DETAILING BY MEDICAL REPRESENTATIVES THAT INFLUENCE MEDICINE PRESCRIPTION BEHAVIOR

Dr. Kiran Bala[1*]

[1*]Assistant Professor, Department of Commerce, University of Delhi

*Corresponding Author: Dr. Kiran Bala

*Assistant Professor, Department of Commerce, University of Delhi

INTRODUCTION

The pharmaceutical industry has been described as the complex of processes, operations and organizations involved in the discovery, development and manufacture of drugs and medications (Shah, 2004). Globally, the pharmaceutical industry has been on a growth of around 3-5 percent as of the year 2009 and is expected to grow at 4-6 percent over the next three years (IMS Health, 2009). Pharmaceutical companies invest billions of dollars per year promoting their products to doctors who decide whether and how often to prescribe these products produced by the company. As a matter of fact, the big pharmaceutical companies spend 20-25 percent of their sales promoting their products to physicians, more than what they spend on research and development (Collier & Iheanacho, 2012). The Pharmaceutical industry in India is the world's third largest in terms of volume and stands 14th in terms of value (Economic Times, June 2010). Some of the major pharmaceutical firms are Sun Pharmaceutical, Cadila Healthcare and Piramal Healthcare. There are approximately 30,000 pharmaceutical companies in India, competing for a share of the 20 billion dollars market in annual sales (Pearl & Stecklow, 2012). The pharmaceutical industry is a vital industry not only because of its economic significance but also because of its impact on the health and well-being of people of all ages and economic levels. Growth and prosperity of a nation largely depend on the health of the individual in the society. Subsequently, the pharmaceutical industry has been identified in the Indian Development Goals as a major driver for the healthcare sector. Therefore, for the drug promotion over the past few decades, pharmaceutical expenditure has risen rapidly in India and therefore an optimal use of the promotional mix is required to reduce unnecessary cost and also to overcome criticisms of "over promotion" that portrays pharmaceutical companies as unethically influencing doctor's medicine prescription behavior.

If pharmaceutical companies adopt optimal level of spending on promotional activities then that will be regarded as useful because they primarily provide beneficial information to doctors.

Medicine prescription behavior is a doctor's decisions about a specific pharmaceutical company's drugs through their evaluation process considering several factors. This prescription behavior could be transactional or driven by information available about the company and its drugs and most

1137

important the influence of pharmaceutical marketing. The groups who provide perspectives on medicine prescription behavior of doctors are pharmaceutical companies who set policies regarding marketing practices, medical representatives who facilitate the sale of drugs and doctors who prescribe drugs.

Pharmaceutical marketing, sometimes called medico-marketing or pharma marketing is the business of advertising or promoting the sale of pharmaceuticals or drugs. Dey et al. (1999) studied pharmaceutical marketing in India and suggested that the point of differentiation (competitive advantage) lies with medical representatives and their relationship with doctors. Furthermore, they identified other marketing tools such as advertising, marketing research, public relations and distribution. Mizik & Jacobson (2004) assessed the role of two central components of pharmaceutical marketing practices (namely, detailing and sampling) on physician prescribing behavior and found that detailing and free drug samples have positive and statistically significant effects on the number of new prescriptions issued by a physician.

The World Health Organization defines drug promotion as all informational and persuasive activities by manufacturers and distributors, the effect of which is to influence the prescription, supply, purchase or use of medicinal drugs (WHO, 2007). There are many drug promotion techniques used by pharmaceutical companies such as providing drug samples, gifts, sponsoring tours etc for doctors to persuade them to prescribe their brands and for over the counter drugs pharmaceutical companies directly advertise to consumers to purchase their brands.

