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Impact Study on Various Promotional Practices Done by Pharmaceutical Companies on Doctor's Prescription Behavior: What Does Literature Say?

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ABSTRACT

Objective: To evaluate the impact of various pharmaceutical promotional tools like Sponsorship, Scientific promotional tools, Personal touch tools & Common promotional tools on the doctor's prescription behavior.

Data sources: Data sources included the following: Articles/studies/trials from the period of 2003 to 2016 on different promotional tools used by the pharmaceutical companies in various countries and its impact on the doctor's prescription behavior across the specialty.

Study selection: Total 112 articles reviewed from the different countries which talk about the various pharmaceutical promotional tools, the role of medical representative, the role of policy makers & corporate social responsibility and its impact on the doctor's prescription habit and his/her behavior. 20 studies met these criteria.

Data extraction: Information extracted from following topics: physicians' attitudes toward drug Industry interactions, promotional tools used by pharmaceutical companies in different countries & changes in physicians' prescribing behavior as a result of a promotional tool.

Data synthesis: Factors which affect doctor's prescription behavior like frequency of sales representative visits, participation of doctor in company sponsored training courses or medical educations, internet based communication, conference (Local and international), opinion leader, journals, CSR, visit frequency of sales person, cost factor, brand effectiveness, company standards, payment for clinical trials, drug detailing and doctor's prescription decision, sample, gift, reimbursement & scientific literature. All three types of interactions

affect physicians' prescribing behavior at a certain level; identify the factor which influences the most at specialty and its impact on the consumers, i.e. patients.

Conclusion: Physicians are affected by their interactions with the pharmaceutical industry. Factor which influences the most may vary from country & at specialty level. Change in government policy may affect the promotion tool & further research needs to be done at the local level in most cases to identify appropriate tool which influences doctors' prescription habit.

Keywords: Pharmaceutical industry, Promotional tool, Prescription, Medical representative.

1. INTRODUCTION

Healthcare professionals are the major targets of pharmaceutical companies mainly because of two reasons: Firstly, physicians are the key decision-makers in selecting specific drugs/brand for their patients' prescriptions; and secondly, companies are banned by law from advertising their prescription drugs directly-to-consumers (except in the US and New Zealand). Medical representatives are the most common communication channel to access healthcare professionals and inform them about brand /new drugs by pharmaceutical companies (personal selling).¹ In the past 20 years, doctor and pharmaceutical industry relationships have received considerable attention and many studies published to establish relationship between different tools used by pharmaceutical company to greet doctor.²

The impact of the various promotional tools on prescription many vary from one to another tool. The purpose of this review article is to identify a different kind of promotional tool used by the pharmaceutical company and highlight the most impactful tool in a prescription generation.

2. METHOD

This review article summarizes the studies which deal with 4 types of physician-industry interactions and its impact on physician's prescription habit.

1. Sponsorship promotional interactions (sponsorship for travel, stay and sponsoring high value personal and professional gifts).
2. Common promotional interactions (regular visits to a medical representative, low-value gifts, and physician sample).
3. Personal interaction (Personality of company's representative, greeting doctors and family members on personal occasions and sending personalized message through SMS or email).
4. Scientific promotional interaction (Scientific study material like journals, textbooks and literature and activities like organization of free disease detection camps and participation by the company in Conferences).

Current review article includes articles/studies/trials from the period of 2003 to 2016 on different promotional tools used by the pharmaceutical companies in various countries and its impact on the doctor's prescription behavior across the specialty. Total 112 articles reviewed from the different countries which talk about the various pharmaceutical promotional tool, the role of medical representative, the role of policy makers & corporate social responsibility and its impact on the doctor's prescription habit and his/her behavior.

3. RESULTS

A total of 20 studies fit the criteria: 12 studies deal with various pharmaceutical promotion tools, 5 studies with medical representative's effectiveness and its impact, 2 studies are related to physician payment for a clinical trial or as an advisory and 1 study deals with corporate social activity and its impact on physician's behavior. (Some studies reported on more than one topic.)

Frequency of Doctor-industry Interaction

Hassan S.A.³ reviewed that majority of the doctors is thinking positively about the visit of medical representatives. Most of the medical representatives visit fortnightly, however the frequency of visits may vary from daily to monthly³. The rate of MRs (medical representatives) visits to the doctor depends upon the patient burden of a doctor; a physician with high patients has more number of visits of medical representatives. Doctor with high visit rate of MRs receives more number of promotional inputs from pharmaceutical company compared to other. Medical representative visit affects the doctor's behavior and his/her prescription habit⁴.

Doctor's Attitudes Toward Interactions

Most physicians welcomed the visit of the MRs but some of them have their own criteria for choosing the MRs for regular visits such as personal style, company and the kind of drugs they offer etc. Although physicians were aware that the MRs could influence their prescribing decision, they welcome MRs to visit them and consider receiving free samples, gifts and various kinds of support as a normal practice⁵. 43.4% doctors believe that MRs gave their focus on selling their products, very few doctors believed that MRs focused on the scientific background of their product. 38.6% doctors believed that most drug promoters had a negative attitude regarding competitor's product⁶.

