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HEALTH PROBLEMS AND MEDICATION SELF- MANAGEMENT AMONG UNIVERSITY STUDENTS IN THE UAE

Asma Ibrahim Elkish, Hanan Nasr Sandid, Maitha Mohammed Alaryani, Marah Bassam Elkhatib, Mohammed Shamssain*

College of pharmacy and Health Sciences, Ajman University of Science and Technology, Ajman, UAE.

*Corresponding Author: Dr. Mohammed Shamssain

College of pharmacy and Health Sciences, Ajman University of Science and Technology, Ajman, UAE.

ABSTRACT

Aim: This study aims to look at the most common health problems existing among students & what could contribute to worsen their health status. Then, to investigate the prevalence of self-medication, its risk factors & to give some recommendations to avoid its spread. Also, to illustrate the role of the pharmacist as a drug expert & to evaluate its effectiveness. Then to compare our results with other studies in different countries. **Materials and Methods:** This is the first study looking at health-related problems and self-medication in UAE students. We are investigating health problems and self-medication among 1040 male and female university students in the UAE. The study is divided into 3 parts. We have designed and validated a paper based questionnaire which has been distributed to various universities in the UAE. In addition, we built a freely accessed, self administered web based questionnaire using (google forms) to help us get access into more universities in the UAE. Questions were related to existing health problems, self-medications, stress and lifestyle. We used SPSS (version20) for data analysis **Results:** Mean (S.D) age and BMI of male and female students were 20.9 (±4.7) years, 20.6 (±2.9) years, 25.7 (±4.0) and 23.3 (±4.2), respectively. Approximately 25% of the students preferred self-medication than going to a doctor, for different reasons such as inability to afford physician fees, lack of time & trusting their own knowledge. The most common health problems were cold or flu (34.6%), acne (11.95%), un-tolerated menstruation pain (7.55%), migraine (6.3%), asthma (6.1%), IBS (5.3%), eczema (5.01%), hair health (4.9%), constipation (4.01%) and others (10.8%). Students preferred to use analgesics (64.4%), antibiotics (6.35%), Antihistamine (5.93%), Decongestants (3.75%) and Acne drugs (2.2%) as a choice to treat their ailments. The gender & specialty affected the desire of students towards self-treatment. Life style mainly diet & stress had a strong impact on general health as well. Comparison between students in UAE & other students abroad revealed that UAE has the least percent of self-treatment which might reflect the awareness of our students about the risks of self-treatment. **Conclusion:** Self- treatment is not wide spread yet in the UAE and is still a risk & causes many problems especially among the elderly & non-educated people. Thus, there is a need to hold awareness sessions & campaigns to improve the students' knowledge about self-treatment and their medicine & aid them to the safest & most proper medicine selection and use. Gender and specialty have shown certain impacts on the decision of self-treatment. The role of the pharmacist as a drug consultant was more noticeable after obtaining the drug, not before. Students who are using internet as a source of their medicine are at higher risk of having side effects because they are using untrusted websites. Unhealthy diet & stress increase the risk of having disease, therefore, it is very important to initiate health-related interventions programs aiming to improve the health of these students.

KEYWORD: migraine, asthma, eczema, Antihistamine etc.

INTRODUCTION

Self-medication is a worldwide public health problem which is more experienced in developing countries. Self-medication can be defined as "the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms".[1,2] It is also defined as the activity of obtaining and consuming drugs without the advice of a physician either for diagnosis, prescription or surveillance of treatment.

This includes acquiring medicines without a prescription (OTC), sharing medicines with relatives or friends or using left-over medicine stored at residential place.[3]

Self-medication is an ordinary yet important part of patients' behavior in coping with illness .It is also an important self-care practical used for the most part when an individual encounters common health problems that he/she believes do not require a visit to a doctor.[4]

Self-medication is widely practiced worldwide and often considered as a component of self-care. However, unlike other components of self-care, self-medication has the potential to do good as well as cause harm since it involves the use of drugs.[5] Most drugs can have significant unwanted effects which may result in serious clinical effects with potential life-threatening complications. Therefore, the diagnosis by the physician is very important for the proper treatment.[5] The World Health Organization (WHO) has appropriately pointed out that responsible self-medication can help prevent and treat diseases that do not require medical consultation and provides a cheaper alternative for treating common illnesses.[5]

This responsible self-medication could be delivered by a competent pharmacist in a community pharmacy. World Health Organization 1998, addressed that the pharmacist is an adviser to the public on everyday health-care and is a key figure in the supply and delivery of medicines to the consumer. He is a partner of the manufacturer of non-prescription medicines. The pharmacist in his professional capacity and in direct contact with patients is competent to provide sound advice on the medicines he supplies.[6]

Studies conducted among university students worldwide has reported that the utilization of OTC drugs among university students is common and inappropriate.[1]

Most of studies were conducted among medical university students precisely. The prevalence of self-medication among medical students was found to be high. For instance, 98.8% of medical students in Kuwait practice self-medication (Ref?), 92% in South India (Ref?), 80% in Pakistan (Ref?), 79.9% in Serbia (Ref?), 76.9% in Bahrain (Ref?) & 55% in Egypt (Ref?). Other studies have done their study among female students only like in Malaysia (Ref?) where 80.9% of them prefer self-treatment.

The most common ailments found in the Arab countries for which self-medication were used were: headache (33.6%), followed by common cold (17.5%), dysmenorrhea (13.8%) and bone and joints pain (5.3%) in KSA (Ref?). In Kuwait (Ref?), Headache was the highest health condition that most frequently motivated self-medication with 90.1% prevalence, followed by 84.7% for dysmenorrhea and 60.3% for constipation. Headache also was the most common health problem in Bahrain (Ref?) accounting for 70.9%, then comes cough & cold (53.7%), stomach ache (32.8%) &fever (29.9%).

