Self-medication practices and their characteristics among Iran university students

Rohaneh Rahimisadegh

Health Services Management Research Center, Institute for Futures Studies in Health, Kerman University of Medical Sciences, Kerman, Iran

Nader Sharifi

Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran

Vahid Kohpeima Jahromi (✉ vahidkouh@yahoo.com)

Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran

Razieh Zahedi

Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran

Zahra Rostayee

Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran

Razieh Asadi

Research Center for Social Determinants of Health, Jahrom University of Medical Sciences, Jahrom, Iran

Research Article

Keywords: self-medication- students- rational use of drug- Iran

Posted Date: February 14th, 2022

DOI: <https://doi.org/10.21203/rs.3.rs-1290614/v1>

License: © ⓘ This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background: Self-medication in students as educated people is one of the most important health issues. It is known that inappropriate self-medication is harmful for individuals due to some potential risks and also harmful to the government because disrupts the drug market and increases the per capita financial drug consumption. Thus, the aim of this study is to investigate the habits related to rational use of drug (RUD) and the prevalence of self-medication practices among students.

Methods: A cross-sectional study was conducted in 2021 at Jahrom universities/Iran using an electronic "Self-medication practices and medication habits" questionnaire. The 848 students from four healthcare and non-healthcare faculties participated in the study.

Results: The prevalence of self-medication among students was 44.8%. The most common medicines on self-medication were cold remedies and sedatives in about 33%. About 47% of students had used antibiotics without a doctor's prescription. The internet and social networks were the source of information about the RUD in about 40% of students. There was no difference in RUD between medical and non-medical students (OR = 0.865, 95% CI: 0.659-1.134). RUD in students with underlying disease was higher than students without underlying disease (OR = 2.8, 95% CI: 1.39-5.60).

Conclusions: Self-medication was high prevalence in students. The best strategy in this high level of self-medication is to raise students' awareness and knowledge by colleges about potential risk of self-medication practices.

Introduction

Drug is one of the basic needs of the general public and a strategic commodity in all countries. Significant advances in the field of medicine have paved the way for more and more people to have access to medicine. The consequence is the formation of a harmful social phenomenon namely the irrational use of drugs (IRUD).

Common types of IRUD include inappropriate use of antibiotics, overuse of injection when the oral drug would be more appropriate, use of many medicines per prescription, prescribing medicine regardless of clinical guidelines, failure to follow drug orders and self-medication (1). Self-medication is the first behavior of patients in the face of the early symptoms of diseases and common health problems. Self-medication and related habits can cause a number of side effects, including intoxication and bacterial resistance, drug dependency, and obscuring the symptoms of a serious illness (2,3). IRUD disrupts the drug market and increases the per capita financial drug consumption, which has put the countries' economies under pressure.

Today, the self-medication has increased in the world, and its prevalence is higher in developing countries (4). Previous studies have reported prevalence rates of about 87% in India (5), 86.4% in Brazil (6), 55% in Egypt (7). The prevalence of self-medication in Iran is also not desirable (83.3%) (8). According to the

World Health Organization, Iran is the second largest country in Asia after China in terms of drug consumption and is among the top 20 countries in the world (9). Therefore, self-medication and IRUD have become one of the problems in the Iranian health sector.

Self-medication in students as educated people in the community is one of the most important health issues. They are considered as role models for other people in health behaviors. Because of their active role in the media and the Internet, they can play a more important role in this area. On the other hand, they are more vulnerable and prone to self-medication due to their social status, more contact with people in the community, and their responsibilities as future parents (10–12). Previous studies revealed that the prevalence of self-medication practice seemed to be high worldwide among students. According to the study conducted by Okyay and Erdoğan, it was illustrated that the prevalence of self-medication in students was 63.4% and the most common drugs used by students without prescription were analgesics, antibiotics and cold remedies (13). A study conducted by Gupta et al. showed that the prevalence of self-medication among students was 78% and fever and a headache were the most common diseases that were treated with self-medication (14). Scientific studies investigating IRUD and associated factors in Iran have shown that the prevalence of self-medication has been between 18 and 87% (15). On the other hand, many studies have shown that people with higher levels of education have more IRUD habits (16,17). Therefore, the aim of this study is to investigate the habits related to rational use of drug (RUD) and the prevalence of self-medication practices among students in Jahrom, Iran.

