

## Practice Reports

**PHYSICIANS AND PHARMACISTS ADHERENCE TO PRESCRIBING  
GUIDELINES OF CONTROLLED PSYCHOTROPIC DRUGS:  
A STUDY IN PRIVATE SECTOR, RIYADH, SAUDI ARABIA**

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**الهدف:** تهدف هذه الدراسة إلى تقييم مدى التزام كل من الأطباء والصيادلة في القطاع الخاص بالضوابط الخاصة بوصف أدوية المؤثرات العقلية المدرجة في جداول الأدوية النفسية والجودة العملية لهذه الضوابط ودرجة تطبيقها ومتابعة تنفيذها من قبل وزارة الصحة. **الطرائق:** تم إجراء الدراسة في عشر صيدليات عامة وست صيدليات مستشفى كلها مخولة بصرف أدوية المؤثرات العقلية في مدينة الرياض. وتم استخدام نموذج لجمع البيانات لتقييم سجلات الصيدلية لهذه الأدوية وجمع البيانات عن مؤشرات الوصفات لمعرفة ما إذا كانت الوصفات الطبية قد تمت كتابتها وصرفها بشكل صحيح. وتم اختيار عشرين بالمائة كعينة عشوائية من الوصفات المصروفة في كل صيدلية خلال فترة تبدأ من يناير 1999 وتنتهي في سبتمبر 2001 بطريقة تصنيفية عشوائية لتقييم درجة التزام كل من الأطباء والصيادلة بالضوابط الإرشادية التي أعدها وزارة الصحة. كما تم تقييم آراء الصيادلة عن الجودة العملية لهذه الضوابط ومدى تنفيذها ومتابعة ذلك بواسطة استبانة استقصائية.

**النتائج:** أظهر تحليل ما مقداره 2077 وصفة طبية أن 54% من المرضى كانوا من الذكور وأن متوسط العمر كان 37.7 سنة (14.4 ±). كما تبين أن درجة التزام الأطباء بالضوابط كان ضعيفاً من حيث توثيق الاسم الكامل للمريض في الوصفة (12.5%)، واستخدام الاسم العلمي للدواء (12.1%)، ومدة العلاج (22.4%)، والكمية التي يجب صرفها في 52.2% من الوصفات. كما تبين أن وصف الأدوية من الفئة 1، 2 لمدة أقصاها أسبوعين لم يتم إلا في 3.1% من الوصفات. وقد قام الصيادلة بتوثيق تفاصيل الوصفات في 90.5% كما قاموا بوضع الختم على 76.4% من الوصفات المصروفة. وعلاوة على ذلك فلم يكتب الصيدلي أو الصيدلانية إسمه وتوقيعه إلا على 62.7% من الوصفات وقد قام الصيدلاني بصرف الوصفة بعد مرور أسبوع على كتابتها في 7% من الحالات. إن حوالي 69% من الصيدليات تم التفتيش عليها مرة واحدة فقط أثناء عام 2001 وتم إعادة تعبئة الوصفة لنفس المريض خلال فترة مقدارها 14 يوماً في 3% من الوصفات. وكانت الأدوية الأكثر وصفاً هي الألبرازولام (41.6%) والبرومازيبام (16.1%) والديازيبام (9.2%) والكلورديازيبوكسيد (8.8%).

**الاستنتاج:** تمخضت عن هذه الدراسة عدة توصيات من شأنها مساعدة وزارة الصحة في مراقبة أدوية المؤثرات العقلية. ويجب على الوزارة مراجعة الضوابط الإرشادية لمعالجة المشكلات التي تطرق إليها الصيادلة، مع مراعاة توزيع هذه الضوابط على جميع الصيدليات، وتحسين عملية التفتيش، وإدخال الوصف الإلكتروني لهذه الأدوية، وإنشاء شبكة حاسوبية وطنية. ويجب على صيادلة وأطباء وزارة الصحة أن يتفقوا على الحد الأدنى من إجراءات التوثيق والتي يجب أن يلتزم بها جميع الأطباء والصيادلة. وأخيراً يجب إجراء دراسة وطنية عن وصف أدوية المؤثرات العقلية وتحليل اتجاهات استهلاكها ومقارنتها بالدول الأخرى.

