

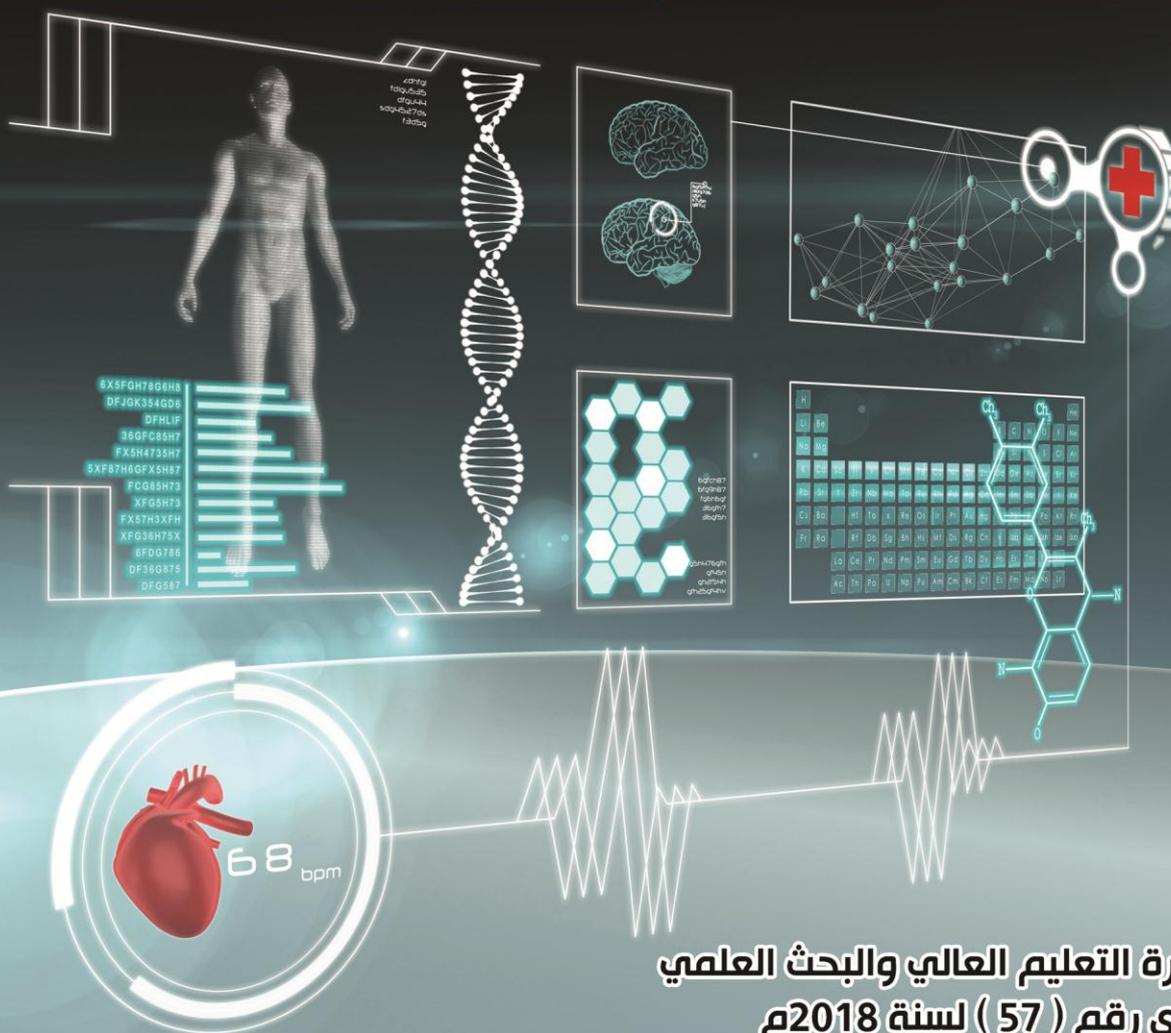
# Al-Razi University Journal for Medical Sciences



## RUJMS

ISSN No. 2616-6143

Volume (3) Issue (1) June 2019



مرخصة من وزارة التعليم العالي والبحث العلمي  
بقرار وزاري رقم ( 57 ) لسنة 2018م

RUJMS

Published by Al-Razi University

Bianual Referred Journal

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## Assessment of Compliance of Written Pharmaceutical Advertisements in Sana'a-Yemen to Criteria of World Health Organization

