

## Self-medication practice among medical and non-medical students at Taibah University, Madinah, Saudi Arabia

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### Abstract

**Background:** Self-medication is a common practice worldwide, particularly among adolescents and University students, and the irrational use of medicines is a cause of concern

**Objectives:** To assess students' practices, knowledge, awareness and the reasons behind self-medication at Taibah University, Madinah, Saudi Arabia.

**Subjects and Methods:** A cross-sectional study was conducted from 1 June until 31 August (2015) at Taibah University, Madinah, Saudi Arabia. The study recruited 503 students of all academic years (349 medical and 154 non-medical students). The data were collected through a self-administered structured questionnaire. The questionnaire consisted of demographic data and data about students' practice, attitude and reasons behind the use of self-medication. The collected data were analyzed using appropriate statistical methods. The level of statistical significance was defined as  $P \leq 0.05$ .

**Results:** The prevalence of self-medication among the studied students was 64.8% (326 out of 503 students), and there was significant difference by students' faculty, study year and family structure. The prevalence was higher among medical (66%), final years (75%), female (65.5%), and students living alone (77.8%). The self-medication students reported that they used un-prescribed medication to treat headache (35.9%), sore-throat and upper respiratory tract infections (42.9%), fever (14.1%), GIT problems (5.9%), and skin problems 91.2%). The most important self-medications used by students were analgesics (60.3%), antibiotics (30.6%), antipyretics (5.6%), vitamins (3.4%), and antihistamines (1.1%). The main source of information about medicines was the study books and learning experiences. The experience in self-medication was the most important reason of using self-medication in the studied students. However, most of the students (medical and non medical) reported non-favorable attitude towards self-medication and suggested health education and legislation to stop this phenomenon among university students.

**Conclusions:** The study finding revealed a high prevalence rate of self-medication among the studied students. The study findings address the crucial need to develop structured health education programs to prevent growing trend of self-medication among University students.

**Keywords:** Attitude, Cross sectional study, Practice, Self-medication, Students, Saudi Arabia.

### I. INTRODUCTION

Self-medication is a major problem worldwide and the inappropriate use of drugs is a place for concern [1]. Studies revealed that self-medication represents a common problem among university students [2, 3]. Self-

medication in Saudi Arabia seems to be a common practice among the general population [4]. Young adults especially students usually make unprotected health related decisions that may affect their health [5]. Self-medication, is defined as the use of pharmaceutical products without any professional supervision. It includes the use of medication by the consumer to treat self-recognized disorders, symptoms, recurrent disease or minor health problems [6, 7, 8].

Responsible self-medication is usually used to prevent and treat symptoms and ailments that do not need medical attention or consultation. This reduces the pressure on medical services, especially when these are limited. For those who are living in rural areas where the access to medical services would be difficult, patients are able to control their illness without the need to go to hospitals or other healthcare providers. In addition, self-medication can reduce health care costs [9, 10, 11, 12].

A major problem of self-medication with antimicrobials is the emergence of human pathogens resistance worldwide especially in the developing countries, where antibiotics are often prescribed easily [13]. Its irrational use increases the risk of adverse events, bacterial infection, hypersensitivity, drug withdrawal symptoms and sometimes masking of diseases which can delay correct diagnosis [13, 14, 15, 16].

Medical students usually differ from the general population because they are exposed to knowledge about diseases and drugs. A literature search was conducted and consisted of a Medical Literature Analysis and Retrieval System Online (MEDLINE) database search (accessed on 16.4.2010) and a World Wide Web search (Search engine: Google, accessed on 16.4.2010) using the following keywords: Self-medication, medical students, study. The search revealed that few studies have been conducted to ascertain the self-medication practice among medical students [17-24].

Most of the research that has been done recently focused on Medical, Pharmacy, and Health Science Students. One study that was carried out at Al-Qassim University focused on male gender only [25] and there was no comparable research done at Taibah University. The aim of this research is to determine the prevalence of self-medication among Taibah university students regardless of their gender or specialty.