While in Asian countries, more health problems related to GIT were observed. In Malaysia (Ref?), otorhinolaryngology problems (22.5%), followed by respiratory disease (19.6%), Gastro-Intestinal Tract (GIT) disease (18.1%) and headache/fever (16.8%) were the most common health problems found. Cough and common cold (35.21%) followed by diarrhea (25.47%),

fever (15.73%), headache (14.98%) and pain abdomen due to heartburn/ peptic ulcer (8.61%) were reported in West Bengal (Ref?). Again, common cold (69%), fever (63%) and headache (60%) in South India (Ref?), headaches (72.4%), fever (55.2%) and flu like symptoms (65.5%) in Karachi & Pakistan (Ref?).

The most frequently drugs employed in self-medication were found to be analgesics 81.3%, decongestants 12.7%, antimicrobials 6.0%, lozenges 5.2%, antispasmodic 4.5%, vitamin C 3.0%, and miscellaneous 10.4% in Bahrain (Ref?). While in Serbia the most common self-prescribed medications are analgesics (55.4%), vitamin supplements (45.7%), antipyretics (41.5%), antibiotics (38.9%) and sedatives were self-prescribed by (13.0%) (Ref?).

Moving down to South Asia, pain killers (88.3%), fever relieving medicine (65.1%), anti-allergy drugs (44.1%),vitamins (44.1%),antibiotics (35.2%),pills for indigestion (18.6%),sleeping pills (18.6%), herbal/homeopathic (10.1%),tonics (7.4%) in addition to street drugs (4.8%) & birth control pills (3.0%) are self-prescribed in Karachi (Ref?). The South Indian study showed that antipyretics (43%), analgesics (81%), antibiotics (6%), antihistamines (13%) & some potentially harmful drugs were also used, such as sleeping pills (2%), steroids (2%) and stimulants (1.5%) (Ref).

Drugs commonly used in West Bengal for self-medication include antibiotics (31.09%) followed by analgesics (23.21%), antipyretics (17.98%), antiulcer agents (8.99%), cough suppressant (7.87%), multivitamins (6.37%) and anthelminthic (4.49%) (Ref?).

In Saudi Arabia analgesics were the most frequently (55.4%) self-medication used by medical students and interns then come the antipyretics (29.0%), antihistaminic (27.0%) and antibiotics (25.8%) (Ref?). While in Egypt, the most medications used are antibiotics (58.8%), vitamins (54.4%), analgesics (87.2%), sedatives (12%)& herbal product (28%) (Ref).

It was illustrated that the increase of OTC medication was influenced by many factors like age, sex, medication knowledge, previous experience of disease, non-seriousness of illness. Medications usually obtained from home as a left-over, from pharmacies and from family members.

There are many reasons for the increased likelihood of self-medication among medical students. These students have easy access to information from drug indices, literature, and other medical students to self-diagnose and self-medicate. In addition, they have easy access to the medication itself through physician samples provided by pharmaceutical representatives, and "The White Coat" guarantees trouble free access to drugs available in

pharmacies.[4] In South India the most common reasons for self-medication were minor ailments (82%), lack of time to consult a doctor (11%) &self-confidence among medical students (8.5%).

Previous experience with similar symptoms' (50.3%) and the 'problem seeming to be too trivial' (48.3%) were the commonest reasons in Karachi.[7]

When the female students in Malaysia asked about the reason behind stocking this type of medicine specifically, 30.1% mentioned that they need 'pain killers' every month, 14.6% mentioned they need vitamins for their study, 22.0% declared that they usually use this sort of medicines for their disease and lastly 10.4% said that they keep whatever medicine for future use.[2]

Among the reasons given for practicing self-medication, (47.19%) respondents of West Bengal university students, felt that their illness was mild while (28.46%) preferred self-medication as it is time-saving. About (15.73%) reported that cost-effectiveness was the primary reason for self-medication while (8.62%) preferred because of urgency in West Bengal.[4]

In Arab countries like Saudi Arabia, economics & age were the strongest motivator for self-medication. Older students, higher educational year, non-professional working fathers and living with families are predictors of self-medication use.[1]

Risks of self-treatment
Self-medication among future health care professionals can represent a serious threat to professionalism in medicine and it has potential to put at risk public trust into this profession. Studies revealed that self-treatment might:
- Raise concerns of incorrect self-diagnosis, drug interaction, and use other than for the original indication. The misuse of nonprescription drugs amongst students has become a serious problem. The youth is especially exposed to the media and the increased advertising of pharmaceuticals poses a larger threat to the young population.[7]
- Inappropriate self-medication causes wastage of resources, increases resistance of pathogens and generally causes serious health hazards such as adverse drug reactions, prolonged suffering and drug dependence[6]
- The accessibility of medicine by consumers and thereby giving options for misuse. If it followed with inappropriate use, this will lead to health risk and economic burden to government and decrease the affordability of medicine to patients.[2]
- Self-medication increases the chance of illegal drug use, dependence and masking the underlying disease which lead to public health complication, generate drug resistance and impede diagnosis[1]
- Important disadvantages of self-medication mentioned were the risk of making a wrong

diagnosis, inappropriate drug use and adverse effects.[8]
- The increased advertising of pharmaceuticals increases concerns of incorrect self-diagnosis, drug interaction, and use of drugs other than for the original indication because of self-medication, morbidity is increasing on regular basis. Perceptions of illness and continuous advertising have increased the prevalence of self-medication because of drug–drug interactions.[9]

Aims & Objectives
This is the first study looking at health-related problems, and self-medication in UAE students aiming to
- look at the most common health problems existing among students & factors which contribute to worsen their health status.
- investigate the prevalence of self-medication, point on its risk factors & give some recommendations to avoid its spread.
- compare UAE with other countries to locate the awareness of our students regarding self –treatment with other students abroad.

MATERIALS AND METHODS
Study design
A cross-sectional study design was chosen to investigate the most common health problems existing among students and the prevalence of self-medication. Study location: the study was conducted at 22 UAE universities. The majority of the results belonged to AUST.

