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**Ethical Considerations in the Use of Pharmaceutical
Promotions: the Impact on Egyptian Physicians
Prescribing Behaviour**

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Abstract

Purpose - The aim of this research paper is to examine some of the ethical issues which may arise when physicians accept promotional items from pharmaceutical companies and the influence on the prescribing behaviour.

Design/ methodology/ approach – Testable hypotheses were developed with respect to physicians prescribing behavior regarding ethical considerations while accepting pharmaceutical promotional items. A survey questionnaire was designed to capture the data from 134 Egyptian physicians located in greater Cairo. The hypotheses were tested using SPSS package.

Findings – The major finding is that there is a significant positive association between the type of promotional item offered to physicians and the degree to which it is ethical to accept the item. The second major finding is that significant association was found between the type of promotional items offered to physicians and their prescribing behavior. The hypothesis related to physicians prescribing a generic drug when it is as effective as brand name drug is partially supported. However, as for their counterparts, the hypothesis was not supported.

Originality / values - this paper sheds some light on the impact of pharmaceutical promotions on Egyptian physicians prescribing behavior, an area culturally perceived as a *taboo*, and should

contribute to the growing body of knowledge on the role of prescription behavior of physicians particularly in a less developed country (LDC) namely: Egypt
Key words: Physicians, Ethical considerations, Pharmaceutical promotion, Prescribing behaviour, Egypt

المخلص

الهدف من هذه الورقة البحثية دراسة بعض القضايا الأخلاقية التي قد تنشأ عندما يقبل الأطباء مواد ترويجية من شركات الأدوية و التأثير على سلوك الوصفات .
تصميم / المنهجية / النهج - وضعت فرضيات قابلة للاختبار فيما يتعلق الأطباء وصف السلوك بشأن الاعتبارات الأخلاقية مع قبول المواد الترويجية الصيدلانية. وقد تم تصميم استبيان المسح لالتقاط البيانات من ١٣٤ الأطباء المصري الموجود في القاهرة الكبرى. تم اختبار الفرضيات باستخدام حزمة SPSS .

النتائج - و النتيجة الرئيسية هي أن هناك علاقة إيجابية ذات دلالة إحصائية بين نوع من البند الترويجية المقدمة لل أطباء و الدرجة التي هو أخلاقي لقبول هذا البند.
هذا الاكتشاف الرئيسي الثاني هو أن ارتباط مهم وعثر بين نوع من المواد الترويجية المقدمة لل أطباء والسلوك الوصفات الطبية الخاصة بهم. و تتعلق الأطباء وصف الأدوية الجنسية و عندما تكون فعالة كما يتم دعم اسم العلامة التجارية المخدرات جزئيا الفرضية. لكن، وكما ل نظرائهم ، لم يدعم الفرضية.

أصالة / القيم - هذه الورقة تسلط بعض الضوء على تأثير الترقيات الأدوية على الأطباء وصف السلوك المصري ، وهي منطقة ينظر إليها ثقافيا أنها من المحرمات ، و ينبغي أن تسهم إلى مجموعة متزايدة من المعرفة على دور السلوك وصفة طبية من الأطباء ولا سيما في أقل البلاد نموا وهي: مصر

الكلمات الرئيسية : الأطباء ، والاعتبارات الأخلاقية ، وترويج الأدوية ، ووصف السلوك، مصر

Introduction

The pharmaceutical industry is one of the world's largest manufacturing industries characterized by rapid changes. It is highly complex and unique. Its unique character is highlighted by its channel of distribution where the final consumer is not the decision-

maker in choosing which drug to purchase. While the channel is structured as a simple indirect channel where the pharmaceutical company sells products to a pharmacy which in turn sells to individual patients, the physician is assumed to be the dominant decision-maker in the medicines purchased.

The pharmaceutical market can be divided into drugs that can be bought without prescription, so-called Over the Counter (i.e.OTC), and into drugs that are only available on prescription, so called Rx products.

Prescription is mainly influenced by, e.g. sales force visits, publications in medical journals, conferences, and country-specific governmental or administrative regulations (Huber, et al., 2012).

As cited from (Taher et al., 2012), pharmaceutical firms have historically used push marketing activities, i.e. trade sales promotion and personal selling directed toward the physician who controls the consumer's access to prescription medications (Parker and Pettijohn, 2005). Most pharmaceutical firms have large sales forces, often referred to as "detailers," whose major responsibility is to regularly call physicians and provide them with information on the firm's products.

Major share of promotional budgets go to samples of products that are given to the physician who is supposed to give them to patients to begin a treatment and test its effectiveness.

The pharmaceutical industry has gained significance due to the amount of criticism it has received. Consumers, journalists, politicians, social action groups, and even industry insiders have questioned the continuously increasing prices of ethical pharmaceuticals while criticizing the amounts spent on promotion. The industry has responded with the argument that high prices are essential to pay for research and development necessary to create life-saving medications (Taher, Ahmed et al., 2012).