To the best of our knowledge, this is the first study that was done at Taibah University to identify perception, attitude and practice of self-medication among university students. It will be of value to the students' population and the society at large.

### **Study Objectives:**

To determine perception, attitude and practice of self-medication among Taibah University medical students during the Academic year (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> year and graduated students). We also plan to compare medical (including health related subjects) and non-medical students. Moreover, new entrants and junior students will be compared with more senior and mature students.

**Study Design:** A prospective cross-sectional population-based descriptive study was designed using a well-structured and validated self-reporting questionnaire.

## II. MATERIAL AND METHODS

### **Recruitment:**

We have intended to reach all registered students at Taibah University during the academic year (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> year and graduated students), medical or non-medical. Their perception of self-medication was documented through the completion of self-reported of a structured and validated online questionnaire containing open-ended and close-ended items. The questionnaire was divided to sections A, B and C. Section A was about demographic data, section B involved all students who practiced self-medication, medication types, side effects and the reasons behind this practice, and section C was about those do not practice it and their behavior toward it.

### **Inclusion criteria:**

All registered students at Taibah University during the academic year 2014/2015 including (1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>, 5<sup>th</sup>, 6<sup>th</sup> year and graduated students), of both genders and of any age. Students were included if they provided consent to participate anonymously in the study.

### **Exclusion criteria:**

Students who have chronic diseases requiring regular intake of prescribed medications were not deemed suitable for inclusion into the study. Those who did not consent to participation were not included.

**Sample size determination:** The questionnaire was made available online to all registered students at Taibah University. Students were invited to complete the questionnaire anonymously only once. We allowed 3 months for data collection.

**Ethics:** This study is a survey based on an anonymous questionnaire and it conforms to the *Declaration of Helsinki for Human Rights*. An Ethical approval was obtained from the University's Research Ethics Committee.

### **Statistical analysis:**

The collected data were entered and analyzed using Statistical Analysis System (SAS) software package [1]. Data were tabulated and presented using frequencies. The students' practice of self medication were assessed, analyzed and compared by the students' characteristics using appropriate statistical tests. Awareness and attitude towards self-medication were compared between medical and non-medical students according to their use of self-medication separately.  $P$  values  $\leq 0.05$  were used as indicators of statistical significance differences between the studied groups [26].

### III. RESULTS

The socio-demographic characteristic of the study population of 503 university students was presented in Table 1. Most of the responding students (77.4%) were aged 20-24 years, of whom 33.8% were males and 66.2% were females. More than one half of them (55.8%) were in their early university years, and 69.3% were pursuing course in health related colleges including medicine. The majority were singles (82.7%), live with family (95.0%), and living in urban areas (89.1%).

**Table 1. Socio-demographic characteristics of studied students**

<b>Characteristics</b>	<b>N= 503</b>
<b>Age in years</b>	
< 20	57 (11.3)
20-24	359 (77.4)
> 24	57 (11.3)
<b>Student sex</b>	
Male	170 (33.8)
Female	333 (66.2)
<b>Study year</b>	
Early study years*	281 (55.8)
Final study years	222 (44.2)
<b>Faculty</b>	
Medical	349 (69.3)
Nonmedical	154 (30.7)
<b>Residence</b>	
Urban	448 (89.1)
Rural	55 (10.9)
<b>Marital status</b>	
Single	416 (82.7)
Married	87 (17.3)
<b>Family Structure</b>	
Live with family	476 (95.0)
Live alone	27 (5.0)

\*Including the students in the 1<sup>st</sup> and 2<sup>nd</sup> grades.

Out of the studied 503 students, there were 326 students (64.8%) who reported that they have used un-prescribed medication (self-medication). Of those reported self-medication, 61 students (18.7%) have reported that they always used un-prescribed medication. The range of conditions treated by self-medication included headache (35.9%), sore-throat and upper respiratory tract infections (42.9%), fever (14.1%), digestive problems (5.9%), and skin problems 91.2%). The most important self-medications used by students were analgesics (60.3%), antibiotics (30.6%), antipyretics (5.6%), vitamins (3.4%), and antihistamines (1.1%).