Study sample size
We were able to survey 1040 male & female undergraduate students from different universities in UAE. Students from different universities& faculties filled out a valid questionnaire created for the purpose of this research.

Data collection
Data were collected using a questionnaire. The study questionnaire was adapted from various similar studies conducted previously and pilot-tested on a sample of 20 participants. We performed a pilot study about the questionnaire and, as a result, we have adjusted the questions accordingly. Any ambiguities in the questions or responses were removed before its implementation. The questionnaire was divided into three parts, one assessed the demographic details of the participants and one assessed the existing health problems, prevalence and practice of self-medication, while the last section dealt with the life style of students & how it affects their health.

A copy of the questionnaire was put online as well, using (Google forms) to guarantee its availability to all UAE university students. Some students were interviewed as well for the sake of approaching optimum results. Study approval: The study was approved by the college of

pharmacy and health science in AUST as undergraduates graduation project. Written consent was obtained from the respondents.

Data analysis
Data were entered into statistical package for Social Sciences (SPSS version 20) and descriptive analysis was conducted as follows: quantitative data was processed and analysed using frequencies, means, standard deviation (SD), medians and cross-tabulation. Apart from this, appropriate non-parametric statistical tests were utilised for skewed data, and where applicable, to establish relationships or differences between variables and we measure the significance degree using the chi-square. P value was significant p less than or equal to 0.05.

RESULTS
We studied 238 male (22.9%) & 788 female (75.8%) students. From table 1, we can observed that there was a very high significant difference in weight and height between males and females. Male were significantly heavier and taller than females. There was no significant difference in BMI between males and females.

Table 2 shows the Frequency and percentage of responses in all subjects. From table 3, we can observe that generally there was no significant difference between medical and non-medical students in the prevalence of self-treatment (approximately 25%) but there were significant differences in The diagnosis of their health problems by their own knowledge, using medication, knowledge of medication (relatives, neighbors and major studies), reason of self-treatment, type of medicine they were use, trusting the pharmacist, social class (moderate) and in their life style.

From table 4, we can observe that generally there was no significant difference between male and female students in the prevalence of self-treatment (26.1% in male & 24.7% in female) but there were significant differences in source of medication (physician and pharmacist), reason of self-treatment (lack of time), trusting the pharmacist and the reason of being stressed.

Table 5 shows the effect of dietary behavior on common health problems. Table 6 shows the effect of stressful life on common health problems. Table 7 shows the comparison of the prevalence of self-treatment between university students in UAE and university students in other countries.

Figure 1shows the most common health problems among all subjects. Figure 2 shows ways of diagnosis of the health problems. Figure 3 shows the sources of the medication. Figure 4 shows over the counter drug used among all subjects. Figure 5 shows the internet sites used to search about drugs. Figure 6 shows the sources of the knowledge the students rely on in choosing the medicine. Figure 7 shows the comparison of common health problems between medical and non-medical students. Figure 8 shows the comparison of common over the counter drugs used by medical and non-medical students. Figure 9 shows the comparison between the way medical and non-medical students diagnose their health problems. Figure10 compares the source of medication among medical and non-medical students. Figure 11 compares the reason of self-medication among medical and non-medical students. Figure12 compares the reason of stress among medical and non-medical students. Figure14 compares the reason of self-medication among male and female students.

Table: 1. Physical measurements in all subjects studied (Mean+/- SD)

Variable	Male(238)	Female(788)	All (1039)
Age	20.9 (±4.7)	20.6 (±2.9)	20.6 (±3.6)
Ht	163.3 (±46)***	154.3 (±31.5)	155.7 (±36.8)
Wt	76.3 (±23.1)***	58.2 (±17.2)	62.1 (±20.5)
BMI	25.7 (±4)	23.3 (±4.2)	23.8 (±4.4)

***-p ≤0.001 (very high significant)

Table: 2. Frequency and percentage of responses in all subjects

Variable		Frequency	Percent
Main health problems	cold or flu	359	34.6%
	Acne	124	11.95%
	Un tolerated menstruation pain	78	7.55
	Migraine	65	6.3%
	Asthma	64	6.1%
	IBS	55	5.3%
	Eczema	52	5.01%
	Hair health	51	4.9%
	Constipation	42	4.01%
	Others	114	10.8%
Way to diagnose health problem	Physician	450	44.4%
	Own knowledge	370	36.5%

	Relatives or neighbors	94	9.3%
	Internet	95	9.4%
Source of medication	Physician	386	53.8%
	Pharmacist	153	21.3%
	Self-treatment	179	25%
Over the counter drugs used	Analgesic	174	64.4%
	Antibiotics	17	6.35%
	Antihistamines	16	5.93%
	Decongestants	10	3.75%
	Acne drugs	6	2.2%
	Others	43	15.4%
Knowledge about your medicine	major study	63	23.7%
	relative or neighbor	157	59%
	Internet	46	17.3%
Internet sites used	Google.com	52	57.7%
	Social media	8	8.8%
	Wikipedia	7	7.7%
	Medical sites	6	6.6%
	Drugs.com	4	4.4%
	Others	13	11.33%
Reason of self-treatment	can't afford physician consultation fees	30	7.85%
	trusting own knowledge	150	39.3%
	lack of time	108	28.3%
	Others	94	24.6%
Trust the pharmacist		799	78.4%
Aware of interactions		627	60.6%
Stressful life		529	51%
Social class	High	190	18.2%
	Moderate	823	79.2%
	Low	26	2.6%
Dietary behavior	Healthy	536	51.7%
	Unhealthy	501	48.3%

Table: 3. Frequency and percentage of responses in medical and non-medical students.