As cited from (Abdul Waheed, et al., 2011) the success of a pharmaceutical company depends on judgments or decisions about a company's drugs by physicians, through their evaluation process in considering several factors. This is referred to as physician prescription behavior. This behavior could be transactional and depend on currently available information about the company and its drugs and the patient's condition. Some physicians adopt the drugs of certain companies and prescribe the same brand, based on the success of previous treatments (Campo et al., 2005).

Such physicians develop loyalty to certain companies' drugs for certain treatments and the companies also encourage such loyalty. Consumer rights activists often complain that physicians are influenced unethically by the promotional activities of pharmaceutical companies, which lead to their persistence with certain companies' drugs.

Generally speaking, ethics emphasizes transparent communication and a culture of honesty. It states that businesses should cease corrupt practices and honestly discharge their responsibility on financial and other areas pertaining to mandatory disclosures (Chatterjee, 2013).

Literature Review

The global pharmaceuticals market is worth US\$300 billion a year, a figure expected to rise to US\$400 billion within three years. The 10 largest drugs companies control over one-third of this market, several with sales of more than US\$10 billion a year and profit margins of about 30%. Six are based in the United States and four in Europe. It is predicted that North and South America, Europe and Japan will continue to account for a full 85% of the global pharmaceuticals market well into the 21st century. Companies currently spend one-third of all sales revenue on marketing their products - roughly twice what they spend on research and development. (WTO, 2014)

As a result of this pressure to maintain sales, there is now as quoted by WHO "an inherent conflict of interest between the legitimate business goals of manufacturers and the social, medical and economic needs of providers and the public to select and use drugs in the most rational way". This is particularly true where drugs' companies are the main source of information as to which products are most effective. Even in the United Kingdom, where the medical profession receives more independent, publicly-funded information than in many other countries, promotional spending by pharmaceuticals companies is 50 times greater than spending on public information on health. (WTO, 2014)

The role of physicians is considered fundamental for drug purchase decisions. The physicians perform the roles of influencers, and deciders, while patients perform the role of buyers and users. Therefore, determining how exactly physicians get influenced is critical for the success of a pharmaceutical business.

As in any industry, there are legitimate concerns about the incentives the seller of a good might have to distort information conveyed about their product. In health care, this concern is heightened by the fact that the final consumer, the patient, is typically somewhat disconnected from the choice of medical approach to use. When the physician acts in the patient's best interest, the ethical concern about marketing is less serious. So a first step in thinking about the ethical challenge in marketing pharmaceuticals might be to consider the incentives facing the care-giving physician. When patients have the ability and freedom to compare and select a physician based on how well he or she represents the patient's interest, the concern that the physician might be improperly influenced by marketing efforts of the pharmaceutical company is diminished (Chatterjee, 2013).

For example, in an accounting study based on the annual reports of ten of the largest global pharmaceutical firms, Lauzon and Hasbani

showed that between 1996 and 2005, these firms globally spent a total of US\$739 billion on "marketing and administration." In comparison, these same firms spent US\$699 billion in manufacturing costs, US\$288 billion in R&D, and had a net investment in property and equipment of US\$43 billion, while receiving US\$558 billion in profits (Lexchin, 2008). This indicates the vast amount of budget set for marketing activities.

Interactions between doctors and pharmaceutical companies are widespread and costly. Pharmaceutical companies currently use several promotional strategies for prescription drugs designed to target physicians. Because physicians have long been the key decision makers when it comes to choosing a prescription drug, pharmaceutical companies traditionally have concentrated most of their marketing efforts on physicians, and still do so today. These physician oriented marketing efforts include visits or phone calls by pharmaceutical sales representatives, free samples, print advertising, and sponsorship of medical education events (Rosenthal, Harvard et al., 2003).

Pharmaceutical companies have traditionally employed large sales forces to visit and have direct face-to-face interactions with physicians in order to influence the physicians into prescribing their companies' drugs (Pedan, 2011).

Due to the vast amount invested in promotion, a pharmaceutical firm may wish to understand how each individual physician responds to detailing effort. Given the finite nature of the physician population, such knowledge would enable the firm to better direct salespersons' calls to the appropriate doctors. This will help the firm maximize the return on its investment in its sales force. The results of this study indicate that detailing has a positive and significant impact on the number of prescriptions written by a physician (Manchanda, 2004).

While the benefits of promoting good will between physicians and the pharmaceutical industry cannot be discounted, the main objective of pharmaceutical company gift giving is to create relationships and interests on the part of physicians that conflict with their primary responsibility to act in the best interest of their patients (Katz et al., 2003).

The pharmaceutical companies provide tangible rewards in the form of free samples and gifts that include financing for domestic and international conference participation, travel and accommodation, medical education, meals, and small gifts like pens. However, one cannot state that physicians prescribe only on the basis of the rewards that they receive from the company, but the rewards certainly remind physicians of the company brands and influence their prescription behavior. Physicians are committed in prescribing a particular company's drugs on the basis of the recognition shown by the pharmaceutical company for continuous support (Abdul Waheed, 2011).

