A Comparative Study on the Knowledge and Usage Assessment of the Over the Counter Medications among Students from Tikrit University

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Abstract

Introduction: Over the counter medicines are effective and safe remedies that can be used without a prescription and their usage by students has been increased worldwide due to stress of exams and work pressure. **Aim:** To compare the knowledge and usage of these medicines by students and to analyze the role of pharmacists in the practice of these drugs. **Materials and Methods:** 450 students from 9 different colleges in Tikrit University were participated in this cross sectional descriptive study. They were grouped into three groups; medical colleges group, scientific colleges group, and literary colleges group with 150 students in each group. Study was questionnaire based, and the results were analyzed by descriptive statistical methods. **Results:** Only 330 students were preferred to use these medications and the preference was high among medical colleges' students. The remaining students were excluded. Popularity and adequate efficacy of these drugs were the main reasons for the preference of these medications that were utilized in the treatment of minor conditions. Also 57.6% of students were usually followed the pharmacist's advice regarding the appropriate choice of preferred drug, while the remaining were followed physician's advice. Two thirds of students received full instructions regarding the use of preferred drug from the pharmacist and 52.1% of students were usually followed these instructions, while the remaining did not trust on pharmacist's instruction and followed specific drug's leaflet instructions. **Conclusions:** Over the counter medicines were widely practiced among students and tended to be higher in students with a higher medical education. Students had an adequate knowledge regarding safety and efficacy of these medications. Pharmacists play key role in advising and educating consumers on the correct use of these drugs. However, they must improve their clinical knowledge and skills.

Key words: OTC medicines, University students, Knowledge, Usage, Pharmacists' role.

دراسة مقارنة حول تقييم المعرفة والاستخدام للأدوية بدُوْنِ وَصْفَة بين طلاب جامعة تكريت

مهند ياسر الرديف

الملخص

المقدمة: الادَويةٌ بدُوْنِ وَصْفَة هي الأدوية الآمنة والفعالة للاستخدام من دون الحاجة الى وصفة طبية. ان استعمال هذه الادوية من قبل طلاب الجامعات قد ازداد بشكل ملحوظ عالميا بسبب الاجهاد المصاحب للامتحانات وضغوط الدراسة والعمل. **الهدف:** مقارنة مستوى المعرفة والاستخدام لهذه الأدوية من قبل الطلاب الجامعيين وكذلك تحليل دور الصيدلي في ممارسة السريرية لهذه الأدوية. **المواد والطرائق:** شارك 450 طالبا من 9 كليات مختلفة في جامعة تكريت في هذه الدراسة الوصفية المقطعية وتم تقسيمهم الى ثلاث مجموعات. مجموعة الكليات الطبية، مجموعة الكليات العلمية، ومجموعة الكليات الأدبية. كل مجموعة تضمنت 150 طالبا. هذه الدراسة استبيانية وتم تحليل النتائج بالطرق الاحصائية الوصفية. **النتائج:** فقط 330 طالب من اصل 450 فضلوا استخدام هذه الادوية وكانت نسبة الاستخدام عالية لدى طلاب المجموعة الطبية. باقي الطلاب تم استبعادهم. شعبية هذه الادوية وفعاليتها الكافية من الأسباب الرئيسية لتفضيل استعمال هذه الادوية لعلاج الحالات البسيطة. كما أن 57.6٪ من الطلاب كانوا يتبعون نصائح الصيدلي فيما يتعلق بالاختيار المناسب للدواء

المفضل، في حين أن المتبقي يتبع نصيحة الطبيب. تلقى ثلثا الطلبة تعليمات كاملة بشأن استخدام الدواء المفضل من الصيدلي، 52.1٪ منهم كانوا يتبعون هذه التعليمات عادة، في حين أن الباقي لم يثق في تعليمات الصيدلي واتبع تعليمات النشرة الخاصة بهذه الادوية. **الاستنتاجات:** الادَويةٌ بدُوْنِ وَصْفَة تستعمل على نطاق واسع بين الطلاب ويميل الاستعمال إلى أن يكون أعلى لدى الطلاب المتلقين تعليم طبي متقدم. هؤلاء الطلاب كان لديهم معرفة كافية بشأن سلامة وفعالية هذه الادوية. فيما يخص الصيدلي فانه يلعب دورا رئيسيا في تقديم المشورة وتثقيف المستهلكين حول الاستخدام الصحيح لهذه الأدوية. ومع ذلك، يجب على الصيدلي تحسين المعارف والمهارات السريرية.

كلمات مفتاحية: الادَويةٌ بدُوْنِ وَصْفَة ، طلاب الجامعة، المعرفة، الاستخدام، دور الصيادلة.

Introduction

Over the counter (OTC) medicines are defined as remedies that are effective and safe for usage by the overall public without a prescription. These medicines are effective in treating common ailments, and they help the patient to select safe and effective product.[1] Population-based study in developed countries such as United Kingdom, Australia, Scotland, and other countries of Asia like Singapore and Taiwan institute that between a half and two-thirds of the population used nonprescription medicines, involving complementary and OTC medications.[2] On the other hand, prescription drugs differ from OTC medications in simple property as they required a prescription. Typically, a drug requires prescription if it has certain properties that make its use potentially dangerous and so, requires medical supervision.[3] There is a tendency for growing use as more medications move from prescription to OTC status.[4] Also economic and social factors are the chief reasons that force the individual to take a medication without an appropriate diagnosis and surveillance of the medical treatment, therefore; it is rare to see someone purchasing an OTC product with a prescription.[5] The usage of OTC medicines is one feature of a growing movement toward medical self-care and has become a device in acquisition control over one's health.[6] Conditions that are commonly treated with nonprescription medicines included:

- Pain (78%)
- Cough / flu / cold / sore throat (52%).
- Allergy / sinus problems (45%).
- Indigestion, heartburn (37%).
- Diarrhea / constipation / gas (21%).
- Minor infections (12%).
- Skin problems (10%).[7]

However, sometimes certain situations also act as compelling factors to request an OTC product or a non-prescription medicine. Tight job schedules, high job responsibilities, academic burden and exams are some of the situations that result in the use of certain medicines to improve work concentration and alertness. During exams, many students use different OTC and non-OTC substances to improve their concentration or alertness while studying. Substances like stimulants, antidepressants, OTC and non-OTC analgesics, anti-histamines and some traditional and alternative medicines like Ginko Biloba are all substances commonly abused by students, in general and during exams.[8] Additionally and because of poor economic status and busy lifestyle of some individuals, most people particularly students self-medicate and rely on the OTC drugs.[9] It had been reported that a record in self-medication in students has been increased worldwide.[10] Nowadays, students, under stress due to their work pressure, have a little room for minor illness and usually lead to consumption of these drugs as a "quick fix" to relieve their uncomfortable feeling. The students' improper use caused by their lack of knowledge regarding drug information can lead to serious implications in their health. Increasing the awareness on drug information among students, therefore, may reduce the undesirable effects that they may experience.[11]

The aim of this study was to compare the level of knowledge and use of OTC

medicines among the medical, scientific, and literary colleges' students of Tikrit University and to analyze the role of pharmacists in the practice of OTC medicines.

Subjects, Materials and Methods

This cross-sectional descriptive study was carried out at Tikrit University from November 2016 to January 2017. Four hundred and fifty students (with age range 18 to 23 years) from 9 different colleges in the university were participated in this study. These students were grouped into three main groups according to their study field:

Medical Colleges' Students Group: Includes 150 students from three colleges; 50 students from college of medicine, 50 students from college of dentistry, and 50 students from college of pharmacy. Of these students, 86 (57.3%) were male and 64 (42.7%) were female.

Scientific Colleges' Students Group: Includes 150 students from three colleges; 50 students from college of engineering, 50 students from college of petroleum and minerals engineering, and 50 students from college of science. Of these students, 87 (58%) were male and 63 (42%) were female.

Literary Colleges' Students Group: Includes 150 students from three colleges; 50 students from college of education, 50 students from college of law, and 50 students from college of literature. Of these students, 92 (61.3%) were male and 58 (38.7%) were female.

These students were selected by random sampling. The primary inclusion criteria involved any student without any medical problem (i.e. hypertension, diabetes mellitus, ischemic heart diseases, GIT problems, etc.). A direct interview with a structured questionnaire was conducted with all these students who agreed to participate in this study. The purpose of this study was explained to each student in details and confidentiality was ensured. The interviews was conducted with one student and lasted about 5 - 15 minutes. The questionnaire that was utilized for data collection was consisted of two sections. The first section involved questions regarding student's descriptive features (name, age, gender, college, and stage). The second section involved questions deals with intension to self-medication with OTC medicines. Statistical calculations were made using the Microsoft Excel 2010, and discrete variables were presented using their number and percentages.

Results

Of 450 students who participated, OTC medicines were used by 73.3% (330 students). On the other hand 26.7% (120 students) of the remaining students did not prefer OTC medicines and were excluded from this study. Only 15.3% (23 students) of medical colleges students did not prefer to use OTC medicines, while 32% (48 students) of scientific colleges students as well as 34% (51 students) of literary colleges students did not prefer OTC medicines usage.

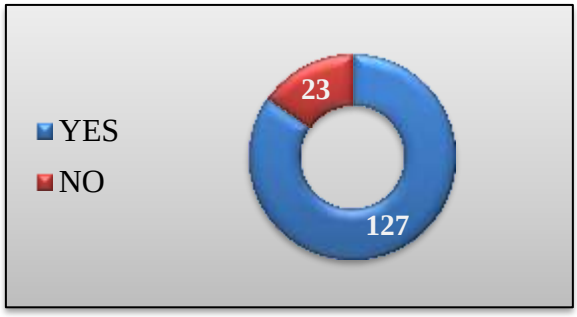

Fig.(1):- OTC medicines preference among medical colleges' students.

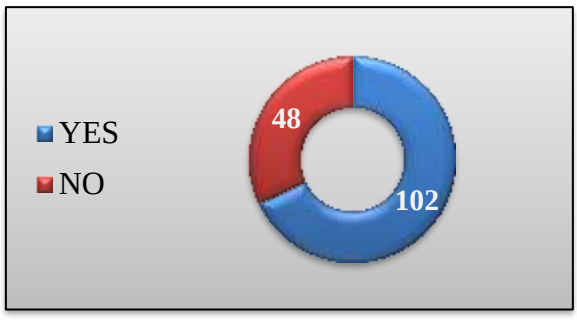

Fig.(2):- OTC medicines preference among scientific colleges' students.

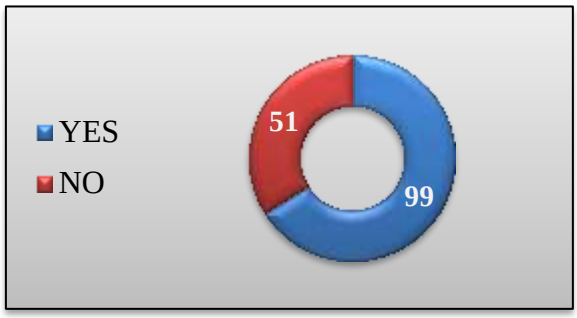

Fig.(3):- OTC medicines preference among literary colleges' students.

The main reasons for OTC medicines preference among different colleges students were popularity of these drugs (as shown in 50.3%, 166 students), followed by adequate efficacy of OTC medicines (30.9%, 102 students), while (10%, 33 students) were trusted on the brand of the purchased OTC drug. Finally the cost of OTC medicines in relation to their effect made (8.7%, 29 students) of total students to purchase these drugs. Figure 4 represented all these data.

