge regarding drug dosage and potential adverse effects, and the role of medical colleges to better assure their approach toward sedative drug self-medication.

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Conflict of interest

The authors declare that the study was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Author contributions

All authors contributed equally to all the research work.

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