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Self-Medication Knowledge, Attitude, and Practice of Health Science Students in Indonesia: A Cross Sectional Study

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A B S T R A C T

Self-medication is a term to describe an act of using medication, whether traditional or synthetic, for self-treatment. This study was carried out to determine the pattern, attitude, and knowledge of self-medication among health science major students in Bangkalan, Indonesia. This cross-sectional study was conducted from May to June 2023. Data was obtained through self-administered questionnaire and the results expressed as percentages.This study enrolled 204 students from different majors, i.e. pharmacy (39.5%), nurse (33%), midwifery (17.9%), medical record science (9.1%), and others (3%). All of the participants have practiced self-medication in the last six month, at least once. The most common reason for self-medication were the mildness of the diseases (50%), the urgency to relieve symptoms fast (13%), and previous medical knowledge (13%). Multivitamin (42.2%) and analgesics (35.8%) were the most frequent used drugs for self-medication. The students tend to have positive attitude favoring self-medication. The majority (72.55%) of students demonstrated good level knowledge of self-medication. An effort to raise public awareness of the disadvantage of self-medication and the responsible way to practice it should continuously be made. The pharmacist should actively contributed in raising public awareness and more education should be given to the students regarding the risk of self-medication, self-medication errors can cause unwanted side effects such as overdose, therapeutic errors, drug interactions, resistance, and can aggravate the disease and cause new diseases. A pharmacist is at the forefront of providing self-medication services in pharmacies and hospitals and pharmacists play an important role in strengthening the knowledge and attitudes of the community regarding the use of a drug to be consumed, the delivery of information that will have an impact on the quality of life of the community.

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INTRODUCTION

Traditionally, self-medication has been described as an act of using a drug, herbs, or home remedies based on one's own initiative without consulting a medical practitioners, to treat a disease they self-diagnosed (1). Self-medication includes purchasing medicine without physician's prescription, using old prescription to acquire medicine, sharing medication or seeking advice from friends and family, and taking the leftover medicines stored at home (2). Despite of its advantage in easing the patient to obtain their medication, self-medication also possess healthcare concern, such as wrong diagnosis that lead to wrong treatment, antimicrobial resistance, dangerous drug interaction, and delay in diagnosis and treatment of a major illness (3).

Self-medication practices, in particular, is more prevalent in developing countries, in which access to healthcare and medical cost play an important role in encouraging people to self-medicated (2,4). On the other hand, antibiotic resistance continue to be the global issue that need to be addressed. Thus, inappropriate self-medication that generated irrational use of medicine is becoming the major concern of healthcare professional. In order to fully achieve the benefit of self-medication, i.e. treat minor diseases, save time and money for medical expenses, a responsible practice of self-medication is mandatory.

Self-medication by patients should be implemented based on adequate knowledge and attitudes to avoid misuse of drugs. If the wrong drug is chosen or the dose is exceeded, it will cause poisoning. will cause poisoning. Therefore, medication must be in the right dose and at the right time. time of use. Pharmacies must provide information about medicines, including

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information services for prescription drugs, over-the-counter drugs, and herbal medicines. Pharmacists should provide information about drugs used for self-medication. There is also a need for socialisation of self-medication to improve the attitude and understanding of participants regarding the appropriate use of drugs for self-medication (5). A person must have the right knowledge and attitude to be able to perform appropriate and relevant self-medication so as to minimise the adverse effects of medication errors.

Self-medication is known to be a common practice among university students. As a constituent of community that reflected the highly educated group, the university students are expected to have a better understanding of appropriate use of medicine and self-medication practice. In addition, the students majoring in health science will be the professional that provide healthcare information to the community in a few years. Therefore, it is important to assess the general knowledge of self-medication in the university students, especially in health science major. This study is aimed to determine the pattern and knowledge of self-medication among health science major students in STIKes Ngudia Husada Madura, Indonesia.

