General public knowledge, preferred dosage forms, and beliefs toward medicines in western Saudi Arabia

Mahmoud S. Alhaddad, PhD, Qasem M. Abdallah, PhD, Sami M. Alshakhsheer, MSc, Salman B. Alosaimi, Pharm D, Ahmed R. Althmali, Pharm D, Solaiman A. Alahmari, Pharm D.

ABSTRACT

الأهداف: تهدف هذه الدراسة إلى قياس مدى معرفة واعتقادات العامة تجاه الأدوية.

الطريقة: تمت هذه الدراسة باستخدام استبيان مقطعي للعامة في مدينة الطائف. حيث أنه تم تصميم الاستبيان ومراجعته من قبل فريق بحثي متخصص. كل البيانات تم جمعها عن طريق مقابلة العامة وجهاً لوجه في الأسواق والأماكن العامة. تم تحليل جميع البيانات باستخدام برنامجSPSS إصدار 16. أجريت هذه الدراسة في قسم الصيدلة السريرية ،جامعة الطائف، الطائف، المملكة العربية السعودية خلال الفترة من أغسطس 2012م و فبراير 2013م .

النتائج: تم جمع الاستبيانات من 900 شخص بنجاح. 66.8% من المشتركين مثلوا فئة الذكور بينما 52% كانوا من ذوي التعليم العالي. معظم المشاركون في الدراسة يعلمون معنى الأدوية الحديثة و البديلة (74.2% و 88.7% بالترتيب). الحبوب والكبسولات كانتا أكثر صور دوائية مفضلة لدى المشتركين في الدراسة (69.6% و 37.6%، بالترتيب). بالإضافة إلى ذلك، الأطباء والصيادلة كانوا أكبر مصدرين للمعلومات الدوائية لدى المشتركين في هذه الدراسة (66.6% و 46.2% بالترتيب). بالنسبة للاعتقادات، أظهرت النتائج اعتقادات خاطئة لدى المشتركين تجاه العديد من الأمور المتعلقة بالأدوية.

الخاتمة: هناك حاجة ماسة لإنشاء برامج توعوية للعامة تجاه الأدوية لتصحيح معلوماتهم واعتقاداتهم الخاطئة. بالإضافة إلى ذلك، على الصيادلة لعب الدور الأكبر في ذلك لأنهم المتخصصون في علوم الأدوية والقادرون على توفير الخدمة النصيحة والإرشادية للعامة.

Objectives: To measure general public knowledge, source of knowledge, preferred dosage forms, and beliefs toward medicines.

Methods: A cross-sectional study design using convenience-sampling technique was used. A pre-validated questionnaire was designed and distributed to the general public through face-to-face interviews. All data were analyzed, and *p*-values less than 0.05 were considered significant. The study took place in the Clinical Pharmacy Department, Taif University, Taif, Kingdom of Saudi Arabia between August 2012 and February 2013

Results: Nine hundred participants successfully responded to this study. Males represented two-thirds of the respondents (66.8%). In addition, 52% of respondents were of high education level. Modern (74.2%) and alternative medicines (88.7%) were understood by most respondents. Tablets (69.6%) and capsules (37.6%) represented the highest preferred dosage forms. In addition, physicians (66.6%) and pharmacists (46.2%) were the main sources of information regarding medicines. In terms of beliefs, respondents showed wrong beliefs in many statements used in this study.

Conclusion: There is a need to improve public knowledge and beliefs toward medicines as well as utilizing public preferred dosage forms. In addition, pharmacists should play a major role in these programs since they are experts on medicines and play a more active role in patient education and counseling.

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From the Department of Clinical Pharmacy (Alhaddad, Alshakhsheer), Department of Pharmacology and Toxicology (Abdallah), College of Pharmacy, Taif University, Ministry of Health (Alosaimi), Qeya Hospital, and the Ministry of Health (Althmali, Alahmari), AlMoweh Hospital, Taif, Kingdom of Saudi Arabia.

