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Original Article

Do medical and pharmaceutical Journals' advertisements provide useful and reliable medication information? Sudan study

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ABSTRACT

This study was the first of its kind in Sudan. Its main objective was to assess and evaluate the usefulness of medication informational contents of advertisements in international and local Sudanese medical and pharmaceutical journals in rational use of medicines. Two hundred forty five (n= 245) randomly selected advertisements, from twenty (n= 20) different local Sudanese and foreign (International) medical and pharmaceutical journals, advertising (n=245) pharmaceutical products, were screened and their information section headings were matched against ten section headings defined by researchers out of those recommended by the WHO. Results showed that the screened advertisements displayed section headings related to the medications' benefits in higher frequencies 903 (73.7%), than those section headings related to medications' risks, 235(23.97%). Differences between the availability of 9 (90%) of compared section heading in both international and Sudanese journal advertisements were significant, (p value 0.000-0.006). References cited in support of claims in the (n=245) studied journal advertisements, were only 44 (17.95%). Studied journal advertisements generally displayed deficient, imbalanced and poorly supported medication information that hardly prove useful for rational medication prescribing, especially in developing countries. Healthcare providers shall seek independent sources of medication information and avoid biased commercial sources, altogether.

Key words: Advertisements, medical, pharmaceutical journals, medication, information, usefulness. Sudan.

INTRODUCTION

The pharmaceutical industry used to pay much attention and importance to advertisements in the medical and pharmaceutical journals, with the main objective of influencing doctors' prescribing behavior to serve its commercial interests [1]. They expend quite big funds on journal advertisements, as they were proved to affect physician prescribing and accordingly increase their market share, quite appreciably and return on investment (ROI) quite substantially [2, 3, 4]. Pharmaceutical companies used to claim that these advertisements were intended to be informative, educative and helpful to healthcare providers in rational use of medications [5,6]. However, many studies, concluded that those claims were incorrect, as the medication information displayed in these advertisements were mostly incomplete, imbalanced and inflated [7,8,9]. Moreover, more than (70%) of those claims were not sufficiently supported with reliable and/or attainable references [10]. Accordingly, they were questionable sources of medication information [6]. This low quality of medication information in journal advertisements was more applicable to journal advertisements in the developing countries [11, 12]. The advertising companies kept on claiming that they were governed by voluntary internal codes of ethical promotion conducts, but many authors reported that those voluntary internal codes are ineffective [1,6].Though prescribers, generally, used to underestimate the effect of journal advertisements on their prescribing patterns, [13], medical journal advertisements were proven by many studies to be highly effective in changing the prescribing behavior in favor of the advertising companies products and reported that advertising influences

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doctors' prescribing behavior more than they might think, and that those physicians exposed to journal advertising are more prone to accept commercial rather than well established scientific evidence[2,12,14-17]. Other researchers [18, 19], advised that it is important to consider the visual and linguistic imagery, and not only focus on the scientific validity of the text of the advertisement. Vellaneuva et al [20], in their study of the accuracy of pharmaceutical advertisements in medical journals, concluded, ''Promotional statements made in drug advertisements often reference high quality clinical trials, but claims are frequently not supported by trials findings''. Mansfield [16] added that, those clinicians who do not admit that they are influenced by advertising, may be more vulnerable to its subtle effects. Vllassov et al, after analysing drug advertisements in Russia, concluded that few of the drug advertisements published in Russian medical journals, provided the basic medication information required for appropriate prescribing [21].

The pharmaceutical companies used to provide their contact addresses as footnotes in journal advertisement texts, for healthcare providers who might stand in need for more medication information. However, a study from Pakistan, reported that the pharmaceutical companies failed to reply and cooperate sufficiently to such written doctors' request [22, 20]. It was also recommend that, doctors should rather be critical and cautious, when assessing journal advertisements claims that the advertised drug had greater efficacy, safety or convenience; even though these claims were accompanied with bibliographical references to randomized clinical trials published in reputable medical journals and seem to be rational and evidence based. In support, a study by other researchers [19] reported that 92% of (n= 192) of the journal advertisements reviewed, were not complying with FDA standard for journal advertising.

