ORIGINAL ARTICLE

# Knowledge, attitude and practice of medical students towards self medication at Ain Shams University, Egypt

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Key words

Self-medication • Medical students

Summary

**Introduction**. *Self medication is usually defined as intake of any type of drugs for treating oneself without professional supervision to relieve an illness or a condition. Self medication is an issue with serious global implications. In this study it was aimed to determine the knowledge, attitudes and behavior of self medication by the near coming physicians.*
**Methods**. *A cross-sectional study was conducted on a sample of randomly selected medical students from Ain Shams University. Data was collected using self administered questionnaire. Verbal consent was ensured before applying the questionnaire. The Chi square was performed using SPSS 16 to identify associations and differences.*
**Results**. *The sample consisted of 300 students 67% females and 33% male students. Prevalence of self medication was 55%. Out of which 58.8%, 54.4%, 87.2%, 12%, 28% took antibiotic, vitamins, analgesics, sedatives, herbal products respectively without physician prescription. As regards the personal behavior towards following any prescription 14.4% always followed properly the prescription compared to 63.3% always discontinued the drug on feeling improvement, and 13.6% always repeated the prescription without seeking medical advice. Also 60% said that they increased the dose without medical advice. As regards the reported side effects 4.8%, 1.6%, 12% as a result of interaction between drugs, increase dose without medical advice and early stopping of treatment respectively.*
**Conclusion**. *Self medication by medical students is an important issue to be avoided and need to be added to the curriculum of undergraduate students and raise the community awareness about these hazards and drawbacks.*

## Introduction

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]. In most illness episodes, self-medication is the first option [3, 4] which makes self-medication a common practice worldwide [5, 6]. There is much public and professional concern about the irrational use of drugs [7]. The prevalence rates are high all over the world; up to 68% in European countries [8] while much higher in the developing countries [9] with rates going as high as 92% in the adolescents of Kuwait [10]. Prevalence of self-medication was reported to be 76% in Karachi [11].
People may disuse drugs in the form of getting medications of others who told them that they have improved when they had taken those medications. They also may repeat a previous prescription. In economically deprived countries most episodes of illness are treated by self-medication [4]. In a number of developing countries many drugs are dispensed over the counter without medical supervision. Therefore, self-medication provides a lower cost-alternative for people who cannot afford the cost of clinical service [12].
Studies revealed that the increase in self-medication was due to a number of factors. These included socioeconomic factors, lifestyle, ready access to drugs, the increased potential to manage certain illnesses through self-care, and greater availability of medicinal products [13].
Drugs have benefits and side effects so it is necessary to be taken in a specific regimen in accurately measured dose otherwise it is toxic and causes more harm.
It is common in some countries to get pharmacist or non licensed physician practitioner consultation but the case might be worsened because mostly it is a symptomatic treatment without history taking or clinical examination. There are many drugs which may be commonly taken without doctor consultation e.g. analgesics for headache and other minor painful conditions analgesics may cause gastritis and may be peptic ulcer on the long run, antibiotic abuse with resultant resistant organisms etc.
Therefore this study aimed to determine knowledge, attitude and practice towards self medication by medical students. Identify some risk factors of self medication.

## Methods

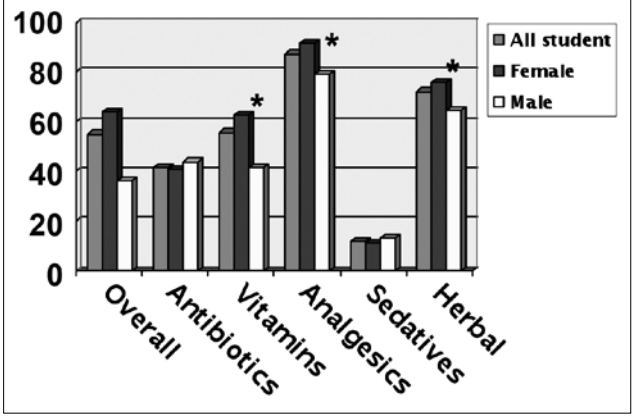
*Study population*. Study was conducted on a sample of randomly selected medical students from faculty of medicine at Ain Shams University. Ages ranging from 17-24, both males and females were questioned.
*Study tools.* A self administered questionnaire was used to collect data about three main items, first self medica-