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### Abstract

**Background:** The influence of pharmaceutical marketing on prescription behavior of physicians can be great especially in developing countries. **Aim:** To assess the compliance of written pharmaceutical advertisements in Sana'a -Yemen to the criteria adopted by the world health organization (WHO) for drug promotion. **Methods:** A sample of 147 written pharmaceutical advertisements (included both brochures and posters) were randomly collected from hospitals, private clinics and community pharmacies in Sana'a- the capital of Yemen. The advertisements were initially grouped according to the medical indication of the advertised drug into 11 therapeutic categories among which anti-infective showed the highest percentage (22.4%). Thereafter, the advertisements were again grouped according to the origin of the pharmaceutical manufacturer into 5 categories, American (9.5%), European (23.8%), Arabian (27.2%), Asian (19 %) and Yemeni (20.4%). Subsequently, a cross sectional analysis was applied to every advertisement to assess the presence of 20 WHO criteria of drug promotion and the category as well as overall compliances were reversely determined as error % from the corresponding average distributions of those criteria in the analyzed advertisements. **Results:** The error % in compliance among the 11 therapeutic categories ranged from -40% in gastrointestinal (GIT) medications to -85% in cardiovascular system (CVS) medications. With respect to categories of manufacturer origin, the error % ranged from -63.6 % in European advertisements to -73 % in Yemeni ones. The overall error % in compliance among all analyzed advertisements (-69.8 %), which was higher than those reported in Emirates (-68.5%) and Saudi Arabia (-44.5%). **Conclusion:** The error % in compliances of written pharmaceutical advertisements in Sana'a- Yemen to WHO criteria for drug promotion is high. Therefore, establishments and imposing of regulations for drug promotion in Yemen is extremely required.

**Keywords:** Pharmaceutical advertisements; Yemen; WHO; Criteria.

### Introduction

In marketing, promotion is advertising a product or brand, generating sales and creating brand loyalty<sup>1</sup>. Advertising is the audio or visual form of promotion that employs an openly sponsored, non-personal message to promote or sell a product, service or

idea<sup>2,3</sup>. There have been different ways to promote a product using different media<sup>4</sup>. Among the most popular written advertisements are brochures and posters. The former are informative paper documents that can

be folded into a template<sup>5</sup>. The latter are pieces of printed papers designed to be attached to a wall or vertical surfaces<sup>6</sup>. Drug promotion is of great importance in pharmaceutical industry. In 2012, the pharmaceutical industry in USA spent more than \$27 billion on drug promotion<sup>7</sup>. Besides, in the same year, it was estimated that there were 72000 pharmaceutical sale representatives employed in USA<sup>8</sup>. The influence of pharmaceutical marketing on prescription behavior of physicians can be great especially in developing countries as observed in certain studies<sup>9</sup>. In Yemen, 2012, a study showed that pharmaceutical companies use non-ethical promotion methods to ensure their sales<sup>10</sup>. The world health organization (WHO), in the second report of the WHO expert committee, has adopted ethical criteria for written pharmaceutical advertisements. It provided a list of 20 information that should be contained in every advertisement<sup>11</sup>.

### **Aim of the study**

To assess the compliance of written pharmaceutical advertisements in Sana'a-Yemen to WHO criteria for drug promotion

### **Subject and Methods**

A sample of 147 written pharmaceutical advertisements were collected randomly from hospitals, private clinics and community pharmacies in Sana'a-Yemen within the period from December 8<sup>th</sup> 2016 to February 10<sup>th</sup> 2017. The sample size was selected to be within the range of 66-185 advertisements used elsewhere in near Arabian countries<sup>12,13</sup>.

The sample included 140 (95%) brochures and 7 (5%) posters. Cosmetic and baby products were excluded in this study. The sample of advertisements was initially classified

according to the medical indication of the advertised drug and then according to the origin of the manufacturer. Then, a cross sectional method was applied on every advertisements to analyze the presence of 20 information adopted by WHO criteria for drug promotion.

The frequency ( $f_i$ ) of every information existence on analyzed advertisements within each category was counted. The distribution as (%) of every information in the category was and the average of information distribution % within all analyzed sample were calculated. Moreover, the category average distribution % as well as the overall distribution of all information in the analyzed sample were also calculated.

The compliance of each category and the overall compliance were reversely calculated from corresponding distributions as error % in compliance. Appropriate statistical methods were also used to compare the distribution results with Chi-square test;  $p$ -value < 0.05 indicating significant intergroup difference and relative standard deviation (RSD %) of > 15 % indicating significant intragroup difference.

### **Results**

As shown in table 1, 11 therapeutic categories were observed in the analyzed sample. The three top ones among those categories were anti-infective (22.4%), others (19.7 %) and endocrine drugs (10.9%). The number and % of the 5 manufacturer origin categories in the sample were American (14; 9.5%), European (35; 23.8 %), Arabian (40; 27.2 %), Asian (28; 19 %) and Yemeni (30; 20.4 %). Concerning the average distribution % of information in all analyzed advertisements ( Table 2), it was found that the information with highest distribution were brand name (100%), name of drug (77.6%), approved

therapeutic use (73.5%), content of drug/dosage form (69%), dosage regimen (57.6%) and name of manufacturer (55%). On the other hand, the information with the lowest distribution were name of other ingredients that may cause problem (0%), condition associated risk factor (1%), condition prevalence rate (1.1%), name of distributor (5.4%), major interactions (9.6%), contraindications (11.5%), mechanism of action (13.4%) side effects and adverse reactions (14.2%) and precautions/warnings (15.8%).

The average distribution of all information within each manufacturer origin category ranged from 27 % in Yemeni advertisements to 36.5% in

European advertisements. The differences in distribution of the 20 information within each origin category were significant (RSD>15%). However, there was no significant difference in distribution of information among the 5 origin categories (P>0.05).