Sponsorship Promotional Interactions

Sponsorship promotional tool includes sponsorship for travel, sponsorship for a stay in the conference, and sponsoring high value personal and professional gifts⁷. Sponsorship is the most common tool used in pharmaceutical industry as it gives very fast result in terms of business. Many studies confirm that sponsorship influence the prescribing behavior of doctor as well as it affect the doctor's behavior toward the representative and company^{7,8,5}. Some countries have strict rules and regulation to control unethical practice for the benefit of the patient. Payment for a clinical trial is another kind of sponsorship promotion tool. Companies pay a grant to the doctor to conduct a clinical trial, but without proper control, this kind of grant influences the doctor's prescription pattern⁹.

Common Promotional Interactions

The common promotional tool includes regular visits of a medical representative, low-value gifts, and physician sample⁷. Regular visits of medical representative and low-value gifts help to build rapport between MR and doctor; ultimately it turns into the business. Doctors perceive it as a least important tool in changing their prescription habit⁷. Further, the value of the business is also significantly less compared to sponsorship promotional interaction. Common promotional tools like office stationary include pen,

chit pads, table tops and physician samples are mostly accepted physician gift. Physicians accepting gifts from MRs were six times more likely to get influenced than those who did not accept any gifts in their prescribing decisions⁶.

Personal Interactions

Personal Touch includes personality of company's representative, greeting doctors and family members on personal occasions and sending personalized message through SMS or email⁷. Pharmaceutical companies depended on the effectiveness and efficiency of their MRs, so company trains MRs how to observe and assess doctors' personalities and preferences during a training session after recruitment. MRs gathered doctors' personal information such as family and lifestyle details, hobby, personal interests, etc, and according to that MRs categorizes doctor in mainly 4 types.

1. **Directing type:** Doctors who have strong values and maintain their dignity.
2. **Thinking type:** Quiet in nature, they take the time to think before making any decision.
3. **Affiliating type:** These doctors welcome the MRs, they like to listen to them and also express their opinions.
4. **Expressing type:** These doctors often dominate the conversation while talking to the MRs, they hardly listen carefully to what the MRs say and usually do not prescribe the products on offer.

According to the nature of doctor, the company plans the personalized promotional input for the doctor to change doctor's prescription behavior¹⁰. Although personal interaction has a significant effect on doctor's prescribing behavior; it needs to plan with caution as it touches personal feeling and sometimes shows a negative impact on doctor's prescribing behavior⁷.

Scientific Promotional Interaction

Scientific promotional tools include scientific study material like journals, textbooks and literature and activities like organization of free disease detection camps and participation by the company in conferences, CMEs & webinars⁷. Scientific literature by pharmaceutical companies forms a very important source of information to the practicing physician, who many-a-times are not able to access other more reliable sources of information due to their busy schedule, and other reasons¹¹. Medical representatives are an important source of information for general practitioner but specialists are not considering them as an important source of information¹. Continues medical education (CME) organized by or sponsored pharmaceutical company is to be considered as a good source of information by the general practitioner as well by a specialist. The quality of CME depends on the topic of the CME as well as the speaker of the CME. A good CME has significant effects on the prescribing behavior of physician⁷.

Corporate Social Responsibility

Corporate social responsibility can assist companies to cultivate good rapport, produce a positive business image and deal with stakeholders' social interests. In pharmaceutical industry, CSR helps to develop loyalty of doctor towards company's product. CSR positively impact physician prescribing behavior¹².

Table 1
Characteristics of studies

<i>Study (First Author Name)</i>	<i>Study Site, Year</i>	<i>Participants (n)</i>	<i>Specialty</i>	<i>Promotion tool used</i>	<i>Outcome Measure(s)</i>
Serhat Vancelik et al. [3]	Turkey, Jan-Feb 2006	157	General Practitioners'	The frequency of sales representative visits to GPs, the participation of GPs in training courses	The promotional and educational courses of pharmaceutical companies were reported to be influential on their prescribing decisions by GPs.
Vilte Auruskeviciene et al [1]	Lithuania, 2015	254	General Practitioners'	Alternative communication channel and it's influence on Rx habit. Tool used, internet based communication, GPs and they increase drug prescribing intention Conference (Local and international), among GPs opinion leader, journals	Conference (Local and international), opinion leader & journals have high reliability among GPs
Salmi Mohd Isa et al [12]	Malaysia, 2014	101	NA	CSR and its influence on loyalty behavior.	Process and personal of CSR significantly influence loyalty behavior of medical doctors.
Syed Ali Hassan et al [4]	Karachi, 2014	222	General Practitioners'	Visit frequency of Salesperson, cost factor, brand effectiveness, company standards	Most commonly the choice is made on basis of brand effectiveness (59%) and company image (56%).
Joel Lexchin et al [13]	Australia, Canada, New Zealand, Britain and US	227	Physicians	Physician-industry interactions in forms of Clinical Trial & CMEs	Physicians are affected by their interactions with the pharmaceutical industry.
Roy H. Perlis et al [9]	USA	341,644	Across the specialty	Physician payment	Receipt of payments was associated with greater prescribing costs per patient, and a greater proportion of branded medication prescribing.
Iekuni Ichikawa et al [14]	Japan	NA	Across the specialty	Payment for Clinical Trial	Funding for research influence the prescribing practice of physician
Eelco Kappe et al [15]	The USA, 2015	59814	Across the specialty	Drug detailing and doctor's prescription decision	The number of detailing visits with average information content has a significantly positive effect on prescriptions for all brands.
Mahmoud Abdullah Al-Areefi et al. [5]	Yamen 2013	32	Physicians	Representative visit and doctor's prescription decision	Medical representatives could influence physician's prescribing decision.
Eric G. Campbell et al. [2]	USA 2003-4	3167	Anesthesiology, cardiology, family practice, general surgery, internal medicine, and pediatrics	Relationships between physicians and pharmaceutical, Tools - Sample, gift, reimbursement, payments	Industry may focus marketing efforts on physicians who are perceived as influencing the prescribing behaviors of other physicians.

