

Pharmaceutical Marketing Strategies' Influence on Physician's Prescription Behavior

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Abstract

Pharmaceutical marketing practices are one of the main reasons that massively influence the physician's prescribing behavior. This issue has been hardly explored in very little studies that investigated the impact of pharmaceutical marketing strategies on prescribing patterns in developing countries and Middle Eastern countries. This paper aims to explore the impact of pharmaceutical marketing practices on the medication recommendation of physicians in Jordan. The convenience sampling method was used to attain the objectives of the study. The duration of the study was from 1st August 2019 till 28th February 2020. A self-administrative questionnaire was used upon receiving ethical approval, verbal consent was also taken from the participant. SPSS version 20 was used to perform statistical analysis. The response rate to the survey was 80.9%. Then the processed data inferred the result, which was evaluated based on a seven-point Likert Scale. From the observations, one can conclude that pharmaceutical marketing practices have tremendous power over manipulating the prescription behavior of the doctors. This paper evaluates the effectiveness of various promotional tools employed by the markets to achieve their goal. After scrutinizing the whole report, the "public relations" strategy was found to be profound of all. Whereas advertisements using print media caught the least attention. The findings of the present study proved to be instrumental in serving as the first step in the imminent direction of merging this paper with the previous literature. From a managerial perspective, this research can benefit various marketers to evolve novel, refined strategies to influence the Jordanian physicians to boost up their ratings.

Keywords: Pharmaceutical marketing, Prescribing behavior, Physicians, Jordan

INTRODUCTION

It is observed that over time pharmaceutical companies managed to establish a very good relationship with the physicians [1-3]. Instead of targeting the real customers, pharmaceutical companies are focusing on the physicians to promote their medications and sales revenues [4]. Thus, physicians have become the center of attention and companies are using different tactics to improve their sales [5, 6]. Unlike other industries, marketing practices largely influence the price of medicine via incentives to modulate the doctor's frame of reference [7]. It often happens that pharmaceutical companies adopt methods like gift vouchers, complimentary dines, financing education, and vacation schemes. All the above-mentioned practices are highly condemned as it diverts them from the scientific basis and paves a way towards self-regard [8]. "Controversy regarding gifts to physicians from the pharmaceutical industry has resurfaced in recent years [9]. Much of these controversies revolve around the question of whether the drug companies influence physicians' behavior and, if they do, whether the results are positive or negative" [9].

As per the U.S. Department of Health and Human Service, in 2010, they devised the Prescription Drug Marketing Act (PDMA), which identifies pharmaceutical marketing as "the business of advertising or promoting the sale of

pharmaceuticals or drugs". It further explains how this can be achieved i.e. product, price, place, promotion, physical distribution. This marketing mix focuses to restructure and redesign the process to transform a non-viable process into a feasible [10] and primarily focusing on popularizing the launched drug [11] while practicing total brand communication and all forms of promotional activities working to develop synergy for the brand [12]. All the activities carried out by various individuals or organizations aim to actualize markets for pharma care [13]. Henceforth, pharmaceutical marketing is more of dynamic agile operation.

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The recent hike in the alliance between physicians and pharmaceutical companies has gained significant notice in framing a dilemma between the scientific and self-obsessed perspective of the practitioners [6, 8]. This persuasive behavior has deemed to be unethical. This kind of relationship has its roots since the medical schooling, continuing till residency training and persisting till their "carriers". Such ubiquity spread is due to a magnificent investment in advertisements by the pharmaceutical sector [9]. In such an alliance, marketers provide financial aid for research work, CME programs, and such causal meetings elevate the frequency of presenting incentives to the future doctors and tempt them to go for it [14]. The provision of free samples escalates the behavior of the doctors as well as the residents towards the drug [15]. After the acceptance of the proposal of the new drug, the marketers expect a better relationship with an escalated need in near future along with reciprocation of similar kind of energy; eventually leading to a lower degree for settlement of doctor's perspective [16]. Heading in the same direction, the investment is made only in the effective sectors. In case a doctor is too rigid and firm on his decision, the marketers see any persuasion to be futile in this case and hence forbid to invest here. Furthermore, there is strong evidence that pharmaceutical companies' interactions with doctors and harm the doctor's behavior [6, 8, 17].

