



Self-Medication Practice among Moroccan Medical Students

Soukaina Lyazidi¹, Romaissaa Eddarif¹, Sanaa Ameayou¹, Samira Nani^{1,2}

¹Epidemiology Laboratory, Faculty of Medicine and Pharmacy of Casablanca, Hassan II University, Casablanca, Morocco

²Laboratory of Cellular and Molecular Pathology, Hassan II University, Casablanca, Morocco

Email: lyazidi.soukaina@gmail.com

How to cite this paper: Lyazidi, S., Eddarif, R., Ameayou, S. and Nani, S. (2026) Self-Medication Practice among Moroccan Medical Students. *Open Access Library Journal*, **13**: e15025. <https://doi.org/10.4236/oalib.1115025>

Received: February 11, 2026

Accepted: March 3, 2026

Published: March 6, 2026

Copyright © 2026 by author(s) and Open Access Library Inc.

This work is licensed under the Creative Commons Attribution International License (CC BY 4.0).

<http://creativecommons.org/licenses/by/4.0/>



Open Access

Abstract

Background: Self-medication (SM) is widely practiced worldwide, since many drugs are dispensed without prescription. This phenomenon can lead to an increased resistance of pathogens, drug reaction and drug dependence. The objective of our study was to estimate the prevalence of SM practice, to describe its characteristics among Moroccan medical students, and to identify factors associated with this practice. **Methods:** A cross-sectional study was carried out between October and December 2023, including all medical students of the Faculty of Medicine and Pharmacy of Casablanca. **Results:** A total of 457 students participated in our study. The prevalence of SM in the preceding six months was 83.59% CI 95% [79.99%; 86.77%]. Being sixth/seventh year student was significantly associated with SM practice (ORa = 2.121; IC 95%: 1.084 - 4.148; p = 0.028). Commonly used drugs were paracetamol (94.5%), antibiotics (50.5%), and non-steroidal anti-inflammatory drugs (50.0%). Pain (81.9%), fever (75.7%) and headaches (69.4%) were the main symptoms for which students turned to SM. Drug store (81.4%) and unused drugs at home (59.9%) were the main sources of drugs. **Conclusion:** The practice of SM was highly prevalent among Moroccan medical students, especially among senior students. This highlights the need for targeted educational interventions and stricter government regulation of the sale of over-the-counter medicines, especially antibiotics.

Subject Areas

Environmental Science, Chemistry, Food and Nutrition

Keywords

Self-Medication, Prevalence, Medical Students

1. Introduction

The practice of self-medication (SM) nowadays is widespread in societies and has been increasing over time due to the availability and easy access to medicines and increased knowledge of medical science [1]. World Health Organization (WHO) defines SM as “the use of medicinal products by the consumer to treat self-recognized disorders or symptoms, or the intermittent or continued use of a medication prescribed by a physician for chronic or recurring diseases or symptoms” [2].

SM has largely been associated with the use of over-the-counter (OTC) medicines, which can be bought in pharmacies without a prescription. Responsible SM can be considered as a part of self-care, which is defined as “the ability of individuals, families, and social groups to promote health, prevent disease, maintain health, and manage illness and disability with or without the assistance of a health care provider” [3]. Responsible SM has an important role to play in health policy as it reduces unnecessary consultations, thereby reducing the burden on health care systems, particularly in terms of medical follow-up costs and physicians’ workload [4] [5].

According to a systematic review and meta-analysis that assessed the incidence of SM worldwide from 2000 to 2018, the most common reason for SM was the mild nature of the condition and the patient’s preference for SM rather than consulting a doctor [1]. Pharmacies were the most common source of medicines for SM reported in the systematic review [1]. SM can have harmful consequences for society and health care systems, resulting in huge costs for countries. It is recognised that the risks associated with SM are mainly due to inappropriate use of medicines [5]. This may result in potential delay in treatment of a serious condition, masking of symptoms of a serious condition, drug interactions, adverse reaction, and antimicrobial resistance [6]. In fact, SM is the most common reason for the development of antibiotic resistance in human pathogens [7].