tion practicing and specific drug categories used namely antibiotics, analgesics, vitamins, sedatives and herbals.
*Study type.* Cross sectional survey.
*Sample size and sampling.* A sample of 300 medical students was estimated using Epi-Info 2002 putting in consideration a CI of 90% and α error = 0.05. The stratified sampling method was used to get the adequate number of students from each section and each study grade. The sample size was determined according to the following assumption. As there was no previous study conducted in the study area of the medical college a 50% expected prevalence of self-medication and 2% of sample population was added to compensate for losses.
*Data collection and analysis.* The semi-structured questionnaire was prepared. Data was collected over 1 month. Using self administered questionnaire. Enquiring about personal data as (age, sex, residence and study grade) general question about ever self medication and if so by whom, then specific questions of antibiotics, vitamins, analgesics, CNS drugs and herbals. For each item questions about frequency of self medication cause and recorded side effects if any. Data were analyzed using SPSS version 16 results were presented using absolute figures and percentages. Analysis was done by using the Chi-square test of significance, to identify the associations among variables.
*Ethical issues.* To obtain the consent of students prior to data collection, a detailed explanation on the aim and objectives of the study was given; and confidentiality was ensured. The study subjects were informed that the information collected would be anonymous; and participation would be totally voluntary.

## Results

Number of students participated in this study was 300, out of which 99 (33%) males and 201 (67%) females (Tab. I). Table V shows the difference between genders as regards intake of different drugs without prescription it showed that there was statistical significant difference between males and females only as regards the vitamins and analgesics intake and herbal products intake (p = 0.00, p = 0.002 and p = 0.03, respectively).
The total sample showed a mean age of 19.1 ± 1.5 years. As regards the residence 77.3% lived in urban area and 22.7% lived in rural areas. The drawn sample from six grades is presented in Table VI. There was statistical significant difference between different grades as regards the total use of self medication and sedative use (p = 0.00 and p = 0.02, respectively).
It was found that among the 300 medical students, 165 (55.2%) of them practiced self medication. And specifically self medication was enquired firstly about Antibiotics, whereas 41% reported use, out of which only (33.8%) took the full course, (59.2%) repeated an old prescription and that (49.3%), repeated the old prescription for more than 3 times/year. As regards reporting side effects (16.9%) said that they suffered from side effects. Secondly, Vitamins intake had been reported by (54.4%) of students, out of which (67.6%) reported that they used it as a prophylaxis and (16.6%) suffered from side effects. Thirdly use of analgesics was found to be (87.2%) reported using, out of which (59.9%) used it for prophylaxis and (22.5%) reported having side effects. Fourthly, Sedatives and CNS stimulants were found to be used by (12%), out of which (93.3%) reported taking it for once and had no side effects. In case of herbal products (72%) reported intake without medical advice this is presented in Figure 1.

**Fig. 1.** Practice of self-medication of different drugs among medical students.




As for the knowledge about the health hazards resulting from self medication it was found that only (4.7%) said that they knew about drug interaction, (1.7%) reported that increased dose of the drug may cause health hazards and (12%) reported health hazards may occur due to discontinuation of the drug against medical advice Table II.
Attitude towards self medication, it was found that (56.5%) of this sample of medical students reported that taking drugs without medical prescription was no problem and (17.4%) reported that they think that medical

**Tab. I.** Demographic data of the sample.

| Demographic characters | No = 300 No (%) |
|---|---|
| Age (mean ± SD) yrs | 19.1 ± 1.5 |
| **Gender** | |
| Female | 201(67) |
| Male | 99(33) |
| **Residence** | |
| Urban | 232(77.3) |
| Rural | 68(22.7) |

**Tab. II.** The knowledge about the health hazards from drug mal-use.

| | No = (300) | % |
|---|---|---|
| **Interaction between drugs** | | |
| No | 286 | 95.2 |
| Yes | 14 | 4.7 |
| **Hazards due to increased dose** | | |
| No | 295 | 98.3 |
| Yes | 5 | 1.7 |
| **Hazards due to change of duration** | | |
| No | 264 | 88 |
| Yes | 36 | 12 |

students are capable of diagnosing different diseases and (39.1%) said that medical students can treat patients out of which (77.8%) reported that medical student are able to treat others at the fourth grade of their study years, meanwhile (22.2%) reported that medical student are able to diagnose by the fifth grade Table III.