All these novel approaches to pester the doctors for prescribing the new drug might prove instrumental in upgrading their knowledge regarding the prevalent aspects [18, 19]. Hence, one can't simply deny the positive outlook of the same [20, 21]. Another highlighted factor is the increased investment in the marketing sector in comparison to the manufacturing one which included a total of \$15.6 million expenditure in the year 1997 and subsequently heightened to \$20.3 billion in 2016 [22]. Marketing efforts generate awareness among physicians about new drugs and their specifics [18]. Marketing strategies resort to multiple methods to approach the practitioner; this could include hiring representatives, responsible to persuade doctors to reorient their recommendations by informing them about the benefits of the drug and hence compensating physicians for speaking engagements about the drug. Previous studies have found that drug sales may increase as a result of advertising—particularly when that marketing targets a lay audience. Regulatory Affairs Professionals Society found and graphed those figures from healthcare research firm Global Data in the graphic below [23]. As shown in Graph 1, all but AstraZeneca and Sanofi said they spent more on R&D than marketing. And Merck and J&J spent considerably more on R&D than marketing.

According to the self-reported census of 2019, it was inferred that the top 10 drug marketing companies showed a total expenditure of \$47.5 billion only in the sales and marketing sector. While another report dealing with the evaluation aspect showed an investment if only \$66.8 million in 2017 on research and development in the firm. This controversy will

continue as researchers and the companies find novel ways to slice and dice the numbers. Similar results were also sated by Olivier who declared that a total of 9 out of 10 major pharmaceutical companies invest multifariously in marketing sector instead of R&D. In present milieu, one notices a surge in the expenditure by the drug companies thereby mushrooming the expenses of doctors, nurses, examiners, other consumers or anyone who has any remote kind of influence on the purchase of prescription drugs. The above-mentioned census being public, one can't deny the manipulation factor which is incorporated in the data; thereby, hiding the actual scenario. There is no doubt that the profligate spending influences doctors and patients and companies would not sink so much money into all this marketing if it didn't work" [24]. The previous century remarked an intensified blooming in science and technology. But the ethical aspects of this field are depleting day-by-day due to inclination towards financial and profound economic aspects. During this period, one noticed a reckless increase in the number to medical professionals; which has caused multiple ethical problems due to the cut-throat competition and degeneration of the moral and ethical values in society [1, 25, 26].

In the case of Jordan, the pharmaceutical industry was established since 1962, as the chief revolution, it is regarded as the strategic sectors that support the national economy due to its high global demand and subsequent exports eventually escalating the GDP value. It is the only country in the geographical surroundings that exports more than its imports of medicine [16]. So, this sector is considered one of the leading sectors, which began manufacturing at the beginning of the sixties and developed continually until it became a symbol of the national industry. A major part of the finished goods is exported to the Middle East and the Arab countries because of the superior quality and ability to meet the international standards and specifications. The major uniqueness of this market is its openness to the foreign trade and competitive sector with a restriction-free capital transfer. The Jordanian market exports 71% of its products, globally but holds a minimal of 29% shares locally. About 75 percent of the sector's produce – worth around \$600 million is exported to MENA, the United States, and Europe. At present day, there are a total of 16 pharmaceutical industries in Jordan. The pharmaceutical industry was once boomed in Jordan due to regional turmoil; patients flocked to Jordan from the MENA region and this increased demand on products and pharmacists in the country [16].

The marketing strategies majorly rely on the distribution of incentives. Among such temptations, the large firms usually give away inducements while smaller attractive presents like pens, paperweight, and cardholders are generally accepted. Based upon the social experiment conducted on the kinds of incentives, it can be deduced that though the small gifts have little remembrance, the associated event had a great potential to affect the behavior of recipients [27, 28]. It was estimated

that around 80% of medical sales personnel encounter medical professionals daily. But such meet has little or no effect in altering the perception of the professionals [8]. As all that glitters are not gold, the research is suspected to have discrepancies due to distortion of actual ideation while following up with the socially fit responses. This condition enhances the possibility of "faking good bias" [29]. However, increase expenditure for drug promotion will affect the price of prescription drugs, and this in turn will have an adverse impact on the expenses on the healthcare system.