Young people, in particular students, are among the most vulnerable to SM, because of their higher educational level [8]. According to a systematic review, the prevalence of SM among university students was 70.1%, being higher among medical students (97.2%) than non-medical students (44.7%) [8]. Medical students typically possess extensive knowledge about drugs, as they frequently use them during their training in health centres and have easy access to medications, which may increase the likelihood of SM among this population. In fact, the practice of SM among medical students has been widely studied around the world. Many studies reported high prevalences of SM; 89.6% in Iran [9], 79.7% in Ethiopia [10], 81.3% in Serbia [11], 76.6% in Nepal [12], and 61.1% in Zambia [13].

In Morocco, no study has been carried out to assess the practice of SM among medical students. Thus, the objectives of our study were to estimate the prevalence of SM practice, to describe its characteristics among Moroccan medical students, and to identify factors associated with this practice.

2. Methods

2.1. Study Design and Setting

A cross-sectional study was carried out between October and December 2023 at the Faculty of Medicine and Pharmacy of Casablanca (FMPC).

2.2. Study Population

All medical students attending the FMPC during the study period were included.

2.3. Sampling Method and Sample Size

Convenience sampling was used. Sample size calculation was based on an estimated prevalence of self-medication of 61.1% among medical students in a study conducted at the University of Copperbelt, in Zambia in 2021 [13], with a precision of 5% and an alpha risk of error of 5%. The minimum sample size calculated was 365. A weighting on the proportion of students by year of study was realized.

2.4. Variables

2.4.1. Dependent Variable

Self-medication in the last six months defined by the fact that an individual used a drug on his own initiative or on the advice of someone, in order to treat a self-identified symptom or condition, without prior consultation of a healthcare professional. Characteristics of self-medication included the frequency of self-medication, the evolution after this practice, medication used for SM, symptoms leading to SM, source of medication, source of information on treatments, reasons for SM, satisfaction and opinion on the practice of SM.

2.4.2. Independent Variables

Socio-economic and demographic variables included age, sex, year of study, marital status, nationality, health insurance, parents' level of education, parents' monthly income, financial difficulties, parents or family working in the medical or paramedical field. Medical students health status included a history of chronic disease, presence of a medicine cabinet at home, and a history of health problems and medical consultations during the last six months.

2.5. Data Collection

Data were collected using a pre-tested, self-administered questionnaire administered via Google Forms. The questionnaire was developed after a comprehensive review of the relevant literature on the topic. The items were derived from previously published studies assessing similar outcomes among medical students. The pre-test was conducted among 16 students from the Faculty of Dentistry to evaluate the clarity and understanding of the questions and to estimate the time required to complete the questionnaire. The average completion time was approximately 15 minutes. The survey link was disseminated through Facebook and WhatsApp groups of medical students of the FMPC.

Data Analysis

SPSS IBM Version 16 software was used for data analysis. Categorical variables were described using frequencies and percentages, and quantitative variables using means and standard deviations. The chi-square test of independence was used to study associations between categorical variables. A multivariable logistic regression using a backward stepwise selection procedure was performed. All variables with a p-value < 0.20 in univariate analysis were entered into the initial model. Variables were then sequentially removed according to a threshold of $p > 0.05$. The significance level was set at 0.05.

2.6. Ethical Considerations

Participants were informed of study objectives, and their informed consent was obtained through a mandatory question on the Google Forms. Anonymity and confidentiality of data were ensured. The approval of the ethics committee of the FMPC was obtained before starting data collection.

3. Results

3.1. Socioeconomic and Demographic Characteristics

A total of 457 medical students were included in our study. The mean age was 21.2 ± 2.8 years, 72.9% were female, 95.6% of Moroccan nationality and 97.6% were single. The majority of students family home (95.8%) was in urban areas, 79.2% were living in their family home and 18.4% in a rental. As for their parents level of education, 74.2% of fathers and 61.5% of mothers had a university degree. More than two-thirds of participants parents (77.0%) had a monthly income of over 7000 MAD, with 30.2% of participants reporting financial difficulties and 23.9% not having any health insurance. Over a third of medical students (38.1%) had a family member working in the medical or paramedical field (**Table 1**).

