Assessment of Self-Medication Practice among Nursing and Non-Nursing Undergraduate Students

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Abstract

Self-medication practice involves consumption of medicines by one's own initiative or on the consultation of others without the guidance of a physician. Self-medication and use of over-the-counter drugs are prevalent worldwide public health concerns. University students of medical and nonmedical disciplines may have different levels of health education ***Aim****: study self-medication practice among Nursing and non-Nursing undergraduate students of MTI University* ***Research design:*** *A cross-sectional and correlation designs were used to carry out this study.* ***Setting:*** *the current study was conduct in in faculty of Nursing and faculty of Mass Media at one of the private university in Egypt, Modern University for Technology and Information (MTI).* ***Sample:*** *sample of total 200 students from nursing college and Mass Media College, One hundred were chosen randomly for each college.* ***Tool:*** *self-administered questionnaire was used to collect the data divided to two section, the first section featured questions regarding demographic information, and the second section focused on self-medication and consisted of 9 questions.* ***Results:*** *90% of nursing students and 60 % of mass media students practice self-medication.* Both group agree about some reasons with no significant difference while there is a statically significant regarding to other reasons. Majority of students in both group get their drug from home pharmacy according to physician advice (98%, 92 % respectively). There was a highly statistical significant association between type of education, presence of home pharmacy, degree of care about health and current health status and self-medication practice (P value= 0.000). **Conclusion*****:*** *In conclusion, nursing students practice self- medication more often than mass media students. The common reasons behind practicing self-medication according to both groups; they can managing their symptoms, avoiding long waiting time in the clinics, they want having an active role in their health, and their relatives, friends and media empower them to manage symptoms. Their sources for obtaining drugs are pharmacy, home pharmacy, family and friend. Type of education medical or non-medical affect on self-medication practice; while being a first year or last year not affect on self-medication practice.* ***Recommendations:*** *the study recommended that replicate this study on a larger study sample in different settings to generalize the results and Health professionals have to increase students' awareness about risk of self-medication practice and its health consequences.*

Keywords— self-medication, medical students, non-medical students, reasons for self-medication, source for self-medication.

Introduction

Self-medication (SM) is the use of non-prescribed drugs to treat self-diagnosed disorders or symptoms, or the irregular or continuous use of a prescribed drugs for chronic

or repeated diseases or symptoms .This includes the use of over –the-counter (OTC) drugs available without a physician's prescription, through pharmacies, the irregular use of a prescribed drug, typically in chronic or intermittent diseases, or the use of leftover drugs from previous prescriptions **(WHO, 2000).**

Self-medication among students have become a global problem today, termed as a silent epidemic. Nursing students are considered the future health professionals that have better access to health-related information and this may have a potential to put public mistrust into the profession. This may expose them to severe implications which might be legal and ethical issues that have a negative impact on quality of health care delivery .Some of the drugs that are commonly taken without prescription includes analgesics, antibiotics among others **(Biswas et al., 2015).**

Regarding the non –health care students, the misuse of non-prescribed drugs has not being well understood as their curriculum is devoid of health information. They are less aware of the drugs benefits and side effects. They are not aware of the necessity to take accurate measured doses and their therapeutic effects of the drugs. Thus adverse reactions may occur. Hence temporarily masking of symptoms and delay from seeking medical advice, which could later result in serious complications on their health (**Alshogran, et al, 2018).**

The person who depends on self-medication requires a certain level of knowledge to practice it .Some of the factors that contributes to the practice of SM are age, educational level, family attitudes, advertising of manufacturers, legislation regulation, previous experiences with the symptoms or disease. Some adverse consequences of inappropriate SM includes incorrect self-diagnosis, failure to obtain the right medical consultation, incorrect treatment choice, failure to identify contraindications, interactions, adverse effects, inappropriate route and dosage, and risk of dependence **(Gelayee , 2017).**

The guidelines of WHO mention that responsible SM could be helpful in the prevention and treatment of conditions that do not require medical consultation and provide a cheaper alternative treatment for common illnesses. SM is seen as a means to reduce costs for the healthcare system and for individuals. WHO mentions that countries should educate their population about OTC drug use by improvements in people's general knowledge, level of education and socioeconomic status as a reasonable basis for successful self-medication **(WHO, 2000).**