As the patronship comprises of practitioners and physicians, the two are designated as the targeted customers of the industry. Where physicians are the ultimate decision-makers as their prescription to a brand is followed. Hence, the major decisions of the firm revolve around their interests. This scenario makes one ponder upon the process of selecting a brand by the physician. What are the chief areas and factors, which incline his/her recommendations and interests to a specific brand? How this behavior influences drug marketing strategies? While searching for the answers of the same, not even a single research addressed these questions. Hence, in light of the same, this study is a unique stride that aims to identify the influential factors of pharmaceutical marketing on the prescription behavior of the physicians. This research was an outcome of the authors' academic and professional interest in the subject of pharmaceutical marketing and its impact on physicians' prescribing patterns, especially in the mentioned country. From an academic view, this present study aimed to add knowledge to the existing literature. It was an aggregate account of the connected exploration across disciplines with practical connotations; attempting to bring substantial academic and managerial implications Together. Academically, it was realized that this research is associated with several flaws. Among them, one of the most prominent ones is the inclusion of only developed nations in the study [6] while neglecting the developing countries [8]. To eradicate this inconsistency, Jordanian physicians were taken as subjects to devise empirical research and to develop a better framework so that future marketing can benefit from it and sustain the subtle competition. This paper was virtually the first to advocate such a reform, and it served as one of the first humble steps in the imminent direction of merging this paper with previous literature.

This research paper specifically deals with the Jordanian case; hence, the results cannot be employed in other nations due to the flexible medical laws in Jordan. To gain full access by manipulating the perspectives of all physicians, the company's manager tries to address the question regarding physicians' opinion about the ethicality of receiving gifts and samples as a factor preventing these doctors from being influenced. In the case of varied opinions, managers try to find the root cause and work to rectify the same.

MATERIALS AND METHODS

A cross-sectional study was planned and a representative sample of doctors from varied specialization was invited for their participation in this study. A self-administered questionnaire was used for data collection from Amman, from 1st August 2019 till 28th February 2020. Likert attitude measurement scale was used to grade the responses. In this study, responses were marked on a seven-point Likert scale. The responses ranged from 1 to 7 (1= not at all effective; 2 = moderately non effective; 3 = somewhat on effective; 4 = not sure or may be effective; 5 = somewhat effective; 6 = moderately effective and 7 = extremely effective).

Sampling Method

A convenient sampling method was adapted to approach potential participants for this study. Written consent was taken from the respondents, for their potential participation in this study. If the respondent at any stage felt to decline the consent, they were given that opportunity, and if such case their responses were excluded from the main study.

Data Analysis

Descriptive statistics were applied to estimate the mean of individual domains and SD. The difference among the groups was estimated using independent sample t-test and one-way ANOVA. P-values of less than 0.05 were considered statistically significant.

RESULTS AND DISCUSSION

A total of 420 respondents participated in the self-administered questionnaire. Out of these, only 340 (80.9%) questionnaires were found to be usable, which comprised of 223 (65.5%) answers from general practitioners (holding MBBS or FCPS), 81(23.8%) from consultants (holding MD, MS or Diploma in special cases) and 36(10.7%) from specialists (holding DM or MCh degree).

Table 1. Mean rating by the physician of pharmaceutical marketing strategies

Strategy	± Standard deviation (SD)	Remark Expressing
Public relations	6.41± 0.65	moderately effective
Sales promotion	5.64 ± 0.90	somewhat effective
Personal selling	4.89± 1.11	not sure or maybe effective
Direct Marketing	4.59± 1.15	not sure or maybe effective
Advertisement	4.08± 1.21	not sure or maybe effective

Table 1 deals with the various strategies employed in the promotion of pharmaceutical marketing. Based on the observations, it was found that most participants voted for public relations to be the most significant ones. Such a

connection or alliance can be strengthened with time. To nourish the bond, one needs to indulge in various activities like sponsoring physicians for conferences, launch meeting's, and arranging several special day programs like World Diabetes Day, World Arthritis day, etc. Public relation was rated as 6.41 by the physicians. After public relations, sales promotion and personal selling were counted among the most effective strategy with a mean of 5.64 and 4.89, respectively ($p < 0.001$). Among all strategies, direct marketing and advertisements were found of slight importance. These are rated as 4.59 and 4.08, respectively by the physicians.

Table 2. Least effective marketing methods rated by physicians

Strategy	± Standard deviation (SD)	Remark Expressing
Visit of senior sales Personnel	4.73± 0.91	Not sure maybe effective
Free drug Samples	4.15± 0.69	Not sure maybe effective
Low-value Gift	3.88±1.21	Somehow not effective
Transport Facilities	3.22±1.01	Somehow not effective
Direct Mailing	3.11± 1.30	Somehow not effective
Journal Advertisements	2.91± 1.69	Moderately not effective

Table 2 highlights the effectiveness of various strategies. The values show that physicians count journal advertisements, direct mailing, transport facilities, low-value gifts, free samples, and visits of senior sale personnel as the least effective measures among the other forty mediums. Whereas, direct communication or talk with the practitioner was moderately effective with the first rating of 2.91. Direct mailing, transport facilities, low-value gifts were in somehow not effective category with rating 3.11, 3.22, and 3.88, respectively. Heading in the same direction, it was found that provision of incentives such as free samples along with the visits of senior sales personnel were rate 4.15 and 4.73 respectively ($p < 0.001$), indicating that the effectiveness of these strategies depending on the physician's outlook **Table 3**.