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Address correspondence and reprint request to: Dr. Mahmoud S. Alhaddad, Department of Clinical Pharmacy, College of Pharmacy, Taif University, PO Box 888, Taif 21974, Kingdom of Saudi Arabia. E-mail: dr_mahmoud77@hotmail.com

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Governments have made tremendous efforts to improve patients' knowledge and adherence toward medicines. Yet, patients still poorly adhere to their treatment plans.[1-3] Poor adherence to the treatment plan might result due to many reasons.[4,5] Some patients might not be satisfied with the prescribed dosage forms or treatment regimens, others might have wrong information regarding medicines and treatment plans. Whereas others might be affected by their own previous experience, practices of their relatives, friends, or peers.[6] The general public obtain their information on medicines from different sources.[7] Some obtain their information from their friends or relatives, while others obtain their information from healthcare professionals such as physicians, pharmacists, or nurses,[8-10] whereas others obtain their information from other sources such as the internet or magazines. Relying on inappropriate sources of information regarding medicines can lead to building wrong beliefs, which can lead to inappropriate practices. In addition, this might also lead to increasing the pressure from patients or their relatives on the prescribers to prescribe specific medications.[11] This may cause deterioration in the relationship between patients and their physicians, especially if patients ask for their prescribers to prescribe inappropriate medicines. The results of this form of malpractice cost the community unnecessary financial burdens, and lead to the reduction of patients' quality of life. The presence of a wide range of prescribed medicines (medicines that require a prescription from a physician to be dispensed) and over the counter (OTC) medicines (medicines that can be purchased from the pharmacy without prescription) in the pharmacies,[12] the high costs of visiting clinics and hospitals, and the inconvenience of visiting a clinic or hospitals, such as waiting time and choice of medicines,[10,13] play a major role in encouraging patients to self medicate.[6,14] This results in an increasing frequency of drug-drug interactions, as well as an increase in medicines side-effects.[15] Therefore, it is very important to define patients' knowledge of different types of medicines, and the source of knowledge and beliefs towards medicines. This will aid decision makers to design effective awareness programs in the community to target those who have misconceptions in terms of knowledge, source of knowledge, or beliefs regarding medicines. There is a lack of studies investigating general public perceptions toward medicines generally in the Kingdom of Saudi Arabia (KSA); thus, we aimed to measure the level of public knowledge, source of knowledge, preferred dosage forms, and beliefs toward medicines in Taif, KSA.

Methods. A cross-sectional research design using non-probability convenience sampling technique was used in this study. A first draft of the questionnaire was developed after extensive literature search using the available databases in the university, include ScienceDirect, EBSCOhost, ProQuest, and Google Scholar, and then validated through an expert team of researchers from the Clinical Pharmacy Department at Taif University, Taif, KSA. Then, the final draft of the questionnaire was translated into Arabic language and verified by the researchers at the Clinical Pharmacy Department. The final draft of the Arabic version was piloted on 20 respondents to obtain their feedback. The comments and suggestions raised by the respondents were considered in the final draft of the questionnaire that was used in this study.

The questionnaire was divided into 5 parts. The first part included the respondents' demographics such as age, gender, and educational level. The second part included respondents preferred dosage forms such as tablets, capsules, and injections. The third section included respondents' source of information regarding medicines. In addition, the fourth section included respondents' knowledge regarding different types of medicines such as conventional medicine (medicines, prescribed drugs, and OTC drugs). The final part was designed to measure the respondents' beliefs toward medicines, such as the impact of price on quality, impact of advertising on quality, and the impact of the medicine dose on the curing duration. Answers were designed to be close-ended, in which answers were either dichotomous (yes, no), or ordinal scale (from strongly agree to strongly disagree).