Based on the above, this study was conducted to assess and evaluate the usefulness of the medication informational contents of the advertisements in international and local Sudanese medical and pharmaceutical journals, in rational use of medicines.

MATERIALS AND METHODS

Two hundred and twenty eight (228) advertisements, displayed in thirteen (13) non-Sudanese medical and pharmaceutical journals were collected from doctors offices in the Sudan capital city, Khartoum, during the period 1/10/2011 to 28/2/2012.These non- Sudanese (international) medical and pharmaceutical journals dated between 1974 to 2003.They were from the Middle East, the United Kingdom and the United States of America, Jordan, and Saudi Arabia. Namely, they were, JAMA, JAMA Middle East, BMJ, BMJ Middle East, The Practitioner, Modern Medicine, Jordan Pharmaceutical Association Journal, The American Journal of Medicine, Medicine International, BJOG, Reports in Clinical Oncology, Medicine Digest, and the Saudi Medical Journal. Advertising material for medical devices, diagnostic equipments, skin whitening creams, babies' lotions, and their exact same duplicates, were excluded out of the 228 randomly selected advertisements. Only one hundred and fifty (n=150) advertisements were left to be included in the study. They represented one hundred and fifty (n=150) pharmaceutical products.

From the other side, one hundred and nineteen (n =119) advertisement displayed in six (n=6) local Sudanese medical and pharmaceutical journals, were randomly selected for screening using the same aforementioned criteria and scoring system. Those local journals were, Sudan Pharmacy (1966-1969) 53 advertisements, Sudan Medical Journal (1972- 2009) 19 advertisements, Juba Medical Journal (2001- 2014) 21 advertisements, Sudan Dermatologist (2003) 8 advertisements, Sudanese Journal of Dermatology (2007- 2011) 13 advertisements, and Sudan Journal of Public Health (2008-2011) 5 advertisements.

Out of the 119 advertisements, twenty four (n=24) were excluded, as they were duplicates for exactly the same advertised brand names in different issues of the screened journals. Ninety five (n= 95) advertisements representing ninety five (n=95) different pharmaceutical products were left to be included in the study, thus totaling to (n=245) advertisements, from both the international and local Sudanese journal, eligible for screening. They looked for medication information section heading defined by researchers, while respecting same advised by WHO, in its ethical criteria for medicinal drug promotion were:-

The brand name (if available), the generic name, indications, dosage forms, dosage and administration, precautions, contraindications, side effects, drug- interactions and claims supporting bibliographic references.

RESULTS

Table 1, shows the results obtained by the screening of the first (n= 150) advertisements in medical and pharmaceutical journals (None-Sudanese), circulated in Sudan, after matching their

medication informational contents, as represented by section headings, against same counterparts defined and selected by the researchers, out of those recommended by the World Health Organization, in its ethical criteria for medicinal drug promotion. The presence (Availability) of each section heading wined a score of one point, and its absence wined a score of zero points. The total points for the full presence of the ten (n= 10) section headings in the two hundred and forty five (n = 245) screened advertisements will accordingly win (n =24500) points. The percentage availability of the ten (n= 10) section headings defined by researchers, was recorded, as it broadly, was indicative of the most important medication informational contents of the advertisement. The studied advertisements s was, also, screened for references supporting their various claims, with the intention of giving it more reliability.

Only forty (40) references (26.6%) were cited in the advertisements displayed in the non-Sudanese journals, and only four references (n = 4) were cited in the Sudanese journals. All were examined using the internet only, to match them against the claims they were supposed to correspond to. Twenty one (52.5%) of the references for the non-Sudanese journals were retrieved and found to relate to their corresponding claims in the screened advertisements, while 19 (47.5%) were found, but they were not relating to their respective corresponding claims in the advertisement. Only four (n = 4) references in the local Sudanese journals advertisements were retrieved and were all found relating and supporting to their respective claims (4.2 %).