The compliances to WHO criteria were poor in each origin category and the error % in compliance ranged from -73 % in Yemeni advertisements to -63.6% in European advertisements. The overall average distribution of all information in all analyzed advertisements was compliance 30.2 % yielding an overall poor compliance with error % in compliance of -69.8%.

**Table 1: Analysis written pharmaceutical advertisements**

No	Therapeutic category	Manufacturer origin categories					Total	%
		American	European	Arabian	Asian	Yemeni		
1	CNS medications	2	7	4	2	0	15	10.2
2	CVS medications	2	3	2	0	0	7	4.8
3	Respiratory medications	1	1	1	1	0	4	2.7
4	Renourinary medications	0	2	1	0	0	3	2.0
5	GIT medications	1	4	2	1	3	11	7.5
6	Anti-infective	2	2	12	7	10	33	22.4
7	Endocrine drugs	4	4	4	2	2	16	10.9
8	Analgesics	1	2	2	2	1	8	5.4
9	Vaginal preparations	0	1	3	2	0	6	4.1
10	Nutrients & blood tonics	1	4	3	3	4	15	10.2
11	Others	0	5	6	8	10	29	19.7
	<b>Total (%)</b>	14 (9.5)	35(23.8)	40(27.2)	28(19)	30(20.4)	147(100)	100

**Table 2: Distribution % of WHO required information on manufacturer origin categories of written pharmaceutical advertisements**

No.	Information	American (n=14)	European (n=35)	Arabian (n=40)	Asian (n=28)	Yemen (n=30)	Di
1	Name of condition treated	14.3	68.6	25	28.6	33.3	34.0
2	Condition associated risk factor	0	0	5	0	0	1.0
3	Condition prevalence rate	0	2.9	2.5	0	0	1.1
4	Generic name of drug(s)	35.7	88.6	95	82.1	86.7	77.6
5	Brand name	100	100	100	100	100	100.0
6	Content drug/ dosage form	92.9	68.6	60	53.6	70	69.0
7	Name of other ingredients known to cause problems	0	0	0	0	0	0.0
8	Drug mechanism of action	21.4	8.6	20	3.6	13.3	13.4
9	Approved therapeutic use	85.7	68.6	90	50	73.3	73.5
10	Dosage form regimen	71.4	60	50	50	56.7	57.6
11	Expected onset of action	14.3	20	12.5	14.3	3.3	12.9
12	Success estimate of treatment	0	34.4	10	28.6	6.7	15.9
13	Side effects and adverse reactions	0	22.9	17.5	7.2	23.3	14.2
14	Precautions/ warnings	0	20	17.5	25	16.7	15.8
15	Contraindications	0	20	17.5	0	20	11.5
16	Major interactions	0	22.9	15	0	10	9.6
17	Comparison with competitors	7.1	25.7	15	32.1	20	20.0
18	Name/address of manufacturer	85.7	74.3	65	46.4	3.3	54.9
19	Name/address of distributor	0	11.4	5	10.7	0	5.4
20	References to scientific literatures	42.9	11.4	17.5	10.7	3.3	17.2
Dc		28.6	36.4	32.0	27.1	27.0	30.2
Error % in compliance		- 71.4	-63.6	- 68	-72.9	- 73	- 69.8
RSD %		129.8 *	86.7 *	101.3 *	106.3 *	118.7 *	100.1 *
Chi-square P value		0.883 <sup>□</sup>					

*Di: average distribution % of each WHO information among all advertisements; Dc %: average distribution % of all information within the category; <sup>□</sup>: Chi-square test: insignificant intergroup difference; RSD: relative standard deviation; \*: significant intragroup difference (RSD >15%)*

### Discussion

With few exceptions, the distributions of most WHO required information were low as shown in this study. The study showed lowest distribution of important information such as name of other ingredients that may cause problems, condition associated risk factor, condition prevalence rate name of distributor, major interactions (9.6%), contraindications, mechanism of action, side effects and adverse reactions and precautions/warnings. Pharmaceutical companies tend to hide such information in fear of sale reduction if such information become known to physicians and patients. In comparison to a study conducted by Sina Abdul Mohsen et al.<sup>12</sup>, in Saudi Arabia, 2013, the distributions of the relevant information were higher than

those observed in the present study. In addition, the overall compliance was greater than this study, with error % in compliance of – 44.5 %. In another study carried out in 2008 in Emirates<sup>13</sup>, the distributions of WHO information were also higher than those obtained in this study. However, the overall compliance in that study was as poor as that found in this study with close error % in compliance of - 68.5 %.

### Conclusion

Compliance of written pharmaceutical advertisements in Sana`a-Yemen is poor.

### Recommendations

The study recommends that the authority in Yemen represented by the

Supreme board of drugs and medical appliances (SBDMA) to establish and impose regulations related to drug promotion for the favor of saving Yemeni health professionals and patients from non-ethical promotion of drug products by some pharmaceutical companies.

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# Al-Razi University Journal for Medical Sciences

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