During data collection, researchers met with respondents in public areas in Taif city from August 2012 to February 2013. They introduced themselves to the respondents and then informed them that no findings that could identify them would be published, and all information was confidential. Once respondents agreed to participate, the researchers administered the questionnaire, which did not take them more than 10 minutes to complete.

The general public who were above the age of 18 years, and able to read and write in Arabic language, were included in this study. Whereas, any respondent who was under 18, or unable to read and write in Arabic, or refused to participate in this study was excluded.

Descriptive analysis was used to describe the frequencies and percentages whereas, Chi square and Fisher Exact tests were used to compare the results with different demographics of the respondents such as gender, age, living area, nationality, and education.

A 95% significant level was used in all data analysis, and any alpha value of less than 0.05% was considered significant. All data were analyzed using the Statistical Package for Social Sciences version 16 (SPSS Inc., Chicago, IL, USA).

Results. *Respondent's demographics.* Nine hundred participants successfully responded to this study. Most of the respondents were males. Most respondents were Saudi, and living in urban areas. In addition, most respondents had a high education level. **Table 1** summarizes the details of respondent's demographics.

Table 2 shows respondents' preferred dosage forms. Tablets and capsules were the preferred dosage forms. Whereas patches and chewable tablets were the least preferred dosage forms.

Table 3 summarizes respondents' source of information regarding medicines. Doctors and pharmacists were the main sources of information regarding medicines. A higher proportion of urban residents, and those with age 15-25 years old choose the doctor to be the main source of information on medicines. Whereas, higher

Table 1 - General characteristics of the 900 respondents included in the study at the Clinical Pharmacy Department, Taif University, Taif, Kingdom of Saudi Arabia.

Demographic characteristics	Frequencies (n) Percentages (%)
Gender	
Male	601 (66.8)
Female	299 (33.2)
Age	
18-25	326 (36.2)
26-35	347 (38.6)
36-45	156 (17.3)
>45	71 (7.9)
Nationality	
Saudi	862 (95.8)
Non Saudi	38 (4.2)
Education level	
Primary education	40 (4.4)
Intermediate education	69 (7.7)
Secondary education	311 (34.6)
High education	469 (52.1)
No formal education	11 (1.2)
Marital status	
Single	376 (41.8)
Married	499 (55.4)
Divorced	25 (2.8)
Residence of location	
Rural	85 (9.4)
Urban	815 (90.6)

Table 2 - Preferred dosage form of the respondents included in the study at the Clinical Pharmacy Department, Taif University, Taif, Kingdom of Saudi Arabia.

Preferred dosage form	Responses n (%)	Chi-square test exact ($p<0.05$)					
		Age	Gender	Nationality	Marital status	Education level	Residence location
Tablet dosage form	626 (69.6)	0.995	0.874*	0.048	0.329	0.711	0.213
Capsule dosage form	338 (37.6)	0.212	0.358*	0.059	0.762	0.058	0.813
Chewable tablet dosage form	48 (5.3)	0.744	0.518*	0.716	0.742	0.720	0.616
Injection dosage form	90 (10.0)	0.040	0.795*	0.786	0.121	0.350	0.447
Patches dosage form	42 (4.7)	0.672	0.988*	0.252	0.784	0.445	0.419
Cream dosage form	127 (14.1)	0.180	0.001*	1.00	0.167	0.085	0.533
Effervescence dosage form	143 (15.9)	0.478	0.286*	0.254	0.153	0.569	0.533
Syrup dosage form	220 (24.4)	0.515	0.402*	0.019	0.158	0.150	1.00

*Fisher exact test

Table 3 - The main source of information on medicines included in the study at the Clinical Pharmacy Department, Taif University, Taif, Kingdom of Saudi Arabia.