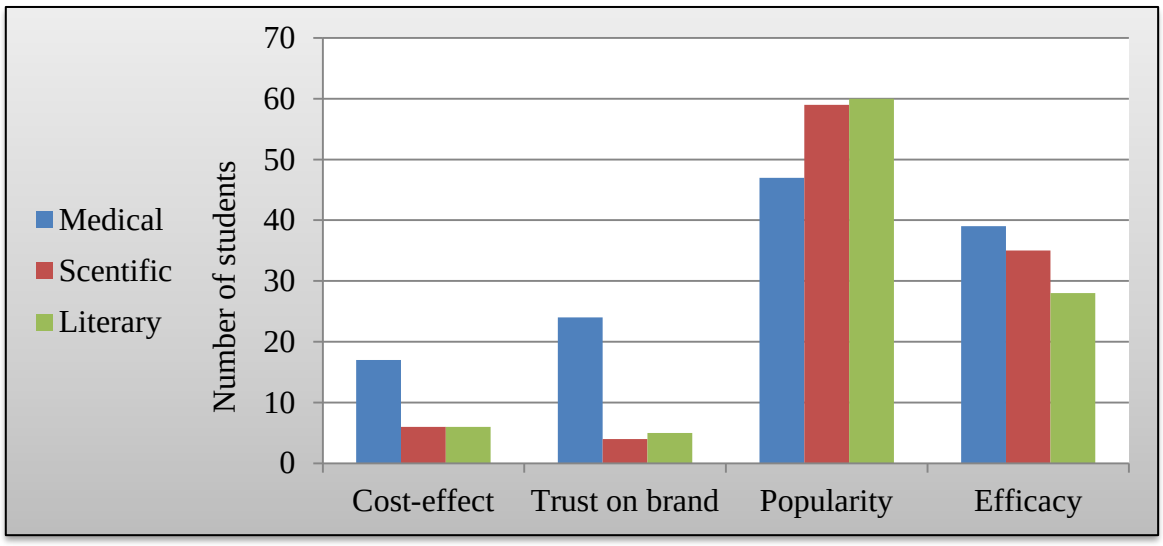

Fig.(4):- Reasons for OTC drug preference among studied students.

The most common medical conditions that influences the choice of OTC medicines among the studied students were headache (44.2%, 146 students), common cold and flu (36.4%, 120 students), and cough (14.2%, 47 students) of the total cases. Figure 5 represented all these data.

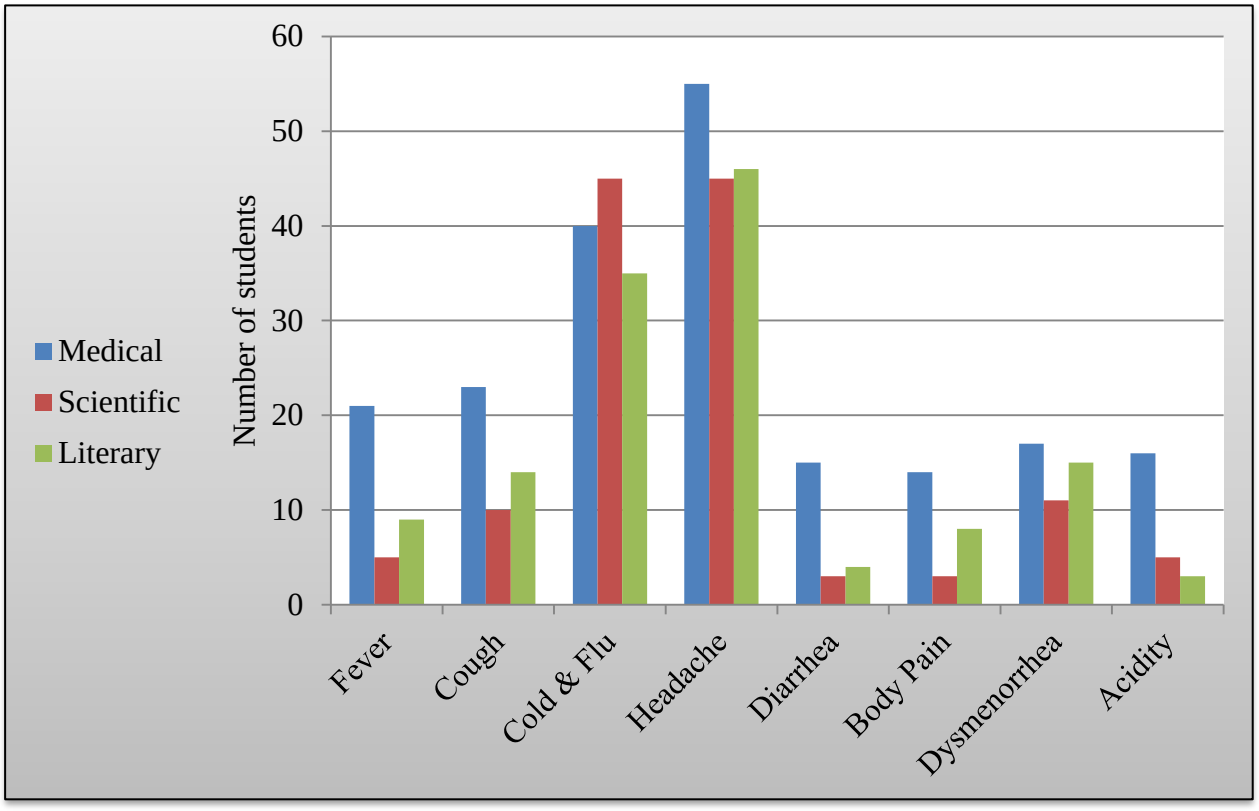

Fig.(5):- Medical conditions that influence the choice of OTC medicines.