The provision of free prescription medicine samples, nominally to evaluate an initial response, permit immediate therapy is a marketing strategy used by the pharmaceutical industry. Samples are an effective tool in increasing prescribing and sales. The availability of samples leads physicians to dispense and subsequently prescribe drugs that differ from their preferred choice (Hall et al., 2006).

In fact pharmaceutical companies offer billions of free prescription drug samples every year intending to influence the physicians' prescription decisions. Indeed, samples have been termed the "soul of selling in the prescription drug industry" (Liebman, 1997, c.f. Joseph, 2009).

In addition, extreme benefits such as travels offers made available to the doctors have shown to possess strong persuasive powers in promoting pharmaceutical products (Ladeira, 2011).

Many pharmaceutical companies have been questioned or criticized for the way they achieve their financial targets, and the financial metrics that they adopt, for example, categorizing doctors by the value of prescriptions they generate, and the methods used to influence doctors and generate prescriptions. Even with regard to unbranded generics, concerns have been raised in the US about influence over another set of players in the value chain, the pharmacy chains, and super markets, who are customers and influence drug usage (Chatterjee, 2013).

Physicians deny that gifts could influence their behavior, yet accepting samples was associated with preference for and rapid prescribing of the new drugs. Pharmaceutical companies give doctors gifts, sponsor informational lunches and continuing medical education programmes where their drugs are described and promoted, provide consulting fees and other payments to doctors for services provided and also fund scientific research.

The concern is whether accepting items of various values from pharmaceutical representatives, would influence the prescribing practices of physicians. It could be hypothesised that doctors viewed accepting smaller incentive items as ethically more appropriate than accepting items of greater value and that they attributed prescribing bias to other doctors more readily than to themselves (Morgan, et al., 2006).

Ethical considerations of physicians receiving gifts from companies should be considered. Professional guidelines recognize industry gifts as a conflict of interest and stresses on eliminating the exchange of large gifts while expressly allowing for the exchange of small gifts, such as pens, note pads, and coffee. Some believe that modest gift

giving is acceptable if it helps physicians be knowledgeable about the broad range of products available to them.

Pharmaceutical companies are purely interested and investing in the products physicians prescribe, and they know and expect that their marketing practices will pay off with increased sales.

However, providing samples in the health care industry is different from doing so in non-pharmaceutical markets, because drug samples are often accompanied by detailing and accepting them might imply some commitment to prescribe the product in the future. In addition, samples can be the only visible reminder of the product after the sales representative has left the physician's office. Thus, samples can have a more lasting influence on the physician because they add tangibility to the sales presentation (Gonul, 2001).

A study conducted by Tengilimoglu et al. (2004) in Turkey among Pharmaceutical Sales Representatives (PSRs), showed precisely how important rewards are for physicians' prescriptions. Most of the PSRs in their study reported that physicians are commonly influenced by non-medical considerations during their interactions and request gifts other than medical products. When the PSRs of competing pharmaceutical companies approach physicians to prescribe their company's drugs, and when other considerations like drug quality, corporate reputation from competing pharmaceutical companies appears similar to physicians, they are normally influenced by promotion (c.f. Abdul Waheed, 2011).

Elaborate and expensive gifts became the norm. Getting high prescribers out for wine tastings, cigar parties, dinner cruises, and golf outings was essential. Certain doctors began to react against the constant state of gifting. Regardless of growing resistance, pharmaceutical corporations continue to distribute billions of dollars into a gift economy. The fundamental reason for this is that these practices remain effective in generating prescription for drugs (Oldani, 2004).

A key task of a pharmaceutical representative job is to help transform significant doctors into speakers and consultants who know the rules of the game and are quite skillful. The process starts with small gifts (ranging from pens to relevant clinical articles) just to get in the door, which helps establish trust and relationship over time, and eventually "developing" the doctor into a speaker for a company's drugs (Oldani, 2004).

Normally, most physicians attend conferences, seminars and workshops where they are advised to prescribe a particular company's drugs. The physicians also meet their peers and interact with them about their experiences. Furthermore, they may have observed senior physicians prescribing a particular company's drugs. These influences are not directed by the company, but have the potential to impact on prescriptions. Physicians might also believe that something which is successful based on other physicians' experiences could also apply to their treatments (Abdul Waheed, 2011).

Pharmaceutical gifting of "high significance" (i.e., stethoscopes, pen-lights, etc.) was associated with a "positive attitude" toward drug reps (Thomson and Barham 1994). The promotion ranges from gifts such as plastic pen to expensive bottles of wine); samples (free gifts of medication for patients and personal use); industry-paid meals (gifts of food); funding for travel to attend educational symposia (gifts of money and knowledge); company-paid speakers (gifts of knowledge to doctors, residents, and medical students); continuing medical education (CME) sponsorship (gifts to hospital grand rounds and a possible gift of prestige to those associated with the educational program if the CME program is a success); and research funding, and employment (gifts of money, status, security, and prestige) (Oldani, 2004).