Table 2 demonstrated self-medication according to students' characteristics. There have been statistically significant differences between the students' groups according to the use of self-medication by their study year ( $p= 0.04$ ), their faculty ( $p= 0.02$ ) and their family structure ( $p= 0.03$ ). The use of self-medication was higher among students in their final study years (75.0%), among medical students (66.0%) and those students who are living alone (77.8%). For other characteristics, no statistically significant differences were detected, although the use of self-medication was higher among students age 20-24 years (74.0%), female students (65.5%), students living in rural areas (69.0%), and married students (68.9%).

**Table 2. Self-medication among the studied students by their characteristics (n= 503)**

Characteristics	Self-medication		P. value
	Yes N= 326 n (%)	No N= 177 n (%)	
<b>Age in years</b>			
< 20	36 (63.2)	21 (36.8)	0.48
20-24	249 (74.0)	140 (36.0)	
> 24	41 (72.0)	16 (28.0)	
<b>Student sex</b>			
Male	108 (63.5)	115 (36.5)	0.66
Female	218 (65.5)	62 (34.5)	
<b>Study year</b>			
Early study years	169 (60.0)	112 (40.0)	0.04*
Final study years	249 (75.0)	84 (25.0)	
<b>Faculty</b>			
Medical	233 (66.0)	116 (34.0)	0.02*
Nonmedical	93 (60.0)	61 (40.0)	
<b>Residence</b>			
Urban	288 (64.3)	160 (35.7)	0.48
Rural	38 (69.0)	17 (31.0)	
<b>Marital status</b>			
Single	266 (63.9)	150 (36.1)	0.37
Married	60 (68.9)	27 (31.1)	
<b>Family Structure</b>			
Live with family	305 (64.1)	171 (35.9)	0.03*
Live alone	21 (77.8)	6 (22.2)	

\*Significant

Table 3 presented the distribution of self-medication according to students' awareness and attitude towards self-medication by their colleges (medical and non-medical). There was statistically significant difference between medical and non-medical students in relation to the reasons listed for self-medication. Among these reasons, experience to self-medicate was the most important representing 64.6% among medical students and 30.4 % among non-medical students. Nearly 75% of medical students confirmed that they read the side effects, and 214 (92%) of them refer to doctors when self-medication fails. Referring to doctors after failure of self-medication showed better outcome in 59.6% in medical students and 40.1% with statistically significant difference. There was also significant difference in the studied groups in terms of the source of information to

self-medicate where the course textbooks and learning experience was the most important source among medical students (58.0%), compare to 34.4% among non-medical students (p <.0001).

**Table 3. Distribution of the students practicing self-medication by their knowledge, awareness and attitude towards self-medication (n= 326)**

	<b>Medical students N= 233 n (%)</b>	<b>Non-medical students N = 93 n (%)</b>	<b>P value</b>
<b>Reasons of self-medication</b>			
Cheaper	8 (3.4)	10 (10.7)	0.04*
Simple complaint	35 (15.0)	20 (21.4)	
Simple medications	40 (17.0)	18 (19.3)	
Experience in self-medication	150 (64.6)	30 (32.4)	
Do not like to go doctor	0 (0.0)	15 (16.2)	
<b>Prescribing medication to others</b>			
Yes	128 (54.9)	40 (43.0)	0.04*
No	105 (45.1)	53 (57.0)	
<b>Reading about side effects of used self-medicines</b>			
Yes	177 (76.0)	56 (60.0)	0.004*
No	56 (34.0)	37 (40.0)	
<b>Referring to doctors when self-medication fails</b>			
Yes	214 (92.0)	88 (94.6)	0.30
No	19 (8.0)	5 (5.4)	
<b>Differences in outcome after go to doctor</b>			
Yes	139 (59.6)	38 (40.1)	0.001*
No	94 (40.4)	55 (59.9)	
<b>Sources of self-medication information</b>			
Previous prescription	34 (14.0)	30 (32.2)	<.0001*
Pharmacist	20 (8.5)	10 (10.9)	
Friends	2 (1.0)	10 (10.9)	
Family	20 (8.5)	2 (2.0)	
Study books and learning experience	134 (58.0)	32 (34.4)	
Internet	23 (10.0)	9 (9.6)	