Also, it was observed that time consumption for physician consultation was another reason for seeking OTC preparations by these students as the results represented that (53.3%, 176 students) of total cases were preferred OTC medicines for this reason. Another reasons were the frequent physician visit (35.5%, 117 students), and consultation fee (11.2%, 37 students). Figure 6 represented all these data
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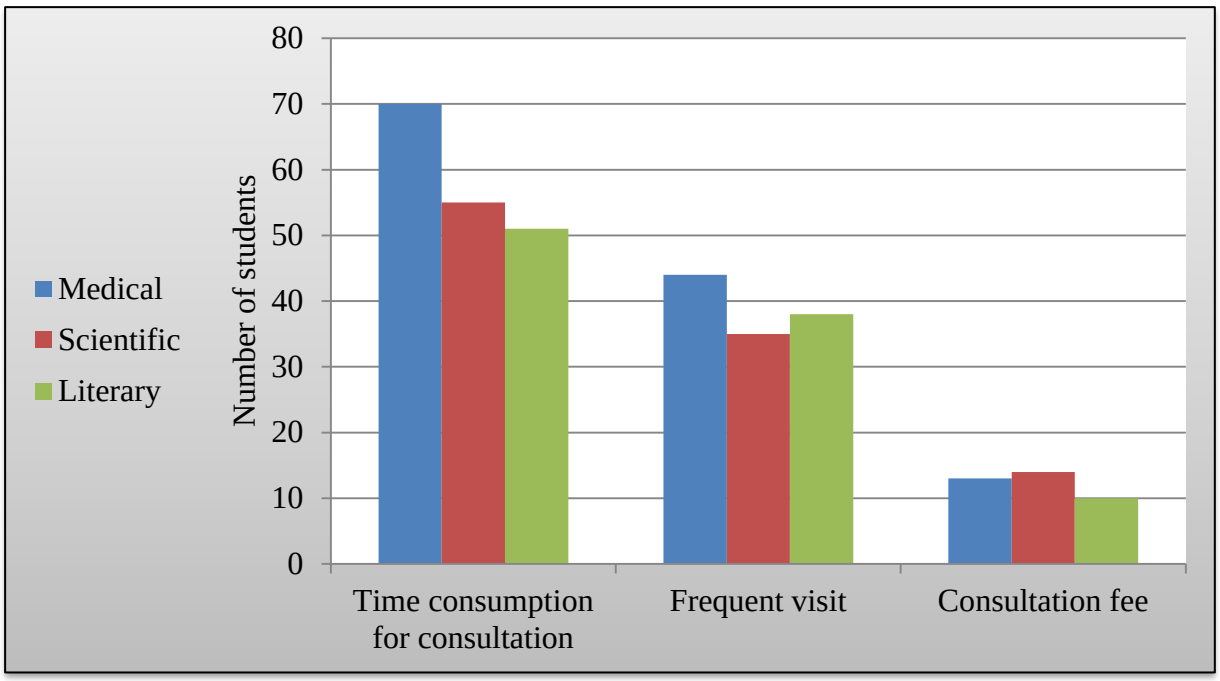

Fig.(6):- Reasons for practicing self-medication with OTC preparations.

The most common methods for selecting the preferred OTC drug were mentioning the name of an OTC drug (as reported by half of students enrolled in this study), followed by mentioning the symptoms (41.0%, 135 students), while the remaining students usually purchased the preferred OTC drug based on old prescription. Figure 7 represented all these data.

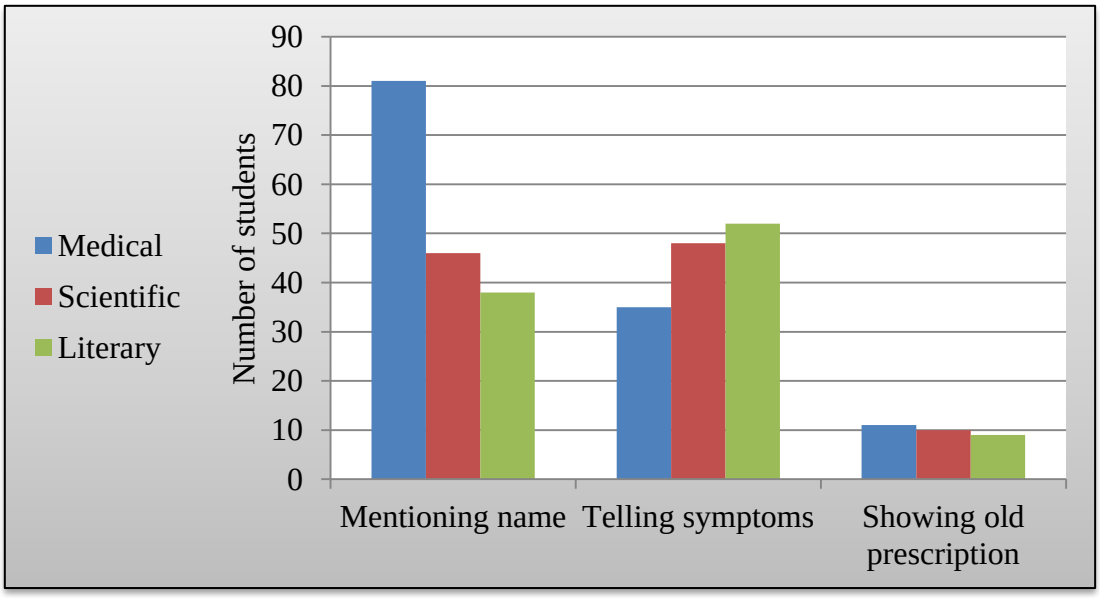

Fig.(7):- Methods for selecting the preferred OTC medicines.