Variable			Medical		Non-medical
(problem at the present time)		140	(37.2%)	222	(34.5%)
Health problem	Cold or flu	114	(30.3%)	238	(37%)
	Acne	48	(12.8%)	75	(11.6%)
	Un tolerated menstruation pain	28	(7.4%)	48	(7.5%)
	Migraine	26	(6.9%)	39	(6.1%)
	Asthma	17	(4.5%)	45	(7%)
	IBS	27	(7.2 %)	26	(4%)
	Eczema	22	(5.9%)	30	(4.7%)
	Hair health	20	(5.3%)	31	(4.8%)
	Constipation	19	(5.1%)	22	(3.4%)
Family history		234	(64.5%)**	432	(67.4%)
Diagnose your health problem	A physician	150	(41.9%)	290	(45.6%)
	your own knowledge	154	(43%)*	210	(33.6%)
	relatives or neighbors	25	(7%)	67	(10.5%)
	the internet	28	(7.8%)	66	(10.4%)
Using medication		219	(60.7%)**	388	(61%)
Source of medication	A physician	140	(56.7%)	234	(51.7%)
	A pharmacist	45	(18.2%)	106	(23.3%)
	Self-treatment	62	(25.1%)	113	(25%)
OTC drugs used	Analgesic	57	(58.2%)	115	(68.5%)

	Antibiotics	4	(4.1%)	12	(7.1%)
	Antihistamine	10	(10.2%)	6	(3.36%)
	Decongestant	1	(1%)	5	(3%)
	Acne drugs	1	(1%)	4	(2.4%)
Knowledge about medicine	major study	43	(4.7%)**	15	(8.5%)
	relative or neighbor	39	(37.9%)**	113	(63.8%)
	the internet	2	(1.9%)	35	(20%)
Internet sites used	Google	13	(44.8%)	37	(62.7%)
	Social media	3	(10.3%)	5	(8.5%)
	Medical sites	2	(6.9%)	4	(6.8%)
Reason of self-treatment	can't afford physician fees	10	(6.8%)**	21	(9.8%)
	trusting own knowledge	60	(37.7%)	86	(40%)
	lack of time	32	(20.1%)**	72	(33.5%)
	Others	59	(37.1%)	36	(16.7%)
type of medicine	Herbal	160	(44.2%)**	269	(42%)
	Conventional	202	(55.8%)**	371	(58%)
trust pharmacist	Yes	310	(86.1%)***	476	(74.4%)
ask the pharmacist about	Drug recommended dose & Taking the drugs for a longer time than recommended period	65	(17.4I%)	153	(24.3%)
aware of interactions with cough and cold medicines	Yes	245	(65.3%)**	153	(24.3%)
perceived health status	Good	265	(70.5%)	407	(63.5%)
	Average	104	(27.7%)	218	(34%)
	Poor	7	(1.9%)	16	(2.5%)
stressful life	Yes	232	(61.7%)***	369	(57.7%)
reason	University	124	(649%)	132	(56.2%)
	Personal	8	(4.2%)	22	(9.4%)
	Family	12	(6.3%)	15	(6.4%)
emotional disorders	Yes	52	(17.1%)	125	(21%)
	No	252	(82.9%)	468	(79%)
social class	High	56	(14.9%)	129	(20%)
	Moderate	314	(83.5%)*	496	(77%)
	Low	6	(1.6%)	19	(3%)
dietary behavior	Healthy	198	(52.7%)	324	(50.5%)
	Unhealthy	280	(74.5%)	317	(49.5%)
Overweight	Overweight	96	(25.5%)	160	(24.9%)
Exercise	Yes	136	(36.2%)**	286	(44.5%)
Smoker	Yes	34	(9%)***	93	(14.5%)
	No	342	(91%)***	550	(85.5%)

*-P ≥0.05 (significant); **-P ≥0.01(high significant); ***-P ≥0.001(very high significant)

Table: 4. Frequency and percentage of responses in male and female.

Variables		Male		Female	
Source of medication	Physician	84	45.7%***	300	56.5%
	Pharmacist	52	28.3%***	100	18.85
	Self-treatment	48	26.1%	131	24.7%
OTC drugs used	Analgesic	40	63.5%	134	64.7%
	antibiotics	4	6.35%	13	6.3%
	antihistamine	5	7.94%	11	5.3%
	Decongestant	3	4.7%	7	3.4%
	Acne drugs	0	0	6	2.9%
Knowledge about	major study	17	23.9%	46	21.5%

medicine	relative or neighbor	33	46.5%	124	57.9%
	the internet	15	21.1%	30	14.1%
Internet sites used	Google	13	65%	39	55.7%
	Social media	2	10%	6	8.6%
	Medical sites	1	5%	5	7.14%
Reason of self-treatment	can't afford physician fees	7	8.9%	23	2.9%
	trusting own knowledge	40	50.6%	111	13.7%
	lack of time	25	31.7%*	80	9.8%
Trust the pharmacist		175	73.5%**	622	79.9%
Awareness of interactions with cough and cold medicines		145	61.4%	479	60.3%
Stressful life		101	46.8%	417	52.3%
Reason of being stressed	university	37	41.6%*	224	28.1%
	personal	8	8.9%	23	2.9%
	Family	10	11.2%	17	2.1%
Dietary behavior	Healthy	138	58.2%	398	49.9%
	unhealthy	**99**	**41.8%**	**400**	**50.1%**

*-P ≥ 0.05 (significant); **-P ≥ 0.01(high significant); ***-P ≥ 0.001(very high significant)

Table: 5. Effect of dietary behavior on common health problems

Variable	Healthy		Non-healthy	
Cold&flu	194	36.2%	162	32.5%
Acne	56	10.4%	65	13.4%
Menstruation pain	41	7.6%	37	7.4%
Migraine	27	5%	37	7.4%
Asthma	35	6.5%	29	5.8%
IBS	28	5.2%	27	5.4%
Eczema	28	5.2%	24	4.8%
Hair health	26	4.9%	25	5%
Constipation	24	4.5%	18	3.6%

