Self-Medication Practice among Tanta University Medical Students during COVID-19 Pandemic, Egypt

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Abstract:

Background: The growing influence of social media especially during pandemics, accessibility of over-the-counter medications, and fear of contracting the virus may have led the general population to be active participants to control their health. Medical students are more influenced by such practices due to relevant basic knowledge, and easy accessibility to drugs. **Objectives**: To find out the self-medication (SM) practice among Tanta university medical students during COVID-19 pandemic. **Methods**: A cross-sectional study was undertaken among Tanta university medical students (Medicine, Pharmacy, and Dentistry) during March and April 2021. Self-administered validated reliable questionnaires were distributed among 504 participants by convenient sampling. Some representatives of the students from each faculty were engaged in distributing it directly to their colleagues throughout well-attended clinical faculty days due to the hybrid educational system at the time of conducting the study. **Results**: About three-quarters of the students (74.6%) used self-medication during the COVID-19 pandemic and the most commonly used drug was antiviral medication (40.4%) followed by antibiotics (30.2%) and vitamin C and multivitamins (25.6%). Students reported many reasons behind this practice as 70% of them needed to play an active role in their health issues and sixty percent did not want to go to the physician for fear of long waiting periods. The study participants agreed with the fact that professional help is needed, but with a variety of explanations. **Conclusion**: High prevalence of self-medication practice among medical students during COVID 19 pandemic and the most common used drug was antiviral medication followed by antibiotics and vitamin C and multivitamins.

Keywords: COVID-19 pandemic, Health seeking behavior, Medical Students, Self-Medication.

Introduction:

Self-medication (SM) has conventionally been demarcated as "the taking of drugs, herbs or home remedies or re-use of prescription drugs or the direct purchase of prescription without consulting a doctor to treat self-recognized disorders or symptoms". [1]

Physicians may be unwilling to consult their colleagues in the usual way and either engage in self-treatment or seek an inadequate consultation in the form of over the phone, corridor, and home visit with a colleague. [2] Consequently, the medical community has developed a culture in which working through illness and self-medication is the norm. [2]

Several reasons for self-medication could be enumerated, such as the impulse for self-care, shortage of time, the

stigmatizing nature of the illness, deficiency of health amenities, financial limitation, inexperience, misbelieves, and extensive advertisement. The obtainability of drugs additional to drug shops is blamable for the rising tendency of self-medication[3].

The main problems related to self-medication are the expenditure of resources, amplified resistance to pathogens, and causes serious health threats such as opposing reactions and lengthy suffering. Antimicrobial resistance is a current problem worldwide mainly in developing nations wherever antibiotics are accessible without any prescription. [4]

The self-medication prevalence rate during COVID-19 among various population groups was different; In Pakistan among medical students was around 83%[5], and in Kenya among health care was 60.4%. [6] Another study assessing self-medication prevalence in the Nigerian population during the pandemic reported a finding of 41%.[7]

In Togo, 34.1% of the participants that belonged to healthcare, air transport, police, road transport, and informal sectors reported to self-medicate and healthcare sector had the highest of 51.9% against all sectors. [8]

Systematic review reported that four studies were performed in the general population and it was found to be between (<4% to 88.3%) and another three in specific populations and the range was between 33.9% for hospitalized adults with COVID-19 to 51.3% in undergraduate students of health-related careers.[9]

During the progression course of the COVID-19 pandemic, the population's fear of contracting the virus, limited access to health services, and uncontrolled social media misinformation have led some people to self-medicate.

This may lead to unintended consequences, such as adverse events, unnecessary expenses, drug interactions, delay in medical consultation, and masking of symptoms, which in turn lead to more spreading of infection.[6, 10]

Especially in the presence of several medications that have been proposed as potential protocols for this disease, [11] most of which resulted in little or no benefit for the patients or even in harm.[12, 13]

The conduct of clinicians in the direction of their own illnesses and their connection with their classmates jeopardizes their well-being.[2]

Self-medication is commonly experienced by medical Scholars. Self-medication should be well-thought-out as a health hazard, particularly among the students with insufficient knowledge of

medication, dosage, and extent of treatment.[14]

Worldwide practice of self-medication especially among the medical students does not have enough literature on an ongoing pandemic, except few studies conducted in Peru, Saudi Arabia, and Pakistan for example[5, 15, 16].

