

# Investigating the Effect of Pharmaceutical Companies' Gifts on Doctors' Prescribing Behavior in Jordan

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## Abstract

The study aimed at investigating the effect of pharmaceutical companies' gifts on doctors' prescribing behavior in Jordan. Vacation expenses, gifts of substantial value, lavish meals and entertainment, cash/commissions for prescribing particular brand, money for sponsoring drug trial, free medical samples and Continuing Medical Education funding and honoraria were the main components of pharmaceutical companies' gifts in this study. Primary data was collected using a questionnaire from a judgment sample of 335 practicing doctors in the private sector. Multiple regression analysis was used to analyze the data.

The findings indicated that there is a high level of acceptance of pharmaceutical companies' gifts by doctors, and that there is a statistically significant effect of pharmaceutical companies' gifts' on doctors' prescribing behavior, in which cash commissions for prescribing particular brand was found to have the most influence on doctors' prescribing behavior.

Number of recommendations was presented to the Jordanian pharmaceutical companies such as: paying more attention to the gifts as part of their promotional mix, competitors' activities, and minimize their expenses on lavish meals and entertainment since they have the lowest effect on doctors' prescribing behavior, and to increase their investments on the more influential gifts.

**Keywords:** Pharmaceutical promotion, gifts, doctors' prescribing behavior, Jordan, private sector

## **Introduction**

The field of marketing has expanded recently and became of increased importance as one of the most important activities of the administrative functions of any organization or firm and critical issue that determine its success. Pharmaceutical marketing is distinguished from other fields of marketing that its efforts are not directed to the final consumer (the patient) rather are directed to an intermediate customer (the doctor) who writes the prescription that determine the drug that will be used by the patient. In pharmaceutical promotion; the sales force who are the medical representatives or detail men are the most important players in promoting drugs to doctors. During their contact with doctors, these medical representatives usually present various kinds of gifts to doctors.

There are several and common promotional practices intended by pharmaceutical companies to promote their products to the doctors and thus increase prescribing, such as paying for the vacation or travel expenses of the doctors, offering them valuable gifts, lavish meals and entertainment, giving them cash commissions for prescribing specific drug, money for drug trial, free medical samples and promotional materials as well as funding Continuing Medical Education (CME) and honoraria for teaching or speaking in such activities [1].

Interactions between drug companies and doctors are pervasive. Relationships begin in medical school, continue during residency training, and persist throughout physicians' careers. The pervasiveness of these interactions results in part from a huge investment by the pharmaceutical industry in marketing [2]. It is well established that doctors have various relationships with pharmaceutical companies, such as acceptance of financial support for clinical research and for CME programs, and informal meetings with medical representatives in which they present different types of gifts to the doctors [3]. The presence of free medical samples increases both doctors' and residents prescribing of the sampled drugs [4, 5]. If a doctor accepts gifts from the pharmaceutical companies it means that there will be grateful conduct, grateful use, and reciprocation, thus may leading to compromise the physician's decision making [6]. On the other hand the pharmaceutical companies will not spend large amounts of money in different manner to doctors unless it will influence their attitude and behavior towards them. Furthermore, there is a strong evidence that pharmaceutical companies interactions with doctors have a negative effect on the doctor's behavior [1, 7].

Pharmaceutical sales force investments in detailing were doubled over the last decade to \$25 billion in 2005 [8]; which is mainly allocated among physicians [9]. The pharmaceutical manufacturing companies invest and spend heavily on marketing and promotion, up to 10% of the pharmaceutical manufacturing companies is invested on promotion considering detailing as the most used promotional instrument [10]. Pharmaceutical industry companies spend on marketing more than they spend on research [11]. Furthermore physicians remain the central target of pharmaceutical marketing efforts, even after increasing of the direct-to-consumer marketing efforts [12]. The pharmaceutical industry spends approximately \$12 billion annually on gifts and payments to physicians [13] aiming mainly to reinforce the long-term relationship between the pharmaceutical company and physicians [14].