Methods

Study design and setting

A cross-sectional study took place in Jahrom, a city in southeast of Iran. The study aimed to evaluate drug use habits of university students. Data were collected using an electronic “Self-medication practices and medication habits” questionnaire consisting of 24 questions. To design the questionnaire, 10 articles were selected, and its components were created by studying the relevant contents. The face validity and its content validity of was approved by six specialists. The reliability of the questionnaire was tested by using of Cronbach's alpha of 0.91. The values of coefficients were also assessed for every construct. In the questionnaire the first part pertains to the demographic characteristics. The second part includes questions related to students' RUD, while the third part is related to self-medication. The study protocol was confirmed by Scientific Researches Ethics Committee of Jahrom University of Medical Science (ID number: IR.JUMS.REC.1399.004). Informed consents were obtained from students and participation in the study was voluntary.

Participants

This study was formed by 8,320 students from two public universities and two private universities. They attended the healthcare and non-healthcare faculties participated in the study. The sample size was calculated to be as 848 students in the 95% confidence interval and with a 5% margin of error. Guest

students, non-Iranian students, students with chronic diseases and students who do not wish to participate in the study have been excluded from the study.

Data collection and measurement

The calculated sample size was distributed by multistage sampling method according to density of students in four universities. Intracluster Correlation was 1.5. Data collection period was five months between January 2021 and May 2021.

We used SPSS for Windows software for data analysis (SPSS, Chicago, IL, USA). Descriptive statistics were presented as frequencies and percentages in tables. Data were analyzed with Pearson chi-square test and regression logistic test.

Results

The number of participants were 848 university students. The female participants were 65.2%. The majority of them had an average socio-economic status (58.7%), and 86.7% were single. Students were mostly aged between 19 and 46 years (Mean $\pm$ SD, 22 $\pm$ 2.3 years.). 4.5% (n=38) had a chronic disease (Table 1).

The prevalence of self-medication among students was 44.8% (n=380). The most common medicines on self-medication were cold remedies and sedatives in about 33% (Fig. 1). 27% of students buy medicines from pharmacy without any illness and kept them at home. About 8% (n = 65) of students finished the course of treatment, and 31.3% (n = 265) of students stopped taking the drug after consulting a physician or pharmacist. 40.7% (n= 345) of students had 1-5 packages of unused or unfinished medicine at home and about one-third of students (35.2%) had discarded about 1-3 packages of medicine per year due to the expiration date (Table 2).

About one-third of students (277) always read the label on the drug before taking it, and 52% (n= 441) of students fully understood the contents of the drug brochure. 40% (343) of students had experienced side effects of the drugs, while 52% (n= 439) of students stated that they consulted a doctor in case of drug side effects (Table 2)..

About two-thirds of students (n=581) had a history of antibiotic use in the past 12 months, of which about 47% (n=400) of students had used antibiotics without a doctor's prescription (Table 2). The most frequent cases of students taking antibiotics were during nasal discharge and fever, which were in 32% (n=269) and 23% (n=191), respectively (Fig. 2).

Half of the students (n=477) were familiar with the term RUD (Table 2). The internet and social networks were the source of information about the RUD (Figure 3) in about 40% (n=307) of students. The results showed that there was no significant difference between students' behaviors in case of familiarity with the term RUD and unfamiliarity with this term (Table 3).

There was no difference in RUD between medical and non-medical students (OR = 0.865, 95% CI: 0.659-1.134) (P value = 0.3). The prevalence of RUD in female students was higher than male (OR = 0.76, 95% CI: 0.57-1.00) (P value = 0.6) but this difference was statistically non-significant. RUD in students with underlying disease was higher than students without underlying disease (OR = 2.8, 95% CI: 1.39-5.60) (P value = 0.004). Students with self-medication were more familiar with the term RUD (OR = 1.319, 95% CI: 1.003-1.735) (P value = 0.05). Drug use habits in students with self-medication were such that drug use in antibiotics (OR = 2.63, 95% CI: 1.99-3.48) (P value < 0.001), drug storage at home (OR = 1.58, 95% CI: 1.16-2.13) (P value = 0.003) and the number of unused and unfinished medicines at home was higher than another student (OR = 1.33, 95% CI: 1.35-1.57) (P value = 0.05) (Table 4).