\*Significant

Table 4 presented the distribution of the studied students not practicing self-medication by their awareness and attitude towards self-medication by their colleges (medical and non-medical). A statistically significant difference was observed between medical and nonmedical students regarding their reasons of not using self-medication (p= 0.03), about three-fourth of medical students refer the reasons to trust only doctors (42.0%) and fear of side effects (33.6%), while these reasons occupying only 57.6% among non-medical students. No statistically significant differences were found regarding the methods to stop this phenomenon and the students attitude towards self-medication, although the percent of students reported not favorable attitude was slightly higher (87.0%) among medical students compared to 83.6% among non-medical students.

**Table 4. Distribution of the students not practicing self-medication by their awareness and attitude towards self-medication (n=177)**

	<b>Medical students</b> <b>N= 116</b> <b>n (%)</b>	<b>Non-medical students</b> <b>N = 61</b> <b>n (%)</b>	<b>P value</b>
<b>Reasons of not using self-medication</b>			
Trust only in doctors	49 (42.0)	24 (39.8)	0.03*
Fear of side effects	39 (33.6)	11 (18.0)	
Experience of previous side effect	17 (14.9)	20 (33.4)	
Know someone with experience of severe side effects	11 (9.9)	6 (10.0)	
<b>Methods to stop self-medication</b>			
Health education	58 (50.0)	34 (55.7)	0.16
Legislation	52 (44.8)	24 (39.3)	
Penalties	6 (5.2)	3 (4.9)	
<b>Attitude towards self-medication</b>			
Favorable	10 (11.6)	8 (13.1)	0.10
Not favorable	101 (87.0)	51 (83.6)	
Not decided	5 (4.3)	2 (3.2)	

\*Significant

#### IV. DISCUSSION

Self-medication is a common practice worldwide and the irrational use of drugs is a cause of concern. This study is the first in Taibah University, Madinah, Saudi Arabia concerning self-medication among university students. In this representative sample, 326 students (64.8%) reported that they used un-prescribed medications. In recent studies conducted within Saudi Arabia, the prevalence of self-medication among the University students was shown to range from 75.2% and 51% [27, 28]. Other studies conducted in some Arabic countries reported similar higher rates among university students [29, 30]. In studies conducted in developing countries, the prevalence of self-medication was shown to be 51% in Slovenia [31], 55.3% in Pakistan [32],

55% in Egypt [29], 56.9% in Nigeria [33] and 80.9% in Malaysia [34]. On the other hand, a lower rate (38.8%) was reported among undergraduate nursing students from Brazil. This variation could be due to the differences in the study population as the majority of the Brazilian study were females. This may be also attributed to success of the Brazilian Health Surveillance Agency which has some regulations regarding monitoring advertisement which may help prevent problems such as self-medication [35].

The prevalence of self-medication in this study was higher among medical students (66%), final year students (75%), female students (65.5%), and the highest prevalence was among students living alone (77.8%). Similar finding has been reported in a Spanish study [36] which showed that self-medication was more prevalent among persons who lived alone. Also, this Spanish study reported high prevalence of self-medication among women and those living in large cities.