Even though SM if practiced correctly reduces the load on medical services, time spent in waiting to see the physician, and saves cost especially in developing countries with limited healthcare resources. However, it has been found that SM can slip toward misdiagnosis, risk of low or high doses, extend duration of treatment. Such practices may result in irrational drug use, delayed seeking of medical advice, increased side effects and increase in pathogens resistance that result in wasting of resources **(Helal & Abou-ElWafa, 2017).**

Some adverse consequences of inappropriate self-medication can be: incorrect self-diagnosis, failure to obtain the right medical consultation, incorrect treatment choice, failure to identify contraindications, interactions, adverse effects, inappropriate route and dosage, and risk of dependence. In several studies, it has been found that inappropriate self-medication results in serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence. In addition, more than 60–80% of health problems in most developing countries are associated with self-medication **(Karmacharya, et al. 2018).**

Significance of the study

Globally, SM is now increasingly being considered a component of self-care. The practice of SM has been extensively studied among different nations. Where there is a much

public and professional concern about the irrational use of drugs. The prevalence rates are high all over the world; up to 68% in European countries, while much higher in the developing countries with rates going as high as 92% in the adolescents of Kuwait, 31% in India and 59% in Nepal. Pakistan which have also confirmed high rates of prevalence of around 51%. **(Zafar et al., 2008)**. Therefore, the findings of this study might be useful to guide policy-makers to take appropriate action in increasing awareness about the potential effects of SM practice on students' health and to identify the need to incorporate health education in the curricula of non –health care students.

Material and Methods

Aim of the study

The aim of this study is to study self-medication practice among Nursing and non-Nursing undergraduate students of MTI University.

Research Objectives:

1. Describing frequency of self-medication practice among nursing and non- nursing students.
2. Identify the reasons behind self-medication practice.
3. Determine the sources for obtaining drugs for self-medication practice.
4. Evaluate the effect of type of education and the year of study on self-medication.

Research design:

A cross-sectional and correlation designs were used to carry out this study.

Setting:

The current study will be conducted in faculty of Nursing and faculty of Mass Media at one of the private university in Egypt, Modern University for Technology and Information (MTI).

Subject:

A probability Stratified random sampling technique was used to recruit a sample of total 200 students from nursing college and Mass Media College from Modern University for technology and information, The sample size per each college was in proportion to the number of population in each about 50 %, so the sample size was 100 students per each college. The researcher developed two stratums based upon students' level of education as follows: first year & internship year from nursing college, first year and graduation year from Mass Media College.

Study Tool:

To fulfill the aim of the current study a self-administered questionnaire was used to collect the data, it was developed by **Klemenc-Ketis Z. et al (2009)** who revalidated it on a sample of 10 students by face validity in order to diminish technical and structural flaws, time needed for completing the questionnaire and general attitude towards such questioning. The questionnaire was in English language and consisted of a preliminary letter and 2 sections. The preliminary letter introduced the term 'self-treatment' and asked participants to report the use of self- treatment during the past year. The first section featured questions regarding demographic information [student (yes/no), type of faculty, grade, age, and sex], and the second section focused on self-medication and consisted of 9 questions.

Pilot study

Pilot study of 10% out of total sample will be conducted from first year and senior students of both Nursing and Mass Media College, to test clarity and feasibility of tools to

subjects and to test needed time for filling the tools. Participants who shared in the pilot study will be excluded in the study sample.

Procedure:

First of all, official permission was obtained from the deans of both Nursing and Mass Media faculties, MTI University. Then informed consent was obtained from the students after explaining the purpose the study and their participation is based on voluntary basis and that they are free to withdraw at any time. Data concerning demographic characteristics, self-medication practice, and self-medication resources and reasons were collected through a self-reported questionnaire. Questionnaires were sent to students and collected face-to-face by researchers.

Ethical consideration

In respect to ethical values, research authorization and proposal approved from the Dean of Nursing and Mass Media faculties.

Statistical Analysis:

After completing the data collection process, the data was entered in the personal computer, SPSS version 20 was used for data analysis. Data were coded and tabulated, descriptive and inferential analysis was performed. The paired t test was adequate to examine the statistical significance. All results were considered to be significant when $p \leq 0.05$, highly significant when p value ≤ 0.001

Result:

Table (1) illustrates frequency distribution of the demographic data among student participants, it shows majority of participants were female, 66% of the Nursing students were females versus 58% of Mass Media students. Their mean of age was 20.82 ±2.459 for both groups .In respect to their year of the study, the participants were selected equally 25% from first year last year for both groups. 70% of nursing students had home pharmacy versus to 58% of mass media students.as regard to degree of care about health, 62% of mass media students were carful versus 26% of nursing students. Among their health status 84% of nursing students in a good health and 16% in excellent while 56% of mass media students in a good health and 38% of them in excellent health. Finally 90% of nursing students and 60 % of mass media students practice self-medication.