The Jordanian pharmaceutical industry started in 1962 with the establishment of Arab Pharmaceutical Manufacturing Company, and now it includes more than 16 companies. The pharmaceutical industry sector in Jordan must attract more attention and interest since it plays a vital role in both ensuring the welfare of the citizens as well as supporting the national economy of Jordan as it has a positive trade balance with export markets [15].

As in almost all countries, pharmaceutical companies in Jordan mainly direct their marketing efforts toward doctors rather than the patients or final consumers, through their medical representatives or detail men who contact with doctors and present to them their drugs as well as other promotional items. The Jordanian pharmaceutical manufacturers are surrounded by a dynamic environment in which they experience an accelerated changes and intensive competition. This implies that the pharmaceutical companies continuously expose doctors to various competing stimuli, thus regular, continuous study of factors affecting the prescribing behavior of doctors is essential for pharmaceutical marketer because survival in such circumstances is conditioned with updating relationships with

doctors and understanding factors affecting their prescribing decision and behavior leading to increasing the companies' drugs sales. Drug promotion and marketing by pharmaceutical companies is very common and even became a part of the daily activities in the doctors' life. In addition to the commercials in medical journals, there are more personal and specific promotional methods that are directed to the doctors such as gifts giving [16]. Hurwitz and Caves [17], and Leffler [18] stated that the physician rather than the patient is the key decision maker. The relationship between pharmaceutical companies, doctors and patients is unique because the pharmaceutical companies cannot sell their products directly to ultimate user; the patient, while doctors can not treat their patients without drugs produced by the pharmaceutical companies.

Many authors have commented on the scarcity of objective data on the impact of pharmaceutical company marketing techniques on doctors' prescribing practices. On the other hand it is unlikely that pharmaceutical companies would spend large amounts of money on marketing activities if they were not effective [19].

In his report -Doctors and Drug Companies| which was conducted in the United States; Blumenthal [2] mentioned that "Controversy regarding gifts to physicians from the pharmaceutical industry has resurfaced in recent years. Much of this controversy revolves around the question whether the drug companies influence physicians' behavior and, if they do, whether the results are positive or negative". Accordingly this study aims at answering the following questions:

1. To what extent do pharmaceutical companies' gifts to doctors are accepted by doctors in Jordan?
2. To what extent do pharmaceutical companies' gifts affect doctors' prescribing behavior in Jordan?
3. What are the most influential pharmaceutical companies' gifts that affect doctors' prescribing behavior in Jordan?

Consequently, the pharmaceutical companies' gifts is an important promotional and marketing tool, this study seeks to discover the relationship between pharmaceutical companies' gifts and doctors' prescribing behavior in Jordan.

## **Research Importance**

Gifts given by the pharmaceutical companies to doctors are common and controversial. It was noticed in the literature that most studies related to pharmaceutical companies' gifts and their effect on doctors' prescribing behavior have taken place in a limited number of countries, particularly in the United States, Canada and India [4, 20]. Thus conducting a study of this type in the Middle East specially in Jordan will help in assessing the importance of pharmaceutical companies' gifts to doctors and their effect on the prescribing behavior. The importance of this study is derived from the following points:

1. As there is no medical liability law in Jordan compared with other countries where the related studies had been done, the results at this study will be related specifically to the situation in Jordan.
2. This study will help to better understand the relationship between pharmaceutical companies' gifts and doctors' prescribing behavior in Jordan.
3. There is an increasing interest toward pharmaceutical marketing and its practices in Jordan because of increased competition between the pharmaceutical companies.
4. This study will try to help pharmaceutical companies in Jordan to identify the most influential gifts that affect doctors' prescribing behavior in Jordan.

