ORIGINAL ARTICLE

ADHERENCE TO OTC DIRECTORY –THE PERCEPTION OF COMMUNITY PHARMACISTS IN SAUDI ARABIA

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Background: Worldwide Ministries of Health (MoH) are encouraged to publish an updated Over-the-Counter (OTC)-Directory that pharmacists should adhere to in dispensing non-prescription medications. The Saudi Ministry of Health has published the OTC-Directory in the year 2000, and since then, it was readily available to all practicing pharmacists at no cost. This study was aimed to investigate the knowledge of practicing pharmacists in Riyadh, Saudi Arabia, regarding permitted self-prescription medications (i.e., OTC-Directory), as well as pharmacists professional competence and adherence at dispensing OTC drugs without prescription. **Methods:** The study was cross-sectional by design. A computer generated list of simple random sampling was used to select the pharmacies out of 1,500 working in Riyadh. The data was collected from 384 randomly selected community pharmacies by questionnaire using direct investigation method and the total respondents were 405. Associations between qualitative variables were observed using Pearson Chi-square and Fisher Exact test. **Results:** Four hundred and five (405) pharmacists participated in the survey of which 100% were males and 362 (89.4%) were below the age of 40 years. Majority of them (361, 88.9%) were holding bachelors degree. Almost one-third of the respondents (123, 30.4%) were not aware of the existence of the Saudi OTC-Directory. The pharmacists' geographical location, nationality and attendance of CME activity had significant association with knowledge about the OTC-directory (p<0.05). Two hundred and eighty-two (69.6%) of the pharmacists who had knowledge about Saudi OTC-directory did not comply with its guidelines. Pharmacists with higher degrees were more observant of the OTC-Directory as compared to those with diploma and Bachelor Degree (p=0.014). **Conclusions:** There is significant non-compliance of OTC-directory by the community pharmacists while providing non-prescription drugs in Riyadh, Saudi Arabia.

Keywords: Self medication, OTC-Directory, community pharmacist, pharmacy practice

INTRODUCTION

Self-medication through Over-the-Counter (OTC) prescription is practiced worldwide.[1] Due to the growing negative impact of such practice World Health Organization (WHO) has been giving this issue due attention.[2] Worldwide Ministries of Health (MoH) are encouraged to publish an updated OTC-Directory that pharmacists should adhere to in dispensing non-prescription medications.

Currently there are approximately 1500 pharmacies and Drugs Distribution stores in Riyadh, Saudi Arabia.[3] According to Bharat Book Bureau the Saudi Ministry of Health issue guidelines for running pharmacies, according to which a B.Sc. or doctorate degree holder in pharmacy from an accredited university should be the manager in-charge of the licensed pharmacy. Further, a pharmacist technician holding a two years degree in Health Sciences can work under the supervision of a licensed pharmacist.[4]

Paulo and Zaini[5] defined self-medication as 'the product for the treatment of a disease or for disease prevention or for promotion of health without a professional prescription'. Relatively, a high proportion of drugs are being dispensed without professional medical prescription that needs follow-up. The potential effectiveness of medicines is therefore jeopardised by misdiagnosis due to self-medication.[6] The principles of clinical governance and evidence-based decision making are now well established to practice. Therefore, pharmacists should take the responsibility for justifying their choices for recommending OTC products. In recent years, there has been an increased awareness of precautions needed to accompany self-prescribed medications.[7]

The Saudi Ministry of Health has published the OTC-Directory in the year 2000, and since then, it was readily available to all practicing pharmacists at no cost. The directory was divided into four sections: the first section focuses on the organization of the directory; the second section gives details about the proper use of non-prescription medications; the third section describes the role of the pharmacist prior to dispensing medications; and the fourth section lists OTC medications based on patient's presentations.[8]

Despite the fact that in Saudi Arabia, an updated OTC-directory is introduced annually but getting non-OTC drugs without prescription is on the rise. The initial impression indicated that Pharmacists,

whether in community or governmental pharmacies, are not properly following this directory. This observation promoted to investigate the reason(s) for this phenomenon. This study focuses on two points: how knowledgeable are community pharmacists in Riyadh are about the Saudi OTC-Directory; and perception and adherence of community pharmacists for dispensing non-prescription medicines.