Table 1. Socioeconomic and demographic characteristics of Faculty of Medicine and Pharmacy medical students (n = 457).

| Variable | | n (%) |
|----------------|-----------------------|------------|
| Gender | Female | 333 (72.9) |
| | Male | 124 (27.1) |
| Nationality | Moroccan | 437 (95.6) |
| | Foreigner | 20 (4.4) |
| Marital status | Single | 448 (98.0) |
| | Married | 9 (2.0) |
| Year of study | First and second year | 136 (35.6) |
| | 3 - 5th year | 122 (31.9) |
| | 6 - 7th year | 124 (32.5) |

Continued

| | | |
|--|----------------------|------------|
| | Family home | 362 (79.2) |
| Residence | Rental | 84 (18.4) |
| | University residence | 11 (2.4) |
| Health insurance | | 348 (76.1) |
| Parents living area | Urban | 438 (95.8) |
| | Rural | 19 (4.2) |
| Fathers' education level | University | 339 (74.2) |
| | Middle/High school | 77 (16.8) |
| | Elementary school | 32 (7.0) |
| | illiterate | 9 (2.0) |
| Mothers' education level | University | 281(61.5) |
| | Middle/High school | 120 (26.3) |
| | Elementary school | 25 (5.5) |
| | illiterate | 31 (6.8) |
| Parents' income (MAD*) | >7000 | 352 (77.0) |
| | 3000 - 7000 | 81 (17.7) |
| | <3000 | 24 (5.3) |
| Financial difficulties | | 138 (30.2) |
| Parents/family in the medical or paramedical field | | 174 (8.1) |

3.2. Participants' Health Status

Among our participants, 15.1% claimed to have a chronic illness, with 40.0% of the latter suffering from asthma. Nearly two-thirds of medical students (63%) reported having a medicine cabinet at home.

Over half of medical students (60.6%) reported having experienced health problems in the preceding six months. Of the latter, 28.2% reported never having visited a doctor during the same period.

3.3. Self-Medication Practice

Of the 457 medical students included, 382 declared having practiced SM during the last six months, corresponding to a prevalence of 83.59% [79.99%; 86.77%]. Of the latter, 63.1% had practiced self-medication one to three times, 20.4% four to six times and 16.5% more than six times during the last six months. The majority of participants (89.5%) reported recovery after self-medication, a small proportion of 7.6% reported no improvement, while 1.3% reported subsequent side effects. Commonly used drugs for SM were Paracetamol (94.5%), antibiotics

(50.5%), non-steroidal anti-inflammatory drugs (50.0%), and antispasmodics (47.6%) (**Table 2**). The latter were used for self-medication by 50.8% of female, and 26.6% of male medical students. This difference was statistically significant ($p < 0.001$). Pain (81.9%), fever (75.7%) and headache (69.4%) were the main symptoms for which students turned to SM (**Table 3**). SM for pre-menstrual syndrome was reported by 56.8% of female medical students.

Drug store (81.4%) and unused medicines at home (59.9%) were the main sources of medicines for SM practice. The main sources of information about medicines used for SM practice were previous prescriptions (72.0%), academic knowledge (66.5%), and pharmacies (58.4%). The main reasons of SM reported were prior experience with the medicine (88.7%), sufficient medical knowledge of the disease (72.5%), for urgent use (68.8%), easy access to treatment (66.0%), and the pathology being mild (65.7%) (**Table 4**).

Nearly two-thirds of medical students (65.2%) were satisfied with the practice of SM, and 21.5% were very satisfied. The majority of participants (86.4%) considered that the safety of this practice depends on the medication used, 11% thought that this practice is always dangerous and 2.6% thought that it is safe.