## **Research Objectives**

The main goal of this research was to investigate the effect of pharmaceutical companies' gifts on doctors' prescribing behavior. To achieve this goal the following objectives will be fulfilled:

1. To develop a theoretical framework that outlines the hypotheses relationship

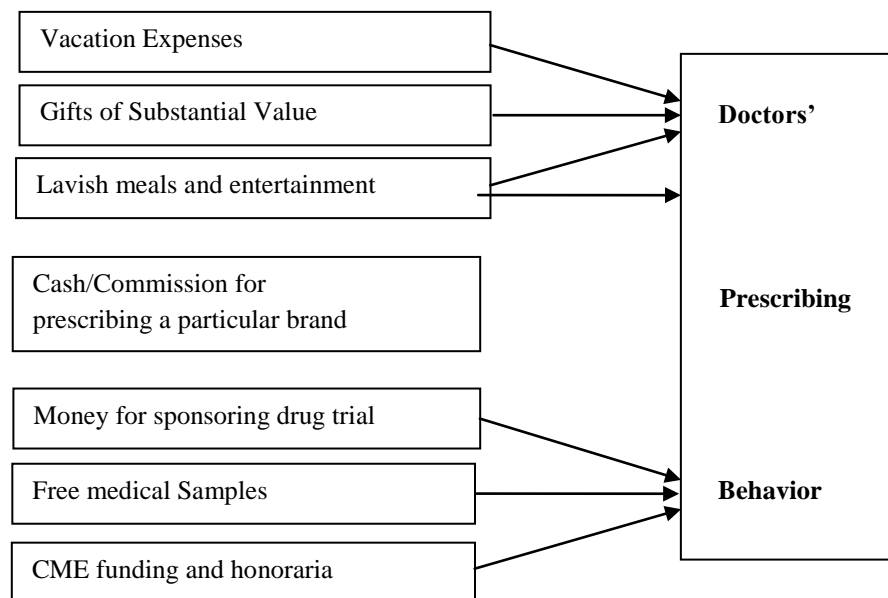
- between the pharmaceutical companies' gifts and doctors' prescribing behavior in Jordan based on the research results and the previous related studies.
2. To investigate the extent of acceptance of pharmaceutical companies' gifts to doctors in Jordan.
  3. To assess the effect of pharmaceutical companies' gifts presented to doctors' on doctors' prescribing behavior in Jordan.
  4. Revealing the most influential pharmaceutical companies' gifts which affect doctors prescribing behavior in Jordan.
  5. To provide the Jordanian pharmaceutical companies' decision makers with recommendations that might help the marketing unit in these companies to increase the effect on doctors.

### Research Theoretical Framework

The proposed theoretical research model has been developed based on literature review exploring the research objectives. Different scales were used to measure the main variables (Figure 1).

Since doctors are the purchase decision makers, but they are not buyers, the pharmaceutical advertising and promotion depends mainly on persuading doctors to prescribe drugs by trade names of medications and not the scientific names. Pharmaceutical companies try to affect the doctors' prescribing behavior in their favor by offering them several types of promotional items such as gifts, free medical samples and sponsorships.

**Figure 1:** The Variables Model (Theoretical Framework)



When a gift of any size is presented, it imposes on the recipient a sense of indebtedness. The obligation to reciprocate, and tends to influence behavior [12].

Pharmaceutical companies usually pay doctors' travel expenses directly to the travel agency in the name of the doctor, even the doctor's family travel expenses are sometimes paid by the pharmaceutical companies. The gifts presented to doctors have wide range of variety ranging from stationery and office related gifts with minimal values to more personal and innovative gifts such as house hold related gifts overseas trips and air-conditions; but also mentioned that gifts of large monetary value such as travel tickets and vacation trips are less common than inexpensive ones such as pens, notepads and coffee mugs in pharmaceutical promotion [3]. Furthermore, one of the most common pharmaceutical industry promotional gifts are materials for patient care and gifts unrelated to

medicine practice [21].

Pharmaceutical companies usually offer lavish meals in medical conferences and symposia, CME, and launching of new drugs. Most of these activities are organized in five star hotels resulting in large sum of expenditures to the pharmaceutical companies' budgets, therefore, providing these free meals is considered one of the most commonly used promotional techniques in order to affect doctors' decision making [12]. Besides giving free medical samples to doctors, another new method applied by the pharmaceutical companies in their promotional activities and interactions with doctors is offering doctors cash commissions for prescribing a specific drug, particularly while new discovered drugs are introduced to the market in which clinical studies required to approve effectiveness, advantages and safety are usually funded by pharmaceutical companies [22].