**Objective:** To assess the adherence of physicians and pharmacists in private sector to the guidelines of controlled psychotropic medications (CPM), the practicality of the guidelines and the degree of enforcement and follow-up of these guidelines stipulated by the Ministry of Health. **Methods:** The present study was performed in ten private community pharmacies (PCPs) and six private hospital pharmacies authorized to dispense CPM in Riyadh city. Data collection form was used to assess pharmacy records for CPM, and to collect data on prescription parameters in order to assess whether the prescriptions are properly written and dispensed. A twenty percent random sample of prescriptions dispensed in each pharmacy, during January 1999 to September 2001

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were collected through a systematic random sampling to assess the degree of physicians and pharmacists compliance to the guidelines laid down by the MOH. The pharmacists' opinions on the practicality of the guidelines and degree of enforcement and follow up were assessed prospectively through questionnaire.

**Results:** An analysis of 2077 prescriptions revealed that 54% of patients were male and the mean age was 37.7 years ( $\pm 14.4$ ). Degree of physicians' adherence to guidelines was poor in documenting patient's full name in the prescription (12.5%), use of generic name of the drug when prescribing (12.1%), duration of treatment (22.4%) and quantity to be dispensed were specified in 52.2% of prescriptions. Moreover, prescribing drugs in class 1 and 2 for maximum of two weeks was observed only in 3.1% of prescriptions. Pharmacists documented the details of prescriptions dispensed in 90.5% and stamped 76.4% of prescriptions dispensed. Furthermore, the pharmacist write his/her name and sign the prescription upon dispensing in 62.7% of situations and in 7% of situations pharmacists dispensed prescriptions after the seven days period. About 69% of pharmacies were inspected only once during the year 2001 and prescriptions were repeated for the same patients within 14 days period in 3% of prescriptions. The most commonly prescribed drugs are alprazolam (41.6%), bromazepam (16.1%), diazepam (9.2%) and chlordiazepoxide (8.8%).

**Conclusion:** Several recommendations emerged from this study that could help MOH to gain better insight to control CPM. The MOH should review the current guidelines to address the problems raised by pharmacists, distribute the guidelines to all pharmacies, improve the inspection process, introduce electronic prescribing for CPM, and setting up a national computer network. The MOH, pharmacists and physicians should agree on the minimum standards of CPM prescription and the documentation procedures, which must be adhered to by both physicians and pharmacists. Finally, a national survey of psychotropic drugs prescribing should be conducted and consumption trend analyzed and compared with other countries.

### Introduction

Psychotropic drugs play a major role in the management of psychiatric problems. They include anxiolytics, sedative-hypnotics, antidepressants and antipsychotic. Psychotropic medications are widely prescribed, and their consequences of indiscriminate prescribing are obvious and have been extensively reported in the literature (1). Inappropriate use of psychotropic medications can lead to abuse, suicide attempt, road traffic accidents, cognitive impairment and confusion and risk of fall and fracture in elderly patients (2-7). Rationale drug prescribing avoids many of the potential adverse reactions and negative consequences and complications. Furthermore, correct and complete prescription of psychotropic or non-psychotropic medications reduces considerably the sufferings of patients. It also enhances the overall quality care, satisfaction of patients as well as decreasing the cost of management of the patients (8,9).

Objective monitoring of the prescribing of psychotropic medications in health facilities can be used to improve drug use practices and reduce misuse. Documentation of drug utilization information is an essential step in the process of instituting rational drug use (10). International system for control of drugs abuse has been

developed throughout a series of treaties, to serve as a catalyst for rational use of drugs for medical and scientific purposes only. Consequently, the International Narcotics Control Board (INCB) was established to combat the abuse of controlled psychotropic drugs worldwide (11).

The healthcare system in Saudi Arabia is well developed and structured with a total expenditure on health equal 4.6% of gross domestic product (GDP) (12). The health care facilities are predominantly governmental, offering their gratis services to all citizens. In 2001, there were 324 hospitals, 1786 primary health care centers and 1538 private clinics. Moreover, there were 1.53 physicians, 0.26 pharmacist and 2.24 hospital beds per 1000 population<sup>13</sup>. Each governmental hospital and primary health care center has a pharmacy services that dispense medications free of charge to all patients. The psychiatric health services in the Ministry of Health (MOH) are provided through 19 psychiatric hospitals with 2852 beds, three psychiatric departments in some major general hospitals and 44 psychiatric clinics attached to general hospitals. There were 48,247 outpatient visits and 10,583 hospitalized patients in the year 2001 (13).