The main source(s) of information on medicines is	Responses n (%)	Chi-square test exact ($p<0.05$)					
		Age	Gender	Nationality	Marital status	Education level	Residence location
Doctors	599 (66.6)	0.007	0.134*	0.222	0.250	0.182	0.021
Pharmacist	416 (46.2)	0.371	0.061*	0.045	0.059	0.047	0.135
Internet	161 (17.9)	0.016	0.001*	0.385	0.535	<0.001	0.654
Public	158 (17.6)	0.041	0.779*	0.129	0.002	0.162	0.655
Other	32 (3.6)	0.270	0.888*	1.00	0.205	0.599	1.00

*Fisher exact test

Table 4 - Knowledge of different types of medicines.

Different types of medicines	Responses n (%)		*Chi-square exact test Fisher exact test (p<0.05)					
	Yes n (%)	No n (%)	Age	Gender	Nationality	Marital status	Education level	Residence location
Conventional/ modern medicine	668 (74.2)	232 (25.8)	0.003	0.326*	0.058	0.691	<0.001	0.018
Prescribed drugs	443 (49.2)	457 (50.8)	0.284	0.089*	0.621	0.302	0.165	0.003
OTC drugs	368 (40.9)	532 (59.1)	0.575	0.368*	1	0.723	0.090	0.001
Generic name of drugs	380 (42.2)	520 (57.8)	0.355	0.642*	1	0.749	0.002	0.643
Alternative/traditional medicine	798 (88.7)	102 (11.3)	0.253	0.637*	0.185	0.154	<0.001	0.106

*Fisher exact test, OTC - over the counter

proportions of Saudi respondents, and those with a higher educational level, choose the pharmacist to be the main source of information of medicines, a smaller percentage of our respondents preferred the public as their source of information.

Table 4 shows the respondents' knowledge of different types of medicines. Alternative/traditional and conventional medicines were the highest types of medicines known to our respondents. A higher proportion of rural residents did not know what is meant by conventional/modern medicines, prescribed drugs, or OTC drugs. However, respondents with in the 26-35 years age group, and those with higher educational level, were aware of what is meant by conventional/modern medicines.

Table 5 summarizes respondents' beliefs regarding medicines. Various factors such as drug price, product manufacturer, source of active ingredients, doses, recent drugs, effect of conventional/traditional medicine, and medicine advertising were found to be effective on respondents' beliefs regarding medicines. A higher proportion of males believed that expensive drugs are of better quality. Whereas a higher proportion of respondents in the 26-35 year age group, and respondents with higher educational level believed that the effect of a drug does not differ with different manufacturers. Furthermore, a higher proportion of Saudi respondents believed that drugs from natural sources are safe. Finally, a higher proportion of male respondents believed conventional medicines to be more effective than traditional medicines.

Table 6 summarizes respondent's beliefs regarding medication side effects. We found that more than 50% of respondents believed that side effects only occur when a drug is used wrongly, whereas, a low percentage of our respondents believed that drugs do not cause harm (9.2%).

Discussion. Almost two-thirds of respondents were males. This high percent of male respondents was due to the difficulty in meeting with female respondents as all researchers were males and Saudi culture and regulations minimize direct contact between males and females. More than 50% of respondents were of high education level because most of the respondents live in urban areas (90.6%) and were in the age range of 18-35 years (70%). Only around 4% of respondents were non-Saudis due to the period of data collection, which was during the summer months when most foreigners are on vacation.

Patients participation in the treatment process is critical to the treatment success,[16] and considering patients' preferences plays an essential role in fostering feasibility of a treatment, its acceptance, and ultimately adherence with drug therapy.[17,18] In this study, most (69%) of respondents preferred to take a tablet dosage form, while a very low percentage preferred to take patches and chewable tablets. Therefore, avoiding the non-proffered dosage forms would significantly improve patients' adherence and ultimately treatment outcomes. Doctors and pharmacists were the main sources of information regarding medicines. This might be due to the fact that most of our respondents were highly educated and lived in urban areas where they can rely more on the trusted sources of information regarding medicines. Other studies have similar findings in which doctors and pharmacists were the main sources of information of medicines.[7,9,19] Misleading and controversial advertisements on the internet and other forms of media play a role in reducing the trust that people might offer to those media. Pharmacists appeared to be the second source of information regarding medicines after medical doctors. Although pharmacists are considered the first trusted source of information regarding medicines as they are medicine specialists, patients still tend to rely more on physicians. Therefore, there is an immense need to increase patients' awareness

Table 5 - Respondents' beliefs regarding medicines.