However, no study reports the prevalence of self-medication among medical student population in Egypt. Hence, this study aims to find out the self-medication practice among medical students during COVID-19 pandemic as the initial phase needed for the health education program to control COVID-19 spread.

Methods:

▪ Study settings

A cross-sectional study was carried out during March and April 2021 at Tanta University; it is a central public university in the Mid Delta region that recruits students from lower Egyptian governorates. The target population was medical students distributed through the faculties of Medicine, Pharmacy, and Dentistry.

▪ Study sample

The sample size was calculated by using the center for Disease Control and Prevention, Atlanta, Georgia, USA Epi-Info 7.2.3.0 software statistical package and assuming that the expected frequency is 50%, an acceptable margin of error of 2.5%, level of confidence of 95%. Based on the previous criteria the sample size calculation was to be N > 384, and 10% was added to compensate for the missing data and improve validity (424 is the minimal sample size after adding 10%) however the sample size can be increased so 504 students were completed the questionnaire who approached by convenience sampling.

▪ Study tools:

The questionnaire used in data collection was constructed by the authors after reviewing the similar published medical literature.[1,17-19] The questionnaire was comprised of 4 sections with 36 questions as follows:a

Section I: This section included 8 questions regarding personal characteristics: age, gender, faculty, academic year, residence, parents' educational level (low=read / write and primary educated, middle=secondary educated, high= university /postgraduates), and living with family (yes/no).

Section II: This section included 6 questions about the past history of having COVID-19 symptoms (yes/no), laboratory diagnosis (yes/no), using self-medication (yes/no), place of getting it (pharmacy, street

markets, relatives /friends, neighbors), duration (one week/less, more than one week, I don't remember) and types of drugs used (antibiotic, vitamin c/ other multivitamins, zinc, antitussive drugs, herbal / natural products, antiviral drugs).

Section III: It included 8 questions assessing safety; the questions were rated as (yes very important, yes important, and no not important) and 7 questions assessing motives were rated as (strongly agree, agree, and not agree) of self-medication practice among students.

Section IV: It included 7 questions assessing reasons for seeking professional help among students and were rated as (yes, no and don't know).

Validity and reliability of the study tools:

Three Egyptian professors from the epidemiology department assessed the validity of the questionnaire. The experts recommended simplifying of some questions and proposed minor changes in 3 safety (2, 5, and 6) and 2 motives questions (3, 5). Regarding the time required to finish the questionnaire by participants, experts stated that all questions were understandable and participants can fill it out in 7 to 10 min.

The researchers tested the questionnaire in a pilot study to assess its reliability by recruiting 20 medical students not included in the current study. They used data to assess internal consistency using alpha Cronbach with Cronbach's alpha = 0.82 which represented adequate internal consistency. Most of the questions were assigned to be mandatory answered items to avoid incompleteness and missing data.

Data Collection: Data were collected from medical students using the English form of a self-administered questionnaire. Some students' representatives from each faculty were also engaged in distributing the questionnaire directly to their colleagues throughout well-attended clinical faculty days due to the hybrid educational system at the time of conducting the study.

Data analysis: The collected data was managed by SPSS (the Statistical Package for the Social Sciences) Program, version 25. For continuous variables, means and standard deviations were calculated. While for categorical variables, frequencies were used. Monte Carlo exact test and Odds ratio with a 95% confidence interval were used as the appropriate significance level was set at $p < 0.05$.

Ethical consideration:

The ethical approval for the study was obtained from the Internal Review Board of the Faculty of Medicine, Tanta University. All participant students were informed about the purpose of the study, the benefits

of sharing, and participation. Confidentiality was guaranteed by anonymous data collection.

Results:

A total of 504 medical students completed the questionnaire. The age of the study participants ranged from 19 to 24 years with a mean of 21.7 years. More than half of the students (53.6%) are females. Nearly the same percentage (one-third) is recruited from three different Faculties (Medicine, Dentistry, and Pharmacy) with a higher percentage from the preclinical stage (57.9%).

Regarding the parental level of education 73.6% and 61.9% are highly educated fathers and mothers respectively. Seventy-eight percent of the participants are living with their families. About one- third of students (34.7%) had presented with COVID-19 symptoms from the beginning of the pandemic meanwhile only 14% laboratory diagnosed as COVID-19 patients (Table -1).