The tremendous Research and Development (R&D) budgets and the entire flow of knowledge and information used to discover new

products rests on the ability of the industry to convince those who can write a prescription to write it for their particular product. Drug reps are key players in this process and can influence the generation of millions of prescriptions and substantial product sales. For example, when a patient comes into a clinic and asks a doctor about a drug he or she would like to take, the doctor is more than likely to contact the local drug rep for product information and "free" samples. More importantly, this allows the drug rep to be welcomed into the office by doing the physician a favor (i.e., getting over there quickly, perhaps on the same day they were contacted, with important product information). What is most critical to this process is that the opportunity now arises for the rep to talk about other products. The doctor, of course, is obliged to return the favor and at least listen to the rep talk about these other products (Oldani, 2004). Critics of free drug sampling in the first place accuse that this practice influences physicians to perceive drugs with samples more favorably than those without samples. A second concern is that samples induce doctors to prescribe less-than-optimum drugs to simply get patients' goodwill. Finally, a third concern is that samples are focused on encouraging relatively junior, inexperienced physicians to adopt newer, more expensive branded products despite the availability of cheaper, but equally effective older products (Joseph, 2009).

The government and consumer advocates often criticize pharmaceutical firms for what they consider excessive and wasteful expenditures in detailing and promotion. These expenses, the critics argue, raise the prices of prescription drugs unnecessarily. Pharmaceutical lobbyists respond to that by highlighting that promotional expenditures are necessary to compete effectively in the marketplace, and that the generated extra revenues can be further allocated to research and development (Gonul, 2001).

From a relationship marketing point-of-view, there is nothing necessarily wrong with pharmaceutical companies providing tangible rewards for prescription loyalty to their physicians. Rewards are provided to physicians by the pharmaceutical companies in recognition of the ongoing relationship with the companies.

The point of concern would be whether the physician remains loyal or committed to the drugs of a particular company, due to the tangible rewards, even though the drugs are ineffective and of poor quality. Although, physicians consider drug quality as a "point of parity" factor, there would still be chances that some physicians who are highly influenced by tangible rewards to be tempted to prescribe ineffective drugs. In this case, there are unethical practices conducted by physicians (Abdul Waheed, 2011).

An optimal use of the promotional mix is required to reduce unnecessary cost and also to overcome criticisms of "over promotion" that shows pharmaceutical companies as unethically influencing physicians' prescriptions (Lim et al., 2008, c.f. Abdul Waheed, 2011). Further, it should be noted that the most popular and quick way to categorize physicians is according to the number of prescriptions (Rx) written per physician. The highest prescribers are given priority in detailing and other promotions of the firm during promotional cycles as opposed to those with low level of prescriptions (Carter et al., 2006, c.f. Gonul, 2013).

Upon reviewing the literature, it is deemed clear that there are conflicting views concerning whether it is ethical to accept promotional items offered by pharmaceutical companies in an attempt to influence the physicians' prescription behavior. Accordingly, the following research hypotheses are emerged in an attempt to emphasize the ethical considerations that may arise when physicians accept pharmaceutical promotional items and their influence on prescribing behaviour.

Research Hypotheses

H1: there is a significant positive association between the type of promotional item offered to physicians and the degree to which it is ethical to accept the item

H2: there is a significant positive association between the type of promotional items offered to physicians and their prescribing behavior

H3: there is a significant positive association between the type of promotional items offered to other physicians and their prescribing behavior

H4: there is a significant negative association between pharmaceuticals promotions to physicians and their likelihood to prescribe a generic drug

H5: there is a significant negative association between pharmaceuticals promotions to other physicians and their likelihood to prescribe a generic drug .

Research Methodology

Data Collection Method

On the basis of similar studies examining some of the ethical issues which may arise when physicians accept promotional items from pharmaceutical companies, and the influence on prescribing behaviour, preliminary power analyses indicated that the minimum number of responses needed to ensure significant effect sizes was approximately 100. Hence, our sample size determined by Statistical Power Test was deemed sufficient. The G-power Statistical Package was used with the following specification [$\alpha=0.05$, $\beta=0.05$. POWER (1-B) =0.95, effect size=moderate (0.30)]. Therefore, based on the analysis, 134 were considered to be suitable sample size.

A self-administered questionnaire was developed and pre-tested and validated with the co-operation of several academicians familiar with research methods, as well as approximately seven physicians.

The aim of piloting the research questionnaire was to ensure its clarity and relevance. Then according to the feedback, a revised version of the research instrument was developed and distributed to 134 physicians with private practice located in greater Cairo (e.g. Cairo, Giza and Qalyubia governorates).

Analysis and findings

The data collected in the survey were analyzed and compared using SPSS. Descriptive statistics was used to analyze the sample's basic information. Then the reliability of the multi-dimensional constructs used was verified. Finally, the Step Wise Regression analysis was adopted to test the hypotheses.

The results of the study are presented in three parts as follows: firstly, sample characteristics are highlighted, secondly, reliability analysis is underscored, and finally hypotheses testing are underlined.