Table 2. Drugs used for self-medication by medical students of Faculty of Medicine and Pharmacy of Casablanca (n = 382).

| Drugs | n (%) |
|--------------------|------------|
| Paracetamol | 361 (94.5) |
| Antibiotic | 193 (50.5) |
| NSAID ^a | 191 (50.0) |
| Antispasmodic | 182 (47.6) |
| Antihistaminic | 128 (33.5) |
| Cough suppressant | 123 (32.2) |
| Antacid | 105 (27.5) |
| Anti-diarrhea | 101 (26.4) |
| Corticosteroid | 85 (22.3) |
| Antiemetic | 73 (19.1) |
| Laxative | 66 (17.3) |
| Antifungal | 46 (12.0) |
| Anxiolytic | 27 (7.1) |
| Sleeping pills | 27 (7.1) |
| Neuroleptic | 8 (2.1) |
| Antidepressant | 7 (1.8) |

^aNSAID = nonsteroidal anti-inflammatory drug.

Table 3. Symptoms leading medical students of Faculty of Medicine and Pharmacy of Casablanca to self-medicate (n = 382).

| Symptoms | n (%) |
|-------------------|------------|
| Pain | 313 (81.9) |
| Fever | 289 (75.7) |
| Headache | 265 (69.4) |
| Sore throat | 211 (55.2) |
| Cough | 204 (53.4) |
| Nasal discharge | 198 (51.8) |
| Tiredness | 173 (45.3) |
| Abdominal pain | 144 (37.7) |
| Diarrhea | 142 (37.2) |
| Dental pain | 139 (36.4) |
| GERD ^a | 132 (34.6) |
| Allergy | 128 (33.5) |
| Vomiting | 111 (29.1) |
| Constipation | 108 (28.3) |
| Stress | 101 (26.4) |
| Muscle pain | 95 (24.9) |
| Sleep disorders | 82 (21.5) |
| Skin disorders | 76 (19.9) |
| Earaches | 75 (19.6) |
| Acne | 62 (16.2) |
| Anxiety | 61 (16.0) |
| Asthma | 56 (14.7) |

^aGERD = gastroesophageal reflux disease.

Table 4. Characteristics of self-medication among medical students of Faculty of Medicine and Pharmacy of Casablanca (n = 382).

| Sources of medicines | n (%) |
|---|------------|
| Drug store | 311 (81.4) |
| Unused medicines at home | 229 (59.9) |
| Friends/family | 89 (23.3) |
| Free samples | 94 (24.6) |
| Other medical students | 19 (5.0) |
| Sources of information about medicines | |
| Previous prescriptions | 275 (72.0) |
| Academic knowledge | 254 (66.5) |
| Pharmacies | 223 (58.4) |

Continued

| | |
|---|------------|
| Medicines information leaflets | 202 (52.9) |
| Internet searching | 180 (47.1) |
| Advice from fellow medical students | 141 (36.9) |
| Previous prescriptions of relatives/friends | 131 (34.3) |
| Advice from non-medical family/friends | 89 (23.3) |
| Social media groups | 32 (8.4) |
| Reasons of self-medication | |
| Prior experience with the medicine | 339 (88.7) |
| Sufficient medical knowledge of the disease | 277 (72.5) |
| Urgent use | 263 (68.8) |
| Easy access to treatment | 252 (66.0) |
| Mild pathology | 251 (65.7) |
| Lack of time | 178 (46.6) |
| Lack of financial resources | 121 (31.7) |
| Non-satisfaction with healthcare service | 50 (13.1) |

3.4. Self-Medication Practice Associated Factors

In univariate analysis, the prevalence of SM was significantly higher among sixth year and seventh year students (89.9%) compared to first year and second year students (79.5%) and third to fifth year students (82.4%) ($p = 0.046$) (Table 5). In multivariable analysis, being sixth/seventh year student was the only factor found to be significantly associated with SM practice (ORa = 2.121; IC 95%: 1.084 - 4.148; $p = 0.028$).