Table 3, shows the comparison of the results of the screening for medication information section headings obtained from the screening of the non-Sudanese and Sudanese local journals' advertisements. The quality and contents of the particulars of the scientific information data sheets mentioned in the screened advertisements, were not studied. Cross tabulation, using PEPI ver.4.04 x. Pearson's Chi –Square with one degree of freedom and p values were computed. The results showed significant difference between the section headings availability of the local Sudanese journal advertisement and same section headings in the international (non-Sudanese) journal advertisements. For the following section headings, the differences were significant where p values =0.000 for: - Generic name, indications, dosage and administration, contraindications, precautions side effects and references' citing, and p value = 0.006 for drug interaction section heading. Only the p value for dosage forms section heading was not significant where p value = 0.181.

DISCUSSIONS

Table 1- 3, show the results of the screening of the (n= 245) advertisements of both international (non-Sudanese) and Sudanese medical and pharmaceutical journals circulated in Sudan, for the availability of ten section heading versus same ones defined by researchers, in respect of the WHO ethical criteria for medicinal drug promotion stipulation for journal advertisements [23].

These results showed that the (n=245) screened advertisements, in average, displayed those section headings of medicinal products' attributes that related to products' benefits and promoting brand loyalty, such as the product's brand name, indications, dosage form and dosage and administration in higher frequencies (73.71%) than while those product's particulars and attributes related to restrictions on (risks) and the safe use of the promoted product such as: contra-indications, precautions, side-effects and drug interactions, and supporting references. Were displayed in far less frequencies (22.77%), almost in a ratio of slightly more than 3:1, respectively. Many other researchers [5-9,11,21,24], reported almost the same results for inadequate, imbalanced, and poorly reliable medications' information display in medical journal advertisement, in different parts of the developed and developing world, alike. The medication information section heading availabilities in the studied non- Sudanese (international) medical journals advertisements, were more than in the studied local Sudanese ones, where the average percentage availability (frequencies and percentages), of the ten section heading for both of them were (52.26%), and (32.52%), respectively [25]. Differences between the availability of nine out of the ten (90%) of the defined section heading of the two group (local Sudanese and international medical and pharmaceutical journals' advertisements) were significant. For eight out of the ten defined section headings, namely the generic name, indications, dosage and administration, contraindications, precautions, side effects and references' citing, p values= 0.000, while for drug interaction section headings, the difference was also significant but the p value = 0.006. Only the p value for dosage forms section headings was not significant where p value = 0.181.Other Indian researchers arrived at similar results [25].

This poor quality of medication information in the local (developing counties) Sudanese journals' advertisements, as compared to the international (non-Sudanese) ones, was also reported by other researchers [11,12,25-28]. Pharmaceutical

promotional journal advertisements, targeting healthcare professionals, were not meant to be educative [5] They were more concerned with, and directed to serve, the commercial interest of the advertising company [29], and the quality of the medication information they displayed was deficient and skipped much of the vital aspects of the medications, needed by prescribers for rational use of medicines [30].

This poor quality of medication information in the local Sudanese (developing county) journals' advertisements might be referred to the downright lack of any binding official governmental laws, acts or codes for pharmaceutical companies' promotional activities, as it is the case in many other developing countries [31]. Even when codes, acts or laws are available ,they need strict transparent enforcement and enacting through government regulatory enforcements units, as in is the cases in the USA, and the, UK [32, 33]. As reported by other researchers, the mere existence of codes for pharmaceutical promotion had been proven to be almost ineffective [34]. Pharmaceutical companies were used to the behavior of tailoring the medication information in medical journals advertisements to their targeted audience in the country where they were intended to appear in, and its prevailing codes of ethics and regulatory authorities fitness[35]. This is from where the disparities (Double standards) in the medication information for the same brand name in different countries usually ensue. The developing counties which lack such codes and/or were poorly enacting the codes they were adopting, usually get the smaller share of the highly needed reliable, sufficient, and balanced medication information, and specifically those medication information related to medications' risks, as reported by other researchers [36,37]. This is why the negative impact of journal advertisements and pharmaceutical promotion, at large, on rational use of medications in developing countries, might be more prevailing, to the detriment of health and its ensuing economical drain to their meager and precious financial reserves. Similar results were reported by other researchers [38, 39].