About three-quarters of the students (74.6%) used self-medication. The majority of students who took self-medication (85.3%) had got drugs from pharmacies, compared to minimal percentages who got drugs from other source such as street markets, friends or relatives, and neighbors (5%, 9% and 0.5%) respectively.

More than half (57.7%) of the students had used self-medication for one week or less. The most commonly used drug was antiviral medication (40.4%) followed by antibiotics (30.2%) and vitamin C and multivitamins (25.6%) (Table - 2).

Regarding the safety of self-medication drugs; 60% decided that any drug has side effects, and nearly 70% viewed that any drug can be potentially dangerous. Most of them (85%) believed that increasing the dose could be hazardous, compared to 66.4% who believed that lowering the dose could be more dangerous.

Out the study participants, 82.3% thought that in case of side effects physicians' help must be required. Eighty-five percent settled that using drugs with unknown substances with patients having liver and kidney disease is very risky, and 78% supposed that self-treatment can mask the symptoms and signs of diseases (Table - 3).

More than half (52.8%) of the students didn't want to burden the physician as their problems were not important. Fifty-eight percent reported that the physician told them that they could manage such symptoms on their own and 70% of them needed to play an active role in their health issue. Nearly two-thirds (61.3%) decided that relatives, friends, and media convinced

them to manage of such symptoms on their own. Sixty percent did not want to go to the physician for fear of long waiting periods. Less than half of the students (43%) did not trust their physician (Table- 4).

The study participants agreed with the fact that professional help is needed,, but with a variety of explanations. Sixty-six percent reported that they seek medical help if symptoms persisted for more than a week.

More than a half (59.8%) of them sought medical help if the symptoms became worse. Sixty-nine percent of the contributors sought medical help if there was severe pain. Lack of effectiveness and presence of side effects were among the reasons behind seeking medical help among those students (60.5% and 43.6%) respectively.

Also believes serious conditions might be the cause behind seeking medical advice 66.7% of the participants. Mental health issues may be the motive for asking for professional help, this was reported by only 37% of the participants (Table -4).

The higher academic year was the only significant predictor of self-medication practice among medical students during the COVID-19 pandemic (P < 0.05) (Table 5).

Discussion:

The current study reported that about one-third of students had presented with COVID-19 symptoms from the beginning of the pandemic till the time of conducting the study meanwhile a study in Pakistan revealed only 15.3% of participants were already infected with the virus.[5]

Our results showed 14% were diagnosed by laboratory while a higher percentage (21.08%) was recorded by another study in Bangladesh among the general population [20] this may be due to the earlier time of conduction of their study as a horrible population fears from contracting the virus.

In the present study, about three-quarters of the students used self-medication. A study in Egypt mentioned a prevalence rate of 55% among medical students indicating an increase from pre -pandemic results.[21]

While study in Pakistan reported higher prevalence rate during the pandemic (83%). [5]Another study in Bangladesh reported much higher prevalence rate (88.3%). [22] Earlier during the COVID-19 pandemic, when the infection was a source of fear and stigma and trying to keep one's health status could be accounted for high self-medication rates among the medical students' community.

In the current series, the majority of students who took self-medication had got drugs from pharmacies, compared to minimal percentages who got drugs from other sources such as street markets, friends or relatives and neighbors. This comes in the agreement of with study in Ethiopia.[4]

The pharmacy was the first site for obtaining drugs in different studies because it is the most common safe place to get drugs in Egyptian communities.

In the present stud, more than one-half of the students used self-medication for one week or less and less than one-quarter of them for more than a week. Meanwhile, Mekonnen M reported in his study that most respondents use self-medication for a duration of less than 5 days (84.07%) and about 5% of respondents who used self-medication took the drugs for longer than 14 days.[23]

Even though less percent of students use self-medication longer than one week this may be due to the possibilities of miss diagnosis of perceived illnesses and utilization of the wrong medication for the wrong diagnosis.

The current study reported that the most commonly used drug was antiviral medication followed by antibiotics and vitamin C and multivitamins. A study in Pakistan reported the most commonly utilized medications were Paracetamol (65.2%) and multivitamins (56.0%).[5]

Another study in Bangladesh mentioned ivermectin (77.15%), azithromycin (54.15%), doxycycline (40.25%) were the most common drugs used.[22] Systematic review showed a wide variation of the most used medications during the COVID-19 pandemic, including antibiotics, chloroquine or hydroxychloroquine, acetaminophen, vitamins or supplements, ivermectin, and ibuprofen. [9]

This wide variation in drugs used for the prevention of COVID-19 may be due to variation in symptoms, the mental stress of curfew, insecurity, and panic about the scarcity of medications and healthcare support.