Table 5. Self-medication practice associated factors among medical students of Faculty of Medicine and Pharmacy of Casablanca in univariate analysis (n = 382).

| Variable | | Self-medication practice n (%) | p value |
|---|--------|--------------------------------|---------|
| Gender | Female | 281 (84.4) | 0.452 |
| | Male | 101 (81.5) | |
| Health insurance | Yes | 293 (84.2) | 0.531 |
| | No | 89 (81.7) | |
| Financial difficulties | Yes | 120 (87.0) | 0.201 |
| | No | 262 (82.1) | |
| Parents/family in the medical/paramedical field | Yes | 145 (83.3) | 0.908 |
| | No | 237 (83.7) | |
| Medicine cabinet at home | Yes | 246 (85.4) | 0.168 |
| | No | 136 (80.5) | |

Continued

| | | | |
|-----------------|-----------------------------|------------|--------------|
| Chronic illness | Yes | 63 (91.3) | 0.060 |
| | No | 319 (82.2) | |
| Study year | First and second year | 136 (79.5) | 0.046 |
| | 3 - 5th year | 122 (82.4) | |
| | 6 - 7th year | 124 (89.9) | |
| Parents' income | <3000 | 22 (91.7) | 0.272 |
| | ≥3000 | 360 (83.1) | |
| Residence | Rental/University residence | 83 (87.4) | 0.264 |
| | Family home | 299 (82.6) | |

4. Discussion

To our knowledge, this study is the first study conducted in Morocco about the practice of SM among medical students. SM practice was highly prevalent among medical students of the FMPC, with 83.59% of them reporting SM in the last sixth months. A variety of results have been reported in the literature for a period of SM practice ranging from one to 12 months. Similar to our study, an Iranian study reported a prevalence of 89.6% in the past six months among medical sciences students [9]. In a Nepalese study, an approach covering the last two months found a prevalence of 76.6% [12]. In contrast, a study in Saudi Arabia reported a prevalence in the previous month of 49.3% among medical students [14]. This wide variation across countries could be explained by differences in advertising, and in legislations, and the ability to obtain certain drugs without a prescription, the quality of health care services as well as the duration of SM practice assumed in each study.

Paracetamol was the most commonly used drug for SM in our study. Similarly, analgesic-antipyretic was the most used drug reported in various studies [12] [15]-[17]. Paracetamol was also the most commonly used medication by medical students during the COVID 19 pandemic [18]. In fact, Paracetamol is one of the most commonly prescribed and recommended over-the-counter molecules, but it is also used for SM, as it has a wide range of indications. Its danger is often unjustly minimized, yet its use in high doses carries significant risks, in particular hepatotoxicity [19]. In our study, antibiotics were the second most commonly used drugs for SM (50.5%). Similarly, in studies conducted among university students in Ethiopia and Nigeria, and a study conducted among medical students in Zambia, antibiotics were found to be the second most used type of medication after analgesics [13] [16] [17]. In contrast, a southeastern Iranian study of pharmacy and medical students found that antibiotics (74.4%) were the most commonly used drugs followed by analgesics (59.0%) [20]. In many low- and middle-income countries, it is common for patients to buy antibiotics from drugstores without a prescription [21]. This could explain the high prevalence of antimicrobial resistance (AMR) in these countries, knowing that SM with antibiotics is the major

reason of AMR [7]. Medical students need to be fully aware of this problem, as they will be the future prescribers of antibiotics. According to a Saudi Arabian study, most medical students showed negative behaviors regarding the practice and attitudes toward SM with antibiotics, although they had fairly good knowledge about the efficacy, possible adverse drug reactions, and side effects of antibiotics compared to non-medical students [22].

Pain, fever and headache were the main symptoms for which our participants turned to SM. Similar results were reported in the literature [12] [15] [23] [24]. As these symptoms are common, students believe that they can be easily cured, whereas they could be symptoms of other diseases. In our study, SM for pre-menstrual syndrome was reported by 56.8% of female medical students. Similar results were reported by a Nepalese study with only 7.3% of the participants who sought medical consultation, reporting that SM and traditional therapies were common modalities used for treatment of premenstrual symptoms [25].