Gender is considered as an important factor in self-medication patterns among young adults including students. The prevalence of self-medication was observed to be higher among females in our study (65.5% vs. 63.5% among male students). Similar findings were reported in studies from Spanish [36] and India [36, 37]. Also, the prevalence of self-medication in our study was significantly higher among medical students (66% vs. 60% in non-medical students), and students of the senior academic years (5<sup>th</sup> year) used self-medication more than juniors. Other studies also reported the same results which are most probably due to increase in the level of medical knowledge and public health clinical training [39-42]. Also, older students feel that they are able to self-medicate themselves as they studied pharmacology. On the other hand, some other studies showed no relationship between academic year and self-medication [32, 43].

The most important self-medications used by students in this study were analgesics (60.3%), antibiotics (30.6%), antipyretics (5.6%), vitamins (3.4%), and antihistamines (1.1%). Similar observations were found as analgesics were the most common group of drugs for self-medication. Sore throat and upper respiratory tract infections were the most common indications for self-medication in our study which was similar to observations reported in studies from India [37, 38], cough & cold were the most common symptoms for self-medication. A study from Ethiopia [39], however, reported fever as the most common symptom for self-medication. In studies from Nigeria [33], however, diarrhea and gastro-intestinal infections were reported as the most common indication for self-medication and un-prescribed antibiotics use whereas in Greece [44] and Turkey [45], common cold was the most common indication for antibiotic use.

The reasons to use self-medication showed statistically significant difference among the studied medical and non-medical students. However, the most important reasons among medical and non-medical students were prior knowledge and experience in self-medication. In contrast with these findings, Awad, et al. [42] reported that the participants used pharmacies because they are of a lower cost compared to other healthcare facilities. Also, students from Brazil [35] and India [46] perceived that time saving was the most important reason for using self-medication. In Bahrain, it was found that the most common reasons for seeking self-medication were time saving, involved minor illness that does not need a visit to a doctor, and cost saving [47]. This was not similar to our findings where only 3.4% and 10.7% of medical and non-medical students, respectively, in our study sought self-medication due to financial reasons.

Despite the high prevalence of self-medication observed in this study, the attitude towards self-medication was not favorable among students. The percentage of students reported non-favorable attitude was

87.0% among medical students and 83.6% among non-medical students. Also, the present study perceives that to prevent the growing trend of self-medication, health education and legislations should be applied prohibiting the supply of medicines without a valid prescription. In contrast with these findings, a recent Indian study [48] reported that 47% of the students felt that self-medication was part of self-care, and more than 50% of the participants wished to continue with self-medication/start self-medication. Nearly one-third of them were even ready to advice self-medication to their friends.

The main sources of information about self-medication and medicines among the students in this study were the study textbooks and learning experience (58% in medical and 34.4% in non-medical students). In another Saudi study [49], the students rely on: physicians (50.6%), community pharmacists (15.7%), parents/adult relatives (7.2%), and internet (5.6%). This is similar to the results from a study carried out in Canada [50], where the textbooks and learning were the most important source of information. It was also notable that in the present study, the proportion of students who obtained their information about medicines from their parents was low (8.5% among medical and 2% among non-medical students), which demonstrates the important role of parents in self-medication [51].

The present study appeared to have a number of strengths. The study questionnaire addressed almost all issues related to self-medication practice. Also, the study questionnaire has been validated by an epidemiologist and a pharmacologist. To our best knowledge, this study is the first to investigate self-medication among Taibah University students, Madinah, Saudi Arabia. However, this study has some limitations that can adversely influence the generalization of the findings. Although we used standard sampling method in the study, selection bias could be present because of the number of medical students and female students were more in the study. Also, the study has included students from one University and recruited a modest sample size that future research will need to consider including multi-universities design to assess the extent to which the results of this study are generalizable.

### **Conclusions:**

In conclusion, the study findings revealed a considerable high proportion of Taibah University students (64.8%) using non prescribed medication (self-medication). The most important self-medications used by the students in this study were analgesics. The study findings address the crucial need to develop structured health education programs to raise knowledge, belief and awareness of the students about the danger of non-prescribed medication, and these programs have to be continuously delivered through different mass media in the University.

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