Private Community Pharmacies (PCP) in Saudi Arabia play an important role as Primary Health-

Care Centers that are easily accessible. Outside governmental hospitals, prescription and non-prescription medications are obtained from community pharmacies in their branded packages at the customers' expense. There has been rapid growth in the number of PCPs established over the years in Saudi Arabia, from 1,233 pharmacies in 1985 to 3,244 in 2001 providing approximately one pharmacy for every 4,464 persons and 731 houses. (13,14). The survey conducted in Riyadh in 1997 showed that 47,215 customers entered 511 PCP daily and 21,180 prescriptions were dispensed (15).

Guidelines for prescribing and dispensing of controlled psychotropic medications (CPM) in Saudi Arabia (SA) were updated in 1988 (16). The major feature of the guidelines was the adaptation of the International Narcotics Control Board (INCB) classification of controlled Psychotropic medications (CPM) into three classes (The Green List) that include: class 1 which includes psychotropic substances under international control. This class contains four lists: List number 1, which includes hallucinating agents which must not be imported nor exported and it is illegal to prescribe. Lists number 2, 3, and 4 are those that include sedatives, hypnotics, antidepressants, anxiolytics, and analgesics. The law requires that these medications must be treated as narcotics in case of importation, prescribing and dispensing. Class 2 includes a heterogeneous group of substances judged by MOH to carry high potential for abuse or addiction and classified as controlled drugs under Saudi law, e.g. Chlordiazepoxide, Biperidin, Hydroxyzin and Tramadol. These substances were treated as they are class 1 drugs. Class 3 includes other psychotropic drugs which were not included in the previous classes. These drugs are treated as non controlled drugs in importation, however these drugs have some restrictions on prescribing. Examples of such drugs include, Amitriptylin, Imipramin and Haloperidol..

Controlled Psychotropic drugs should be prescribed by a psychiatrist, and general practitioner is also allowed to prescribe controlled psychotropic drugs in case of emergency. Moreover, physician must not issue a prescription for him/herself. A special prescription form must be used for prescribing controlled psychotropic drugs. The prescription must have an original pink sheet with triplicate carbonated copies with different colors, and the term "Not To Be Dispensed" must be written on each copy. Each prescription must contain

a single item with quantity not exceeding two weeks for the drugs of classes one and two of the green list and forty-five days as for the drugs of class three from the same list. On dispensing the pharmacist should observe that Prescription must not be dispensed after 7 days of their issuance and prescription must be dispensed to the patient or to his/her guardian upon presenting an ID. The original prescription plus one copy should be kept in the dispensing pharmacy, a copy should be given to the patient and a copy should be kept in the patient's file. The original prescription and the patient's copy should be stamped by the pharmacist who dispenses the prescription with a pharmacy stamp stating: Pharmacy name, address and license number, date of dispensing and the word "DISPENSED". In addition, hospital pharmacy must not dispense prescriptions written by physician from other hospital and prescription that is issued in a health region must not be dispensed in other health regions.

Original prescription must be kept in the pharmacy after dispensing as a proof of dispensing and must be recorded in the controlled drug record at the pharmacy. When the pharmacist decides to purchase a new quantity of the dispensed drug from the wholesaler he must hand over the dispensed prescriptions to the wholesale pharmacist in charge of controlled drugs to subtract the amount dispensed from his account. To ensure the adherence to guidelines the MOH instructs the health directorates to establish an inspection team and to limit number of private community pharmacies allowed to dispense controlled psychotropic drugs.

Several studies on drug prescribing pattern in Saudi Arabia were published during the last two decades (10,17-21). However, only two studies addressed the prescribing of psychotropic drugs were published (22-23). Al-Ghamdy and colleagues (22) studied the psychotropic medications prescriptions in out-patient clinics of psychiatric hospital in AL-Qassim region, of Saudi Arabia. The results revealed missing data in the evaluated prescriptions such as duration of treatment (18.75%), sex (9.25%), age (8.75%), and diagnosis (7.5%). Antipsychotics (33.1%), antidepressants (23.2%), anticholinergics (22%), and anticonvulsants (13%) were frequently prescribed medications, whereas benzodiazepines (3.4%) were infrequently prescribed. The most common diagnosis noted were mood disorders (23.1%), anxiety (17.7%) and Psychosis (16.2%) (22). Qureshi *et al* (23). reported that psychotropic