Also, approximately 156 (47.3%) of the studied students were choosing a specific brand in OTC medicines while the remaining 174 (52.7%) of the studied students were choosing generics in OTC medicines. Figure 8 represented all these data.

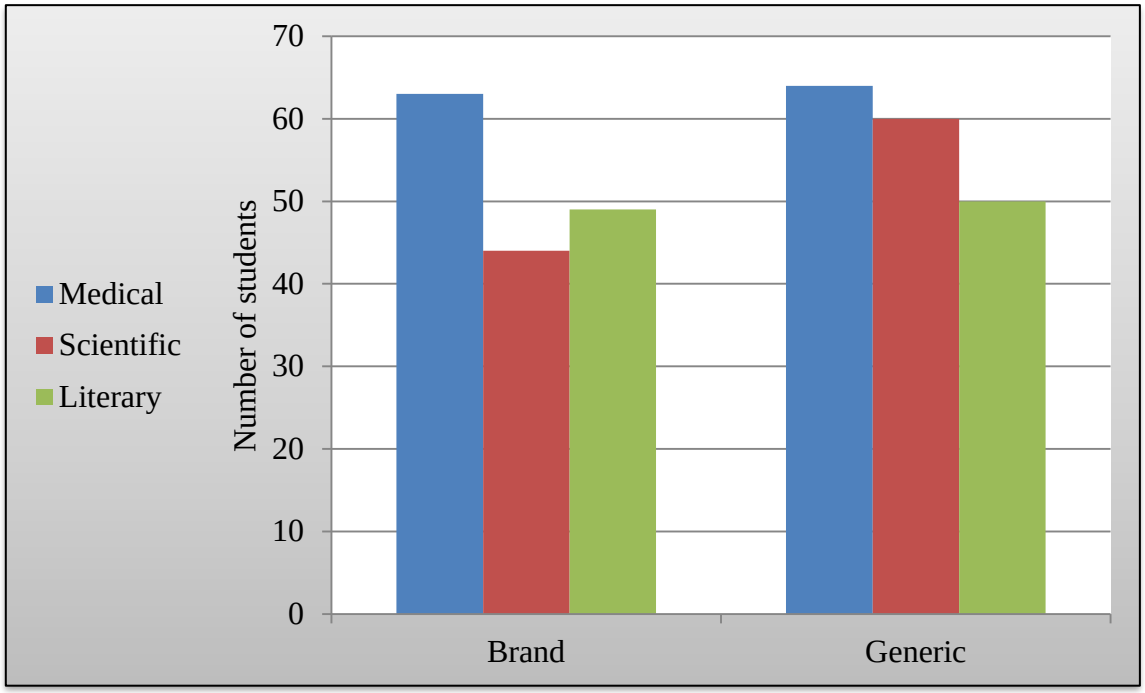

Fig.(8):- Selection of brand or generic of OTC preparations.

The results showed that (57.6%, 190 students) were usually followed the pharmacist's advice regarding the appropriate choice of specific OTC preparations, while the remaining (42.4%, 140 students) were usually followed the physician's advice. Figure 9 represented all these data.

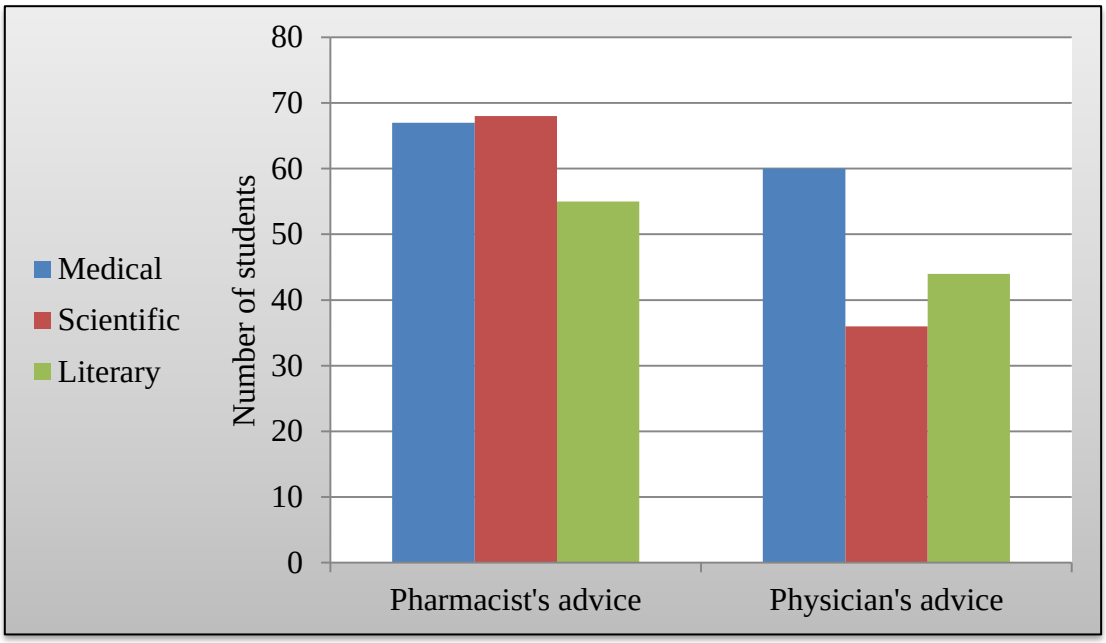

Fig.(9):- Preference of advice regarding the choice of specific OTC medicines.

Of the students that were enrolled in this study, only (66.7%, 220 students) were received a full instruction regarding the appropriate use of the purchased OTC drug from the pharmacist who sold the drug, while the remaining (33.3%, 110 students) mentioned that the pharmacist did not provide adequate information regarding the use of the OTC drugs. Figure 10 represented all these data.