Table (2) shows that reasons for self-medication practice. As regard to my physician told me that I can managing my symptoms by myself, do not go to physician due to long waiting time and don't trust my physician, there was no statistically significant difference between the nursing students and mass media students. In relation to other reasons (avoid to burden my physicians, having an active role in self-medication and relatives, friends and media empower them to manage symptoms by their own and previous unsuccessful treatment prescription) the difference was statically significant with, p-value = 0.000, 0.000, 0.018, 0.000 respectively.

Table (3) revealed that the majority of nursing and mass media students used drugs from home pharmacy according to physician advice (98%, 92 % respectively).More than half of nursing and mass media students was used over the counter drugs according to physician advice as well as using herbs according physician advice (68%, 52 % and 60%, 52 % respectively). While a high percentage of mass media and nursing students used vitamins and mineral, remedies for muscle mass gain and slimming diet according to family, relative and media advice (96%, 68 %, 88%, 76 % and 68%, 80 % respectively).

Figure (1) shows that nursing students obtained drugs for self-medications from pharmacy followed by home then friends (84%, 44 %, and 24% respectively). While mass media students obtained drugs for self-medications from pharmacy followed by family then from home (64%, 52 %, and 34% respectively). And the least for both groups were street market, traditional healer and neighbors 4%.

Table 4 demonstrate the comparison between Nursing and Mass Media students according to reasons for seeking professional help in the last year. The main reason for seeking professional help were severe pain (100%) for both group. and the last reason for seeking professional help among nursing students was when they think that problems are serious (82%) versus to (90%) for mass media students this may be the nursing students more knowledgeable about the diseases than mass media students.

Table 5 shows that the students 'view about safety of self-medication practice. There is a statistical significant differences between nursing and mass media students regarding their perception about the self-medication safety. The mass media students consider the self-medication practice is safe and without side effect.

Table 6 describe variables associated self-medication practice. There was a highly statistical significant association between type of education, presence of home pharmacy, degree of care about health and current health status and self-medication practice (P value= 0.000). While age and year of study not associated with self- medication practice.

Table 1: Frequency and percentage distribution of demographic data & health history among the study participants.

Variables	**Nursing Student (n=100)**		**Mass Media Students (n=100)**		**Total (n=200)**
	First Year (n=50)	**Internship year (n=50)**	**First Year (n=50)**	**Graduation Year (n=50)**	
Gender • Male • Female	22 (22%) 28 (28%)	12(12%) 38(38%)	18 (36%) 32 (64%)	24 (48%) 26 (52%)	76 (38%) 124 (62%)
Age Mean of age	18.08. ±.572	23.60 ±.707	18.92±0493	20.68±0.802	20.82 ±2.459
Year of study • Junior (first year) • Senior (last year)	25 (50%) 25 (50%)	25 (50%) 25 (50%)	25 (50%) 25 (50%)	25 (50%) 25 (50%)	100 (50%) 100 (50%)
Home pharmacy • Yes • No	36(72%) 14(28%)	34(68%) 16 (32%)	30(60%) 20(40%)	28(56%) 22(44%)	128(64%) 72(36%)
Degree of care about health • Careful • Careless	10(20%) 40(80%)	16 (32%) 34(78%)	30(60%) 20(40%)	32(64%) 18 (36%)	88(44%) 112 (56%)

Current Health • Excellent • Good • Poor	8(16%) 42(84%) 0(0%)	8(16%) 42(84%) 0(0%	16(32%) 32(64%) 2(4%)	22(44%) 24(58%) 4(8%)	54(27%) 140(70%) 6(3%)
Self-medication • Yes • No	42(90%) 8(8%)	48(48%) 2(2%)	32(64%) 18(36%)	28(56%) 22(44%)	150(75%) 50 (25%)

Table 2: Reasons for self-medication practice among the study participants. (Scale: 1 = unimportant, 7 = very important)