The focus of this study is on role of medical representatives in influencing prescription behavior of doctors. Pharmaceutical sales representative or medical representative (formerly detail man) are sales people employed by pharmaceutical companies to persuade doctors to prescribe their drugs to patients. Drug companies in the United States spend five dollar billion annually sending representatives to doctors to provide product information, answer questions on product use, and deliver product samples (Fugh & Ahari, 2007). Medical representatives of pharmaceutical companies provide daily use things like prescription pads, stamps, paperweights etc to doctors to keep their brand in the doctor's memory. These "brand reminders" may vary from desktop items to minor medical equipment. Companies also build a personal rapport with the doctor by greeting them on their birthdays and anniversaries. Doctors receive information on new drugs primarily through visits by Medical Representatives (MRs) who use flip charts as their main presentation aid for this purpose. These flipcharts show the benefits of their drugs over the drugs of other companies. "Glaxo introduced the concept of flip charts in1972 and the company doubled its sales in one year." (Roy & Pai, 2013)

Pharmaceutical marketing is a specialized field where medical representatives form the backbone of entire marketing effort. Pharmaceutical detailing is a one to one marketing technique used by pharmaceutical companies to educate a doctor about a vendor's products in hopes that the doctors will prescribe the company's products more often.

Pharmaceutical companies appoint medical representatives and assign them defined territories. Medical representatives meet doctors, chemists and stockiest as per company norms. Medical

representatives try to influence prescription pattern of doctors in favour of their brands (Sahad & Sharma, 2005). A medical representative has to redefine its role, he should know SPICE concept of Pharmaceutical Marketing.

S : Specific

P :   Product Knowledge

I : Inclinical Activity

C: Communicate Effectively

E: Encash in terms of Prescription

It is vital that sales professionals become involved in the process to influence doctors so that doctors change their clinical behavior and prescribing habits. If medical representatives present the information to the physician as an opportunity for learning and improving the problem-solving process, the doctor, the patients and the representative get benefitted. By training representative to view time with a doctor as a part of a larger educational process, pharmaceutical companies make it possible for them to contribute to that learning process and meet their goals more quickly. Scientific information is more effective when used as an educational tool rather than a sales tool. (Rajan, 2006)

Pharmaceutical companies have to decide on the appropriate size of a sales force needed to sell a particular portfolio of drugs to the target market. Factors influencing this decision are how many physicians to see and frequency (how often to see them) for each individual physician, how many patients suffer from that disease state, how many sales representatives work for office and group practice etc. To aid this decision, doctors are broken down into different classes according to their prescription behavior, patient population and their business potential.

Pharmaceutical Companies also conduct "post-marketing surveillance" programmes to monitor doctor's support and based on that they facilitate the doctors.

Factors RELATED TO MEDICAL REPRESENTATIVES THAT INFLUEN -CE MEDICINE PRESCRIPTION BEHAVIOR

Abratt & Lanteigne(2000) identified marketing factors (sales representatives, advertising, price of the product to the patient, trade fairs and symposia) and professional factors (journals, prior experience and education, opinion leader influence, recommendations by colleagues, patient demands) that influence physician prescription behavior.

Medical Representative's Personality refers to the physician's assessment that a particular medical representative is friendly, nice and pleasant to be around. Psychological research generally finds a positive relationship between a person's likability and the extent to which the person is trusted by others. Doney & Cannon (1997) also found that salesperson likability positively influences buyer trust. While the likable medical representatives were found to be trustworthy, physicians tend to continuously prescribe the drugs of the particular medical representative's firm. Medical Representatives are considered one of the important sources of information for physicians in

making their prescription decisions (Wazana, 2000; Alkhateeb et al., 2009). Harris G., (2009) said that Overall, there is clearly a substantial, though variable, effect from one-to-one drug information delivery. This study adds to doctors knowledge of the subject and reminds them that there is no such thing as a free lunch; these visits really do result in increased sales.

Charlene Prounis (2003) has excellently expressed that the relationship between medical representatives and doctors is very important and crucial. Major changes have been taken by pharmaceutical companies in the works for sales force and take steps to strengthen the bond of their representatives and doctors. Better pharmaceutical marketing make doctors and representatives satisfied and both sides get benefitted.