Respondents' beliefs	Responses					Chi-square test exact (p<0.05)					
	Strongly agree n (%)	Agree n (%)	Neutral n (%)	Disagree n (%)	Strongly disagree n (%)	Age	Gender	Nationality	Marital status	Education level	Residence location
Expensive drugs are of better quality	224 (24.9)	235 (26.1)	320 (35.6)	91 (10.1)	30 (3.3)	0.160	0.013*	0.644	0.844	0.123	0.383
The same medications produced by different companies have same effects	136 (15.1)	368 (40.9)	261 (29.0)	110 (12.2)	25 (2.8)	0.027	0.234*	0.239	0.208	0.003	0.673
Medications that come from natural products are safe & don't cause any harm	258 (28.7)	302 (33.6)	264 (29.3)	60 (6.7)	16 (1.8)	0.073	0.640*	0.036	0.596	0.095	0.605
Taking double dose would shorten the treatment period	96 (10.7)	135 (15.0)	166 (18.4)	274 (30.4)	229 (25.4)	0.026	0.001	0.013	0.020	0.000	0.390
The newer medications are better than older ones	198 (22.0)	260 (28.9)	316 (35.1)	97 (10.8)	29 (3.2)	0.299	0.089*	0.676	0.202	0.370	0.825
The conventional medicines are more effective than traditional medicines	212 (23.6)	296 (32.9)	288 (32.0)	81 (9.0)	23 (2.6)	0.069	0.037*	0.531	0.069	0.204	0.345
Medicine advertising has an effect on drugs quality	110 (12.2)	202 (22.4)	279 (31.0)	198 (22.0)	111 (12.3)	0.442	0.088*	0.918	0.986	0.034	0.138

*Fisher Exact test

Table 6 - Respondents beliefs regarding medicines' side effects.

Beliefs regarding medicines' side effects	Response n (%)
Does not cause harm	83 (9.2)
May cause harm just when I use it wrongly	491 (54.6)
May cause harm even when I use it as prescribed	326 (36.2)

on the pharmacist role as a healthcare provider. This could be achieved by active involvement of pharmacists in patients educational and awareness programs to inform others of their role in patient education, and counseling.[9]

Respondents' knowledge of certain medical terminologies was satisfactory. Alternative/traditional medicines were the most commonly known terms by our respondents (88.7%), followed by conventional/modern medicines (74.2%). The frequent use of herbal/alternative medicines might play a significant role in our respondents' familiarity with the terms. Other studies found that herbal medicines are frequently used among the general public.[20,21] Area of residence and educational level played a significant part in patients' knowledge. Higher proportions of highly educated respondents were aware of the terms conventional/modern medicines, generic drugs, and alternative/traditional drugs. In addition, urban residents were significantly more aware of the terms conventional/modern medicines, prescribed drugs, and OTC drugs. Frequent prescribing of modern medicines in urban areas has contributed to their knowledge. In addition, educated and urban residents may read more about medical terminologies and might have better discussions with their physicians and pharmacists regarding their treatments and health conditions. This

might have contributed to the improvement of their knowledge regarding certain medical terminologies. Only 42.2% of respondents knew the term generic drugs. Many studies have discussed the issue of generics substitution policies.[22-24] A study in Auckland[8] showed a higher level of patients' knowledge regarding generic medicines (51.6%), where pharmacists were the main source of knowledge regarding generic medicines. Therefore, pharmacists have to play a role in educating patients (especially those with a low level of knowledge regarding generics) regarding generics, and generics substitution.[25]