Our study reported antiviral and antibiotic medications were the most common; students may be influenced by wrong information on social media, especially with the wide availability of smartphones. Using antibiotics is the main cause of bacterial resistance especially when taken for viral infections so intake must be appropriately regulated.

Multivitamins were the third used drug in our study which have also been used by 51.8% in a population-based survey during COVID-19 in Nigeria.[7] In Togo, 27.6% used Vitamin C when self-medicating [8],

while in Egypt, 27% used vitamin C and 17.7% used vitamin D.[24]

Multivitamins have a vital role in regulating the immune system and can reduce risk of respiratory infection as well as a deficiency in certain micronutrients such as Vitamin A, Vitamin D, and Zinc can deteriorate viral infections. [25]

Regarding safety of self-medication, in the current study, less than two-thirds of the students decided that any drug has side effects and most of them believed that increasing the dose could be hazardous. A study in Bangladesh reported the same results.[19]

In accordance study in Ethiopia reported that 87% of the students reported any drugs to have an adverse reaction and 76% believed hazards due to the increased drug dose.[26]

In the present series most of the study participants thought that in case of side effects physicians' help must be required. Also study in Kuwait reported that about 69% prefer consulting a doctor in case of side effects.[27]

Students˙ right view about SM safety can be explained by the basic knowledge they learned during medical educational courses.

 In the current series, regarding motives of using self-medication; students reported

variable causes as shown in table 4 .In the agreement with the study in Ethiopia mentioned three main reasons for self-medication were non-seriousness, quick relief, and emergency use accounting for 81.3%, 70.3%, and 45.8% respectively.[26]

Two studies in Nepal and Sharjah found that the most common motive was thinking that their problem was minor.[28, 29] Another study in Nigeria recorded that more than 80% of the doctors delayed consultations for various reasons such as illness not considered serious, initial self-treatment, lack of time, and concern about confidentiality.[2]

Nearly the same motives in different studies as the patients usually think that their illness is simple and they must play an active role regarding health status.

In the current series, the study participants agree with the fact that professional help is needed, but different reasons to seek professional help were mentioned by about two thirds of them. A study in Bangladish reported the same results.[19]

In accordance study in Ethiopia by Mekonnen M recorded that 33.18% believe professional help is needed when there is severe pain, 31.86% when they think the problem is so serious and 34.96% need

professional help when illness symptoms are worsening.[23]

Also study in Nigeria recorded that 29.9% will do so when they can no longer bear the pain or discomfort emanating from the symptoms, 27.2% when they are limited in the performance of their functions as students, 6.7% when the illness distorts their facial appearance and the rest 9.7% when they are aware that such symptom had caused the death of someone they know.[30]

Going to the doctor is a last resort, especially after self-treatment has failed as insufficient students' knowledge about pharmacokinetics, pharmacodynamics, and limited experience make them susceptible to unfavorable outcomes.

In the present study, the higher academic year was the only significant predictor of self-medication practice among medical students during the COVID-19 pandemic. The same was reported by a study in Pakistan.[5]

While a study in Jordan demonstrated more predictors such as female gender, working in the medical field, and history of COVID-19 infection.[31]

The higher academic year may be associated with more confidence and a stressful educational load which results in

distress and compels them to seek over-the-counter medications.

Conclusions: High prevalence of self-medicating practice among medical students during COVID-19 pandemic and the most commonly used drug was antiviral medication followed by antibiotics and vitamin C and multivitamins. The higher academic year was the only significant predictor of self-medication practice among medical students.

Recommendations: Increasing the awareness of the medical students about the rational choice of getting medical assistance is a very important issue to control their health. A health education program is needed to increase awareness about the use of medicines among medical student and to enable them to make the right decisions relating to health problems.

facilitated the conduction of this study smoothly and effectively.