Janakiraman et al.(2008) investigated physician habit persistence in prescription choice behavior and found significant levels of persistence in drug choice. They described physician's current drug choice as structurally dependent on the previously prescribed drugs. They argued that physicians do not frequently change their preferences, they tend to be either persistent or non-persistent. With respect to physician's response to the promotion of prescription drugs, the non-persistent physicians were found to be responsive to detailing and symposium meetings, whereas persistent physicians seem to be responsive only to symposium meetings, with outside-office events, such as golf or lunch, having no effect on physician choice. They also found that detailing and symposiums can have long-lasting effects, older physicians and those who work in smaller practices are more likely to be persistent and physicians who are more willing to receive sales force representatives have a lower likelihood of being persistent.

1. **Level of Knowledge of Medical Representatives**

Medical representative is one of the most important parts of any pharmaceutical company. Even their working performance is measured by the number of sales, their job is not only selling the medicine as it is. They also have to be strong in product knowledge and be able to communicate to doctors about the value that a certain drug is able to provide to the patients. This includes introducing the product to doctors, educating the doctors on the indications that the product addresses and the correct dosages as well as its advantages over that of the competitors. Doctors also value those medical representatives who have extensive knowledge of their drug and the correlating disease state and of physician needs and time constraints.

Scott (2003) survey covered almost 2,000 physicians about information that would convince them to prescribe more of a certain product. The results showed that "objective information about the product is the most convincing item a sales representative can offer."

Accenture (2003) study shows primary care physicians regard pharmaceutical representatives as being more influential upon their prescribing decisions than even their own peers. Peer-reviewed clinical journals (80%) and industry association meetings (34%) were rated higher than sales representatives (30%), with colleagues (27%) and the Internet (16%) lagging behind. Although the

study was limited in size (n = 100), the respondents did indicate that "approximately one-third of sales visits are helpful." Physicians want more current, comparative and clinical information, based upon objective sources of information. Constraints upon their time and availability were limitations on how much time physicians can give to pharmaceutical representatives. Physicians wished to see the representative because of the value of samples and because of their interest in new products and drug-specific information. The data were from the years 2001 and 2002, and it detailed sales force effectiveness by physician specialty, by drug therapeutic class and by promotional activity. The report found that 85% of all pharmaceutical representatives who entered a medical office with the intent to sell actually engaged someone in the office. The other 15% left without such engagement, most likely because of too many patients or too many other representatives. Of the 85% who attempted to sell, 5% were turned away by a receptionist, 15% left samples at the front desk, 61% actually got to the sample closet and obtained a signature from a prescriber at that venue, and 20% got to sit down with a physician to deliver a sales call. In this study, physicians responded strongest to three components of an effective sales call: well-utilized resources, solid message content, and clear message delivery. The most appreciated resources were sales aids and reprints of significant articles. The components of the sales message that were essential to physicians were dosing, side effects, efficacy, and competitive data. Clear message delivery was helped by dialogue with interesting questions. Health Strategies Group tracked physicians who received sales calls that contained one, two, or all of these key components. Only 5% of all calls contained all 4 key tactics, and these calls were the only ones that led to a change in physician prescribing behavior. This study explored the connection between pharmaceutical representative interaction and formulary requests showed that the two are positively correlated. A group of physicians who had requested formulary additions was compared to a group who had not and assessed according to physicians' self-reported associations with drug company representatives. The first group was more likely to have spoken for or performed research for drug companies. "Moreover, physicians were more likely to have requested formulary additions made by the companies whose pharmaceutical representatives they had met" (Health Strategies Group, 2003)