Sample characteristics

The total number of respondents was 134 and the demographics are shown in Table (1). A 82 percent of the respondents were males. Around 33.6 percent of the respondents were in the age group 31-40, and about 29 percent between 41-50. Approximately 45 percent of the sample had work experience between 6-15 years, another 16.4 percent reported practicing between 16-25 years, a further 16.4 percent had more than 25 years experience in their respected fields. Almost 46 percent of the sample reported examining 50-90 patients per week; however another 29 percent stated that they examine more than 91 patients per week

Table (1) Respondents' Profile

	Frequency n 134	Valid Percent %
Gender		
Male	110	82.1
Female	24	17.9
Age		
Under 30 years	24	17.9
31 – 40 years	45	33.6
41- 50 years	39	29.1
Over 50 years	26	19.4
Work experience		
Less than 1 year	2	1.5
1 – 5 years	28	20.9
6 – 10 years	30	22.4
11 – 15 years	30	22.4
16 – 25 years	22	16.4
Over 25 years	22	16.4
Number of patients seen per week		
Less than 50 patients	33	24.6
50 – 70 patients	28	20.9
71 – 90 patients	34	25.4
Over 91 patients	39	29.1

Reliability analysis

Cronbach's Alpha was applied to measure the research constructs' reliabilities. This test is commonly used to measure the degree of consistency of various facets in the same dimension.

The questionnaire includes a variety of dimensions, and a higher reliability coefficient represents a higher correlation of respective dimensions, which illustrates higher internal consistency. The multi-

Rasha H. A. Mostafa, et al. / Journal of Business Ethics (2017) 141:1-15

dimensional construct namely promotional items and prescribing behavior scored (0.85) and (0.53) respectively. While the first construct exceeded the suggested benchmarks for reliability (0.6) stated by Nunnally and Bernstein (1994), yet the later scored slightly less, however the result is still acceptable. Such reliability results illustrate internal consistency between the items used.

Hypotheses testing

Stepwise regression analysis has been used to examine the research hypotheses.

Table (2) highlights the results of the regression analysis of the relationship between promotional items offered from pharmaceutical companies and ethics (*H1*). Three promotional items out of 13 underlined in the questionnaire have significant relationship with ethics. These items are Company paid speakers, Funding to attend international conferences and Free lunches and meals. It should be noted that the first two items have positive and significant relationship with ethics, yet free lunches and meals reports negative association with the dependent variable.

The model is significant at $p \leq 0.05$ or lower. Also, the model is considered a good one according to its R^2 value, where the independent variables that entered the model explain almost 19% of the dependent variable. Further examination of t-values and 'Multiple R' reveals that there is overwhelming statistical evidence indicating that the three variables entered the model are linearly associated and moderately correlated with ethics. Consequently, *H1* is partially supported.

Table (2) Regression analysis of promotional items received from pharmaceutical companies and ethics

Dependent variable (y)	Independent variable/s (x)	β	t- value	p- value
Ethics	- Company paid speakers	.318	3.887	.000***
	- Funding to attend international conferences	.250	2.829	.005***
	- Free lunches and meals	-	-2.173	.032**
		.187		

Notes: ** $p \leq 0.05$; *** $p \leq 0.01$; $R^2 = 0.187$, Adjusted $R^2 = 0.168$, $F = 9.970$, $p = 0.000$ ***

Table (3) emphasizes the results of the regression analysis of the relationship between the type of promotional items offered to sampled physicians and their prescribing behavior (H_2). Four promotional items explained almost 25% of the physicians prescribing behavior. These items are Company paid speakers, Gifts, Sponsoring continuing medical education and Funding to attend local conference. The results revealed positive and significant relationship between the second and the third promotional items and the dependent variable; however Funding to attend local conference was negatively associated with physicians prescribing behavior. Though, 'Company paid speakers' entered the model, yet it deemed insignificant to physicians prescribing behavior.

Generally speaking, the model is significant at $p \leq 0.05$ or lower. Further examination of t-values and 'Multiple R' reveals that the four variables entered the model are linearly associated and moderately correlated with physicians prescribing behavior. Thus, H_2 is partially supported.

Table (3) Regression analysis of the type of promotional items offered to sampled physicians and their prescribing behavior

Dependent variable (y)	Independent variable/s (x)	β	t- value	p- value
Prescribing behavior	- Company paid speakers	.095	.900	.370
	- Gifts	.300	3.529	.001***
	- Sponsoring continuing medical education	.406	3.002	.003***
	- Funding to attend local conference	-.242	-2.102	.037**

Notes: ** $p \leq 0.05$; *** $p \leq 0.01$; $R^2 = 0.244$, Adjusted $R^2 = 0.221$, $F = 10.407$, $p = 0.000$ ***

Another aim of the current study is to investigate the relationship between the types of promotional items offered to other physicians and their prescribing behavior (H3). Table (4) displays the result of the above mentioned relationship. The model is significant at $p \leq 0.05$ or lower. Only 'Company paid speakers' entered the model and explained almost 25% of the variation in other physicians prescribing behavior. T-value and 'Multiple R' indicates linear association and moderate correlation between the independent variable and prescribing behavior. Hence, H3 is partially supported.