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Table (1): Sociodemographic characteristics of the studied participants

Sociodemographic data	N= 504	%
Age (years)		
Mean $\pm$SD	21.7$\pm$.965	
Range	(19-24)	
Gender		
▪ Male	234	46.4
▪ Female	270	53.6
Faculty		
▪ Medicine	159	31.5
▪ Dentistry	175	34.7
▪ Pharmacy	170	33.7
Residence		
▪ Rural	252	50.0
▪ Urban	252	50.0
Academic year		
▪ Preparatory	20	4.0
▪ 1st grade	66	13.3
▪ 2nd	94	18.9
▪ 3rd	112	22.5
▪ 4th	150	30.2
▪ 5th	36	7.2
▪ 6th	19	3.8
Father education		
▪ High	371	73.6
▪ Middle	116	23.0
▪ Low	17	3.4
Mother education		
▪ High	312	61.9
▪ Middle	159	31.5
▪ Low	33	6.5
Living with family		
▪ Yes	393	78.0
▪ No	111	22.0
Have you ever presented with COVID 19 symptoms from the start of pandemic		
▪ Yes	175	34.7
▪ No	329	65.3
Are you laboratory diagnosed as COVID 19 patient?		
▪ Yes	72	14.3
▪ No	432	85.7

Table (2): Using self-medication by students

Using self-medication	N=504	%
Use of self-medication during COVID 19 pandemic		
▪ Yes	376	74.6
▪ No	128	25.4
Place of getting self- medication (n=376)		
▪ Pharmacy	321	85.3
▪ Street market (medicine reuse via collecting unneeded medications in common pox in each faculty)	19	5
▪ Relatives and friends	34	9
▪ Neighbors	2	0.5
How long did you keep using self-medication (n =376)		
▪ One week/less	217	57.7
▪ More than one week	82	21.8
▪ I don't remember	77	20.5
Types of drugs used during COVID 19		
▪ Antibiotic	136	30.2
▪ Vitamin c and other multivitamins	115	25.6
▪ Zinc	86	19.1
▪ Antitussive drugs	61	13.6
▪ Herbal and natural products	24	5.3
▪ Antiviral drugs	182	40.4

Table (3): The students' views regarding the safety of self-medication drugs

Safety of self-medication	Yes very important		Yes Important		No, Not important	
	N	(%)	N	(%)	N	(%)
1. Any drug, including herbal ones, has side effects.	136	27.0	167	33.1	201	39.9
2. Use of drugs, including herbal ones, can be potentially dangerous.	168	33.4	182	36.2	153	30.4
3. Increasing drug dosage can be dangerous.	312	61.9	116	23.0	76	15.1
4. Lowering drug dosage can be dangerous.	146	29.6	182	36.8	166	33.6
5. In case of side effects, physicians' help must be sought.	261	51.9	153	30.4	89	17.7
6. Using drugs with unknown substances with patients having liver and kidney disease is very dangerous.	338	67.2	86	17.1	79	15.7
7. Mild medical problems do not need drug treatment.	84	16.7	230	45.8	188	37.5
8. Self-treatment can mask the symptoms and signs of diseases.	219	43.6	173	34.5	110	21.9

Table (4): Motives of self-medication practice and reasons for seeking professional help among students

Motives for self-medication	Strongly agree		Agree		Not agree	
	N	(%)	N	(%)	N	(%)
1. I don't want to burden my physician because my problems are not important,	93	18.5	173	34.3	238	47.2
2. My physician told me that I can manage such symptoms on my own,	86	17.1	208	41.3	210	41.7
3. I want to play an active role in my health,	200	39.7	154	30.6	150	29.8
4. My relatives, friends, media told me that I can manage such symptoms on my own,	119	23.6	190	37.7	195	38.7
5. I don't want to go to my physician due to a long waiting period,	127	25.2	180	35.7	197	39.1
6. The prescribed treatment from my physician was not successful	100	19.8	179	35.5	225	44.6
7. I don't trust my physician.	108	21.4	109	21.6	287	56.9
What were the reasons for seeking professional help?	Yes		No		Don't know	
	N	%	N	%	N	%
1. Symptoms last for more than a week	334	66.4	109	21.7	60	11.9
2. Symptoms are worsening	301	59.8	142	28.2	60	11.9
3. Presence of severe pain	346	68.9	123	24.5	123	24.6
4. Usual treatment is not effective	303	60.5	148	29.5	49	10
5. Side effects	219	43.6	200	39.8	83	16.5
6. My belief that the problems are serious	336	66.7	119	23.6	49	9.7
7. In case of mental health problems	187	37.5	197	39.5	115	23