A retrospective literature review authored by Wazana (2000) attempted to identify the meaning of physician-pharmaceutical representative interactions. In this article, a total of 29 studies were taken and mostly focused on family medicine, internal medicine, and resident physicians. The results were reported with regard to the effects of interactions with pharmaceutical representatives, gifts, samples, industry-paid meals, funding for travel to attend educational symposia, pharmaceutical representative speakers, continuing medical education sponsorship, and physician honoraria. The author stated that "interactions with pharmaceutical representatives were found to impact the prescribing practice of residents and physicians in terms of prescribing cost, non-rational prescribing, awareness, preference and rapid prescribing of new drugs, and decreased prescribing of generic drugs". The analysis of this study was more comprehensive as it included larger numbers of respondents from multiple articles and covered a longer period of time. The Wazana article

included studies published from 1982-1998 with a total sample population across 29 studies of 8,122 physicians and residents. The author suggested that interactions guidelines, practical training, academic detailing and industry-independent drug information mailings may mitigate the influences that representatives have on physician prescribing. A finding from the Wazana article that elicits interest is that most physicians and residents denied that gifts were an influence upon their behavior. There were mixed reactions over interactions with the pharmaceutical industry and the extent of the influence upon prescribing behavior. The three factors identified in this review that applied the greatest influence on physician behavior were samples, detailing, and conference travel funding.

2. Kind of Information given by Medical Re- presentatives

Medical representatives have been the main channel for transmitting marketing information through "detailing" to physicians for the past 50 years (Greene, 2007). The main sources of information for doctors include peer-reviewed medical journals, medical textbooks, proceedings of conferences and pharmaceutical sales representatives (Theodorou et al., 2009)

Lurie et al. (1990) study showed that drug promotion through the interaction between medical representatives (MRs) and physicians result in a significant increase in prescription of promoted drug. Similarly it was found that physicians were influenced by pharmaceutical companies strategies to change their prescribing patterns. Abdelaziz et al. (2003) findings also indicate that sales representatives provide reliable and efficient information. On the other hand Ziegler et al. (1995) argue that sales representatives provide biased information as they only mention the advantages of the drug.

According to Henry (2002) In US the number of pharmaceutical sales representatives increased from about 30,000 to over 80,000 from 1994 to 2002. Representatives have increased as a percentage of office-based physicians from 10% in 1994 to over 20% in 2002. A comprehensive overview of physician perspectives on prescription drugs developed by this study. This study focused on interactions with representatives, drug advertising, and physician interactions with patients. A total of 2,608 actively practicing doctors responded to a mail survey. The sample was racially and ethnically weighted to be representative of the total physician population. The survey revealed that almost three quarters of physicians rate information from pharmaceutical representatives as either "very" or "somewhat" useful. An even higher number, 80%, believe that the information they receive from representatives is "very" or "somewhat" accurate. In this survey, 60% of physicians are aware that pharmaceutical companies possess data on individual prescribing, but less than a third believe this practice is unacceptable. As of 2012, approximately 72,000 pharmaceutical sales representatives were employed in the United States (Jonathan, 2012).

Mckinney (1990) study shows that forty seven percent of the physicians agreed that sales representatives provide all information to describe a drug, while eighty percent thought that they overemphasized the effectiveness of a drug. Physicians agreed that sales representatives provided useful and accurate information about newly and already established drugs, but only few doctors agreed that they performed an important teaching function (John, 1997).

Norris et al. (2007) study shows that sixty-eight percent of doctors in Turkey thought the information provided by representatives was unreliable. Zeigler et al. (1995) quantified the inaccuracies in pharmaceutical representatives presentations by analysing 106 statements made during 13 presentations. 11% of the statements were inaccurate in favour of the promoted drug. Of the 15 statements about competitors" drugs, none were favourable. 49% of accurate statements about the promoted drugs were favourable, 31% were neutral and 15% were unfavourable. A questionnaire was distributed to a sample of 27 residents who had attended the presentations. Only 26% of residents recalled having heard a representative make an inaccurate claim.

3. Communication Skills of Medical Representatives

The Indian pharmaceutical industry's biggest challenge lies in reinventing communication. It has become extremely crucial to differentiate in the pharmaceutical market place through communication. Pharmaceutical companies have to primarily depend on personal selling to promote (communicate) their medicines in the market as the target audience that is doctors and customers are different, who are not the end users but merely influencers.