MATERIAL AND METHODS

The study was cross-sectional by design. The questionnaire was developed with the help of available literature and was re-modified according to the objectives of the study. Lack of similar studies in Saudi Arabia prompted for a pilot study. The questionnaires were piloted using direct investigation method on 27 pharmacists that helped in improving the validity of the questionnaire. The Cronbach Alpha for the questionnaire was 0.77 supporting its validity. The minimum sample size for this study was calculated to be 384 pharmacies at an assumption of (0.5) true response rate and (0.05) level of precision. One part of the questionnaire contained information about the knowledge of the pharmacist regarding Saudi OTC-Directory and the other part was related to the demography, qualification and experience of practicing pharmacists.

The data were collected from 405 pharmacists working in 384 pharmacies using simple random sampling technique. Riyadh city is divided into five sectors (Northern, Southern, Eastern, Western and Central) which vary in the density of population and socioeconomic status. Each sector is divided into two sub-regions, resulting in 10 sub-regions. This approach was followed to ensure that the sample represents the community pharmacies population of Riyadh.

Exclusion criteria was those pharmacists who have been working in Community Pharmacies for less than 6 months or working in two or more pharmacies owned by the same company within one sector. In pharmacies where more than 2 pharmacists were employed, data was collected from both.

The data were analysed using SPSS-15. Mean±SD is reported for quantitative variables. Frequencies and percentages are given for qualitative variables. Pearson Chi-square and Fisher Exact test were applied to observe associations between qualitative variables, and $p<0.05$ was considered as statistically significant.

RESULTS

About 70% (n=283) of the responders were Egyptians, while pharmacists from all other nationalities represented 30% (n=122). In sampled community pharmacies, 100% (n=405) of employees were males, of which 362 (89.4%) were below the age of 40 years. Most common qualification (360, 88.9%) was Bachelor degree, followed by Masters Degree (29, 6.9%), and undergraduate diploma (12, 2.9%). Less than 1% (n=4) of the respondents had higher qualification, and 253 (62.5%) of the respondents had more than 5 years of working experience as pharmacists. Regarding continuing medical education (CME) activities 175 (43.2%) of the respondents attended the last CME activity in 2005–2006, 57 (14.1%) attended in 2004–2005, 56 (13.8%) attended in 2002–2003, and 117 (28.9%) of the respondents didn't attended any CME activity from 2002 to 2006. Regarding the knowledge of pharmacists about the OTC-Directory, 123 (30.4%) of them didn't know about its existence, while 282 (69.6%) were aware about it (Table-1).

Table-1: Frequency demographic parameters (n=405)

Demographic Parameter	n (%)
Nationality	
Egyptian	283 (69.9)
Others	122 (30.1)
Areas in Riyadh	
Eastern	80 (19.8)
Southern	78 (19.3)
Western	82 (20.2)
Northern	86 (21.2)
Central	79 (19.5)
Age Group	
<40 years	362 (89.4)
≥40 years	43 (10.6)
Professional Qualification	
Undergraduate diploma	12 (2.9)
Bachelors	360 (88.9)
Masters	29 (7.1)
MD/PhD/Pharm D	4 (0.9)
Experience	
≤5 years	152 (37.5)
>5 years	253 (62.5)
Last CME Activity	
2002–2003	56 (13.8)
2004–2005	57 (14.1)
2005–2006	175 (43.2)
No CME attended	117 (28.9)
Knowledge about the OTC-Directory	
Yes	282 (69.6)
No	123 (30.4)

Those who were aware about the OTC-directory reported that they came to know about it through booklets published by the Saudi MoH, while 217 (53.6%) acquired the knowledge through interaction with colleagues, representatives of pharmaceutical companies, national medical journals, newspapers, and/or other resources. Regarding, access to the latest edition of the OTC-directory, only 107 (26.4%) respondents had the latest edition, 80 (19.8%) had editions of the past 3 years, while remaining 95 (23.5%) pharmacists were prescribing without the directory.