Discussion

In this study we evaluated habits related to RUD and estimate the prevalence of self-medication among students in Jahrom, Iran. According to the World Health Organization, more than half of the drugs prescribed, distributed and sold worldwide have not been required (18). Self-medication is an activity in which medications are usually provided by people who may not have a need for it. According to scientific studies in different countries, the prevalence of self-medication varies according to the targeted population (16,19). A higher prevalence rate has been reported in developing countries (12). However, students were among the groups in which the rate of self-medication was reported to be high (13,20). The prevalence of self-medication was higher among medical students, and other health related fields (19). In present study, the prevalence of self-medication practice among students was 44.8%.

In our study, the two most widely used medicines in self-medication were cold remedies and sedatives by most 33%. In most studies carried out in Iran, Turkey, Saudi Arabia, Finland and Spain two other medicines, analgesics and antibiotics, have been included in this group (13,21,22). This result indicates similarity in the results of studies on medicines used in self-medication. So that in our study had a 47% prevalence of antibiotic use among students.

In a study carried out in 2020 in Iran, the self-medication prevalence with the antibiotic was reported as 53.3% among nursing students (23). This rate has been higher than our study. It's thought that the decrease probably was due to the Iran policy for antibiotics and prescribing pattern to limit the antibiotics recently (24). Self-medication with antibiotics in students is a topic that many studies have been done on it and is more common in medical students (25).

This study stated the existence of one to five packages of unused or unfinished drugs at home in about 41% and the existence of one to three packages of expired drugs within a year in about 35% at home. This result indicates the typical example of economic burden of IRUD in Iran. Irrational house storage is a global problem. In a systematic review, the prevalence of medicine storage was 35% to 100%, and the wastage of medicine was 17%. The review stated that southwest Asia region had the highest storage and wastage rates of medicines among urban households (26).

In our study, about one-third of the students reported reading the label on the medicines that they used. However, 52% of them fully understood the contents of the drug brochure. This result is less than the results of the study conducted in Turkey, which reported over 64% of students read the instructions on the prospectus (13). The results of another study indicated that Turkish and Thai students were less likely to notice medication brochures (13,27).

Social media and the internet have been the main source of information for students on RUD in this study. Students' perception of how physicians prescribe drugs provides a significant relationship toward their understanding of RUD and safe use of drug treatments as Putu Eka Arimbawa study stated in Indonesia (28). Receiving medication information from the social media and internet among students in comparison with television and radio and other source, shows the importance of this area. Providing media-based educational content in universities can be effective in increasing students' awareness of RUD.

The results of the study of Tesfaye et al. indicate that medical students in Ethiopia tend to practice self-medication more often than non-medical students, as well as have greater knowledge towards self-medication (29). Conversely, in Iran, our result identified no difference in RUD between medical and non-medical students.

Conclusions

Self-medication was high prevalence in students in Jahrom, Iran. It seems that the best strategy in this high level of self-medication is to raise students' awareness and knowledge by colleges about potential risk of self-medication practices. Behavioral programs and improving the understanding of drug labels especially on appropriate products can help to control the habits in self-medications.

Declarations

Ethics approval and consent to participate

The Ethics Review Board of Jahrom University of Medical Sciences (JUMS) approved the present study with the following number: IR.JUMS.REC.1399.004. also, all the participants were informed about the research and completed the consent form. All methods were carried out in relevant regulations and guidelines.

Consent for publication

Not applicable

Availability of data and materials

All data generated or analysed during this study are included in this published article.

Competing interests

The authors declare no conflict of interest.

Funding

This research was supported by JUMS (No: [98001605](#))

Authors' contributions

R.R. and V.K.J. and N.S. wrote the main manuscript. R.Z. analyze the data and wrote the results. R.A. and Z.R. collecting the data. All authors reviewed the results and approved the final version of the manuscript.

Acknowledgements

Not applicable

Authors' information

¹Health Services Management Research Center, Institute for Futures Studies in Health Kerman University of Medical Sciences. ²³⁴⁵⁶ Research Center for Social Determinants of Health Jahrom University of Medical Sciences.

Consent for publication

Not applicable.

References

1. Carmak V, Pakyaz SC. A methodological study: developemet of rational drug use scale. Anadolu Hemşirelik ve Sağlık Bilim Derg. 2020;23(4):498–507.
2. Zaman S Bin, Hussain MA, Nye R, Mehta V, Mamun KT, Hossain N. A review on antibiotic resistance: alarm bells are ringing. Cureus. 2017;9(6):1403.
3. Ruiz ME. Risks of self-medication practices. Curr Drug Saf. 2010;5(4):315–23.
4. Torres NF, Chibi B, Kuupiel D, Solomon VP, Mashamba-Thompson TP, Middleton LE. The use of non-prescribed antibiotics; prevalence estimates in low-and-middle-income countries. A systematic review and meta-analysis. Arch Public Heal. 2021;79(1):1–15.
5. Verma RK, Mohan L, Pandey M. Evaluation of self medication among professional students in North India: proper statutory drug control must be implemented. Evaluation. 2010;3(1):60–4.