Table 3. Least effective marketing methods rated by physicians

Strategy	± Standard deviation (SD)	Remark Expressing
Frequency of visit	6.79 ± 0.60	Moderately effective
Personal Relationship	6.49 ± 0.68	Moderately effective

Quality of the Product	6.41 ± 0.72	Moderately effective
Skillful detailing	6.36 ± 0.89	Moderately effective
The reputation of the Company	6.14 ± 1.19	Moderately effective
Gifts	5.89 ± 1.38	Somehow effective
Sponsoring conferences	5.68 ± 1.19	Somehow effective
Brand Name	5.51 ± 1.30	Somehow effective
Product cost	5.39 ± 1.43	Somehow effective
Launch Meeting	5.28 ± 1.28	Somehow effective

Table 3 enlists the most effective marketing strategies. The frequency of visits to the physicians was rated the top strategy that influences prescription behavior with a rating of 6.86. After this personal relationship, the quality of the product, skillful detailing, and reputation of the company influenced the prescription behavior while rated as 6.79, 6.49, 6.41, and 6.36, respectively. All these methods are categorized as moderately effective to the physicians. After these high-value gifts, sponsoring conferences, brand name, price of the product, and launch meeting came and are categorized as somehow effective strategies that influence the prescription of the physicians. These were rated as 5.89, 5.86, 5.51, and 5.39. In lieu of all such aspects, other elements were also pointed out by the participating professionals in an open-end question session. It was found that the incentives of more personal interest and family-related stuff affected their recommendation behavior.

This study demonstrates that pharmaceutical marketing practice has a great tendency to manipulate or modify the prescription behavior of physicians. It was revealed that an escalated level of influence on the prescribing behavior due to sales personnel frequent visit largely affect the prescriber preference for the medication. In this regard, it is deemed to be the most prominent factor. Further, a physician only prescribes high-quality medicine with superior effectiveness. Therefore, quality also influences this factor. It has been found that high-quality medicine with robust direct marketing sales personnel is effective in bringing inclination to their viewpoint.

In addition to this, the description of the product shall be devised in a logical, systematic, and structured way so that the physician can get a detailed insight into the newer launched molecules in the market. It was found that an immaculately delivered speech regarding the drug finds a way into the doctor's prescription list. Concordantly, valuable incentives are also appreciated by the practitioners, and sales personnel are always tried to find out the hidden need of physicians. If they become successful in this procedure, then it can assist to formulate a better gift and may contribute to modulate their perspective.

It was further found that Jordan holds very little conferences; thereby, securing sponsorship in such duration can be highly effective. That is why it is considered somehow effective to make good relations with the physician. In Jordan, drugs are mainly sold by brand names [16]. So, the brand name is a vital factor and a small, easy, and meaningful brand name is easier to remember and write in the prescription. Whereas, a shorter and unique name hardly gets any notice.

According to the World Bank, Jordan lies in a middle-income country. Thereby, the product capital is also one of the vital factors. It is a known fact that a drug with less cost factor and high effectiveness is greatly prescribed by the practitioners. Keeping in view this factor, companies always try to formulate price-friendly drugs. In lieu of this, launch meetings were also found somehow to be effective to the physicians. Apart from this, practices such as advertising on journals are not admired by the physicians and generally discourage it. It may be because; the physicians have not much time to spend on this kind of advertisement.

Direct mailing, transport facilities, and low-value gifts are of poor effectiveness to achieve the aim. Most of the physician refers to this mail as junk. Many physicians do not feel that their prescriptions are influenced by gifts and other incentives provided by the pharmaceuticals. Recent studies proved that the association with pharmaceuticals lead to less than appreciate prescribing behavior by the doctors [30]. Free drugs are less successful to alter the physician's behavior as they do not need these huge amounts of drugs from various companies. Of the record, most of the drugs are sold under a rate to the market. So, this is not an effective way to influence the prescription of the physicians. Lastly, the visit of the senior sales personnel to the physician, not a helpful approach either to influence physicians. It may increase the prescription for a little time but not for a long time.