Contingency analysis of demographic and professional competency data along with the knowledge of the practicing community pharmacist of the Saudi OTC-Directory revealed that

geographical location of the pharmacist significantly (p=0.005) impacted their knowledge, maximum awareness about the OTC-Directory was observed in Eastern Riyadh (65, 81.3%) whereas the least awareness was observed in Western Riyadh (46, 56.1%). Egyptian pharmacists had significantly more knowledge about the OTC-Directory compared to other nationalities (74.9% vs 63.9%, p=0.024). The pharmacists' age, educational level and years of experience had no significant association with the knowledge about the OTC-Directory (p>0.05) respectively. Attending a CME activity exhibited a significant association with knowledge of the directory (p=0.001) showing that those who attended CME activities in last year had more knowledge of the OTC directory as compared to others (Table-2).

Table-2: Association of demographics and professional competency of community pharmacists with knowledge of OTC-Directory (n=405)

Parameter	Knowledge of the OTC-Directory Yes n (%)	No n (%)	Itemised sample size (n)	p
Area in Riyadh				
Eastern	65 (81.3)	15 (18.7)	80	0.005*
Southern	60 (76.9)	18 (23.1)	78	
Western	46 (56.1)	36 (43.9)	82	
Northern	57 (66.3)	29 (33.7)	86	
Central	54 (68.4)	25 (31.6)	79	
Nationality				
Egyptian	212 (74.9)	71 (25.1)	283	0.024*
Others	78 (63.9)	44 (36.1)	122	
Age (Yrs)				
≥40	34 (79.1)	9 (20.9)	43	0.154
<40	248 (68.5)	114 (31.5)	362	
Educational level				
Diploma/Bachelors	261 (70.1)	111 (29.9)	372	0.519
MSc/MD/PhD/PD	21 (63.7)	12 (36.3)	33	
Experience				
≤5 Years	101 (66.4)	51 (33.6)	152	0.333
>5 Years	181 (71.5)	72 (28.5)	253	
Last CME activity				
2005–2006	139 (79.4)	36 (20.6)	175	0.001*
2003–2004	42 (73.7)	15 (26.3)	57	
2000–2002	38 (67.9)	18 (32.1)	56	
No CME	63 (53.8)	54 (46.2)	117	
Opinion about the importance of OTC-Directory				
Important	257 (98.8)	3 (1.2)	260	0.247
Not Important	18 (94.7)	1 (5.3)	19	
Total	275	4	279	

*Statistically significant

The contingency analysis (Table-3) for adherence to the OTC-Directory showed no association with Region (p=0.637), age (p=0.612), nationality (p=0.465), years of experience (p=0.354), opinion about the importance of OTC-Directory (p=0.316), and CME activities (p=0.148). Pharmacists with Bachelors degree were more observant about adherence to OTC-Directory compared to those with higher degrees (MSc, PhD etc.) (p<0.01).

Table-3: Association of demographics and CME with adherence to the OTC-Directory (n=405)

Parameter	Adherence to the OTC-Directory Yes n (%)	No n (%)	Itemised sample size (n)	p
Area in Riyadh				
Eastern	22 (27.5)	58 (72.5)	80	0.637
Southern	18 (23.0)	60 (77.0)	78	
Western	28 (34.1)	54 (65.9)	82	
Northern	26 (30.2)	60 (69.8)	86	
Central	23 (29.1)	56 (70.9)	79	
Nationality				
Egyptian	92 (32.5)	191 (67.5)	283	0.465
Others	25 (20.4)	97 (79.6)	122	
Age				
≥40	11 (25.5)	32 (74.5)	43	0.612
<40	106 (40.4)	256 (59.6)	362	
Education level				
Diploma/Bachelors	96 (25.8)	276 (74.2)	372	<0.001*
MSc/MD/PhD/PD	21 (63.7)	12 (36.3)	33	
Experience (Year)				
≤5	48 (31.5)	104 (68.5)	152	0.354
>5	69 (27.3)	184 (72.7)	253	
Last CME activity				
2005–2006	43 (24.5)	132 (75.5)	175	0.148
2003–2004	22 (38.5)	35 (61.5)	57	
2000–2002	15 (26.7)	41 (73.3)	56	
No CME attended	39 (33.3)	78 (66.7)	117	
Opinion about the importance of OTC-Directory				
Important	53 (20.3)	207 (79.7)	260	0.316
Not Important	2 (10.5)	17 (89.5)	19	
Total	55	224	279	
Prescribing drugs				
Yes	7 (3.2)	211 (96.8)	218	0.001*
No	46 (74.2)	16 (25.8)	62	
Total	53	227	280	