As for personal behavior towards following physician drug prescription (71.2%) reported that sometimes they followed the physician prescription, (63.3%) said that they always discontinue medication on improvement, as for reuse of previous prescription without physician advice (71.2%) said that they sometimes did so and (40%) reported increasing the dose without physician advice Table IV.

Tab. III. Attitude of medical students towards self medication.

| | No (23) | % |
|---|---|---|
| **Self medication** | | |
| Agree | 13 | 56.5 |
| Neutral | 7 | 30.4 |
| Disagree | 3 | 13.0 |
| **Student ability to diagnose** | | |
| Agree | 4 | 17.4 |
| Neutral | | |
| Disagree | 19 | 82.6 |
| **Student ability to treat** | | |
| Yes | 9 | 39.1 |
| Neutral | | |
| No | 14 | 60.9 |

Tab. IV. Behavior of the medical student towards self medications.

| | No (300) | % |
|---|---|---|
| **Follow prescription** | | |
| always | 42 | 14 |
| sometimes | 213 | 71 |
| never | 45 | 15 |
| **Discontinue treatment** | | |
| always | 189 | 63 |
| sometimes | 65 | 21.6 |
| never | 46 | 15.3 |
| **Reuse** | | |
| always | 41 | 13.7 |
| sometimes | 213 | 71 |
| never | 46 | 15.3 |
| **Increase dose** | | |
| No | 180 | 60.0 |
| Yes | 120 | 40.0 |

## Discussion

In the last twenty years the World Health Organization (WHO) has specifically emphasized the availability of essential drugs as a health indicator in developing countries [14].

In this study, whereas medical students showed a nearly same age and gender distribution to those in Karachi [11], there was (41.1%) males and (58.9%) females, and the mean age was 21 ± 1.8 years and in a study in Bahrain [15] reported that (32.1%) were males and (67.9%) were females with a mean age of 18.01 ± 0.78 and in a Palestinian study 63.3% were females and the average age was 19.9 [16] all these studies had similar results as they were carried out among young adults. Higher results were found In Western Nepal [9] it was reported that (53%) aged between the ages of 20 to 39 years (82%) were male and the rest were females (24%) also in Jordan [17] Men accounted for 54% of the total sample. The average age was 35 (± 16.7) years. This may be because this study was carried out among general population most of them lived in the village.

Out of the respondents (55.2%) reported intake of self medication which was similar to what was reported in Western Nepal [9] (59%) had taken some form of self-medication during the 6-month period preceding their study and in Bahrain [15] (44.8%) practiced self medication. In Jordan [17] Self-medication was a also a common practice among Jordanians (42.5%). Lower prevalence was reported by Abay and Amelo [18], in Ethiopian study on medical, pharmacy and health science university students (38.5%) of them practiced self-medication. Higher prevalence was found in Zafar et al. [11] in Karachi study found that self-medication was prevalent among 76% this may be due to the fact that their study was conducted among not only medical students but also non-medical students also in Sudan [19] 81.8% of the respondents without a medical consultation within 2 months prior to the study period, in the Palestinian study it was reported that 98% of the respondents reported some form of self-medication [16] this very high prevalence may be due to easy access to almost all types of medications.

Regarding the use of antibiotics 41.5% of those who practiced self medication took antibiotics which was similar to that in an Iranian study [20] who said that more than 40% of all the respondents practiced self-medication with antibiotic within 3 months before the study and in another study in Iran which it was found that 53% used antibiotic self-medication [21] and other studies in Turkey (45.8%) [22], Jordan (40.7%) [23] Sudan (48%) [2], Lithuania (39.9%) [24] and also USA (43%) [25] and in Abu Dhabi study [26] (56%) reported the use of antibiot-

Tab. V. Difference between male and female as regards self medication practice.