Ideally, doctors should control their own behavior and practices when they engage with pharmaceutical industries. As no one is forcing or threatening anyone to pursue their objectives; therefore, it is up to individuals who accept such bribes and incentives in order to fulfill their own greed. There is an urgent need to eliminate or at least minimize corruption in medical practices using certain prescribed models and enhance transparency and accountability in medical practices [31, 32]. At the root level, there should be more focus on abiding by the Hippocratic Oath and developing a civic sense of morality and ethics. There should be the addition of some more curricula related to pharmaceuticals and quality management in the syllabi of physicians so they may be able to make a better decision while choosing any brand over another one. If those medical curricula are impossible to change, then physicians must voluntarily get themselves more educated on the quality of the products rather than relying on the presentations of medical representatives. While on the broad level, effective legislation must be pursued to efficiently curb the growing influence of pharmaceutical

industries over physicians. The unholy alliance of physician-pharmaceutical nexus must be eliminated by effective rules and regulations. Such regulations must be made after a thorough assessment of the current situation in the country and following international models. One of such models is being pursued by WHO with the name of "Good Governance for Medicine" (GGM) [33]. Not only should the focus be on making such rules and regulations, but also on effectively implementing such policies to maximize the desired outcomes. Continuous monitoring with a periodic evaluation to maintain the element of flexibility in rules and regulations must also be a part of the overall policy. Finally, role of pharmacist must be encouraged under such circumstances and opportunities must be made for pharmacist community to positively participate in decision making as well as campaigning against such menace. If pharmacists take good responsibility for amending such problems with administrative help than such a physician-pharma corruption, alliance could be broken down and economical health provisions could be ensured for the public, because the only pharmacist is the connection among the public, physician, and pharmaceutical companies.

Limitations

While considering this study, there are some drawbacks glued to the same. Such as the inability to reflect the full Jordanian physicians' diversity and targeting only the private sector in the capital of Jordan (Amman). It is hypothesized that there might be a tremendous difference in values and findings under frameworks comprising of different economic environments or a different health sector in the same country. Difficulty in meeting doctors in the private sector in different times and places and the difficulty of persuading them to participate were the main limitations of this research. Future studies can incorporate different shopping contexts and examine whether there is any change in consumers' responses.

CONCLUSION

With an ever-increasing expenditure on pharmaceutical strategies, one needs to decide whether there should be a control over industry and physician relationships. There are various factors that a physician considers before selecting a brand for medication. In our study, we found that sales personnel activity, personal relation, product quality, and reputation of the company influence the prescription behavior of a physician. That's why pharmaceutical marketing can influence the prescription behavior of a physician. Most of the investigated physicians change their prescribing behavior, and it can simply be concluded that the prescribing pattern of Jordanian physicians is negatively affected by promotion tactics. It can be concluded that pharmaceutical marketers have to understand the real needs, beliefs, and behaviors of physicians towards their marketing and promotional tools while taking into account physicians' behavior along with the scientific attitude.