Table: 6. Effect of stressful life on common health problems

Variable	Stress		Non-stress	
Cold&flu	155	29.3%	202	39.7%
Acne	61	11.5%	62	12.2%
Menstruation pain	44	8.3%	33	6.5%
Migraine	38	7.2%	27	5.3%
Asthma	30	5.7%	34	6.7%
IBS	37	7%	18	3.5%
Eczema	27	5.1%	25	4.9%
Hair health	32	6%	19	3.7%
Constipation	26	4.9%	16	3.1%

Table: 7. Comparison of the prevalence of self-treatment between university students in UAE and university students in other countries

| Country	Egypt	Bahrain	Kuwait	Malaysia	South India	Pakistan	Serbia	West Bengal	UAE
Sample size	300 (67% F & 33% M)	134 (32 M & 68 F)	819	481	200(60.5% F & 39.5 M)	400	1296	500 (468 analyzed)	1040 (75.8% F& 24.2%M)
Target people.	Medical college	1st yr medical students	Medical students	Female in general	Medical	50%medical, 50% non-medical	Medical	Medical college	All UAE students (medical 36.8%)
% self-treatment	55%	76.9%	98.8%	80.9%	92%	80%	79.9%	267 (57.05%)	25%
Morbidities (diseases)		- headache 70.9% -Cough & cold 53.7% -stomachache 32.8% -fever 29.9%	-Headache 90.1% -menstruation discomfort 84.7% -constipation 60.3%	-oto-rhino disease 22.5% -respiratory 19.6% -fever+ headache 16.8% -abdomen pain 18.1%	-cough & cold 69% -fever 63% -headache 60%	-Cough&cold 5.2% -fever 19.5% -headache 40%		-cough & cold 35.2% -diarrhea 25.47% -fever 15.73% -headache 14.95% -Pain abdomen 8.61%	-cold or flu(34.6%) - menstruation pain(7.55%) - migraine(6.3%) - asthma(6.1%) - IBS(5.3%) - eczema(5.01%) - Hair health(4.9%) - constipation (4.01%)
Drugs	-antibiotics 58.8% -analgesics 87.2% -sedatives 12% -herbal 28% -Multi-vit. 54.4%	-analgesics 81.3%		-antibiotics 7.3% -analgesics+ AP 30.2% -antiulcer 8.5% -ear, nose, throat 10.8% -multi-vit. 10.8% Herbal 3.5%	-antibiotics 34% -analgesics 65% - antipyretics 71% -antihistamine 37%		- analgesics 55.4%	-antibiotics 31.09% -analgesics 23.21% -antipyretics 17.98% -antiulcer 8.99% -cough syrups 7.87% -multi-vit. 6.37% -antithelmentics 4.49%	- Analgesic(64.4%) - antibiotics(6.35%) - antihistamines(5.93%) - Decongestants (3.75%) - Acne drugs(2.2%)
Reasons for self-treatment.		-time saving -economical -convenient -provide quick relief	-high living standard -availability of large varieties of drugs in the market -self-confidence, skills and medical knowledge gained from their medical study				-have pharmacies -low level of father intake -female gender -high score	-Illness mild 47.19% -time saving 28.46% -less cost 15.73% -urgency 8.62%	- can't afford physician consultation fees (7.85%) - trusting own knowledge (39.3%) - lack of time(28.3%)
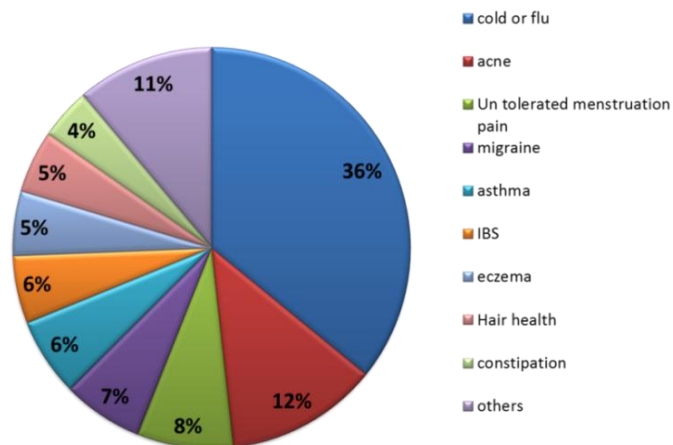
Figure 1: most common health problems among all subjects.
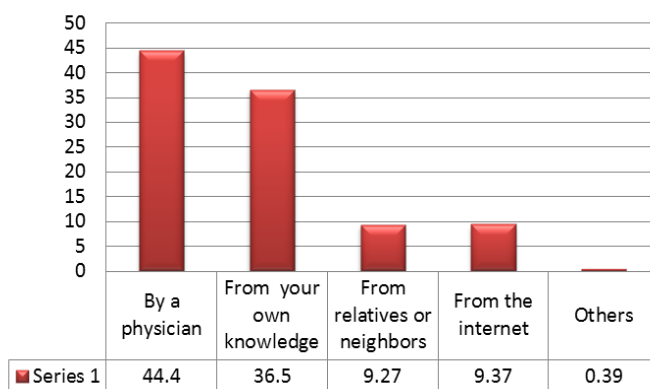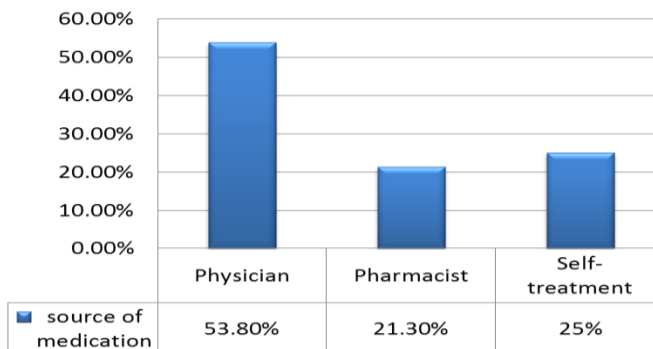

Figure2: way to diagnose the health problems.