Patients' beliefs regarding medicines contribute significantly to their practice. Misbeliefs regarding medicines might negatively affect patients' practice, which might lead to the reduction of their quality of life. Findings of this study showed that respondents have misbeliefs toward medicines. Almost half the respondents (51%) believed that the quality of medicine is related to its price. Whereas around 62% of respondents believed that medicines of a natural origin are safe and do not cause harm. Similar studies found a frequent use of herbal medicines in which the general public considered them to be safe and effective.[20,21] On the other hand, almost 56% of respondents believed that conventional medicines are more effective than traditional medicines. Furthermore, around 50% of our respondents believed that newer drugs are of better quality. Similar a study in the USA[26] found that 27% of their respondents believed that newer drugs are more effective than older ones.[26] On the other hand, 54% of respondents believed that side effects of medicines appear only if medicines are used wrongly. This is a serious issue in which if any side effect appears during the treatment process, patients will either stop taking the medications or change the dose prescribed. This will result in a deterioration of patient's health. Therefore, pharmacists, physicians, and nurses have to inform patients about the possible side effects of the prescribed medicines and what actions to take if they appear.

Study limitations. This study was conducted in Taif city only. Therefore, the findings of this study cannot be generalized to the whole of Saudi Arabia. In addition, most respondents were Saudi in origin, as the study was conducted during the school and university holidays when most foreigners are in their home countries.

In conclusion, a low level of knowledge and inappropriate beliefs regarding medicines was found among respondents, which might affect their practices and lead to treatment failure. Tablets and capsules were the most preferred dosage forms, and prescribers should prescribe to patients there preferred dosage forms to improve medication adherence, and hence improve outcomes. Policy makers should plan awareness programs for the general public aimed at improving their knowledge and perceptions toward medicines. Pharmacists are the main experts in medicines but in this study they were the second sources of information regarding medicines. Therefore, pharmacists have to actively be more involved with the community services such as educational programs and counseling.

References

1. Lekkerkerker F, Kanis JA, Alsayed N, Bouvenot G, Burlet N, Cahall D, et al. Adherence to treatment of osteoporosis: a need for study. ***Osteoporos Int*** 2007; 18: 1311-1317.
2. Kondryn HJ, Edmondson CL, Hill J, Eden TO. Treatment non-adherence in teenage and young adult patients with cancer. ***Lancet Oncol*** 2011; 12: 100-108.
3. Simpson SH, Eurich DT, Majumdar SR, Padwal RS, Tsuyuki RT, Varney J, et al. A meta-analysis of the association between adherence to drug therapy and mortality. ***BMJ*** 2006; 333: 15.
4. Carter SR, Moles R, White L, Chen TF. Medication information seeking behavior of patients who use multiple medicines: how does it affect adherence? ***Patient Educ Couns*** 2013; 92: 74-80.
5. de Vries ST, Keers JC, Visser R, de Zeeuw D, Haaijer-Ruskamp FM, Voorham J, et al. Medication beliefs, treatment complexity, and non-adherence to different drug classes in patients with type 2 diabetes. ***J Psychosom Res*** 2014; 76: 134-138.
6. Yousef AM, Al-Bakri AG, Bustanji Y, Wazaify M. Self-medication patterns in Amman, Jordan. ***Pharm World Sci*** 2008; 30: 24-30.
7. DeLorme DE, Huh J, Jisu Huh & Reid, LN. Seniors' perceptions of prescription drug information sources. ***International Journal of Pharmaceutical and Healthcare Marketing*** 2007; 1: 107-127.
8. Babar ZU, Stewart J, Reddy S, Alzaher W, Vareed P, Yacoub N, et al. An evaluation of consumers' knowledge, perceptions and attitudes regarding generic medicines in Auckland. ***Pharm World Sci*** 2010; 32: 440-448.
9. You JH, Wong FY, Chan FW, Wong EL, Yeoh EK. Public perception on the role of community pharmacists in self-medication and self-care in Hong Kong. ***BMC Clin Pharmacol*** 2011; 11: 19.
10. Alghanim SA. Self-medication practice among patients in a public health care system. ***East Mediterr Health J*** 2011; 17: 409-416.
11. Lewis PJ, Tully MP. The discomfort caused by patient pressure on the prescribing decisions of hospital prescribers. ***Res Social Adm Pharm*** 2011; 7: 4-15.
12. Cuzzolin L, Benoni G. Safety of non-prescription medicines: knowledge and attitudes of Italian pharmacy customers. ***Pharm World Sci*** 2010; 32: 97-102.
13. Kennedy J, Rhodes K, Walls CA, Asplin BR, Joosten EA, DeFuentes-Merillas L, de Weert GH, Sensky T, van der Staak CP, de Jong CA. Systematic review of the effects of shared decision-making on patient satisfaction, treatment adherence and healthstatus. ***Ann Emerg Med*** 2004; 43: 567-573.
14. Adedapo HA, Lawal AO, Adisa AO, Adeyemi BF. Non-doctor consultations and self-medication practices in patients seen at a tertiary dental center in Ibadan. ***Indian J Dent Res*** 2011; 22: 795-798.