MATERIAL AND METHODS

A cross-sectional, anonymous, questionnaire based study was conducted at STIKes Ngudia Husada Madura, Indonesia from May to June 2023. A self-administered questionnaire were used to collect data from medical students, from the first year to the fourth year. The instrument was developed by adapting and integrating similar study question from previous study. The questionnaire containing both open and closed ended question regarding basic demographic information and self-medication pattern and knowledge. Student's consent to participate in the study was taken prior to collecting the data. The sampling method uses the stratified random sampling method where the formula is a sampling technique that divides the population into several strata or small groups based on certain characteristics relevant to the research. The number of samples obtained was 204 participants were included in this study. The obtained results were imported to Microsoft Excel, analyzed, and reported as percentages. The study protocol was reviewed and approved by STIKes Ngudia Husada Madura research and ethics committee (ID Number: 193/KEPK/STIKES-NHM/EC/IV/2023).

RESULTS AND DISCUSSION

a. Participants demographic

The total of 204 respondents consisted of 153 (75%) female students and the rest 51 (25%) were males. The majority (73%) of participants aged between 17-19 years old, while 21.1% and 5.9% of the participants represented the age of 20-22 years old and 23-25 years old, respectively. This research was attended by several health departments, namely pharmacy (39.5%), nurse (33%), midwifery (17.9%), medical record science (9.1%), and others (3%). The demographic characteristics are depicted in table 1.

Table 1. Demographic data

Group	Subgroup	Frequency (n=204)	Percentage (%)
Gender	Female	153	75,0
	Male	51	25,0
Age	17-19 y.o	149	73,0
	20-22 y.o	43	21.1
	23-25 y.o	12	5.9
Study Major	Pharmacy	77	39.5
	Nursing	59	33,0
	Midwifery	35	17.9
	Medical Record Science	18	9.1
	Others	6	3,0
Year of Study	First year	30	14.7
	Second year	71	34.8
	Third year	98	48,0
	Fourth year	5	2.5

b. Self-medication practice of the participants

Out of 204 participants, 27.9% reported that they practice self-medication once in the last six month. A number of 22.5% students stated that the frequency the self-medicated was twice in the last six months, while the rest 49.6% of the participants reported they practice self-medication three times or more in the last 6 months.

The following chart demonstrated the students' reasons in practicing self-medication (Figure 1). The most common (50%) reason is the mildness of the symptoms they experienced. The other reasons that encourage the students to practice self-medication were they already have medical knowledge regarding the symptoms (13%), needed fast relieve of the symptoms (13%), have medicine stocks at home (11%), cost or money consideration (7%), living far from health facility (4%), and lack of time to visit the physician (2%).

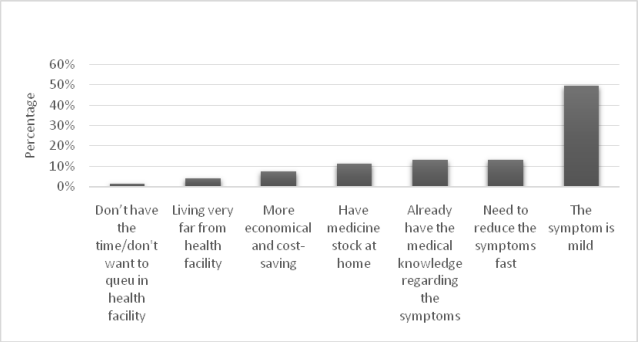

Figure 1. Common causes of practicing self-medication among students

The diseases reported by the students who practiced self-medication were considered minor (Figure 2). The most frequent minor ailment that the students tried to ease with self-medication is fever (56.9%), following by pain (36.30%), common cold (33.3%), and dyspepsia (31.40%). Another minor health problems that the participants decided to self-medicate were sore throat (14.20%), acne (13.70%), diarrhea (12.30%), allergy (9.30%), eye problems (6.90%), fungal infection on skin (5.40%), and constipation (2.90%).