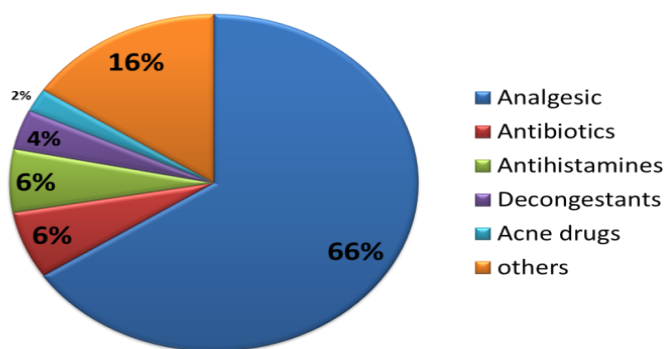

Figure3: source of the medication

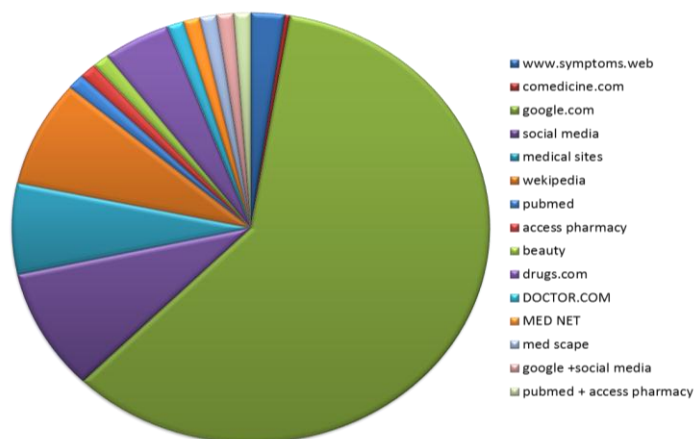**Figure4: over the counter drug used among all subjects.**

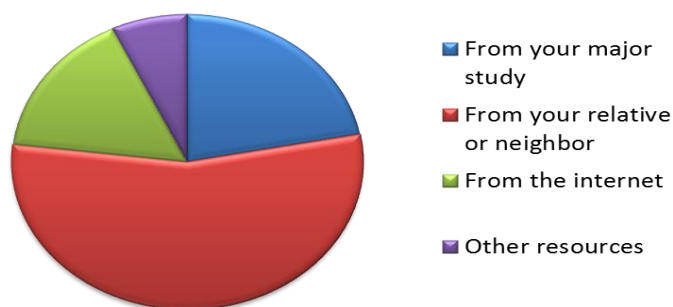**Figure5: internet sites used to search about drugs.**

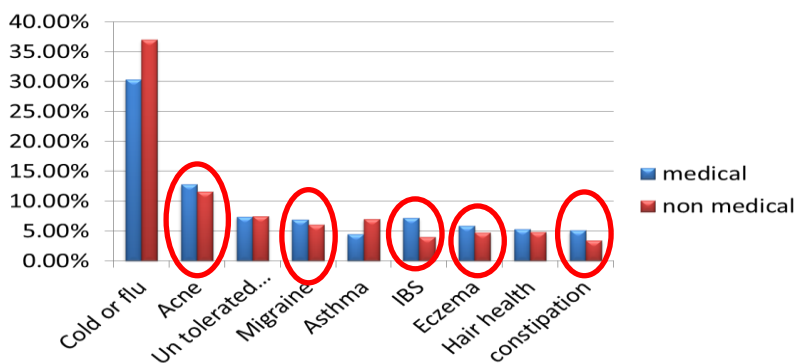**Figure: 6. Source of the knowledge they rely on in choosing the medicine**

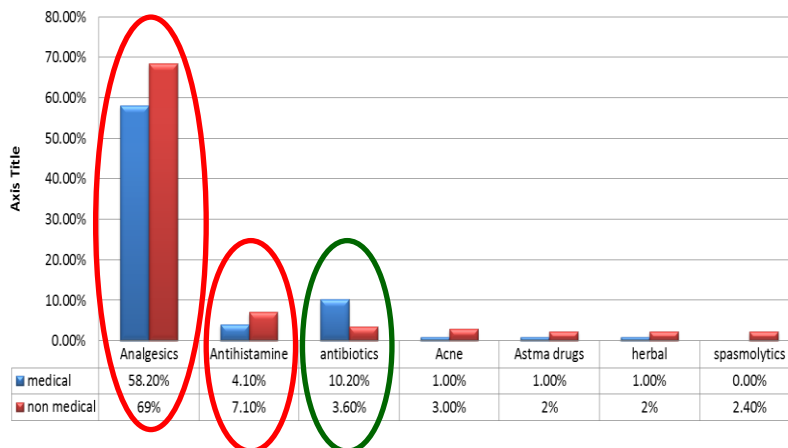**Figure7: comparison of common health problems between medical and non-medical students**

	Analgesics	Antihistamine	antibiotics	Acne	Astma drugs	herbal	spasmolytics
medical	58.20%	4.10%	10.20%	1.00%	1.00%	1.00%	0.00%
non medical	69%	7.10%	3.60%	3.00%	2%	2%	2.40%