Table (4) Regression analysis of the type of promotional items offered to other physicians and their prescribing behavior

Dependent variable (y)	Independent variable/s (x)	β	t- value	p- value
Prescribing behavior	Company paid speakers	.473	6.167	.000***

Notes: *** $p \leq 0.01$; $R^2 = 0.244$, Adjusted $R^2 = 0.218$, $F = 38.032$, $p = 0.000$ ***

Another objective of this research is to investigate the relationship between pharmaceuticals promotions to physicians and their likelihood to prescribe generic drug (*H4*). The results indicate that 18% of the variance in the dependent variable namely: prescribing generic drug when they are as effective as brand name drug is explained by the following types of pharmaceuticals promotions: 'Sponsoring continuing medical education; Gifts and Sponsored teaching' (Table 5). Though, the former two variables are positively and significantly associated with the dependent variable. Meanwhile the third one reported negative and significant association.

Further, the overall model is significant at $p \leq 0.05$ or lower. Also, *t*-values and 'Multiple R' indicate linear association and moderate correlation between the independent variables and the dependent one. Hence, *H4* is partially supported.

Table (5) Regression analysis of the relationship of pharmaceuticals promotions and physicians prescribing generic drug

Dependent variable (y)	Independent variable/s (x)	β	<i>t</i> -value	<i>p</i> -value
Prescribing generic drug when they are as effective as brand name drug	- Sponsoring continuing medical education	.393	3.930	.000***
	- Gifts	.289	3.504	.001***
	- Sponsored teaching	-.237	-2.316	.022**

Notes: ** $p \leq 0.05$; *** $p \leq 0.01$; $R^2 = 0.181$, Adjusted $R^2 = 0.162$, $F = 9.567$, $p = 0.000$ ***

Finally, the study investigated the relationship between pharmaceuticals promotions and other physicians prescribing generic drug (*H5*). Table (6) highlights the results. Generally speaking the model is weak according to R^2 value, where 'Company paid speakers' explains only 7% of the variation in prescribing

generic drug, while the rest 93% remain largely unknown. Yet, the model is significant at $p \leq 0.05$ or lower. Also, t-value and 'Multiple R' emphasize linear association and correlation between 'Company paid speakers' and the dependent variable. Consequently, H_5 is not supported.

Table (6) Regression analysis of the relationship of pharmaceuticals promotions and other physicians prescribing generic drug

Dependent variable (y)	Independent variable/s (x)	β	t- value	p- value
Prescribing generic drug when they are as effective as brand name drug	Company paid speakers	.268	3.190	.002***

Notes: *** $p \leq 0.01$; $R^2 = 0.072$, Adjusted $R^2 = 0.065$, $F = 10.174$, $p = 0.002$ ***

Research Conclusions

A number of conclusions can be drawn from the data presented in this study. First, it appears that physicians do not believe that accepting promotional items from pharmaceutical companies is an unethical practice. However, it is up to the physician to determine which promotional items are ethical to accept (e.g. company paid speakers, funding to attend international conference) and which are not. This finding is in light with Smith and Quelch (1991) who studied pharmaceutical marketing in the least developed countries (LDCs) and reported some ethical issues including giving of gifts and expenses-paid trips to conferences. Also, Morgan et al. (2006) found that most of the 397 members of the American College of Obstetrician and Gynecologists thought it was ethically proper to accept items ranging from drug samples to lucrative consultant-ship, and that accepting such items would not probably affect their prescribing behavior.

Despite the consensus of our study finding with the literature, it should be noted that international conferences are usually held at popular tourist destinations, hence allow physicians to accompany their families and blend work with pleasure. This practice from the part of pharmaceutical companies is explicable and understandable, yet the influential effect of such practice on physicians' behavior namely prescription commitment and loyalty to these companies' drugs will remain largely questionable whether it is ethical or not. Therefore, attention should be given to the impact of financing international conferences for physicians by pharmaceutical companies, as these actions are often embrace more than simple education and development.

A second conclusion of this study is that physicians do consider incentives and rewards in their prescription decisions. This finding is in consensus with the large body of the literature discussing prescribing behavior (Wazana, 2000; Madhavan et al., 1997; Brett et al., 2003, c.f, Abdul Waheed and Jaleel, 2011).

The finding is not surprising as it is in agreement with a Turkish based study (Tengilimoglu et al. 2004) that highlights the significant role tangible rewards play in the physicians' prescribing behavior. Also, the study underscored the value of such rewards when everything else (e.g. drug quality, company reputation) is equal among competing pharmaceutical companies.

It is well known that physicians are the target of marketing and sales efforts of the pharmaceutical companies, and even gifts of negligible value can influence their prescribing behavior and can be considered conflict of interest (Katz et al., 2003; Blumenthal, 2004).

With the same token, Gonul et al. (2001) found positive association between detailing and the probability of prescribing a drug up to a certain point, after which detailing became ineffective and physicians prescription pattern stay consistent and mostly unaffected.