Continuing medical education to physicians (CME); a very essential requirement for doctors to maintain their licenses and keep their scientific knowledge up to date, is mostly funded by pharmaceutical companies in order to maintain, develop and increase doctors knowledge and skills, and ultimately influence their prescribing behavior [20, 23]. The latter may lead to loss the control over CME by the medical practice and distort it [24].

## **Research Hypothesis**

- The main Hypothesis

**H<sub>0</sub>:** There is no statistically significant relationship between pharmaceutical companies' gifts presented to doctors (vacation expenses, gifts of substantial value, lavish meals and entertainment, cash / commissions for prescribing particular brand, money for sponsoring drug trial, free medical samples and CME funding and honoraria) and doctors' prescribing behavior.

- The Sub-Hypothesis:

**H<sub>0.1</sub>:** There is no statistically significant relationship between vacation expenses and doctors' prescribing behavior.

**H<sub>0.2</sub>:** There is no statistically significant relationship between gifts of substantial value and doctors' prescribing behavior.

**H<sub>0.3</sub>:** There is no statistically significant relationship between lavish meals and entertainment and doctors' prescribing behavior.

**H<sub>0.4</sub>:** There is no statistically significant relationship between cash commission for prescription of a particular brand and doctors' prescribing behavior.

**H<sub>0.5</sub>:** There is no statistically significant relationship between Money for sponsoring drug trial and doctors' prescribing behavior.

**H<sub>0.6</sub>:** There is no statistically significant relationship between free medical samples and doctors' prescribing behavior

**H<sub>0.7</sub>:** There is no statistically significant relationship between CME funding and honoraria and doctors' prescribing

## **Research Methodology**

As an exploratory quantitative research, a questionnaire representing all variables -follows a five point likert-scale- consisting of 31 questions was developed and distributed by the researcher to be filled by the doctors representing the research sample. All practicing doctors in the private sector in Jordan (private clinics and hospitals) were considered the research population (6192 registered doctors; 2009) in which a judgment or (purposive) sample of 364 were considered enough as the representative sample for different specializations taking into consideration the inclusive of different genders, age categories, educational levels, experience level, number of patients seen per day, practicing location and area and specialization[25]. Respondents were selected based on their expert knowledge concerning the topic under study and their willingness to participate freely and answers the research questionnaire without financial compensation or other interfering issues such

as social considerations.

In order to validate the questionnaire, the latter was disseminated to a number of academic experts that gave their feedback resulted in minor modifications, then this modified version was piloted to 10 practicing physicians in order to simplify, adjust or exclude any identified unnecessary, difficult or ambiguous questions and to check that each question is understood as set. Cronbach's alpha reliability coefficient was calculated based on accepted value over 60% to test the internal consistency reliability. Descriptive statistical analysis was performed to analyze demographics and other variables using SPSS version 17.

## Results and Discussion

Response rate was excellent (92%); table 1 shows the demographic distribution of respondents.

**Table 1:** Demographic distribution of respondents

Variable	Frequency	Percentage
<b>Gender:</b>		
Male	294	87.8
Female	41	12.2
<b>Age:</b>		
Less than 40 years	32	9.6
40-50	134	40
51-60	126	37.6
More than 61 years	43	12.8
<b>Educational level</b>		
Resident	13	3.9
Master's Degree	76	22.7
Doctoral Degree	211	63
Others:	35	10.4
<b>Experience level</b>		
Less than 5 years	10	3
5-14	92	27.5
15-30	168	50.1
Over 30 years	65	19.4
<b>Specialization:</b>		
General Practitioner	174	51.9
Internist	85	25.4
Pediatric	40	11.9
Gynecologist	28	8.4
Others	8	2.4
<b>Total</b>	<b>335</b>	<b>100</b>

The level of acceptance of pharmaceutical companies' gifts by doctors is high (mean>3, SD<1; Table 2) except for cash commissions.