Figure8: comparison OF common over the counter drugs used by medical and non-medical students.
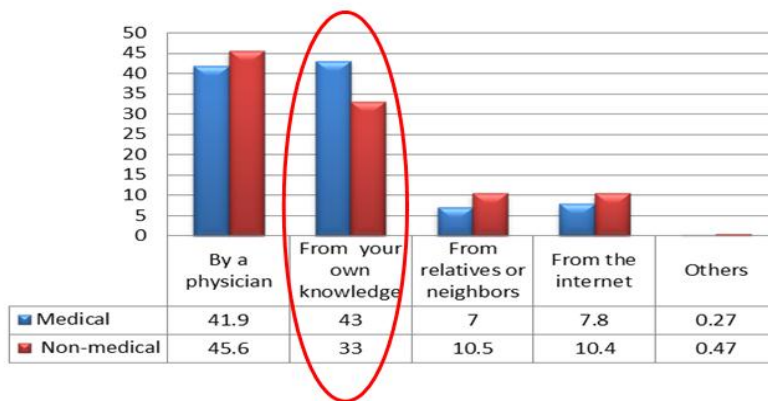
Figure9: comparison about the way medical and non-medical students diagnose their health problems.
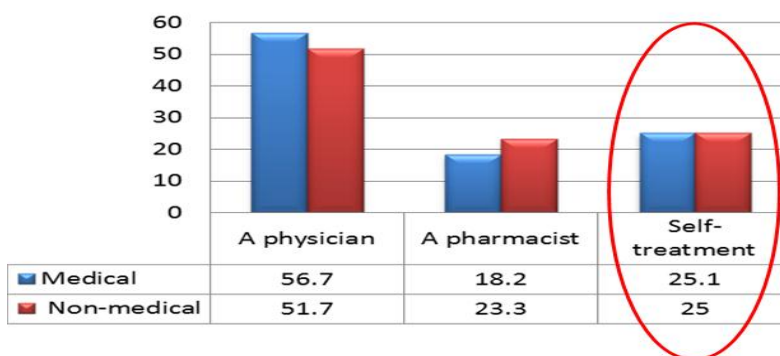
Figure10: comparison OF the source of medication among medical and non-medical students.
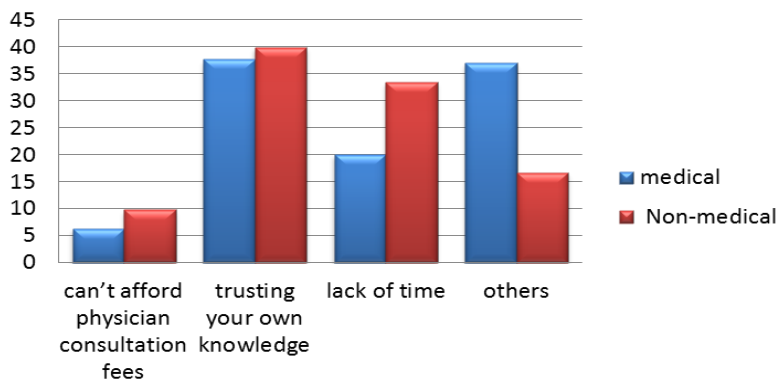

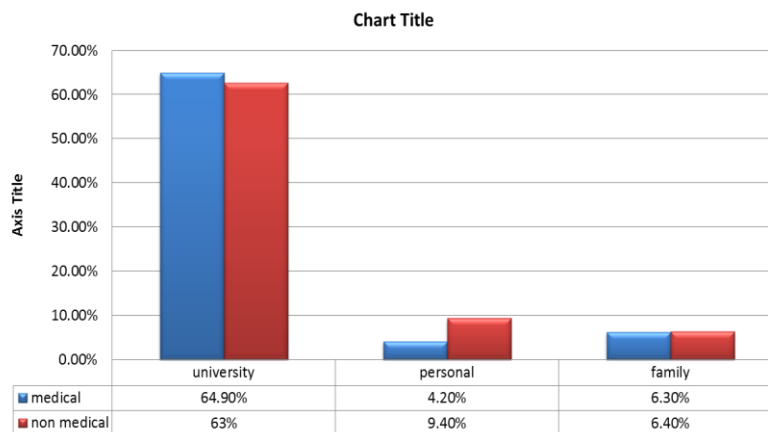**Figure11: comparison about the reason of self-medication among medical and non-medical students.**

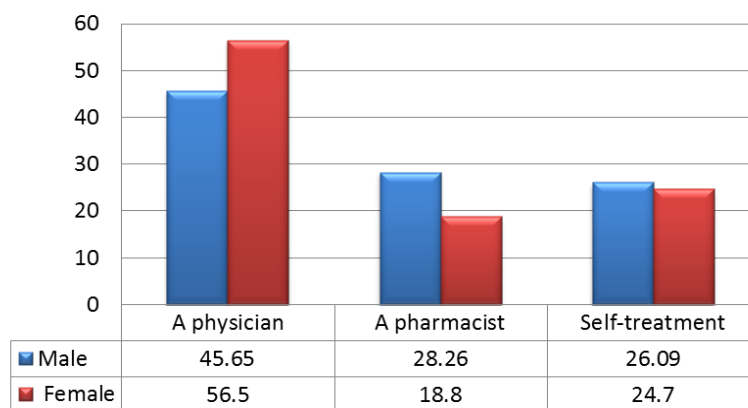**Figure12: comparison about the reason of stress among medical and non-medical students.**

Figure13: comparison about the source of medication among male and female students.

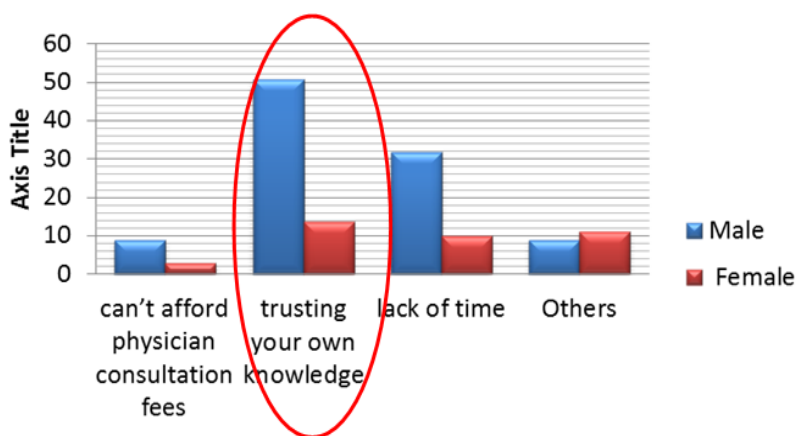|	A physician	A pharmacist	Self-treatment
Male	45.65	28.26	26.09
Female	56.5	18.8	24.7

Figure14: comparison about the reason of self-medication among male and female students.