| Type of drug | Gender | | Total | Sig. |
|---|---|---|---|---|
| | Female n = 201 n (%) | Male n = 99 n (%) | n (%) | |
| overall use | 102 (50.0) | 57 (57.6) | 300(53.0) | p > 0.05 |
| Antibiotics | 75 (40.7%) | 42 (43.8%) | 117(41.5%) | p > 0.05 |
| Vitamins | 126 (62.7%) | 41 (41.4%) | 167(55.7%) | p = 0.00 |
| Analgesics | 184 (91.5%) | 78 (78.8%) | 262(87.3%) | p = 0.002 |
| Sedatives | 22 (10.9%) | 13 (13.1%) | 35(11.7%) | p > 0.05 |
| Herbals | 152 (75.6%) | 64 (64.6%) | 216(72.0%) | p = 0.033 |

Tab. VI. Difference between different grades as regards self medication.

| Drug used for self medication | Grade | | | | | Total | Sig. |
|---|---|---|---|---|---|---|---|
| | 1.00 | 2.00 | 3.00 | 4.00 | 5.00 | | |
| Use | 27<br>36.0% | 36<br>48.0% | 30<br>60.0% | 28<br>56.0% | 38<br>76.0% | 159<br>53.0% | p = 0.00 |
| Antibiotic | 33<br>44.0% | 24<br>42.1% | 26<br>52.0% | 16<br>32.0% | 18<br>36.0% | 117<br>41.5% | p > 0.05 |
| Vitamine | 48<br>64.0% | 45<br>60.0% | 28<br>56.0% | 24<br>48.0% | 22<br>44.0% | 167<br>55.7% | p > 0.05 |
| Analgesic | 66<br>88.0% | 66<br>88.0% | 46<br>92.0% | 40<br>80.0% | 44<br>88.0% | 262<br>87.3% | p > 0.05 |
| Sedative | 6<br>8.0% | 9<br>12.0% | 2<br>4.0% | 6<br>12.0% | 12<br>24.0% | 35<br>11.7% | p = 0.02 |
| Herbal | 57<br>76.0% | 51<br>68.0% | 36<br>72.0% | 34<br>68.0% | 38<br>76.0% | 216<br>72.0% | p > 0.05 |

ics within the last year. All these studies showed similar self medication with antibiotics as our study. However In Western Nepal [9] reported that antimicrobials were not commonly used for self-medication only (11%), as it was reported that in their country antimicrobials were mostly obtained on prescription.

Vitamin usage for self medication was reported in nearly 55% of our sample which was nearly similar results was found in Zafar et al. [11], in Karachi reported 44.1% self prescribed vitamin in their study. Lower levels were reported in Bahrain [15] 3% of drugs used for self medication this lower levels may be due to the fact that this level was for vitamin c only and not all vitamins and tonics, in Mozambique [27] vitamins/minerals (10.2% *vs.* 4.2%) females *vs.* males respectively reported self medication for vitamin and mineral supplements.

In case of analgesic use 87.3% reported its use which was similar to what was found in Bahrain [15] most common drug group used for self-medication was analgesics (81.3%), in which paracetamol was always used, and, in some cases, non-steroidal anti-inflammatory drugs were also used. Palestinian [16] stated that self-medication with analgesics; in particular, paracetamol was reported by 86.6% of the respondents. In Western Nepal [9] the most commonly used drug for self medication was paracetamol (43%) followed by some other analgesic (23%) this lower results may be due to the fact that the drug are obtained on prescription.

Only (12%) reported intake of sedatives and CNS stimulants without physician prescription similar results were reported in Spain [29] (16.6%) used tranquilizers, and sleeping tablets without medical prescription this may be because this group of drugs may have different types that need prescription by law as they may lead to dependence.

In case of herbal products (72%) reported in take without medical advice this result was similar to what was reported in Sudan [19] found that 81.8%; of the study population had used medicines including herbs without a medical consultation within 2 months prior to the study

As for personal behavior as regards following self medication (71.2%) reported that sometimes they followed the physician prescription at the beginning, while (63.3%) always discontinue medication on improvement, as for reuse of previous prescription without physician advice (71.2%) said that they sometimes did so and that (40%) reported increasing the dose without physician advice

As for the health hazards from drug mal-use (4.8%) reported drug interaction, (1.6%) from increased dose of the drug and (12%) due to discontinuation of the drug against medical advice

## Conclusions

Self medication is practiced by some undergraduate medical students. Raising the issue of more orientation, and stressing upon all related topics in their curriculum is required to build up new generations combating unregulated self medication.

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