6. Da Silva MGC, Soares MCF, Muccillo-Baisch AL. Self-medication in university students from the city of Rio Grande, Brazil. *BMC Public Health*. 2012;12(1):1–7.
7. El Ezz NF, Ez-Elarab HS. Knowledge, attitude and practice of medical students towards self medication at Ain Shams University, Egypt. *J prev med hyg*. 2011;52(4):196–200.
8. Ershadpour R, Zare Marzouni H, KALANI N. Review survey of the reasons of the prevalence of self-medication among the people of Iran. *Navid No*. 2015;18(60):16–23.
9. Mosleh A, Darbui S, Khoshnevis Ansari S, Mohammadi M. Condition of drug prescriptions according to WHO indexes in health centers without drugstore. *Tehran U Med J*. 2007;65(2):12–5.
10. Ghafouri M, Yaghubi M, Lashkardoost H, Seyed Sharifi SH. The prevalence of self medication among students of Bojnurd universities and its related factors in 2013. *J North Khorasan Univ Med Sci*. 2014;5(5):1129–35.
11. Krajewska-Kułak E, Kułak-Bejda A, Kułak P, Bejda G, Cybulski M, Guzowski A, et al. A comparative analysis of self-treatment in a population of medical students in 2012 and 2017. *Fam Med Prim Care Rev*. 2019;(1):35–40.
12. Al Essa M, Alshehri A, Alzahrani M, Bustami R, Adnan S, Alkeraidees A, et al. Practices, awareness and attitudes toward self-medication of analgesics among health sciences students in Riyadh, Saudi Arabia. *Saudi Pharm J*. 2019;27(2):235–9.
13. Okyay RA, Erdoğan A. Self-medication practices and rational drug use habits among university students: a cross-sectional study from Kahramanmaraş, Turkey. *PeerJ*. 2017;5:e3990.
14. Gupta S, Khajuria K, Bhat NK, Khajuria V, Mehra A. Assessment of the knowledge, attitude and practice of self medication among second year undergraduate medical students in a tertiary care teaching hospital. 2019;8(5):1090.
15. Marzban A, Rahmanian V, Ayasi M, Barzegaran M. Assessing attitude and practice of students in Shiraz University of Medical Sciences towards self-medication. *J Prev Med*. 2018;5(2):36–43.
16. Tufan N, Ramazan Azim O, Hakki Y, Muhsin A, Ersin N, Yasemin A, et al. Assessment of rational use of drugs and self-medication in Turkey: a pilot study from Elaz? g and its suburbs. *Pakistan Journal of Pharmaceutical Sciences*. 2016; 29 Suppl 4: 1429-1435.
17. Garofalo L, Di Giuseppe G, Angelillo IF. Self-medication practices among parents in Italy. *Biomed Res Int*. 2015; doi.org/10.1155/2015/580650.
18. Keyvanara M, Safaeian L, Karimi S, Shojaiezadeh N. Rational use and prescription of drugs: a review on WHO's 12 strategies. *Hakim Res J*. 2016;18(4):294–305.