drugs were prescribed significantly to hospital patients as compared to primary care patients. The most frequently prescribed medications in the study were antipsychotics (74%), antidepressants (48%), anticholinergics (28%), anticonvulsants (7%) and benzodiazepines (7%). Previous studies have recommended reviewing the current prescribing policies of psychotropic medications and implementation of quality monitoring programs for prescribing and continuous medical education. It is therefore decided to conduct a quality assurance study to assess the adherence of physicians and pharmacists in private sector to the guidelines of controlled psychotropic medications (CPM), the practicality of the guidelines and the degree of enforcement and follow-up of these guidelines stipulated by the Ministry of Health

### Methods

#### *Study site:*

There were eleven PCPs and fifteen private hospital pharmacies authorized to dispense controlled psychotropic medications (CPM) in Riyadh city in 2001. The authors submitted study protocol to MOH for approval and to obtain permission to examine the records of controlled psychotropic medications at pharmacies supplying CPM to patients. The assistant deputy minister of planning and research approved to undertake the present study in July 2001. The pharmacy managers and pharmacists were asked to participate in the study. The study was fully explained and they were assured that only aggregate data would be reported. The pharmacy managers were given a copy of the MOH guidelines regarding CPM. They were asked to allow to examine prescriptions, pharmacy records and to complete study questionnaire with their comments on the guidelines.

The present study was performed in ten PCPs and six private hospital pharmacies authorized to dispense CPM in Riyadh city. One PCP and six hospital pharmacies were excluded from the study because they only stock one or two of CPM and they dispense few prescriptions. To assess the degree of physicians and pharmacists adherence to guidelines, a 20 percent random sample of prescriptions dispensed in each pharmacy, between January 1999 to September 2001, were collected through a systematic random sampling (every fourth prescription). The sample size in this study was calculated to provide a power value more than 0.8.

#### *Questionnaire Design and Data Collection:*

Data collection form was designed to assess pharmacy records for CPM and to collect data on prescription parameters in order to assess whether the prescription was properly written and dispensed. Data collection form contains the following information: pharmacy name, patient full name (including first name, father's name, grand father's name and family name), sex, age in years, nationality, file number, diagnosis, drug name (generic name, trade name or both), instructions, quantity of the drug in numbers, quantity of the drug in letters, duration of treatment in days, physician full name (first name, father's name and family name), physician's license number, physician's specialty (psychiatrist or not), recipient information, pharmacy stamp, pharmacist name, prescribing and dispensing date.

The pharmacists' opinions on the practicality of the guidelines and the degree of compliance to the guidelines were assessed prospectively through questionnaire. The questionnaire consists of two sections containing nine questions. The first section of the questionnaire was intended to determine the demographic information pertaining to age, sex and nationality of the respondent. The second section of the questionnaire gathered data on variables dealing the following issues: licensing to sell CPM, type of CPM available, inspection of pharmacy, and pharmacist opinion on guidelines. A pilot testing was conducted at a PCP and a hospital pharmacy to test the practicality of the data collection forms and to test the validity of the questionnaire.

#### *Data Analysis:*

Responses to each question were coded and data were analyzed using the Statistical Package for Social Sciences (SPSS) version 10.0 for Windows (SPSS, Chicago, Illinois). The data were checked for accuracy by examining unusual coding values and a five percent of data collection forms were selected randomly to be hand checked. The analysis included frequencies of discrete variables and descriptive statistics.

### Results

#### *Demographic characteristics:*

A total of 10 PCP and 6 private hospital pharmacies completed the study. All pharmacists working in the PCP were male expatriate pharmacists, while 83.3% of pharmacists responsible

for CPM in hospital pharmacies were female Saudi pharmacists (Table 1). An analysis of 1602 prescriptions (77%) selected retrospectively from community pharmacies and 475 from hospital pharmacies (23%) revealed that majority of physicians were males (89.1%), non Saudi (60.9%) and psychiatrists (71.4%). Moreover, 54% of patients were males and the mean age was 37.7 years ( $\pm 14.4$ ). In addition, 77.8% of patient were Saudi and 13.9 were non Saudi (Table 1).