The drugstore (81.4%) was the main source of medication for SM practice among our participants. Similar results have been reported in different studies [12] [14] [15] [26] [27]. The dispensing of many medicines, including antibiotics, without a prescription is common in Moroccan pharmacies, as in many developing countries [21]. It is therefore necessary to raise awareness of the seriousness of this practice for public health. Pharmacists should take the initiative to advise patients to seek medical advice when appropriate, and the government needs to implement new policies to address this issue. In our study, the main sources of information about drugs used for SM practice were previous prescriptions (72.0%), academic knowledge (66.5%), and pharmacies (58.4%). Similarly, the primary information sources in the southeastern Iranian study were previous prescriptions (47.4%) and their own academic knowledge (39.3%) [20].

The main reasons for SM reported by our participants were previous experience with the medicine (88.7%), sufficient medical knowledge of the disease (72.5%), for urgent use (68.8%), easy access to treatment (66.0%), and mild pathology (65.7%). In contrast, the most common reasons reported in the southeastern Iranian study were the mild nature of the disease and confidence in one's own academic knowledge [20]. On the other hand, long queues at the hospital (75.0%) and lack of time (65.0%) were the main reasons reported in a Zambian study [13]. The majority of our participants (86.4%) believed that the safety of SM practice depends on the medication used. These results show that students are fairly aware that although SM can sometimes be practiced without risk, it often involves dangers that vary depending on the type of medication taken without medical supervision.

Being sixth/seventh year student was the only factor found to be significantly associated with SM practice in our study. Similar results were reported in the literature [11] [13] [28]. This could be explained by several contextual factors related to medical training in Morocco. Final-year students typically undertake full-time clinical rotations, unlike junior students whose placements are often limited to

half-day rotations. This enhances their familiarity with medications and may reinforce a perceived sense of therapeutic competence. Moreover, during hospital rotations—particularly during emergency on-call shifts—final-year students have easier access to medications, including samples provided by pharmaceutical representatives, which may increase the likelihood of SM. These findings highlight the need for targeted interventions among senior medical students, focusing on rational drug use, professional responsibility, and the potential risks associated with unsupervised self-prescribing, even in medically trained individuals.

This study has some limitations. Recall bias may have occurred, as participants reported self-medication practices over the previous six months, which may have led to inaccurate reporting. In addition, recovery and side effects were self-reported and not clinically verified, introducing potential misclassification and reporting bias. Finally, the use of convenience sampling limits generalizability, as the estimated prevalence and observed associations may not be representative of the wider population due to possible selection bias. These limitations should be considered when interpreting the results.

5. Conclusion

Self-medication practice was highly prevalent among Moroccan medical students, especially among senior students. Medical students must be better educated about the risks of self-medication, with a particular focus on the prudent use of antibiotics, in the context of antibiotic resistance crisis. It is also crucial to improve student access to health services by offering low-cost or free medical consultations within the university. Furthermore, it is vital to strengthen governmental regulations on the sale of over-the-counter medicines in pharmacies, especially antibiotics.

Conflicts of Interest

The authors declare no conflicts of interest.

References

- [1] Ghasemyani, S., Benis, M.R., Hosseinifard, H., Jahangiri, R., Aryankhesal, A., Shabaninejad, H., *et al.* (2024) Global, WHO Regional, and Continental Prevalence of Self-Medication from 2000 to 2018: A Systematic Review and Meta-Analysis. *Annals of Public Health*, **1**, Article No. 585.
- [2] World Health Organization (2000) Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication. World Health Organization. <https://iris.who.int/items/468d79f6-9788-4296-9bc9-68014166373d>
- [3] World Health Organization, Regional Office for South-East Asia (2013) Self Care for Health: A Handbook for Community Health Workers & Volunteers. World Health Organization.
- [4] Bertsche, T., Alexa, J.M., Eickhoff, C. and Schulz, M. (2023) Self-Care and Self-Medication as Central Components of Healthcare in Germany—On the Way to Evidence-Based Pharmacy. *Exploratory Research in Clinical and Social Pharmacy*, **9**, Article ID: 100257. <https://doi.org/10.1016/j.rcsop.2023.100257>