Reasons	**Nursing**	**Mass Media**	**P valu**
I don't want to burden my physician because my problems are not important	6.37±0	2.93±0.6	0.00
My physician told me that I can manage such symptoms on my own	5.16	4.96	0.33
I want to play an active role regarding my health	5.83±8	3.9±8.70	0.00
My relatives, friends, media told me that I can manage such symptoms on my own	3.17± 0	2.79±0.7	0.01
I don't want to go to my physician due to long waiting time	5.11±0.63	5.12±0.66	0.86
The prescribed treatment from my physician was not successful	2.64±0.48	2.22±0.61	0.00
don't trust my physician	1.42±0.	1.53±0.5	0.15

Significant difference at P level at ≤ 0.05. Highly significant at p value ≤ 0.001

Table (3): Comparison and percentage distribution between Nursing and Mass Media students according to the types of remedies and drugs were used for self-medication according to physician, family, relatives, friends and media advice.

Items	**Nursing (n=100)**		**Mass media (n=100)**	
	Physician Advice	Family, my relatives, friends and media advice	Physician Advice	Family, my relatives, friends and media advice
Drugs from home pharmacy	98%*	2%	92%*	8%
Over the counter drugs	68%*	32%	52%*	48%
Herbs	60%*	40%	52%*	48%
Herbal teas	40%	60%	16%	84%
Homeopathic drugs	36%	64%	44%	56%

Vitamins and minerals	32%	68%	4%	96%
Remedies for muscle mass gain	24%	76%	12%	88%
Slimming diet	20%	80%	32%	68%

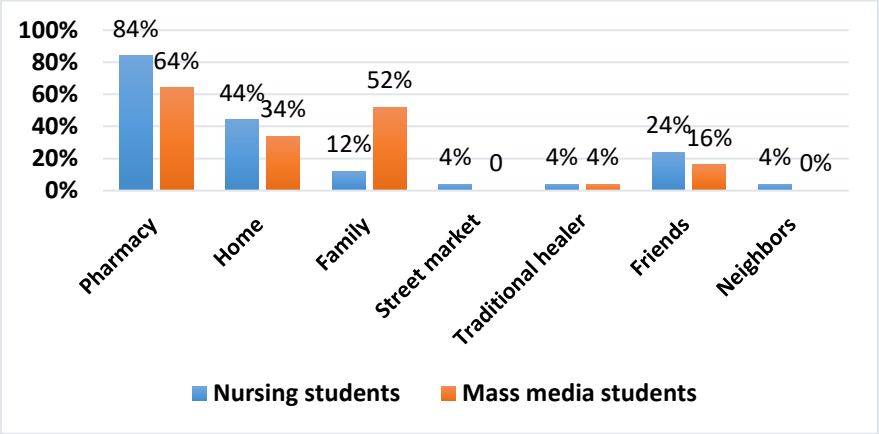

Figure (1): Comparison between Nursing and Mass Media students according to the source of obtaining drugs used for self-medication.

Table 4 Comparison between Nursing and Mass Media students according to reasons for seeking professional help in the last year.

Reasons	Nursing students	Mass media
Symptoms last for more	97(97%)	93(93%)
Symptoms are worsening	92(92%)	98(98%)
Presence of severe pain	100(100%)	100(100%)
Usual treatment is not	94(94%)	92(92%)
Side effects	90(90%)	91(91%)
When you think that	82(82%)	90(90%)
In case of mental	94(94%)	100(100%)

Table 5 Students' view about safety of self-medication practice (Scale: 1 = unimportant, 7 = very important)

Item	Nursing students	Mass media Students	P value
Any drug, including herbal ones, has side effects.	5.35±1.101	4.24 ±1.392	.000
Simultaneous use of drugs, including herbal ones, can be potentially dangerous.	4.80±1.190	4.12±1.111	.006
Increasing drug dose can be dangerous.	5.72±.701	6.02±.795	.034
Lowering drug dose can be dangerous.	4.24±.687	3.30±.647	.000
In case of side effects physicians' help must be sought.	6.24±.687	6.80±.404	.000

Using drugs with unknown substances in patients with liver and kidney diseases is very dangerous.	6.58±.443	6.26±.723	.002
No drug can be used during pregnancy.	4.00±.756	5.24±.744	.000
Mild medical problems do not need drug treatment.	6.58±.499	6.14±.808	.000
Self-treatment can mask the symptoms and signs of diseases so the physicians can overlook them easily.	4.62±.490	4.88±.659	.041

Significant difference at P level at ≤ 0.05. Highly significant at p value ≤ 0.001

Table (6): Distribution of studied sample according to the variable associated with self-medication practice.