15. Balbuena FR, Aranda AB, Figueras A. Self-medication in older urban mexicans : an observational, descriptive, cross-sectional study. ***Drugs Aging*** 2009; 26: 51-60.
16. Joosten EA, DeFuentes-Merillas L, de Weert GH, Sensky T, van der Staak CP, de Jong CA. Systematic review of the effects of shared decision-making on patient satisfaction, treatment adherence and health status. ***Psychother Psychosom*** 2008; 77: 219-226.
17. Loh A, Simon D, Wills CE, Kriston L, Niebling W, Härter M. The effects of a shared decision-making intervention in primary care of depression: a cluster-randomized controlled trial. ***Patient Educ Couns*** 2007; 67: 324-332.
18. Loh A, Simon D, Wills CE, Kriston L, Niebling W, Härter M. The effects of a shared decision-making intervention in primary care of depression: a cluster-randomized controlled trial. ***Patient Educ Couns*** 2007; 67: 324-332.
19. Cameron K. Medication safety in the home: The need for pharmacist involvement. ***Canadian Pharmacists Journal*** 2007; 140: 47-49.
20. Sawalha AF, Sweileh WM, Zyoud SH, Jabi SW. Self-therapy practices among university students in Palestine: focus on herbal remedies. ***Complement Ther Med*** 2008; 16: 343-349.
21. Awad AI, Eltayeb IB, Capps PA. Self-medication practices in Khartoum State, Sudan. ***Eur J Clin Pharmacol*** 2006; 62: 317-324.
22. Chong CP, Hassali MA, Bahari MB, Shafie AA. Evaluating community pharmacists' perceptions of future generic substitution policy implementation: a national survey from Malaysia. ***Health Policy*** 2010; 94: 68-75.
23. Chong CP, March G, Clark A, Gilbert A, Hassali WA, Bahari MB. A nationwide study on generic medicines substitution practices of Australian community pharmacists and patient acceptance. ***Health Policy*** 2011; 99: 139-148.
24. Chua GN, Hassali MA, Shafie AA, Awaisu A. A survey exploring knowledge and perceptions of general practitioners towards the use of generic medicines in the northern state of Malaysia. ***Health Policy*** 2010; 95: 229-235.
25. Gill L, Helkkula A, Cobelli N, White L. How do customers and pharmacists experience generic substitution? ***International Journal of Pharmaceutical and Healthcare Marketing*** 2010; 4: 375-395.
26. Shrank WH, Cox ER, Fischer Ma, Mehta J, Choudhry NK. Patients' perceptions of generic medications. ***Health Aff (Millwood)*** 2009; 28: 546-556.

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