- [5] Hughes, C.M., McElnay, J.C. and Fleming, G.F. (2001) Benefits and Risks of Self Medication. *Drug Safety*, **24**, 1027-1037. <https://doi.org/10.2165/00002018-200124140-00002>
- [6] Bradley, C.P. and Bond, C. (1995) Increasing the Number of Drugs Available over the Counter: Arguments for and against. *British Journal of General Practice*, **45**, 553-556.
- [7] Michael, C.A., Dominey-Howes, D. and Labbate, M. (2014) The Antimicrobial Resistance Crisis: Causes, Consequences, and Management. *Frontiers in Public Health*, **2**, Article No. 145. <https://doi.org/10.3389/fpubh.2014.00145>
- [8] Behzadifar, M., Behzadifar, M., Aryankhesal, A., Ravaghi, H., Baradaran, H.R., Sajadi, H.S., et al. (2020) Prevalence of Self-Medication in University Students: Systematic Review and Meta-Analysis. *Eastern Mediterranean Health Journal*, **26**, 846-857. <https://doi.org/10.26719/emhj.20.052>
- [9] Abdi, A., Faraji, A., Dehghan, F. and Khatony, A. (2018) Prevalence of Self-Medication Practice among Health Sciences Students in Kermanshah, Iran. *BMC Pharmacology and Toxicology*, **19**, Article No. 36. <https://doi.org/10.1186/s40360-018-0231-4>
- [10] Bekele, K.M., Abay, A.M., Mengistu, K.A., Atsbeha, B.W., Demeke, C.A., Belay, W.S., et al. (2020) Knowledge, Attitude, and Practice on Over-the-Counter Drugs among Pharmacy and Medical Students: A Facility-Based Cross-Sectional Study. *Integrated Pharmacy Research and Practice*, **9**, 135-146. <https://doi.org/10.2147/iprp.s266786>
- [11] Tomas Petrović, A., Pavlović, N., Stilinović, N., Lalović, N., Paut Kusturica, M., Dugandžija, T., et al. (2022) Self-Medication Perceptions and Practice of Medical and Pharmacy Students in Serbia. *International Journal of Environmental Research and Public Health*, **19**, Article No. 1193. <https://doi.org/10.3390/ijerph19031193>
- [12] Khadka, A. and Kafle, K.K. (2020) Prevalence of Self-Medication among MBBS Students of a Medical College in Kathmandu. *Journal of Nepal Medical Association*, **58**, 69-75. <https://doi.org/10.31729/jnma.4840>
- [13] Banda, O., Vlahakis, P.A., Daka, V. and Matafwali, S.K. (2021) Self-Medication among Medical Students at the Copperbelt University, Zambia: A Cross-Sectional Study. *Saudi Pharmaceutical Journal*, **29**, 1233-1237. <https://doi.org/10.1016/j.jsps.2021.10.005>
- [14] Albusalih, F., Naqvi, A., Ahmad, R. and Ahmad, N. (2017) Prevalence of Self-Medication among Students of Pharmacy and Medicine Colleges of a Public Sector University in Dammam City, Saudi Arabia. *Pharmacy*, **5**, Article No. 51. <https://doi.org/10.3390/pharmacy5030051>
- [15] Shrestha, J.T.M., Kushwaha, D.K., Tiwari, S. and Bhattarai, P. (2020) Study of Self-Medication among First and Seventh Semester Medical and Dental Undergraduate Students of Tertiary Care Teaching Hospital in Nepal: A Descriptive Cross-Sectional Study. *Journal of Nepal Medical Association*, **59**, 55-60. <https://doi.org/10.31729/jnma.5385>
- [16] Esan, D.T., Fasoro, A.A., Odesanya, O.E., Esan, T.O., Ojo, E.F. and Faeji, C.O. (2018) Assessment of Self-Medication Practices and Its Associated Factors among Undergraduates of a Private University in Nigeria. *Journal of Environmental and Public Health*, **2018**, Article ID: 5439079. <https://doi.org/10.1155/2018/5439079>
- [17] Tesfaye, Z.T., Ergena, A.E. and Yimer, B.T. (2020) Self-Medication among Medical and Nonmedical Students at the University of Gondar, Northwest Ethiopia: A Cross-Sectional Study. *Scientifica*, **2020**, Article ID: 4021586. <https://doi.org/10.1155/2020/4021586>
- [18] Acharya, A., Vaidya Shrestha, M. and Karki, D. (2022) Self-Medication among Med-