19. Azami-Aghdash S, Mohseni M, Etemadi M, Royani S, Moosavi A, Nakhaee M. Prevalence and cause of self-medication in Iran: a systematic review and meta-analysis article. *Iran J Public Health*. 2015;44(12):1580.
20. Al Flaiti M, Al Badi K, Hakami WO, Khan SA. Evaluation of self-medication practices in acute diseases among university students in Oman. *J Acute Dis*. 2014;3(3):249–52.
21. GhanbariBoroujeni M, Ansari A, Tasharrofi MA, Zabihi F, Chilrani AS, Khalili F, et al. Antibiotic Self-Medication and Risk Factors among Medical Students in an Iranian University: a Cross Sectional Study. *Nov Biomed*. 2021;9(2):58–64.
22. Aldossary KM. Prevalence and predictors of self-medication practices in the population of Saudi Arabia: systematic review. *J Adv Pharm Educ Res* Apr-Jun. 2021;11(2):11-6.
23. Darabiyan P, Sokhansanj Z, Rafi A, Nazari H, Geravandian R, Raiesifar Z. The Rate of Self-Medication and Its Related Factors in Nursing Students in Behbahan, Southwest of Iran in 2020. *Int Res Med Heal Sci*. 2021;4(3):40–6.
24. Sharifi N, Kohpeima Jahromi V, Rahmanian M, Raoofi R, Zahedi R. Enhancing the Rational Use of Albumin and Intravenous Pantoprazole by implementing pharmaceutical guidelines in Hospitals. *Pharm Biomed Res*. 2021;7(3):201-208.
25. Pareek S. A review of self-medication practices among students of health-care professions in India. 2021; doi:10.4103/mjdrdypu.mjdrdypu_81_20.
26. Jafarzadeh A, Mahboub-Ahari A, Najafi M, Yousefi M, Dalal K. Medicine storage, wastage, and associated determinants among urban households: a systematic review and meta-analysis of household surveys. *BMC Public Health*. 2021;21(1):1-5.
27. Akici A, Basaran NF. University Students' attitudes concerning OTC drug use; survey from Istanbul. *ARPN J Sci Technol*. 2013;3(3):309–15.
28. Arimbawa PE, Adi I. Patient Perceptions On The Role Of A Pharmacist And The Understanding Of The Rational Use Of Medicines (RUM). *Sustain Sci Manag*. 2019;14(6):137–44.
29. Tesfaye ZT, Ergena AE, Yimer BT. Self-medication among medical and nonmedical students at the University of Gondar, Northwest Ethiopia: a cross-sectional study. *Scientifica (Cairo)*. 2020; doi:org/10.1155/2020/4021586.

Tables

Table1: Socio-demographic characteristics

	Variable	Frequency	Percent
Sex	Female	553	65.2
	Male	295	34.8
Marital Status	Single	735	86.7
	Married	105	12.4
	Divorcee or widow	8	0.9
University	Medical University	407	48.0
	Jahrom University	213	25.1
	Payame Noor University	40	4.7
	Azad University	188	22.2
Economic Status	Very Bad	25	2.9
	Bad	68	8.0
	Moderate	498	58.7
	Good	236	27.8
	Very Good	21	2.5
	Have Chronic Disease	38	4.5

Table2: Self-reported attitudes of the students of University towards drug use

Questions		N	%
Do you use others' medicines or buy medicines from pharmacy without prescription?	Yes	380	44.8
	NO	468	55.2
	Total	848	100.0
Do you have medicines prescribed without being sick or buy and keep at home in case of need?	Yes	228	26.9
	NO	620	73.1
	Total	848	100.0
Have you taken any antibiotics in the last 12 months?	Yes	581	68.5
	NO	267	31.5
	Total	848	100.0
Do you use antibiotics on your own without a physician's examination?	Yes	400	47.2
	NO	448	52.8
	Total	848	100.0
How long do you use the antibiotics prescribed for you?	I quit after the symptoms disappear or a few days after I feel recovered	146	17.2
	I quit at the end of treatment	65	7.7
	I quit after consulting a physician/pharmacist	265	31.3
	I quit a few days after disappear the symptoms	63	7.4
	I quit a few days after whether I feel recovered	198	23.3
	I quit a few days after whether I feel recovered or not	83	9.8
	Others	28	3.3
	Total	146	17.2
How many boxes of drugs do you have unused or unfinished in your house?	None	137	16.2
	1_5	345	40.7
	6_10	116	13.7
	More than 10	250	29.5
	Total	848	100
Over a year, how many boxes of drugs are	1_3	300	35.4

thrown away even without opening the box, since the expiry date has lapsed?	4_7	120	14.2
	8_10	50	5.9
	More than 10	76	9.0
	None	302	35.6
	Total	848	100
Do you read/check the instructions in the ?prospectus of the medications you are using	Yes, always	277	32.7
	Yes, sometimes	496	58.5
	No, I do not	75	8.8
	Total	848	100.0
How much do you understand about the information in the prospectus of the drug you are using	I understand fully	441	52.0
	I partially understand	385	45.4
	Questions	N	%
	I understand nothing	22	2.6
	Total	848	100.0
What do you do if you experience any side effects while taking medication	I quit medication	226	26.7
	I quit the medicine and start a new one with the same effect	25	2.9
	I consult to a pharmacist	22	2.6
	I consult to a physician	439	51.8
	I consult to my family	42	5.0
	I do nothing	39	4.6
	Others	46	5.4
	Total	839	98.9
Have you heard the expression of rational drug use and rational use of antibiotics before	Yes	477	56.3
	NO	371	43.8
	Total	848	100.0