*Physicians' adherence to guidelines:*

Documenting patient's full name in the prescription as required by the guidelines was done in 12.5% of prescriptions and patient gender was indicated in 92.9% of prescriptions. Furthermore, patients age, nationality and diagnosis were present in more than 90% of prescriptions. Physicians used generic name of the drug when prescribing in 12.1% of prescriptions, while trade name of drugs was used in 79% of the situations. Duration of treatment and quantity to be dispensed were specified in 22.4% and 52.2% of prescriptions, respectively. Moreover, prescribing drugs in class 1 and 2 for maximum of two weeks was observed only in 3.1% of prescriptions. Examining the prescriber data on prescriptions revealed that full name was present in 62%, license number was written in 79.3% and prescriber specialty was indicated in 88.5% (Table 2).

*Pharmacist adherence and pharmacy characteristics:*

Table 3 shows that pharmacists document the details of prescriptions dispensed in 90.5% and stamped 76.4% of prescriptions dispensed. Furthermore, the pharmacist write his/her name and sign the prescription upon dispensing in 62.7% of situations and in 7% of situations pharmacists dispensed prescriptions after the seven days period. Table 4 shows that 68.8% of pharmacies had a valid license when inspected by the researchers, 43.8% had a copy of the guidelines, and one hospital pharmacy use computerized records instead of hardcopy records required by MOH. More than 62% of pharmacies stock between 7 to 18 CPM and 75% of pharmacies dispense between 1 to 10 prescriptions per day. About 69% of pharmacies were inspected once during last year and prescriptions were repeated for the same patients within 14 days period in 3% of prescriptions.

**Table 1: Demographic Characteristics.**

	N	%
<b>Pharmacists Demography</b>		
<b>Gender</b>		
Male	11	68.8
Female	05	31.2
<b>Age</b>		
15 - 39	11	68.8
40 - 50	05	31.2
Mean $\pm$ SD	35.4 $\pm$ 5.8	
<b>Nationality</b>		
Saudi	5	31.2
Non-Saudi	11	68.8
<b>Experience</b>		
<5 year	2	12.5
5-10 years	5	31.3
>10 years	9	56.2
Mean $\pm$ SD	12.4 $\pm$ 5.8	
<b>Physicians Demography</b>		
<b>Gender</b>		
Male	1851	89.1
Female	35	1.70
Unknown	191	9.2
<b>Nationality</b>		
Saudi	717	34.5
Non Saudi	1264	60.9
Unknown	96	4.6
<b>Specialty</b>		
Psychiatrist	1483	71.4
Medicine	166	8.0
Cardiology	61	2.9
Pediatric	44	2.1
Others	83	4.0
Unknown	240	11.5
<b>Patients Demography</b>		
<b>Gender*</b>		
Male	1041	54.0
Female	888	46.0
<b>Age+ (Years)</b>		
<20	121	6.5
20 - 29	312	16.6
30 - 39	680	36.3
40 - 49	438	23.4
50 - 59	175	9.3
$\geq 60$	149	7.9
Mean $\pm$ SD	37.7 $\pm$ 14.4	
<b>Nationality **</b>		
Saudi	1616	77.8
Non-Saudi	289	13.9

\* 148 cases missing

+ 202 cases missing

\*\* 172 cases missing

**Table 2:** Frequency of physician's adherence to the guidelines when prescribing.

Criteria: "Physicians' adherence to write..."	N	%
1. Patient full name	259	12.5
2. Patient gender	1929	92.9
3. Patient Age	1875	90.3
4. Patient Nationality	1905	91.7
5. Patient Diagnosis	1903	91.6
6. The generic name of the drug	252	12.1
7. The trade name of the drug	1642	79.1
8. The generic name and trade name of the drug	183	8.8
9. Duration of treatment	465	22.4
10. Prescription for two weeks for drugs of classes 1 and 2	64	3.1
11. Quantity to be dispensed	1085	52.2
12. Their full names	1285	62.0
13. Their license number	1648	79.3
14. Their specialty	1838	88.5

**Table 3:** Frequency of Pharmacist adherence to the guidelines when dispensing.

Criteria: "Pharmacist's adherence to..."	N	%
1. Document the recipient information	1880	90.5
2. Stamp the prescription upon dispensing	1581	76.4
3. To write his/her name on prescription	1302	62.7
4. Not to dispense the prescription after seven-days period	1929	93.0

**Prescribing pattern:**

The pattern of the commonly prescribed controlled medications is shown in Table 5. Benzodiazepines were the most frequently prescribed drugs. Among these commonly prescribed drugs were alprazolam (41.6%), bromazepam (16.1%), diazepam (9.2%) and chlordiazepoxide (8.8%). Other psychotropic groups such as methylphenidate (4%) and phenobarbiton (2.9%) were among the least prescribed drugs.