**Table 2:** Descriptive analysis for independent variables

Independent variables	Mean	Standard Deviation (SD)
Vacation expenses	4.5090	.75814
Gifts of substantial value	4.4567	.45807
Lavish meals and entertainment	4.3206	.57453
Cash commissions	4.1104	1.17981
Money for sponsoring drug trial	4.2955	.94099
Free medical samples	3.9045	.71750
CME funding and honoraria	4.5408	.50215

## Hypothesis Testing

Multiple linear regression analysis was used to test main and sub-hypothesis and the relationship between independent variables and the dependent variable.

### The main Hypothesis

**H<sub>01</sub>:** There is no statistically significant relationship between pharmaceutical companies' gifts presented to doctors (vacation expenses, gifts of substantial value, lavish meals and entertainment, cash/commissions for prescribing particular brand, money for drug trial, free medical samples and CME funding and honoraria) and doctors' prescribing behavior; the main null hypothesis was rejected ( $F= 89.152$ ,  $p < 0.05$ ;  $sig=.000$ ) i.e. there is a statistically significant effect of pharmaceutical companies' gifts on the doctors' prescribing behavior ( $R^2=0.656$ ,  $St. err=0.40085$ ).

Results also showed that there is a strong positive relationship between pharmaceutical companies' gifts (as a whole) and doctors' prescribing behavior (correlation coefficient  $R = .810$ )

### The Sub-Hypothesis

Cash commissions for prescribing particular brand, gifts of substantial value, free medical samples and money for drug trial have the highest contributions in the research model (highest beta values); reject the null hypothesis. While, vacation expenses, CME funding and honoraria and lavish meals and entertainment have the lowest contributions (lowest beta values); accept the null hypothesis (Table 3).

**Table 3:** Variables level of correlation

Variable	B	Std. Err	Beta	T	Sig.	Result
Vacation expenses	.009	.037	.010	.249	.804	Accept the null hypothesis
Gifts of substantial value	.402	.056	.272	7.208	.000	Reject the null hypothesis
Lavish meals and entertainment	-.024	.051	-.020	-.457	.648	Accept the null hypothesis
Cash commissions	.339	.030	.592	11.485	.000	Reject the null hypothesis
Money for drug trial	.091	.034	.127	2.662	.008	Reject the null hypothesis
Free medical samples	.164	.032	.174	5.123	.000	Reject the null hypothesis
CME funding and Honoraria	-.007	.051	-.005	-.132	.895	Accept the null hypothesis

Results confirmed the finding from previous research that pharmaceutical companies' gifts presented to doctors are the most widely used part of pharmaceutical promotional mix [13, 16, 21] and this is might be explained by other finding from this research which is most of the private sector doctors claimed that they highly accept pharmaceutical companies' gifts and consider it as an appropriate practice. However, it was approved that marketing practices can negatively affect both patients and the health care profession [26].

This study concluded that cash commissions for prescribing of particular brand, gifts of substantial value, free medical samples, and money for drug trial, respectively, have the highest degree of impact on doctors' prescribing behavior. While vacation expenses, CME funding and honoraria and lavish meals and entertainment have the lowest impact.

Other pharmaceutical companies' marketing and promotional activities such as advertising and public relations were not considered as influential variables that may affect doctors' prescribing behavior.

In order to avoid bias as much as minimum, and besides anonymity of the respondents and the confidential treatment of the provided answers, projection technique was used in answering the questionnaire of this research; so doctors; rather than describing their own prescription decisions, they were asked to express their expert opinion on the prescription behavior of other colleagues prescribing behavior in their geographical area or specialization.

### **Research Limitations**

Difficulty in meeting doctors in the private sector in different times and places, and difficulty of persuading them to participate were the main limitations of this research.

### **Recommendations and Implications**

Based on the results of the current research, the following would help enhance the pharmaceutical companies' promotional efforts directed to the doctors: Jordanian pharmaceutical companies should pay more attention to the gifts part of their promotional mix in order to better affect doctors' prescribing behavior in their favor, particularly those of substantial values and try to find more creative and innovative ideas for unique gifts to be distinguished from competitors. Also they must attempt to minimize their expenses on lavish meals and entertainment.

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