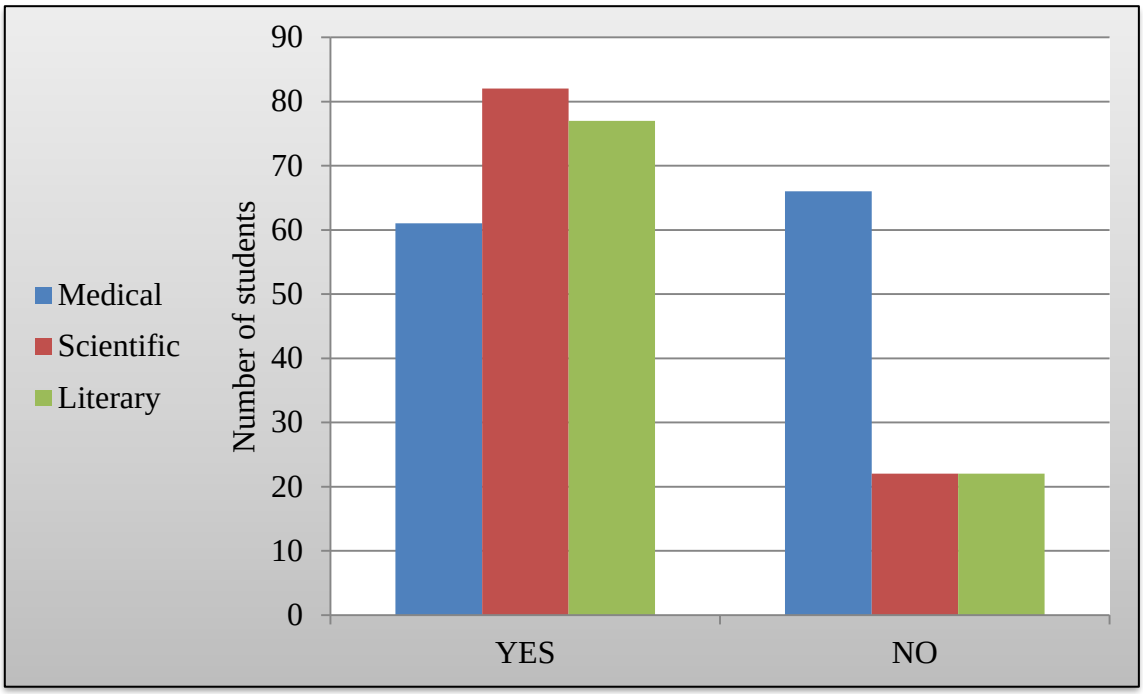

Fig.(10):- Pharmacist's full instructions regarding the appropriate use of OTC medicines.

The data also showed that (52.1%, 172 students) were usually followed the pharmacist's instructions regarding the use of the OTC drug, while the remaining (47.9%, 158 students) did not trust on the pharmacist's instruction, therefore; they followed the specific drug's leaflet instructions. Figure 11 represented all these data.

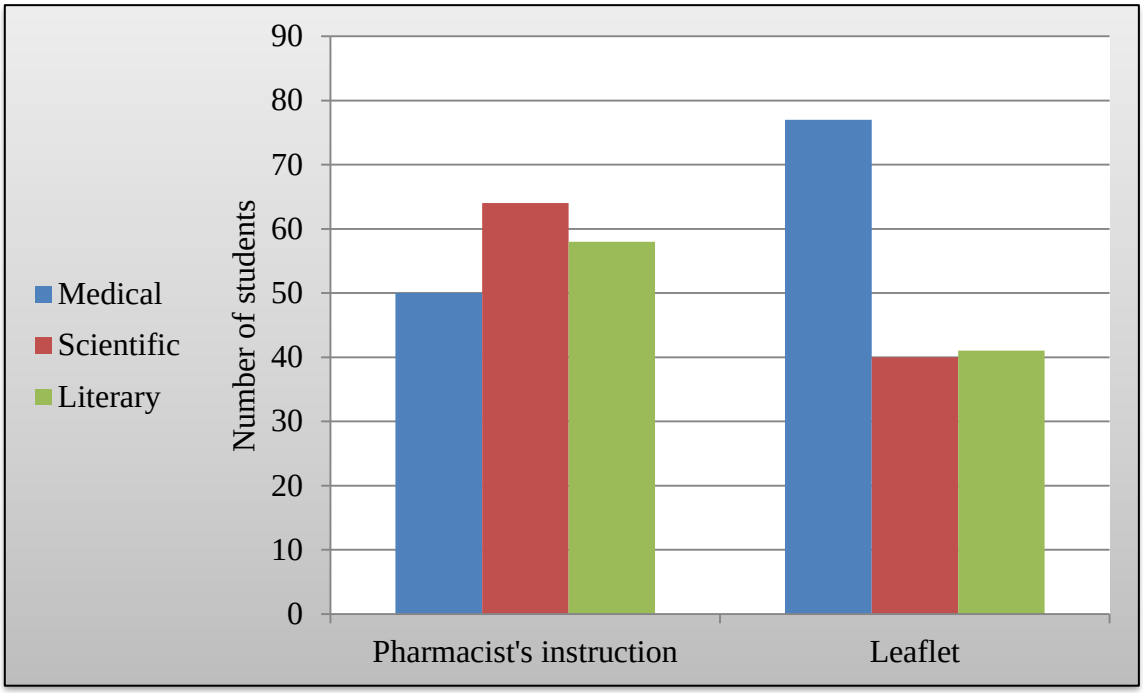

Fig.(11):- Source of instructions regarding OTC drug usage that were followed by students.