Pharmacists comments on the guidelines are presented in Panel 1. The pharmacists raised many points that may adversely affect patients or pharmacists. The restriction of CPM by maximum

of two weeks duration and restricting pharmacists not to dispense prescriptions after seven days of the issuing date is adversely affecting patients and physicians. In addition, the pharmacists highlighted many points regarding licensing, management, and control of CPM.

**Table 4:** Pharmacy characteristics.

Characteristics	N	%
Pharmacies had a valid license	11	68.8
Pharmacies have copy of guidelines in the pharmacy	9	43.8
Pharmacies have required documents and records	15	93.8
Number of pharmacies inspected last year	11	68.8
Number of controlled drug available per pharmacy:		
7-12 drugs	4	25.0
13-18 drugs	6	37.5
19-23 drugs	6	37.5
Number of prescriptions dispensed per day:		
1-5 prescription	6	37.5
6-10 prescription	6	37.5
> 10 prescription	4	25.0
Number of repeated prescriptions dispensed for the same patient within 14 days.	62	3.0

**Table 5:** Frequency of psychotropic drug prescribed.

Medications	n	%
Alprazolam	863	41.6
Bromazepam	334	16.1
Diazepam	192	9.2
Chlordiazepoxide	182	8.8
Clonazepam	153	7.4
Lorazepam	132	6.4
Methylphenidate	83	4.0
Phenobarbiton	60	2.9
Others	78	3.7
<b>Total</b>	<b>2077</b>	<b>100</b>

**Discussion**

This is the first published study that assesses the adherence of community pharmacists and private physicians to CPM guidelines in Riyadh, Saudi

Arabia. The response rate was good being 90 percent of PCPs. Analysis of respondents' demographics revealed that 69 percent of respondents were expatriate pharmacists with a mean experience of 12.4 years. Furthermore, the study reveals that private psychiatric clinics and hospitals were dominated by males, non Saudi psychiatrists. Physicians' adherence to CPM guidelines when writing prescription was assessed on fourteen items. The range of adherence ranged from three percent for restricting prescribing for two weeks to ninety-three percent for writing patient gender. It is clear from the results that the physicians were poorly adhering to several points including failure to write patient's full name, lack of using generic drug name when prescribing, lack of determining duration of treatment, prescribing for more than two weeks for medications in class 1 and 2, failure to specify quantity to be dispensed, and failure to write their full names, specialty and license number on prescription. These findings confirm previous results reported by Al-Ghamdy *et al* (22) for psychotropic drugs prescriptions in outpatient clinics in Al-Qassim region. The writing of correct and complete prescription is an essential part of patient care and can help reduce medications errors. Several reasons may explain why physicians did not adhere to guidelines. It is clear that requesting physician to write patient's full name (ie. Given name, father's name, grandfather's name and family name) is cumbersome and time consuming. Changing the guidelines to request physicians' to write patient's full name without grandfather's name may improve physicians' adherence. Writing generic name of CPM when prescribing is important element of national drug policy and pharmacist should not dispense prescriptions where generic name is not written. Duration of treatment was specified in 22.4% of prescriptions and quantity to be dispensed was specified in 52.2% of prescriptions. Possible explanation for missing of such data in prescription is that medications are available in sealed prepackaged containers with fixed quantity and price in PCPs and pharmacists must sell the whole container to patient. Dispensing prescriptions of CPM that lack required details of prescriber physician is a serious practice and may reflect poor pharmacy practice by pharmacists in PCPs.

Furthermore, the results indicated that the prescriber full name, license number and specialty were not documented in many prescriptions. Missing

of proper prescriber information from prescriptions and dispensing of such prescriptions by pharmacists may encourage patients and drug addicts to falsify CPM prescriptions. Only 3.1% of prescriptions prescribed for CPM in class 1 and 2 adhered to two weeks maximum duration. This finding highlight the need for changing the guidelines to allow for prescribing CPM in class 1 and 2 to extend a maximum of six weeks duration. To address the problems of missing data on prescriptions few steps need to be taken that include establishing prescribing guidelines, review of CPM guidelines, improving dispensing standards and conduction of regular drug utilization review by pharmacists.