Further, from a relationship marketing point of view, it seems absolutely normal and acceptable that pharmaceutical companies support physicians with tangible rewards to maintain influencing their prescribing behavior and commitment towards the companies' drugs. Though, such recognition and support deemed appropriate in other types of service industries (e.g. airline, hotels), where the end user is the one who is directly benefiting from such support. Yet, in the case of physicians; the end user is the patient who is actually not benefiting from any of the tangible rewards given to them. On contrary, the patient might suffer and become disadvantaged from such support in terms of prescribing high cost medications and sometimes unnecessary ones or even worse by switching the patient to a new drug for the sake of increasing its sale, while an effective generic drug might be available in the market.

Admittedly, the so called "gift" economy exists to generate prescriptions and can be responsible for side effects to the patients (Oldani, 2004).

The third conclusion which can be drawn from the study is that pharmaceutical promotions did not discourage physicians to prescribe generic drug if they believed that it is as effective as the brand name products. This study finding is in consensus with Parker and Pettijhon (2003). Meanwhile, it contradicts Wazana (2000) and Lexchin (1989, 1993) results where they associated the frequent visits of pharmaceutical representatives to physicians, which implicitly denote offering promotional gifts to them, with a decrease in prescribing of generics and an increase in prescription expenditures. The researchers personally believe that the positive association found in this study between promotional items and prescribing generic drug is not more than physicians' denial of the potential of accepting promotional items which in turn will jeopardize their professional objectivity. This belief is not random, yet it is supported earlier in this study via the existing positive relationship found

between gifts; sponsoring continuing medical education and company paid speakers as examples of pharmaceutical promotions and sampled physicians and their counterparts prescribing behavior.

Limitations and Future Research

Even though the study tries to be objective, it is restrained by some limitations. Firstly, the survey was only conducted at greater Cairo. Physicians practicing at different Egyptian governorates might express different point of views. Therefore, caution is advised when generalizing the results to the entire Egyptian physicians' community. Secondly, the study focused on physicians' standpoint towards pharmaceutical promotions, whereas pharmacists' perception was ignored, though they play a significant role in recommending and dispensing different medications to consumers in the Egyptian market without physician's prescription, and ignoring Egyptian's laws. Hence, future research should take pharmacists into consideration. Finally, the complexity nature and interrelatedness of pharmaceutical promotions underscored in this study limited our ability to conceptualize the totality of everyday activities and gift exchanges between pharmaceutical companies and physicians. Therefore, further research can be carried on specific promotional item instead of divergent group of items to better understand its influential role and impact on physicians' prescription behavior.

Nevertheless, despite the limitations, this paper sheds some light on the impact of pharmaceutical promotions on Egyptian physicians prescribing behavior, an area culturally perceived as a *taboo*, and should contribute to the growing body of knowledge on the role of prescription behavior of physicians particularly in a less developed country (LDC) namely: Egypt, thus broadening the scope for further research in this respective area.

References

1. Abdul Waheed, Kareem, Jaleel, Mohammad and Laeequddin, Mohammed, (2011), "Prescription Loyalty Behavior of Physicians: an Empirical Study in India", *International Journal of Pharmaceutical and Healthcare Marketing* Vol. 5, No. 4, pp. 279-298.
2. Blumenthal, D. (2004), "Doctors and Drug Companies", *New England Journal of Medicine*, Vol. 351, No. 18, pp. 1885-90.
3. Brett, A.S., Burr, W. and Moloo, J. (2003), "Are Gifts from Pharmaceutical Companies Ethically Problematic? A Survey of Physicians", *Archives of Internal Medicine*, Vol. 163, No.18, pp.2213-8.
4. Campo, K., De Staebel, O., Gijsbrechts, E. and Van Waterschoot, W. (2005), "Physicians' Decision Process for Drug Prescription and the Impact of Pharmaceutical Marketing Mix Instruments", *Health Marketing Quarterly*, Vol.22, No.4, pp.73-107.
5. Chatterjee, Chirantan and Srinivasan, Vasanthi, (2013), "Ethical Issues in Health Care Sector in India", *IIMB Management Review* Vol. 25, pp.49-62.
6. Gonul, Fjsun F., Carter, Franklin. , Petrova, Elina, and Srinivasan, Kannan. (2001), "Promotion of Prescription Drugs and Its Impact on Physicians' Choice Behavior", *Journal of Marketing*, Vol. 65, July, pp.79-90.
7. Hall, Kristine B., Tett, Susan E. and Nissen Lisa M.(2006) "Perceptions of the Influence of Prescription Medicine Samples on Prescribing by Family Physicians", *Medical Care*, Vol.44, No.4 Apr. pp.383-387.
8. Huber, Monika. , Dippold, Katrin. , and Forsthofer, Rudolf. (2012), "Which Factors Drive Product Sales in OTC Markets? *International Journal of Pharmaceutical and Healthcare Marketing*, Vol.6, No.4, pp.291-309.
9. Joseph, Kissan. and Mantrala, Murali. (2009), "A Model of the Role of Free Drug Samples in Physicians Prescription Decisions", *Marketing Letters*, Vol.20, No.1, March, pp.15-29.
10. Kalyanaram, Gurumurthy. (2008), "The Order of Entry Effect in Prescription (Rx) and Over-the-Counter (OTC) Pharmaceutical Drug", *IJPHM*, Vol.2, No.1, pp.35-46

Ethical Considerations in the Use of Pharmaceutical Promotions...