Table (5): Predictors of self-medication practice of medical students during COVID-19 pandemic

Predictors of self-medication practice		B	S.E.	Wald	df	Sig.	Exp. (B)
Step 1ª	▪ Gender	-0.029-	0.224	0.017	1	0.896	0.971
	▪ Faculty	-0.079-	0.143	0.309	1	0.578	0.924
	▪ Academic year	-0.162-	0.088	3.413	1	**0.045***	0.851
	▪ Residence	0.001	0.227	0.000	1	0.995	1.001
	▪ Father education			2.269	2	0.322	
	▪ Father edu(1)	-1.010-	0.670	2.269	1	0.132	0.364
	▪ Father edu(2)	-0.873-	0.652	1.791	1	0.181	0.418
	▪ Mother education			0.738	2	0.692	
	▪ Mother edu(1)	-0.084-	0.559	0.023	1	0.881	0.919
	▪ Mother edu(2)	-0.304-	0.535	0.323	1	0.570	0.738
	▪ COVID 19 symptoms	0.263	0.243	1.170	1	0.279	1.301
	▪ COVID 19 diagnosis	-0.073-	0.333	0.048	1	0.826	0.930
	▪ Living with family	0.292	0.255	1.312	1	0.252	1.339
	▪ Constant	0.005	0.994	0.000	1	0.996	1.005

*significant

الملخص العربي

ممارسه التداوى الذاتى لدى طلاب الطب بجامعة طنطا خلال جائحة كوفيد ١٩ ـ مصر

ايمان علي يونس١ ـ وليم مصطفي داوود١ ـ سلوي عبدالمجيد عتلم١

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الخلفية: يتغير سلوك الطلاب في اتخاذ القرارات المتعلقة بالصحة حاليًا من المتلقين السلبيين إلى المتلقين الذين يلعبون دورًا نشطًا في اتخاذ إجراءات للتحكم في صحتهم واتخاذ مبادرات الرعاية الذاتية خاصة أثناء انتشار الأوبئة.**اهداف الدراسه:** تهدف هذه الدراسة إلى معرفة السلوك الصحي لدى طلاب الطب بجامعة طنطا خلال جائحة كوفيد ١٩ كمرحلة أولية مطلوبة لبرنامج التثقيف الصحي. **طرق الدراسه:** تم إجراء دراسة مقطعية بين طلاب الطب بجامعة طنطا ، مصر .وقد تم اخذ عينة ملائمة من ٥٠٤ طالب وطالبه . تم توزيع الاستبيانات على المشاركين **النتائج:** حوالي ثلاثة أرباع الطلاب (٧٤,٦٪) استخدموا العلاج الذاتي خلال جائحة كوفيد ١٩وكان الدواء الأكثر استخدامًا هو الأدوية المضادة للفيروسات (٤٠,٤٪) تليها المضادات الحيوية (٣٠,٢٪) وفيتامين C والفيتامينات المتعددة (٢٥,٦٪) . أبلغ الطلاب عن العديد من الأسباب وراء هذه الممارسة حيث اراد ٧٠٪ منهم ان يلعب دورا فعالا في حل مشكلتهم الصحية و ٦٠٪ لم يرغبوا في الذهاب إلى الطبيب خوفًا من فترات الانتظار الطويلة. اتفق المشاركون في الدراسة مع حقيقة أن المساعدة المهنية مطلوبة ، ولكن مع تفسيرات متنوعة.

الخلاصة: ارتفاع معدل انتشار ممارسة العلاج الذاتي بين طلاب الطب خلال جائحة جائحة كوفيد ١٩ ، وكان الدواء الأكثر شيوعًا هو الأدوية المضادة للفيروسات تليها المضادات الحيوية وفيتامين ج والفيتامينات المتعددة. كان العام الدراسي العالي هو العامل الوحيد الذي ينبئ بممارسة التطبيب الذاتي بين طلاب الطب.**التوصيات:** هناك حاجة إلى برنامج التثقيف الصحي لزيادة الوعي حول استخدام الأدوية بين طلاب الطب وتمكينهم من اتخاذ القرارات الصحيحة المتعلقة بالمشاكل الصحية.