Communication is most important part and the main objective is to make an impression, an Impression which is long lasting. In today's competitive environment, many national and Multinational pharmaceutical companies have gained remarkably for their exceptional marketing Communication strategies for relationship building and sales promotion. As discussed above in pharmaceutical marketing, relationship with doctors is very important and they cannot make a good relationship till they understand the customer well.

The medium of communication, i.e. the 'medical representative' is the face of the pharmaceutical company and only he can create an impact on the prescriber of the medicine. It is very important to see that the medical representative delivers the message appropriately. Pharmaceutical companies direct all their efforts to promote their medicine to these distinct classes of customers and train the field sales force to take on the task of promoting medicines to highly skilled and knowledgeable doctors. Hence pharmaceutical selling is distinct from other kinds of selling. Pharmaceutical companies need to understand the importance of simple, creative, and effective communication in pharmaceutical selling/promoting. The objective of pharmaceutical marketing is to make profits through satisfying customer needs and wants.

The impact of promotions on physician's choices of prescriptions has been well investigated in the literature (Berndt et al., 1997; Gonul et al., 2001; Manchanda and Chintagunta, 2004; Narayanan et al., 2004; Mizik and Jacobson, 2004; Kissan and Mantrala, 2009; Ching and Ishihara, 2010) and the conclusion is the strong positive influence of free samples and detailing on physician's prescribing habits.

Continuous training for medical sales representatives (number 35,000 worldwide) is designed to ensure the quality of their presentations during promotional visits." (Sanofi 2007)

4. Frequency of visit of Medical Representatives

A regular visit by a smart, dedicated and well groom having soft skills medical representatives is the best tool of promotion for a pharmaceutical company. Regular follow-ups means doing something special or unique by pharmaceutical companies which will make the doctor to remind the product or conducting the activity that will continuously hammer the product in the doctor's mind. Regular follow-up mainly include frequently visit of medical representatives, sending a reminder card to the doctors to request the doctor to prescribe the product. Sending reminder cards also include drafting & sending a thanks-giving note to the doctor for extending their prescription support to the doctor. Company always gives emphasis on importance of regular follow up.

Most physicians change their prescribing preference of particular drug from one company to another by attendance of MRs, regardless whether it is brand or generic (Steven , 2007). A study conducted in Haryana state of India explored that doctors considered regular visits by good personality medical representative as best tool of promotion.

Rajan (2006) believes that the regular visit by a medical representative helps there brand to get into the mind space of a busy doctor. Every product, old or new, requires extensive marketing. Any busy consultant will vouch that if a particular company's medical representative (MR) fails to show up for over a month, he suspects the availability of the products of that manufacturer.

5. Professionalism factor of Medical Re- presentatives

Unless physician's perceptions are positive about a particular medical representative in terms of professional values, they may not trust those medical representatives and may not prescribe that medical representative company's drugs (Wright & Lundstrom, 2004). When physicians perceive a particular medical representative as having high professional values, it enhances the trustworthiness of the medical representative that translates into the continuous prescription of the company's drugs (Doney & Cannon, 1997).

Mizik & Jacobson (2004) study is the most comprehensive assessments of pharmaceutical representative influence on physician prescribing. They used econometric analyses to quantify the persistence in physician prescribing accounting for "own-growth" and competitive stealing" effects. The study also assesses the diminishing effects over time and controls for spurious correlations (practice size, others) of physician-related factors. The authors contended that the data treatment overcomes limitations of previous studies and includes approximately 74,000 physicians over 2 years, for a total of over 2 million observations.

If pharmaceutical sales representatives influence physician prescribing, what is the mechanism by which they exert this influence? One study shows that pharmaceutical representatives influence upon physician prescribing is directly correlated with the level of credibility they have with a physician. Almost five hundred primary care physicians in a study assessed the costs of prescribing and the credibility of pharmaceutical representatives. A positive correlation was found between

representative activity and credibility and the costs of prescribing, especially for those physicians practicing in nonacademic settings (Caudill et al., 1996).