Table3: The comparison of students who were familiar with the terms rational drug use" and rational use of antibiotics" and those who were not according to drug use habits

		Being familiar with rational drug use		OR (CI95%)	P value
		No N (%)	Yes N (%)		
Reading/checking the instructions in the prospectus	never	38(10.2%)	37(7.8)	_____	_____
	sometimes	215(57.9)	281(58.9)	1.342(0.825, 2.183)	0.235
	ever	118(31.8)	159(33.3)	1.384 (0.830, 2.308)	0.213
Performing some form of self-medication		152(40.9)	228(47.8)	1.319 (1.003, 1.735)	0.047
Quitting medication		103(28.3)	123(25.9)	1.393 (0.705, 2.755)	0.340
Quitting medication and starting a new one with the same effect		10(2.7)	15(3.2)	1.750 (0.632, 4.844)	0.281
Compliance with the duration of antibiotic treatment		107(28.8)	158(33.1)	1.021 (0.775, 1.347)	0.881
Actions taken in case of a possible side effect quitting medication		343(94.2)	457(96.2)	1.554 (0.816, 2.963)	0.180
Quitting medication and starting a new one with the same effect		10(2.7)	15(3.2)	1.750	0.632
Consulting to a pharmacist		9(2.5)	13 (2.7)	1.685 (0.585, 4.853)	0.334
Consulting to a physician		179(49.2)	260(54.7)	1.695 (0.878, 3.271)	0.116
Consulting to family		24(6.6)	18(3.8)	0.875 (0.364, 2.104)	0.765

Table 4: The comparison of students who Consumed medicine without prescription and those who were not according to demographic information and drug use habits

		Consumed medicine without prescription		OR (CI95%)	P value
		No	Yes		
		N (%)	N (%)		
University (Medical university/ Non-medical university)		251 (53.6)	190 (50)	0.865 (0.659, 1.134)	0.3
(Female/ Male)sex		176 (37.6)	119 (31.3)	0.76 (0.57,1.00)(	0.56
Economic status (Bad, very bad/ Moderate, good, very good)		415 (88.7)	340 (89.5)	1.09 (0.70, 1.67)	0.7
Have chronic disease (No/Yes)		12 (2.6)	26 (6.8)	2.8 (1.39, 5.60)	0.004
Reading/checking the instructions in the prospectus (Never or sometimes/ ever)		166 (35.5)	111 (29.2)	0.75 (0.56, 1.00)	0.54
Heard the expression of rational drug use and rational use of antibiotics before (No/Yes)		249 (53.2)	228 (60)	1.319 (1.003, 1.735)	0.047
Use antibiotics on your own without a physician's examination (No/Yes)		171 (36.5)	229 (60.3)	1.99,2.63 (3.48)	<0.001
Store drugs (No/Yes)		107 (22.9)	121 (31.8)	1.58 (1.16, 2.13)	0.003
The number boxes of drugs they have unused or unfinished in their house	None	93 (19.9)	44 (11.6)	1.3 (0.99, 1.66)	0.05
	1-5	209 (44.7)	136 (35.8)		
	6-10	65 (13.9)	51 (13.4)		
	>10	101 (21.6)	149 (39.2)		
Over a year, how many boxes of drugs are thrown away even without opening the box, since the expiry date has lapsed	None	190 (40.6)	112 (29.5)	1.33 (1.35,1.57)	<0.001
	1-3	165 (35.3)	135 (35.5)		
	4-7	49 (10.5)	71 (18.7)		
	8-10	26 (5.6)	24 (6.3)		

	>10	38 (8.1)	38 (10)	
Have experience of complication drug (No/Yes)		179 (61.8)	164 (43.2)	1.22 (0.93, 1.62) 0.15
Consulting to a pharmacist if had complication drug (No/Yes)		10 (2.2)	12 (3.2)	1.6 (0.54, 4.44) 0.41
Consulting to a physician if had complication drug (No/Yes)		250 (54)	189 (50.3)	0.98 (51, 1.89) 0.95
Consulting to family if had complication drug (No/Yes)		20 (4.3)	22 (5.9)	1.42 (0.59, 3.42) 0.43

Figures

Figure 1

The most common medicines the students of University had consumed without prescription