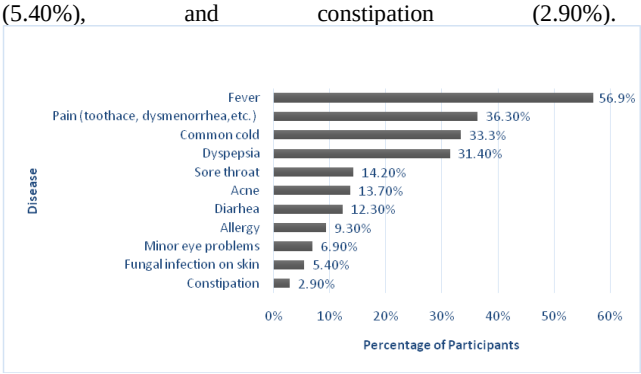

Figure 2. Minor ailments frequently eased with self-medication

The most commonly used drugs in self-medication practice is multivitamin or health supplement (42.2%), analgesics (35.8%), and antipyretics (29.40%), as presented in Figure 3. Other than the aforementioned drugs were eye drops (19.60%), gastrointestinal drugs (13.20%), oral rehydration solution (6.90%), and antimicrobial (5.90%). The least taken drug without prescription was cough and cold medicine (5.40%).

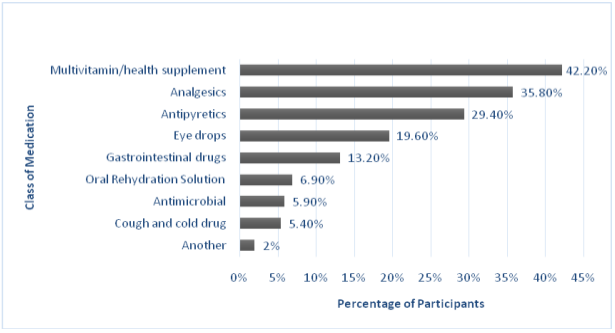

Figure 3. Common medication used when self-medicating among students

The major consideration the participant taken into account while choosing the drug to self-medicate is their previous experience in using the drug (48.5%), while the dosage form of the drug is the least (8.3%) factor the participant considered, as demonstrated in Table 2.

Table 2. Students' consideration in choosing drugs in self-medication practice.

Consideration	Number of Participants (n = 204)	Percentage (%)
Previous experience using drugs	99	48.5
Brand	49	24
Price	38	18.6
Dosage form	17	8.3
Others	1	0.5

The participants reported that the major source of their knowledge in self-medication practice was gained through class or lecturer (35.8%) or by following by old prescription (20.1%). The students received less information from family or friends (17.2%), pharmacist recommendation (11.8%), internet (9.8%), and research articles (4.9%). The common source of participants' self-medication knowledge was presented in Table 3.

Table 3. Source of knowledge regarding self-medication practice

Source	Number of Participants (n = 204)	Percentage (%)
Academic knowledge	73	35.8
Old prescription	41	20.1
Family/friends	35	17.2
Pharmacist recommendation	24	11.8

Internet	20	9.8
Research articles	10	4.9
Others	1	0.5

When asked about the influence of medical knowledge on their attitude toward self-medication, more than half (54.4%) prefer to consult the physician first before deciding to use the medicine and 12.7% felt more confident in practicing rational self-medication (Table 4). On the contrary, 24% felt that it encourage them to be more cautious, 5.9% were anxious of the side effect or potential medication error, and 2.9% were thought that they don't recommend self-medication.

Table 4. Influence of knowledge on self-medication practice among students

Influence of knowledge on self-medication practice	Number of Participants (n = 204)	Percentage (%)
I think it is better to consult the doctor first, before deciding to use the medicine.	111	54.4
I feel confident in doing a rational and appropriate practice of self-medication.	26	12.7
I need to be cautious in doing self-medication	49	24
I don't want to practice self-medication in fear of experiencing side effects or medication error.	12	5.9
I don't recommend my family and my friends to practice self-medication.	6	2.9

c. Participant attitude of self-medication

To examine the attitude of participants toward self-medication practice, the participants were given several statements with 5-point scale answer (Table 5). The highest mean score was 3.69 out of 5-point scale for item "As a medical science student, I encourage my family, friends, and the people around me to practice self-medication", followed by 3.31 for item "Self-medication is considered safe and would not causing an adverse effect". The lowest mean score of agreement was 3.2 out of 5-point scale for item "Over the counter drugs are as effective as the prescription drug". The overall mean score for attitude toward self-medication was 3.40 out of 5-point scale, with an SD of 0.21.