DISCUSSION

Self-medication is becoming an increasingly important area within healthcare but this study showed that it is not prevalent in UAE. This study has found that only 25% of students prefer self-treatment which is much less than other countries like Kuwait (98.8%), South India (92%) & Pakistan (80%). Most students refer to the physician for diagnosis & treatment.

The most common health problems among UAE students were cold& flu (34.6%), Acne (11.95%), Un tolerated menstruation pain (7.55%), migraine (6.3%), asthma(6.1%), IBS (5.3%), eczema (5.01%), Hair health (4.9%) & constipation (4.01%). Accordingly, the most used OTC medicine were Analgesic (64.4%), Antibiotics (6.35%), Antihistamine (5.93%), Decongestants (3.75%) & Acne drugs (2.2%). The reasons for self-treatment were inability to afford physician consultation fees (7.85%)??(IS IT 78.5%??), trusting own knowledge (39.3%) & lack of time (28.3%). These were similar to other countries like Bahrain were time saving, economical, convenient in concordance to other countries were self-treatment was found to be very popular. When we investigated the source of their knowledge about their medicine used, 23.7% get the knowledge from major study, 59% from relative or neighbors & 17.3% from internet. Those students using internet, surf websites like Google.com (57.7%), Social media (8.8%) & Wikipedia (7.7%) which are obviously untrusted websites to get medical information from & this reflects the huge risk they're putting their health in.

Upon reviewing the difference between medical & non-medical students, it was found that medicals suffer more health problems than non-medicals especially problems like acne, migraine, IBS, eczema & constipation. This might be due to the stress they burden because of their medical faculties as shown by this study , where 61.7% of them suffer stress compared to 44.9% only in non-medicals & the main reason was university ((p ≤0.001 (highly significant)). There was no significant difference between medical and non-medical regarding the use of self-treatment but medical students rely on their own knowledge in choosing the medicines more than non-medical students. On contrary, non-medical students use more OTC drugs than medical students like analgesics (non-medical=58.2%, medical=69%), antihistamines (non-medical=7.1%, medical=4.1%), acne drugs (non-medical=3%, medical=1%) & asthma drugs (non-medical=2%, medical=1%) for reasons of inability to afford physician consultation fees (p≤0.01 (highly significant)) & due to lack of time (p≤ 0.01 (highly significant). While medicals use antibiotics more for self-treatment as they refer to their medical knowledge.

Moving to the impact of gender, females seek medical consultation from physicians (females= 56.5, male=45.65) and pharmacists (females= 18.8, male=28.26) more than males (p≤ 0.001 (very high significance)); this might be due to personality differences between males and females. Males are more self-confident and risky than females. As shown by this study trusting their own knowledge and lack of time motivate males to go for self-treatment (50.6%, 31.7%) respectively (p ≤ 0.024 (significant)).

According to the life style, we found that stress and non-health diet increase the incidence of certain health problems such as: menstruation pain, migraine, acne, IBS and hair problems.

Logically, social class affects the decision of self-treatment. Low income people are enforced for self-treatment because they can't afford the physicians fees.

Finally we can't ignore the huge role of the pharmacist in increasing the awareness of people about the risks of self-treatment and giving the right guide in using the medicine to protect their health. The role of the pharmacist has been changing over the past two decades. The pharmacist is no longer just a supplier of drugs and a distributor of medicinal products, but also a team member involved in the provision of health-care. The pharmacist can play a key role in helping people to make informed choices about self-medication and in providing and interpreting the information available. This requires a greater focus on illness management and health maintenance, rather than on product selling. The role of the pharmacist must be extended. Pharmacists can play a very important role in self-medication by providing patients with the necessary information about drugs and dosage, especially in the case of over-the-counter products. The pharmacist's role in patient care services should include counseling, building awareness about medical products, providing detailed information on the effects of these products on the human body, recommending dosages and doing follow-ups of patients for their ailments. There is an urgent need for pharmacists to boldly accept these challenges and hence that they can ensure that medicines are used appropriately even during the self-medication. In the present study, most students trust pharmacists as drug experts & they ask us about the dose, taking the drug for longer time than recommended, side effects & other drugs being taken. This limits the role of the pharmacist to be active after choosing the medicine not before. And from here, we emphasize the role of the pharmacist before choosing the medicines which in turn reflects the abilities and capabilities of a pharmacist as a drug expert.

CONCLUSION
Self-treatment in university students is not widely spread in the UAE yet is still a risk & causes many problems. Students who are using internet as a source of their medicine are at higher risk of having side effects because they are using untrusted websites. Students' Faculty and gender have strong impact on self-treatment. Being medical /non-medical affects awareness, decision of self-treatment; Males prefer self- treatment more than females. In otherwise, poor social class forces people to go for self-treatment because of the inability to afford the physician's consultation fees. Also the lifestyle affects general health; Unhealthy diet & stress increase the risk of having disease. The role of the pharmacist as a drug consultant was more noticeable after obtaining the drug, not before.

Recommendations
There is a need to educate people especially elderly & illiterates to ensure safe practice by increasing their awareness through TV advertisements & social media which will focus on risks of unwise self-treatment because these section of society are more prone to risks of self-treatment. Also include this issue in the curriculum of undergraduate students of medical students specifically, since they had the higher percentage of self-treatment. We recommend MOH to organize health awareness programs about the importance of reducing stress & taking healthy diet to improve their health & life-style, also to reduce the availability of medicines in the markets and restrict them in the pharmacists only. Improved awareness about the role of pharmacist as a drug consultant for careful and cautious use of medicines available for self-medication would be strongly recommended.

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