Study (First Author Name)	Study Site, Year	Participants (n)	Specialty	Promotion tool used	Outcome Measure(s)
Noordin Othman et al. [16]	Malaysia & Australia 2007-9	3857	General Practitioners'	Quality of claims by pharmaceutical representatives & Rx habit of doctor	The majority of claims are vague. Reliance on doctors on commercial information may lead to less rational prescribing of medications. Even small gift and influence Rx habit
Birhanu Demeke Workneh et al. [6]	Northern, Feb-Mar 2015 Ethiopia	83	Physicians	Influence of MRs on prescribing practice	Accepting gifts and working in private health facilities were important predictors of these influences on physician's prescribing practices
Ishak Abubakar Y. Ibrahim et al. [17]	Saudi Arabia	110	Surgeon, Gynece, Derma, Dentist, Anesthesia, Internal medicine, Urologist, Ortho	Factors identified as most impacting physicians' drug selection decisions: Tools - Visit, leaflets, sample, pen, mug, Rx pad, notebook, Calendars	The factors identified as the most impactful on physicians' drug selection include the patient's financial situation and prevailing hospital policies, followed by advertising and frequent visits from sales representatives.
Susan Kamal et al. [18]	Egypt 2014	20	Physicians, dentist, pharmacist and policy makers	Detailing, conference invitations, gifts, and financial incentives	Physicians acknowledged the influence of pharmaceutical promotion on their individual prescribing
Rizwan Raheem Ahmed et al. [19]	Pakistan 2016	350	General Practitioners'	Scientific literature, promotional material, regular follow up, CMEs & conferences, personalized activities	All discussed variables are broad, multifaceted dimensions that reinforce physicians'/doctors very strongly to change their prescription pattern.
Farooq M et al. [11]	India 2015	-	General Practitioners'	Scientific literatures	Literature by pharmaceutical companies forms a very important source of information to the practicing physician
Mahrukh Mohiuddin et al. [10]	Bangladesh 2009	38	General Practitioners, MR, Authorities	Pharmaceutical promotion	Promotional activities compel the MRs, programmed to maximize the sale of products, to adopt unethical means if and when necessary.
Girish Taneja et al. [8]	India 2007	600	Physicians	Sponsorships, Scientific promotional tools, Personal Touch, Common promotional tools	Sponsorship> Scientific promotion> Personal touch> Common promotional tool. High to low impact on prescription.
Zaigham ALI et al. [7]	Pakistan 2015	300	Physicians	Sponsorships, Scientific promotional tools, Personal Touch, Common promotional tools	Sponsorship> Scientific promotion> Personal touch> Common promotional tool. High to low impact on prescription.
Girish Taneja et al. [20]	India 2006	100	Physicians	Various aspects	A pharmaceutical company can meet expectations of physicians in a better way and can perform better in the market. The promotional tool helps to get a prescription from the doctor.

4. DISCUSSION AND CONCLUSION

All the promotional tools used by the pharmaceutical companies affect physician's prescription habit at some extent. But the level of impact depends upon the nature of doctor, doctor's qualification and his/her attitude toward the company and representative. Although physicians are more prone towards scientific and sponsorship promotional tools but the need of personal interaction and a regular visit cannot be neglected. Regular visit of medical representative reminds doctor about the investment of pharmaceutical company and need for return on investment in terms of prescription.

To track the impact of the promotional tool on doctor's prescription, pharmaceutical companies generally use an ROI tracking system which unveils actual impact of the promotional tool on prescription. In personal promotional tool, currently closed loop marketing is catching an eye of pharmaceutical marketers. Multichannel closed loop marketing helps pharmaceutical companies to convey personalized message, analyzed the hidden need and evolving their customers into a conversation which ultimately leads to brand reminding and turn into business²¹.

In conclusion, each tool has its own impact. Collaborative and holistic approach is required to generate maximum prescription. One tool may be appropriate, but it may not attract another customer. One medical representative has more number of doctors, so as a strategist holistic approach is more preferable to attract the attention of a maximum number of doctors.

Conflict of Interest

No potential conflict of interest relevant to this article.

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