*Statistically significant

DISCUSSION

Majority of pharmacists who are prescribing drugs were not adhering to OTC-Directory. About one-third of the pharmacists were unaware of Saudi OTC-Directory. Attending CME activity, area, and nationality were significantly associated with knowledge of OTC- Directory, whereas age, educational level, and years of experience were not significantly associated with the knowledge of the OTC-Directory.

Educational level and prescribing drugs were significantly associated with adherence to OTC-Directory. However, age, attending CME activity, years of experience and area were not significantly associated with adherence to the directory.

The factors highlighted in this study are quiet important due to high non-compliance of pharmacists to the OTC-Directory in Riyadh. A recent report by Euro Monitor International (2009)[9] on OTC healthcare in Saudi Arabia stated that the Saudi OTC healthcare market is highly competitive and fragmented with strong presence of many international pharmaceutical companies. It also stated that a gradual shift towards a new OTC retailing system was observed. This undoubtedly will facilitate greater public access to OTC medications.[10,11]

We also tried to associate our study results

with the already published factors that can inflate the phenomenon of non-compliance with OTC guidelines in quest to improve pharmaceutical practice and health care in Saudi Arabia. Several studies found significant association between the quality of dispensing medications and pharmacist's age, educational background and socio-demography.[12] The pharmacist's own opinion about OTC practices and medicines cost were not associated with the quality of dispensing medications. However, these factors have been analysed individually and so far, no comprehensive empirical model has been proposed to explain their exact effect.[13,14]

Non-adherence to OTC directories has also been reported in industrial countries. In Japan it was observed that adherence to OTC-directory is practiced by only 18% of pharmacists[6] suggesting that such practice is found in developing, as well as in industrial countries. In a multi-centred study, six Latin American countries were surveyed to uncover the underlying non-adherence to this wide spread practice and it was reported that high proportion of drugs are dispensed without medical prescription.[15] We suggest that studies related to non – adherence to OTC Directory should be conducted especially in countries falling in Middle East and Asia-Pacific to have an in-depth analysis of the underlying factors of this phenomenon.

Additional factors like inaccessibility to OTC directory hardcopy, lack of public awareness promoting programs, and absence of legislative regulatory licensing policies in Saudi Arabia needs to be further investigated to understand the reasons behind the ignorance in practicing the Saudi OTC-directory.[16] It was evident that despite having knowledge of the Directory, the ease with which prescription medications are still dispensed as OTC is alarming and necessitates further investigation to ultimately bring about safer health care practices in Saudi Arabia.[17] Furthermore, the public perception of the role of the community pharmacist as well as the correct use of certain class of drugs greatly influence dispensing of non-OTC drugs.[7,18] A recent study in Eastern Saudi Arabia revealed that the self-prescribed medications were highest among adolescent girls.[19] As suggested earlier, further studies should be conducted in various regions of Saudi Arabia related to the use of OTC-directory so that laws can be constituted and pharmacists may be held accountable for not adhering to the OTC guidelines. This will increase awareness among the community pharmacists and will also mount better pharmacy practices in KSA for future.

CONCLUSION

A significant proportion of practicing community pharmacists in various regions of Riyadh, Saudi Arabia know of existence of the OTC-directory. Nevertheless, only small percentage actually adheres to its guidelines in dispensing prescription medications.

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