Discussion

Since no information was available in the literatures about the prevalence of the use of OTC medicines in Iraq especially between students, this study was conducted to assess this issue in students of Tikrit University. The results of this study revealed that 73% of students enrolled were trusted in and used OTC preparations, commonly purchased by self. In developing countries, the usage of OTC medications has been introduced into practice for several reasons for example there are no rules on purchasing and selling of medications, people feel familiar to self-medicate the conditions based on their previous experiences, negligence, and poverty to some extent.[12] Also the results of this study revealed that the use of OTC medicines was high among medical colleges' students as compared with those students of scientific and literary colleges. There are numerous reasons for the increased likelihood of self-medication among medical colleges' students. Basically, these students have easy access to information from medical books, literature, drug indices, internet search, and from other senior medical students, so they irrationally use drugs more commonly than general population. In addition, as they are medical students, they can have medications more easily than other general people from pharmacy.[13] It is very difficult to compare the prevalence of different studies regarding OTC medicines usage with present study due to different demographic characteristics, different methodology, and different socioeconomic status.[14] However, various studies have reported different prevalence figures. In Parikh *et al.* study, it was noted that of 300 respondents 84% (252) used OTC medications, usually purchased by self.[15] While in Indian students from non-medical background, OTC preference was showed to have a prevalence of 80.1%.[16] This study showed that the main reasons for OTC medicines preference among different colleges' students were popularity of specific OTC medicines followed by adequate efficacy of these drugs according

to the students' point of view. However, some features did not noticeably affect the students' preferences for OTC medications, such as dosage form, label design, and packaging. Reimbursement and cost were also not important. Regarding to the community pharmacists perceptions, safety of medicine and other medical factors were the main factors affecting customer preferences for OTC medications. The community pharmacists surveyed thought that their clients were influenced more by medical factors than by business factors. Thus, medical factors, comprising medicine efficacy, safety, period of validity, indications, contraindications, and side effects, were more influential factors for clients when selecting OTC medicines.[17] The results of this study showed that the most common medical conditions that influence the choice of OTC medications among the studied students were headache, common cold and flu, and cough of the total cases. This agree with global reports regarding the conditions commonly treated with nonprescription medications.[7,13,15] Therefore, it can be said that OTC medicines may be very convenient for minor ailments such as common cold and body pain for which the respondents may not consult physicians for their minor complaints.[18] Also this study observed that time consumption for physician consultation was another reason for the usage of OTC medications among the students. Additionally, the frequent physician visit and consultation fee were another reasons for self-medication. Main reasons of self-medication at student level were: time saving, perception that there was no need to visit or get advice from physicians for minor illness, self-medication tend to be economical and anxiety about the crowd at clinic.[19,20] Most of students had positive attitude in self-medication for minor illness. Nevertheless, minor illness symptoms may lead to major illness if not diagnosed correctly as most of the fatal diseases have symptoms like fever, headache, and body ache.[13] This study showed that the majority of students especially the medical colleges' students were selected the preferred OTC drug via mentioning the name of the drug. On the other hand, most of literary and scientific colleges' students were selected the preferred OTC drug by mentioning the common symptoms that were associated with their ailments. This study also showed that 47% of the students enrolled in this study were purchased a specific OTC drug by mentioning the specific brand name while the remaining 53% were purchased it regardless to whether it was a brand or a generic one. Similar observations are obtained in study of Patel *et al*.[1] The positive relationship between education level of the students and other population and recognition of medicine by the trade (brand) or generic name could be owing to the ability of the more educated people to obviously read the label on the medicines consumed which may not be possible with those with slight or no medical education. Hence, those with slight or no medical education easily recognized the medicines more with their color and common usage names since they are easier to remember.[21] Al-Motassem *et al.* reported that the majority of subjects in their study asked for medications without a prescription by their brand names. Likewise, an Indian study showed that 66% of dispensed medications were requested by their brand names. This may indicate the growing tendency for individuals from all walks of life in developing countries to self-treat with medicines and this has been associated with greater familiarity with medications and their brand names.[22] Researchers had stated that only very small percentage of individuals really involve in therapeutic consultations with pharmacy personnel, while others have reported obviously higher therapeutic consultations proportion in other developing countries.[22] However, 58% of students enrolled in this study were usually followed the pharmacist's advice

regarding the appropriate choice of specific OTC preparations, while the remaining 42% were usually followed the physician's advice. Physicians and pharmacists play an important role in creating awareness about self-medication by educating the patients.[23] Prior to suggesting any OTC medicines, pharmacists should carefully assess the nature and extent of the patient's complaint and recommend that they look for expert care when needed.[15] Moreover, two thirds of the students enrolled in this study stated that they received a full instruction regarding the appropriate use of the purchased OTC drug from the pharmacist who sold the drug, while the remaining one third mentioned that the pharmacist did not provide adequate information regarding the use of the OTC medicines. Risks, benefits, and precautions of self-medication need to be explained to the clients. The community pharmacists' role is important in guiding the customer to ensure appropriate medicine use. The WHO highlights that pharmacists should help patients to undertake responsible and appropriate self-medication, and if necessary refer the patient for medical advice. Healthcare authorities have responsibilities in enforcing the regulations and rules regarding the sale of prescription only medications without a prescription, and pharmacists should be educated not to sell prescription medicines without prescription. The data obtained in this study showed that 52% of students enrolled were usually followed the pharmacist's instructions regarding the use of the OTC drug, while the remaining 48% did not trust on the pharmacist's instruction, therefore; they followed the specific drug's leaflet instructions. Basically, pharmacist-patient encounter time was improperly short which may be explained by the limitations of time imposed on both pharmacists and patients, and that the frequently crowded pharmacies offer a poor environment for customers to consult pharmacists beyond a quick question.[22] Patients require access to understandable and accurate information with regard to the possible benefits and risk associated with used medications including self-medication. Implementation of pharmaceutical care in community pharmacies could help improve this problem.[24] Community pharmacists can play an important role in the provision of primary health care by attending minor ailments and refer patients to physicians where patients require further investigation.[21]

Conclusions

1. The use of OTC drugs in the treatment of minor ailments is common among students from different colleges with different specialties although self-medication tended to be higher in students with a higher medical education. In addition to that, an adequate knowledge regarding the safety and efficacy of the purchased OTC drugs is also noted in this study.
2. The pharmacist plays key role in advising and educating consumers on the correct use of OTC preparations. However, pharmacist must improve their clinical skills and knowledge and exhibit their willingness to be responsible for the drug therapy of the patients and must develop dose-working relationship with other health-care professionals.