Table 5. The attitude of health science major students toward self-medication

Attitude toward self-medication	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
As a medical science student, I encourage my family, friends, and the people around me to practice self-medication.	45 (22.1%)	87 (42.6%)	37 (18.1%)	34 (16.7%)	1 (0.5%)
Over the counter drugs are as effective as the prescription drug.	19 (9.3%)	72 (35.3%)	51 (25%)	55 (27%)	7 (3.4%)
Self-medication is considered safe and would not causing an adverse effect	26 (12.7%)	71 (34.8%)	53 (26%)	48 (23.5%)	6 (2.9%)

d. Student knowledge of self-medication

More than half (79.9%) of the students were aware that using or purchasing the old prescription is considered self-medication. A total of 151 (74%) students knew that the maximum daily dose of paracetamol is 4 gram. Nearly all (92.2%) of the students had good knowledge about the proper way to use antacid. We also asked the students about their understanding of the term 'three times daily' as in drug administration. Surprisingly, more than half (79.9%) of the students agree that it is means that they should intake their medicine at breakfast, lunch, and dinner. This meant that the majority of students held misunderstanding about drug administration interval. On the other hand, more than half (71.6%) of the students were aware that not all medicine need to administered after meals. A total of 117 (57.4%) students knew that oral antibiotics must be purchased with prescription. The majority (83.3%) of students recognized the importance of using analgesics after meal to prevent the occurrence of drug side effects.

The total score of self-medication knowledge range from 0 to 7; a good level of knowledge was considered for total score of 5, 6, and 7 out of 7, and poor level of knowledge was considered for a total score of 0, 1, 2 3, and 4 out of 7. The result revealed that 56 (27.45%) students from a total of 204 students had poor knowledge regarding self-medication. On the other hand, 148 student which represented 72.55% of the sample, had good knowledge of self-medication, indicated by their total score of 5 and above.

The total of 204 respondents consisted of 153 (75%) female students and 51 (25%) male students. The majority of respondents were female due to the lack of interest of male students in pursuing education in the health sector compared to female students, especially in the Bangkalan area. The majority (73%) of participants were between 17-19 years old, while 21.1% and 5.9% of participants represented 20-22 years old and 23-25 years old respectively. The age range of 17-19 years has a higher percentage compared to other ages, this is due to the fact that the introduction of education from an early age is a motivation to learn early. The demographic characteristics are depicted in table 1.

Self-medication appeared to be a common practice among university students. Our study showed that 29.7% participant have practiced self-medication at least once in the last 6 months (Table 6). According to the previous studies, the prevalence of self-medication tend to high in people with a background in health sciences (6,7). This can be due to various factors, such as higher clinical knowledge, better access to the internet, and perceptiveness that self-medication iscost-effective (8). In a study on pharmacy and medical students in Iran, the researchers found that knowledge was the predominant factor that influence the tendency of self-medication (9).

Table 6. Frequency of self-medication in the last 6 month

Frequency of Self-Medication	Students (n=204)	Percentage (%)
Once	57	27.9
2 times	46	22.5
3 times	39	19.1
4 times	20	9.8
5 times	34	16.7
>5 times	8	3.9

The interesting finding of this study is the most widely used medication among the students is multivitamin (42.20%). This followed by analgesics (35.8%) and antipyretics (29.4%) as the most frequently used drug in self-medication practices among the students (figure 3). Our findings were different from the majority of similar studies, which reported analgesics and antipyretics as the most common drugs used during self-medication (10-12). This may be explained by the massive advertisement of multivitamin as an immune booster during Covid-19. Due to their busy schedule, it is well known that university students have an unhealthy living habits (lack of sleep, poor diet, etc.) which further encouraged them to take vitamin supplements to maintain or improve their health. On the other hand, we found that the percentage of self-medication using antibiotics among our students is lower (5.90%) than that reported on similar study. In contrast, a similar study in India reported the percentage of antibiotics usage during self-medication was 34.9% (n= 488), while studies in Afghanistan and Ethiopia reported that the percentage of participants used antibiotics without prescription was 21.3% and 26.5%, respectively (13-15). While it was worth to note that our students has greater awareness of antimicrobial resistance, the small number of students that used antibiotics in their self-medication practice still call for continuous education and a rigorous regulation regarding antibiotics use.