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REFERENCES

- Campbell EG, Gruen RL, Mountford J, Miller LG, Cleary PD, Blumenthal D. A national survey of physician–industry relationships. *N Engl J Med.* 2007;356(17):1742-50.
- James CD, Peabody J, Solon O, Quimbo S, Hanson K. An unhealthy public-private tension: pharmacy ownership, prescribing, and spending in the Philippines. *Health Aff.* 2009;28(4):1022-33.
- Haider S, Nisar QA, Baig F, Azeem M. Dark Side of Leadership: Employees' Job Stress & Deviant Behaviors in Pharmaceutical Industry. *Int J Pharm Res Allied Sci.* 2018;7(2):125-38.
- Fyl RS, Fyl SP, Alekseenko IV, Kobets MP, Lubenets IH. Legal regulation of the EU pharmaceutical market and the possibility of implementing the European experience in Ukraine. *J Adv Pharm Edu Res.* 2019;9(4):1-8.
- Fauziah F, Surachman E, Muhtadi A. Integration of service quality and quality function deployment as an effort of pharmaceutical service improvement on outpatient in a referral Hospital Karawang Indonesia. *J Adv Pharm Edu Res.* 2019;9(2):13-23.
- Biswas K, Ferdousy UK. Influence of pharmaceutical marketing on prescription behavior of physicians: a cross-sectional study in Bangladesh. *J Account Mark.* 2016;5(2):1-4.
- Alshehry YA, Ghonaim HM, Khalid MS. Comparative Evaluation of the Analgesic Effect of Brand and Generics of Meloxicam tablets Available in markets. *Int J Pharm Phytopharmacol Res.* 2019;9(3):73-9.
- Khazzaka M. Pharmaceutical marketing strategies' influence on physicians' prescribing pattern in Lebanon: ethics, gifts, and samples. *BMC Health Serv Res.* 2019;19(1):80.
- Blumenthal D. Doctors and drug companies. *Am J Ophthalmol.* 2005;139(3):583.
- Lidstone J, MacLennan J. Marketing planning for the pharmaceutical industry. 1999: Gower Publishing, Ltd.
- Bagozzi RP, Gopinath M, Nyer PU. The role of emotions in marketing. *J Acad Mark Sci.* 1999;27(2):184-206.
- Lam MD. A \$20 billion bill and plenty of change. *Pharm Exec Sept.* 2004;1.
- Smith MC. Pharmaceutical marketing: strategy and cases. CRC Press; 1991.
- Marco CA, Moskop JC, Solomon RC, Geiderman JM, Larkin GL. Gifts to physicians from the pharmaceutical industry: an ethical analysis. *Ann Emerg Med.* 2006;48(5):513-21.
- Chew LD, O'Young TS, Hazlet TK, Radley KA, Maynard C, Lessler DS. A physician survey of the effect of drug sample availability on physicians' behavior. *J Gen Intern Med.* 2000;15(7):478-83.
- Ghaith A, Aldmour H, Alabbadi H. Investigating the effect of pharmaceutical companies' gifts on doctors' prescribing behavior in Jordan. *Eur J Soc Sci.* 2013;36(4):528-36.
- Lexchin J. Interactions between physicians and the pharmaceutical industry: what does the literature say?. *Can Med Assoc J.* 1993;149(10):1401.
- Gönül FF, Carter F, Petrova E, Srinivasan K. Promotion of prescription drugs and its impact on physicians' choice behavior. *J Mark.* 2001;65(3):79-90.
- Lexchin J. What information do physicians receive from pharmaceutical representatives?. *Can Fam Physician.* 1997;43:941.
- Manchanda P, Honka E. The effects and role of direct-to-physician marketing in the pharmaceutical industry: an integrative review. *Yale J Health Pol'y L. & Ethics.* 2005;5:785.
- Nair HS, Manchanda P, Bhatia T. Asymmetric social interactions in physician prescription behavior: The role of opinion leaders. *J Mark Res.* 2010;47(5):883-95.
- Lexchin J. Pharmaceutical company spending on research and development and promotion in Canada, 2013-2016: a cohort analysis. *J Pharm Policy Pract.* 2018;11(1):5.
- Brennan Z. Do Biopharma Companies Really Spend More on Marketing Than R&D. *Regul Focus.* 2019.
- Kassirer JP. The 21st Century Cures Potpourri: Was It Worth the Price?. *Am J Law Med.* 2018;44(2-3):157-60.
- Baethge C. Transparent texts: authors of scientific articles often have conflicts of interest. It is important for these to be communicated transparently to the readers. *Dtsch Arztebl Int.* 2008;105(40):675.
- Bloor K, Freemantle N. Fortnightly Review: Lessons from international experience in controlling pharmaceutical expenditure II: influencing doctors. *BMJ.* 1996;312(7045):1525-7.
- Pitt L, Nel D. Pharmaceutical promotion tools—Their relative importance. *Eur J Mark.* 1988;22(5):7-14.
- Wazana A. Physicians and the pharmaceutical industry: is a gift ever just a gift?. *Jama.* 2000;283(3):373-80.
- Kotler P. Marketing Management Prentice Hall of India Pvt. Ltd, New Delhi; 1999.
- Liu SS. A comparison of pharmaceutical promotional tactics between Hong Kong and China. *J Bus Ind Mark.* 1995;10(1):34-43.
- Nishtar S, Bhutta ZA, Jafar TH, Ghaffar A, Akhtar T, Bengali K, et al. Health reform in Pakistan: a call to action. *Lancet.* 2013;381(9885):2291-7.
- Albarq AN, Al Doghan M. Electronic word-of-mouth versus word-of-mouth in the field of consumer behavior: A literature review. *J Crit Rev.* 2020;7(14):646-54.
- Baghdadi-Sabeti G, Serhan F. WHO Good Governance for Medicines programme: an innovative approach to prevent corruption in the pharmaceutical sector. Geneva: World Health Organization. 2010.