It is worth mentioning that the Sudanese Medicines and Poison Act, 2009; in Article 20 (Arabic); directed that: *pharmaceutical companies scientific offices shall stick to the rules, that govern and restrict advertising for drugs, as mentioned in the WHO Ethical Criteria for Medicinal Drug Promotion* [40]. But, till date, they have no code, acts or laws governing pharmaceutical promotion. Moreover, the majority of Sudanese doctors in one Sudanese study asserted that they were unaware of the WHO ethical criteria for medicinal drug promotion, as reported in one study [41]. Moreover, the screening for the bibliographic support for the various promotional claims in both the non-Sudanese and local Sudanese journals showed very poor results, where its average was only 44 (17.95%). A darker picture could be seen when we know that just 25 (56.8%) of that small percentage of the retrieved references, were found to be supportive to their corresponding promotional claims! These results were matching to similar results reported by other researchers [10, 39, 42].

Based on the above, if the prescribing doctors or recommending and dispensing pharmacists have no easy access to other independent, reliable, updated sources of medication information, as it is the case in developing countries, then their prescribing choices would mostly be irrational, and may even pose potentially serious health and economic hazards on the patients and their communities, [20,27,43].

CONCLUSION

The studied advertisements, in both the non-Sudanese (International) medical journals, and the local Sudanese medical and pharmaceutical journals, displayed low quality, deficient imbalanced and poorly supported medication information. Accordingly, healthcare providers, especially in developing countries, should not rely on commercial medication information printed materials, as their sole sources, for rational prescribing. Journal advertisements and all printed promotional materials, shall be governed by strict directives, laws, acts or codes, be screened, evaluated, and strictly enacted and monitored by an officially authorized panel of experts.

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TABLE 1, shows the results of the screening of the non-Sudanese (international) medical journals advertisements (n=150) for medication information section headings availability versus same (n =10) section headings defined by researchers, in respect for same of WHO.

Medication Information section headings.	**Frequency**	**Percentage (% age)**
Brand name	150	100.0
Generic name	150	100.0
Indications	147	98.0
Dosage form	95	63.3
Dosage and administration	70	49.3
Contra-indications	69	46.0
Precautions	62	41.3
Side effects	60	40.0
Drug- interactions	26	17.3
References	40	26.66

TABLE 2, shows the results of the screening, of the (n=95) advertisements appearing in the local Sudanese pharmaceutical and medical journals, for medication information section heading availability (frequencies and percentages).

No.	**Section heading.**	**Frequency of availability of section headings.**	**% age availability in advertisement text.**
1	Brand Name.	95	100%
2	Generic Name.	61	64.2%
3	Indications.	67	70.52%
4	Dosage forms.	52	54.73%
5	Dosage and administration.	16	16.48%
6	Precautions.	4	4.20%
7	Contra indications.	4	4.20%
8	Side effects.	5	5.20%
9	Drug – interactions.	5	5.20%
10	References.	4	4.20%

TABLE 3, Results of the screening of the combined total of the advertisements in Local Sudanese and non-Sudanese medical Journals.

Defined Medication information Section headings.	**Section heading availability in Non Sudanese (International) Journals.**		**Section heading availability in Sudanese local Journals.**		**The average % age for the two groups.**
	Frequencies.	**Percentage.**	**Frequencies.**	**Percentage.**	
Brand Name.	150	100%	95	100%	100%
Generic Name.	150	100%	61	64.20%	86.1%
Indications.	147	98%	67	70.52%	87.34%
Dosage forms.	95	63.3%	52	54.73%	60%
Dosage and administration.	70	49.3%	16	16.48%	35.1%
Precautions.	69	46%	4	4.2%	29.79%
Contra indications.	62	41.3%	4	4.2%	26.93%
Side effects.	60	40%	5	5.2%	18.84%
Drug – interactions.	26	17.3%	5	5.2%	12.65%
References Citing.	40	26.66%	4	4.2%	17.95%

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