- ical Students and Staffs of a Tertiary Care Centre during COVID-19 Pandemic: A Descriptive Cross-Sectional Study. *Journal of Nepal Medical Association*, **60**, 59-62. <https://doi.org/10.31729/jnma.7247>
- [19] Malbos, D. (2020) Ibuprofène et paracétamol, promouvoir le bon usage. *Actualités Pharmaceutiques*, **59**, 20-22. <https://doi.org/10.1016/j.actpha.2020.06.010>
- [20] Hashemzaei, M., Afshari, M., Koohkan, Z., Bazi, A., Rezaee, R. and Tabrizian, K. (2021) Knowledge, Attitude, and Practice of Pharmacy and Medical Students Regarding Self-Medication, a Study in Zabol University of Medical Sciences; Sistan and Baluchestan Province in South-East of Iran. *BMC Medical Education*, **21**, Article No. 49. <https://doi.org/10.1186/s12909-020-02374-0>
- [21] Sulis, G. and Gandra, S. (2021) Access to Antibiotics: Not a Problem in Some LMICs. *The Lancet Global Health*, **9**, e561-e562. [https://doi.org/10.1016/s2214-109x\(21\)00085-1](https://doi.org/10.1016/s2214-109x(21)00085-1)
- [22] Benameur, T., Al-Bohassan, H., Al-Aithan, A., Al-Beladi, A., Al-Ali, H., Al-Omran, H., et al. (2019) Knowledge, Attitude, Behaviour of the Future Healthcare Professionals towards the Self-Medication Practice with Antibiotics. *The Journal of Infection in Developing Countries*, **13**, 56-66. <https://doi.org/10.3855/jidc.10574>
- [23] Ramadan, B. (2022) Knowledge and Attitude of Medical Students toward Self-Medication. *Journal of Population Therapeutics and Clinical Pharmacology*, **28**, e83-e91.
- [24] Niroomand, N., Bayati, M., Seif, M., Delavari, S. and Delavari, S. (2020) Self-Medication Pattern and Prevalence among Iranian Medical Sciences Students. *Current Drug Safety*, **15**, 45-52. <https://doi.org/10.2174/1574886314666191022095058>
- [25] Mahat, A., Dhungana, R. and Amatya, A. (2023) Pre-Menstrual Syndrome and Pre-Menstrual Dysphoric Disorder in Female Medical Students of Nepal. *Kathmandu University Medical Journal*, **21**, 46-51. <https://doi.org/10.3126/kumj.v21i1.80523>
- [26] Siraj, E.A., Yayehrad, A.T., Kassaw, A.T., Kassahun, D., Solomon, E., Abdela, H., et al. (2022) Self-Medication Prevalence and Factors Associated with Knowledge and Attitude towards Self-Medication among Undergraduate Health Science Students at GAMBY Medical and Business College, Bahir Dar, Ethiopia. *Patient Preference and Adherence*, **16**, 3157-3172. <https://doi.org/10.2147/ppa.s390058>
- [27] Elmahi, O.K.O., Musa, R.A.E., Shareef, A.A.H., Omer, M.E.A., Elmahi, M.A.M., Altamih, R.A.A., et al. (2022) Perception and Practice of Self-Medication with Antibiotics among Medical Students in Sudanese Universities: A Cross-Sectional Study. *PLOS ONE*, **17**, e0263067. <https://doi.org/10.1371/journal.pone.0263067>
- [28] Zeru, N., Fetene, D., Geberu, D.M., Melesse, A.W. and Atnafu, A. (2020) Self-Medication Practice and Associated Factors among University of Gondar College of Medicine and Health Sciences Students: A Cross-Sectional Study. *Patient Preference and Adherence*, **14**, 1779-1790. <https://doi.org/10.2147/ppa.s274634>