Variables	Self-Medication	Not Self-medication	P-Value
Gender • Male • Female	54 (27%) 96 (48%)	22(11%) 28(14%)	.315
Year of study • Junior (first year) • Senior (last year)	74 (37%) 76 (38%)	26 (13%) 24 (12%)	.500
Education • Nursing • Mass Media	90 (90 %) 80 (80%)	10 (10%) 20 (20%)	.000
Home pharmacy • Yes • No	128 (64%) 22 (11%)	0 (0%) 50 (25%)	.000
Degree of care about health • Careful • Careless	130 (65%) 20 (10%)	6 (3%) 44 (22%)	.000
Current Health • Excellent • Good • Poor	8 (4%) 140 (70%) 2 (1%)	46 (23%) 0 (0%) 4 (2%)	.000

Discussion

Self-medication practice involves consumption of medicines by one's own initiative or on the consultation of others without the guidance of a physician. Self-medication and use of over-the-counter drugs are prevalent worldwide public health concerns. University students of medical and nonmedical disciplines may have different levels of health education **Alshogran et al 2018**.

The study finding revealed that majority of students were female, enrolled from first year and last year (internship for nursing students and graduation year for mass media

students) with mean age of (20.82 ±2.459), similarly; nearly same age and gender distribution to those in a study conducted by **Jazul & Nieto (2014).** Moreover about 64% of students in both group stored drugs in home pharmacy, a little higher percentage reported by **Zafar et al (2008)** who found that 64.4% of students drug stocks kept at home. Moreover findings, 88% of the total student were carful about their health with 70 % of them in a good health and 26 % had excellent health. This percentage is different than study conducted by **Helal & Abou-ElWafa (2017)** who found that about 61% of students reported that their current health condition was good while only 45.1% were careful regarding their degree of care about health, and most (77.5%) stored drugs at their home pharmacy.

Concerning self -medication practice, study findings indicated that 75% of total number of students in both groups reported use of self- medication, about 90 % of nursing students practice self-medication versus to 60 % of mass media students. Nursing student in internship year reported use of self-medication than first year conversely the first year of mass media practice the self-medication than last year. Our study findings are less than study was done by **Alshogran, et al (2018)**, who reported 96 % of students practice self-medication in addition to study finding of **Klemenc-Ketis et al**. **(2010)** who found that (92.3%) reported the use of self-medication during the past year. The use of self-medication was reported by (92.8%) of the students from the healthcare group and by 592 (91.9%) of the students from the non-healthcare group; the difference was not statistically significant. More students from the healthcare group in the last year of study than in the first year of study used self-medication. Another study conducted with medical students shows that self-medication was used by most the students; those authors suggest that healthcare students feel more confident self-prescribing **James et al (2006).**

Reasons for self-medication practice among the study participants in present study. Both group of students, nursing and mass media agree that reasons for self-medication practice were, their physician told them that they can managing their symptoms by themselves, and to avoid long waiting time in the clinics, among to other reasons the nursing students agreed about the important of the following reasons, avoid to burden my physicians, having an active role in my health, and relatives, friends and media empower them to manage symptoms. In contrast mass media students agree about the importance of avoiding long waiting time and I want to play an active role regarding my health as a reason for self-medication practice. This finding is in line **with Jazul & Nieto (2014)** who reported that the most common reason why the respondents practice self-medication is to save time, followed by low severity of illness, having previous episodes of same illness, and to save money. The least is due to remoteness of health-care facility. **Helal & Abou-ElWafa (2017)** stated that other reasons for self-medication among university students were their previous experiences, advice of family or friends, their health problems being considered as too trivial, time saving, non- availability of transport, convenience, ability to self-manage the symptoms, urgency of the problem, doctor that was not available, and having sufficient information. Moreover **Fatima et al. (2017)** found that majority of the participants practiced self-medication to save time as the main reason, followed by their sufficient pharmacological knowledge.