CONCLUSIONS AND IMPLICATIONS

The survey gives the idea about the how pharmaceutical marketing works & what are roles & doctors expectation from medical representative for using his company's product & the reasons behind shifting the brands. It shows the following results:-

1. The most effective means for promoting the pharmaceutical product is medical representative of the respected pharmaceutical company & also the medical representative plays important role in promoting & building the brand equity.

2. The most effective medium for brand recall is reminders through medical representative to their doctors.

3. The doctors expectation from the medical representative is their communication skills, professionalism and product knowledge while promoting their product & presenting their company to their doctor.

4. The reason for shifting the brand from one to another is lack in the persistence of the medical representative activities.

5. Interaction with medical representatives result in rapid prescription of new drugs differ across education, employment sector but not experience.

This study is useful to pharmaceutical companies in developing physician loyalty to particular brands. It gives guidelines to pharmaceutical companies how to promote a new drug in the presence of competing older drugs. Therefore, this research suggests establishing appropriate guidance in order to improve the efficiency and effectiveness in medical services.

Finally, this research provides a different perspective for future research on prescription behavior by including other factors which would possibly provide different orientations to prescription loyalty studies.

BIBLIOGRAPHY

1. *"Accreditation Council for Continuing Medical Education. Standards for commercial support"*. (n.d.). Retrieved Feb 23, 2005, from www.accme.org/dir_docs/doc_upload/68b2902a-fb73-44d1-8725-80al504e520c_upload document.pdf.

2. *Anon. PhRMA adopts new marketing code (press release)*. (2002, Apr 19). Retrieved from www.phrma.org/mediaroom/press/releases/19.04.2002.390.cfm (accessed 2003 Aug 8).

3. *" Study finds problems in M.D.-sales rep relationship" Pharm Representative.* (2003, Aug 6). Retrieved Feb 23, 2003, from Annon: pharmrep.adv100.com/pharmrep/article/article Detail.jsp?id=118398

4. *Health Strategies Group, Inc. PharmaSFE.*, v. 3.2. (2003). Retrieved Aug 18, 2003, from www. healthstrategies.com/products/sfe_reports.html.

5. (5th may 2003). *OIG compliance program guidance for pharmaceutical manufacturers.* Federal Registe , pp. 68-86 :23731.

6. Abdelaziz , A. B., Harrabi, I., & Rahmani, S. (n.d.). "Attitudes of general practitioners to pharmaceutical sales representatives in Sousse". *East Mediterranean Health Journal, Vol. 9* (5-6), pp. 1075-8.

7. Abratt, R., & Lanteigne, J. (2000). "Factors influencing general practitioners in the prescription of medicines". *South African Journal of Business Management, Vol. 31 No. 3*, pp. 91-7.

8. Accenture. (2003, July 16). *"Physicians seek more detailed, comparative and customized information from pharmaceutical representatives "*. Retrieved September16 2003, from accenture.com/xd/xd .asp?it=enweb&xd=_dyn\ dynamicpressrelease_630.xml.

9. Alkhateeb, F. M., Khanfarb, N. M., & Clauson, K. A. (2009). "Characteristics of physicians who frequently see pharmaceutical sales reprentatives". *Journal of hospital Marketing and Public Relations, Vol. 19 No. 1*, pp. 2-14.

10. Anand, V. C. (2011). "Professional conferences, unprofessional conduct". *Medical Journal ArmedForces of India, Vol. 67 (1)*, pp. 2-6.

11. Anderson, M. (2006). "Maximizing sales effectiveness with e-detailing". *Eye for pharma's 5th Annual Marketing ROI for Pharma Congress.* Amsterdam.

12. Bednarik, J. (2005). "Does brand differentiate pharmaceuticals?". *Neuroendocrinology Letters, Vol. 26*(No. 6), pp. 635-52.