Acknowledgements

Deep thanks to pharmacist Ruba Saleh Alsamarraey, pharmacist Hanan Majeed Alsamarraey, and pharmacist Farah Saad Aldulaimy for their valuable efforts and assistance in accomplishing this study.

References

1. Patel PD, Patel KP, Malhotra SD. Survey of use of over the counter drug and other than over the counter drugs among medical students, nursing and technician staff of a tertiary care teaching hospital. *Int J Basic Clin Pharmacol*. 2017;6(3):592-596.
2. Hassali MA, Mohamad Yahaya AH, Shafie AA, Saleem F, Chua GN,

Aljadhey H. Patterns and predictors of non-prescription medicine use among Malaysian pharmacy patrons: A national cross sectional study. Thorne C, (Ed.). *PLoS ONE*. 2013;8(4):e59231.

3. Blumer I. "Prescribing knowledge", Ch.2: In: "Understanding prescription drugs for Canadians FOR DUMMIES". Blumer I. (Ed.). 1st edition, John Wiley & Sons Canada, LTD. 2007; p: 15-30.
4. Cohen JP, Paquette C, Cairns CP. Switching prescription drugs to over the counter. *BMJ*. 2005;330(7481):39-41.
5. Chattopadhyay SS, Datta A, Ghosh A, et al. Socio-economics: a propensity of self-medication among OPD patients of a teaching hospital. *Int J Basic Clin Pharmacol.* 2017;6(1):104-107.
6. Klepser ME. Socioeconomic impact of seasonal (Epidemic) influenza and the role of over-the-counter medicines. *Drugs*. 2014;74(13):1467-1479.
7. Rantucci MJ. "The counselling session". Ch.5: In: "Pharmacists talking with patients: A guide to patient counselling". Rantucci MJ. (Ed.), 2nd edition, Lippincott Williams & Wilkins, 2007; p: 68-102 .
8. Almalak H, Albluwi AI, Alkhelb DA. et al. Students' attitude toward use of over the counter medicines during exams in Saudi Arabia. *Saudi Pharm J*. 2014;22(2):107-112 .
9. Rekha MS, Roopashree, Rekha MB, Naidu P. A Study on use of over the counter drugs among 1st year medical students in a tertiary care teaching hospital. *RRJPTS*. 2015;3(1):20-24.
10. Alam N, Saffoon N, Uddin R. Self-medication among medical and pharmacy students in Bangladesh. *BMC Research Notes*. 2015;8:763.
11. Melencio DM, Monterozo RV, Novelo CJ. The use and understanding of over-the-counter medications among university of Santo Tomas college undergraduate students. *IJSER*. 2016;7(5):486-489.
12. Gangadhar M, Shivaraju PT, Thippeswamy C. et al. A survey study on use of over-the-counter (OTC) drugs among medical students of a tertiary care center, B. G. Nagar. *J Evid Based Med Health*. 2016;3(24),1059-1063.
13. Ghosh A, Biswas S, Mondal K. et al. A study on knowledge and practices of over the counter medications among 2nd year medical students. *WJPPS*. 2015;4(7):1074-1081.
14. Kasulkar AA, Gupta M. Self-medication practices among medical students of a private institute. *Indian J Pharm Sci*. 2015;77(2):178-182.
15. Parikh D, Sattigeri BM, Kumar A. et al. A survey study on use of over the counter (OTC) drugs among medical students, nursing and clerical staff of a tertiary care teaching rural hospital. *Int J Res Med Sci*. 2013;1(2):83-86.
16. Kayalvizhi S, Senapathi R. Evaluation of the perception, attitude and practice of self-medication among business students in 3 select cities, South India. *IJEIMS*. 2010;1(3):40–44.
17. Ge S, He TT, Hu H. Popularity and customer preferences for over-the-counter Chinese medicines perceived by community pharmacists in Shanghai and Guangzhou: a questionnaire survey study. *Chinese Medicine*. 2014; 9: 22.
18. Gayakar PP, Adnaik RS, Jadhav AD, et al. The survey of knowledge about OTC drugs among pharmacy background and non-pharmacy community. *Asian J Pharm Res.* 2016;6(4):235-241.
19. Verma RK, Mohan L, Pandey M. Evaluation of self-medication among professional students in North India: proper statutory drug control must be implemented. *Asian J Pharm Clin Res*. 2010;3(1):60-64.
20. Sontakke SD, Bajait CS, Pimpalkhute SA, et al. Comparative study of

evaluation of self-medication practices in first and third year medical students. *Int J Biol Med Res.* 2011;2(2):561-564.

21. Afolabi AO. Factors influencing the pattern of self-medication in an adult Nigerian population. *Annals of African Medicine*. 2008;7(3):120–127.

22. Al Motassem MY, Al Bakri AG, Bustanji Y. et al. Self-medication patterns in Amman. *Jordan Pharm World Sci*. 2008;30:24–30.

23. Kadri R, Hegde S, Kudva AA, et al. Self-medication with over the counter ophthalmic preparations: is it safe?. *Int J Biol Med Res*. 2011;2(2):528-530.

24. Mohamed Saleem TK, Sankar C, Dilip C, et al. Self-medication with over the counter drugs: A questionnaire based study. *Der. Pharmacia. Lettre*. 2011;3(1):91-98.