Among type of remedies used for self-medication, nursing students reported using drugs from home pharmacy (e.g. antibiotics, antipyretic, analgesic ….) more than mass media students and it is the most widely used drug among both group of students followed by over the counter drugs herbs and slimming diet, while more students from mass media reported using herbal tea, vitamins and minerals remedies for muscle mass gain than nursing students, according to physician and family, relative, friends and media advice. This finding is in line with **Klemenc-Ketis et al (2009)** who reported that in general, students from the healthcare group would seek the advice of a physician or pharmacist for different categories

of OTC drugs more often than students from non-healthcare schools. In addition to study was done by **Nasir et al (2017)** who found that in practicing self-medication, pain and fever reliever (analgesic/ antipyretic) drugs were most commonly used by medical students and multivitamin supplements were mostly used by non-medical students. Our finding confirmed by **Klemenc-Ketis et al (2009)** who stated that more students from the non-healthcare group than from the healthcare group use herbs. Conversely, study by **James Et al (2008)** demonstrated that students from the colleges of pharmacy and nursing used fewer antibiotics compared to non-healthcare students.

As regard to the source of obtaining drugs used for self-medication, nursing students obtained drugs for self-medications from pharmacy followed by home then friends. While mass media students obtained drugs from pharmacy followed by family then from home and the least for both groups were street market, traditional healer and neighbors. In contrast **Jazul et al (2014)** his study participants reported that they practice self-medication, their most common source is drug outlets, followed by prescription leftover, television advertisement, and private clinics. The source with the least frequency is printed advertisement. Our findings are in line with **Helal & Abou-ElWafa (2017)** they found that Pharmacy clerk and neighbors and family were the most frequently reported sources for self-medication compared to friends and classroom colleagues and old prescription. In another study was conduct by **Suheryani et al (2015)** who stated that our results have shown that for practicing self-medication mostly the responds were getting information from family/friends/neighbors, Pharmacist, and previous prescription.

The present study demonstrated that all students in both groups nursing and mass media reported that the main reason for visiting health profession is in presence of severe pain and the least reason is when they think that problems are serious students' view about safety of self-medication practice. Moreover large number of students can seeking professional help for several reason. However nursing students exhibited that self-medication practice is unsafe than mass media students regarding to any drug, including herbal ones, has side effects. This finding is congruent with **Klemenc-Ketis et al (2009)** who said that the most important finding of this study was that considerably larger numbers of non-healthcare students regarded self-medication to be safe and without side effects, resulting in an unsafe and inappropriate practice of self-medication. Similarly **Ruiz (2010)** stated that the most of the respondents has thought that herbal drugs are safe without any adverse effects, but the risk of possible drug interactions is always prevalent with their use

Finally in current study, the following sociodemographic variables associated significantly with self-medication practice. Which include: type of education, presence of home pharmacy, degree of care about health and current health status associated with self-medication practice. While age and year of study not associated with self- medication practice. Our finding in congruent with Logistic regression analysis showed that being from urban area, being medical student, having good current health condition, being careless about health, and having drugs stored at home pharmacy were independent predictors for self-medicating **(Helal & Abou-ElWafa (2017).** Simirally **Corrêa da Silva et al (2012)** found that significant association between s existence of a home pharmacy variable and self-medication practice in the bivariate analysis. In another study, being a first or last-year student did not affect the outcome. We hypothesized that after a few years in university, students would be more aware of the risks of self-medication, as reported by **Sapkota et al. (2010).**Conversely Self-medication was significantly associated with age, gender, and students' level in the university as reported by **Osemene et al (2012)**

Limitation:

1- Small sample size refers to a specific university and only two colleges, it cannot be generalized.
2- Structure of questionnaire is long and without open questions might affected on study findings.

Conclusion

In conclusion, nursing students (medical students) practice self- medication more than mass media students (non-medical students). The common reasons behind practicing self-medication according to both groups; they can managing their symptoms, avoiding long waiting time in the clinics, they want having an active role in their health, and their relatives, friends and media empower them to manage symptoms. Their sources for obtaining drugs are pharmacy, home pharmacy, family and friend. Type of education medical or non-medical affect on self-medication practice; this explain why nursing students practicing self-medication more often because their curriculum contains medical subject which help them to practice self-medication safely and increase their self-care orientation. While being a first year or last year not affect on self-medication practice because university students by the time gain more knowledge and be aware about of risk of self-medication.

Recommendation

- Replicate this study on a larger study sample in different settings to generalize the results.
- Health professionals have to increase students' awareness about risk of self-medication practice and its health consequences.

Acknowledgment: We would like to acknowledge the study participants for their cooperation and this work would not be achieved without them.
Conflicts of Interest The authors declare that they have no conflicts of interest.

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