This study reveals that the most common minor ailments in which the students self-medicated were fever, pain (headache, toothache, dysmenorrhea, etc.), common cold, and dyspepsia (figure 2). The reason that frequently justified the students to practice self-medication was the mildness of the illness, followed by the urgency to reduce symptoms fast and having sufficientknowledge about their disease and its treatment (figure 1). Similar reasons were concluded in other studies (16,17).

When the students were asked about the source of information for self-medication, the current study participants indicated medical knowledge and previous prescription as the main source (table 4). On the other hand, only 11.8% students utilized the pharmacist's pharmaceutical service to assist them in their self-medication practices. This finding is concerning, since the risk of drug-related issues may be high if people receive inadequate information from healthcare professional, especially the pharmacist, regarding their medication (18). Therefore, active participations of pharmacists are needed to increasing public awareness and to assist people in practicing self-medication.

In order to practice self-medication correctly, one must have adequate knowledge about the appropriate way of drug usage. To assess the participant basic knowledge of self-medication, we asked several questions related to medication usage (Table 7). The result showed that the majority (72.55%) of participants had good knowledge of self-medication. But interestingly, more than half of the students (79.9%) seems to have a misunderstanding about the correct instruction of drug administration. Therefore, it is worth to take this into account as one of important topic in education or campaign to improve knowledge about self-medication. Interestingly, due to their positive experience in practicing self-medication, the students tend to recommend their family and friends to self-medicated. They also regarded self-medication as a safe practice and would not causing dangerous medical consequences. This may be due to the medical knowledge they acquired which made them overconfident in regard of self-medication practice. Therefore, it

is important for students to provide good education to their family and friends about proper self-medication, so that self-medication carried out by their family and friends does not result in medication errors.

Table 7. Basic self-medication knowledge of the participants

Question/Statement	True (n = 204)	False (n = 204)
Using drugs that have previously been prescribed by a doctor for symptoms similar to what you are feeling now, is one of self-medication practices.	163 (79.9%)	41 (20.1%)
Maximum daily dose of Paracetamol is 4 gram.	151 (74%)	53 (26%)
Antacid tablet need to be chewed before swallowed to get the optimal effects.	188 (92.2%)	16 (7.8%)
If the medicine label says 3x a day, it means the medicine is used at breakfast, lunch and dinner	163 (79.9%)	41 (20.1%)
All medicine should be used after meal.	58 (28.4%)	146 (71.6%)
All oral antibiotics can't be purchased without prescription.	117 (57.4%)	87 (42.6%)
Analgesics should be used after meals to avoid the side effects in gastrointestinal.	170 (83.3%)	34 (16.7%)

The fact that the students were aware of the risk of self-medication but believe that they have sufficient knowledge to remain safe, means that the students need more education about the risk of self-medication. Insufficient knowledge about self-medication practice (i.e. the dose, time of intake, possible side effect, etc.) may be the risk factors of the occurrence of serious side effects (antibiotic resistance, skin problem, and hypersensitivity reactions)[1]. Awareness campaign and continuous education about self-medication are highly recommended to ensure that rational practice of self-medication will be achieved and possible complication or adverse effect could be prevented. As well as the importance of the pharmacist's role in providing information and education related to self-medication on how to use drugs properly and correctly and the side effects caused when there is an error in drug selection.

The limitations of the study only focus on one campus, this is due to lack of access and time while conducting research, this can be overcome by expanding or increasing the research sample involving several departments on the health campus. Where in this study there are health departments that are also included, namely medical records, which in fact in the world of service will be lacking and almost do not provide services on drug use information to the public

CONCLUSION

Despite of the cost-effectiveness of self-medication, but the inappropriate practice can bring serious consequences. An effort to raise public awareness of the disadvantage of self-medication and the responsible way to practice it should continuously be made. Pharmacist as the reliable component of healthcare system need to make an active contribution to promote better health care practices. Furthermore, the health science students, as future healthcare professionals, should be educated more about the potential risks of inappropriate self-medication.

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CONFLICT OF INTEREST

The authors declare no conflict of interest.

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