11. Katz, Dana., Caplan, Arthur L., Merz, Jon F. (2003), "All Large and Small", *American Journal of Bioethics*, Volume 3, Issue 3, Summer, pp.39-46.
12. Katz, D., Caplan, A.L. and Merz, J.F. (2003), "All Gifts Large and Small: Toward an Understanding of the Ethics of Pharmaceutical Industry Gift-Offering", *American Journal of Bioethics*, Vol. 3, No. 3, pp. 39-46.
13. Ladeira, Wagner Junior. , Dalmoro, Marlon, Maehler, Alisson Eduardo. and Araujo, Cle'cio Falca'õ, "Drug Prescription Practices in Brazil: a Structural Equation Model", *International Journal of Pharmaceutical and Heathcare Marketing*, Vol.5, No.4, pp.262-278.
14. Lexchin J. (1993), "Interactions between Physicians and the Pharmaceutical Industry: What does the Literature Say?" *Canadian Medical Association Journal*, Vol.149, No.10.
15. Lexchin, J. (1989), "Doctors and Detailers: Therapeutic Education or Pharmaceutical Promotion?" *International Journal of Health Services*, Vol.19, No.4, pp.663-679.
16. Lexchin J, and M-A,Gagnon, (2008) *The Cost of Pushing Pills: A New Estimate of Pharmaceutical Promotion Expenditures in the United States*. *PLoS Med*, Vol.5, No.1
17. Liebman, M. (1997). *Rethinking Sampling Strategies*. *Medical Marketing & Media*, Vol.32, pp.36-43, (June).
18. Lim, C.W., Kirikoshi, T. and Okano, K. (2008), "Modeling the Effects of Physician-Directed Promotion Using Genetic Algorithm-Partial Least Squares", *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 2 No. 3, pp.195-215.
19. Madhavan, S., Amonkar, M.M., Elliott, D., Burke, K. and Gore, P. (1997), "The Gift Relationship between Pharmaceutical Companies and Physicians: an Exploratory Survey of Physicians", *Journal of Clinical Pharmacy and Therapeutics*, Vol. 22 No. 3, pp.207-15.
20. Manchanda, Puneet, and Chintagunta, Pradeep K. (2004), "Responsiveness of Physician Prescription Behavior to Sales force Effort: An Individual Level Analysis", *Marketing Letters*, 129-145, Kluwer Academic Publishers.
21. Morgan, M. A., J., Loewenstein, Dana, G., Zinberg, S. and Schulkin, J. , (2006), "Interactions of Doctors with the Pharmaceutical Industry", *Journal of Medical Ethics*, Vol. 32, No. 10, Oct, pp.559-563.

22. Nunnally, J. and Bernstein, I. (1994), *Psychometric Theory*, 3rd edition, NY. McGraw-Hill.
23. Oldani, Michael J. (2004), "Thick Prescriptions: Toward an Interpretation of Pharmaceutical Sales Practices", *Medical Anthropology Quarterly*, New Series, Vol.18, No.3, Sep., pp.325-356.
24. Parker, R.S. and Pettijohn, C.E. (2005), "Pharmaceutical Drug Marketing Strategies and tactics: a Comparative Analysis of Attitudes Held by Pharmaceutical Representatives and Physicians", *Health Marketing Quarterly*, Vol. 22 No. 4, pp.27-43.
25. Pedan, Alex. and Wu, Hongsheng (2011), "Asymmetric Responsiveness of Physician Prescription Behavior to Drug Promotion of Competitive Brands Within an Established", *Health Marketing Quarterly*, Vol.28, pp.133-154.
26. Rosenthal, Meredith B. Harvard et al. (2003), "Demand Effects of Recent Changes in Prescription Drug Promotion", *Frontiers in Health Policy Research*, Volume 6.
27. Sillup, P. and Proth, J. (2008), "Ethical issues in the pharmaceutical industry: an analysis of US newspapers", *International Journal of Healthcare Marketing*, Vol.2, No.3, pp.163-180.
28. Taher, Ahmed. , Stuart, Elnora W. and Hegazy, Ibrahim (2012), "The Pharmacist's Role in the Egyptian Pharmaceutical Market", *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 6, No. 2, pp.140-155.
29. Tengilimoglu, D., Kisa, A. and Ekiyor, A. (2004), "The Pharmaceutical Sales rep/physician Relationship in Turkey: Ethical Issues in an International Context", *Health Marketing Quarterly*, Vol.22, No.1, pp.21-39.
30. Wazana, A. (2000), "Physicians and the Pharmaceutical Industry: is a Gift Ever just a Gift?" *Journal of the American Medical Association*, Vol.283, No.3, pp.373-80.
31. WTO, (2014), <http://www.who.int/research/en/> (accessed on 23 September 2014)