Pharmacists' adherence to proper documentation of dispensed prescription shows some discrepancies. About 37% of pharmacists did not write their names on prescriptions dispensed and 24% did not stamp the prescription. Moreover, 7% of prescriptions were dispensed after the seven-day period of date of issuance. These findings may reflect unawareness of pharmacists of the guidelines and further emphasized the need for guidelines revision and regular follow up by Ministry of Health inspectors to pharmacies dispensing CPM.

The study revealed a lack of follow up and proper inspection of pharmacies licensed to dispense CPM by MOH inspectors. About one third of pharmacies were not inspected during the last year and similar percent of pharmacies had an expired license. Furthermore, one pharmacy had no hard copy documents and records as required by the guidelines and more than 50% of pharmacies had no copy of the guidelines. This situation may encourage physicians and pharmacists not to adhere to the guidelines and could lead to a serious drug abuse situation. Three percent of CPM prescriptions were repeated for the same patients within two weeks period which may be due to several reasons including patient's addiction, loss of medication, or patients traveling abroad. The prime aims of the guidelines are to prevent drug abuse and to reduce the risk of drug addiction. However, the study had identified several deficiencies in the current system that requires immediate attention.

The notable finding was the emergence of benzodiazepines as the major group of drugs prescribed by private clinic physicians in Riyadh. More than 89% of patients received a prescription with benzodiazepines, while 4% received methylphenidate and 2.9% received phenobarbiton.

This finding is in contrast with figures reported by Al-Ghamdy *et al* (22) for outpatient clinics in MOH psychiatric hospital in Al-Qassim region where benzodiazepines drugs constitute only 3.4% of prescribed drugs. In United States of America (USA) prescribing of benzodiazepines decreased from 51.7% in 1985 to 33% in 1994 (24), while the figures observed for France (25) and United Kingdom (26) (UK) were 62.3% and 17.9%, respectively. In 1996, The Minister of Health said that MOH is considering setting up a national computer network to link all pharmacies, hospitals, and primary health center to curb the excessive prescribing and use of tranquilisers and hypnotics in Saudi Arabia (27). This will make it easier to identify patients who have been prescribed such drugs and more difficult for people to obtain them from more than one source. The findings of the present study expected to encourage the MOH to speed the process of setting up a national computer network and plan a public awareness campaign to warn against the dangers of misusing tranquilizers.

**Panel 1.** Comments of pharmacists on guidelines.

<ul style="list-style-type: none"> <li>Hospital pharmacies will not dispense prescriptions that were issued outside the hospital unless the patient has a file number in that particular hospital.</li> </ul>
<ul style="list-style-type: none"> <li>Restricting the maximum duration for CPM by two weeks period is inconvenient for the patient and the prescriber.</li> </ul>
<ul style="list-style-type: none"> <li>Restricting pharmacies not to dispense prescription of CPM after seven days period of the issuing date is considered short for many reasons.</li> </ul>
<ul style="list-style-type: none"> <li>Limited number of community pharmacies licensed to dispense CPM</li> </ul>
<ul style="list-style-type: none"> <li>Administrative procedures to obtain the license to dispense or to add a new drug of CPM to sale list is lengthy and difficult.</li> </ul>
<ul style="list-style-type: none"> <li>Community pharmacists were not allowed to borrow CPM from other community or hospital pharmacies.</li> </ul>
<ul style="list-style-type: none"> <li>Some patients can obtain a second prescription within a short period from the same physician or other physicians</li> </ul>

This study is an attempt to shed light on the guidelines of CPM. Although the study has been conducted in Riyadh, it provides invaluable insight that may be generalized to other regions of Saudi Arabia. Several recommendations emerged from this study that could help MOH gain better insight to control CPM. The MOH should review the current guidelines to address the problems raised by pharmacists in panel 1, distribute the guidelines to all pharmacies, improve the inspection process, introduce electronic prescribing for CPM, and setting up a national computer network. The MOH, pharmacists and physicians should agree on the minimum standards of CPM prescription and the documentation procedures that must be adhered by both physicians and pharmacists. Finally, a national survey of psychotropic drugs prescribing should be conducted and consumption trend analyzed and compared with other countries.

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