13. Berblinger, J. (1996). Marktakzeptanz des Ratings durch Qualitat, in Buschgen undEverling: Handbuch Rating Wiesbaden:. pp. 21-110.

14. Berndt, E. R., Bui, L. T., Reiley, D. H., & Urban, G. L. (1997). "The roles of marketing, product quality and price competition in the growth and composition of the US antiulcer industry". In *The Economics of New Goods.* Chicago: University of Chicago Press.

15. Boltri , J., Gordon, E., & Vogel, R. (2002). "Effect of antihypertensive samples on physician prescribing patterns" . *Fam Med., Vol. 34*, pp 729-31.

16. Boseley, S. (2007). *"Drug firms try to bribe doctors with cars"* . Retrieved June 22, 2011, from The Guardian: www.guardian.co.uk /world/2007/oct/31/international.mainsection1

17. Brett, A. S., Burr, W., & Moloo, J. (2003). "Are gifts from pharmaceutical companies ethicaly problematic? A survey of physicians". *Archives of internal Medicine, Vol. 163 No. 18*, pp. 2213-2218.

18. Campo, K., De Staebel, O., Gijsbrechts, E., & Van Waterschoot, W. (2005). "Physicians ' decision process for drug prescription and the impact of pharmaceutical marketing mix instruments". *Health Marketing Quaterly, Vol. 22 No. 4*, pp. 73-107.

19. Carter, F. J., & Chitturi, R. (2009). "Segmentation based on physician behavior: implications for sales forecasting and marketing mix strategy". *Journal of Personal Selling and sales management, Vol. 29 No.1*, pp. 81-95.

20. Caudill , T., Johnson , M., Rich, E., & McKinney, W. (1996). "Physicians,pharmaceutical representa tives and the cost of prescribing". *Arch Fam Med.*, 5(4:)pp. 201-6.

21. Chew , L., O'Young , T., Hazlet , T., Bradley , K., Maynar, C., & Lessler , D. (2000). "A physician survey of the effect of drug sample availability on physicians' behavior". *J Gen Intern Med.* , 15:478.

22. Ching, A., & Ishihara, M. (2010). "The effects of detailing on prescribing decisions under quality uncertainty". In *Quantitative Marketing and Economics* (Vol. 8 No. 2, pp. 123-165).

23. Collier, J., & Iheanacho, I. (2012). "The Pharmaceutical industry as an informant". In *The Lanchet* (Vol. 360 No. 11, pp. 1405-9.).

24. Cosceilli, A., & Shum, M. (2004). "An Empirical Model of Learning and Patient Spillovers in New Drug Entry". *Journal of Econometrics, Vol. 122*, pp. 213-246.

25. Cutting Edge Information. (2004). *"Pharmaceutical Thought Leaders: Brand Strategies and Product Positioning".*

26. Davis, D., O'Brien, M., Freemantle, N., Wolf, F., Mazmanian, P., & Taylor-Vaisey, A. (1999). "Impact of formal continuing medical education: do conferences, workshops, rounds and other continuing education activities change physician behavior or health outcomes". *Journal of the American Medical Association, Vol. 282*, pp. 867-74.

27. Denig, P., Haaijer-Ruskamp, F. M., & Zijsling, D. H. (1988). "How physicians choose Drugs?". *Social Science and Medicine, Vol. 27 No. 12*, pp. 1381-1386.

28. Dey, A., Raj, U. K., & Chandra, A. (1999). "Pharmaceutical marketing in India: a macroscopic view". *Paper presented at Conference of South Western Marketing Association* . Houston,TX.

29. Dhar, A. (2010). *A "MCI quantifies punishments for doctors accepting gifts".* Retrieved June 22, 2011, from The Hindu: www.thehindu.com/news /national/article244361.ece

30. Dolovich , L., Levine , M., Tarajos , R., & Duku , E. (1999). "Promoting optimal antibiotic therapyfor otitis media using commercially sponsored evidence-based detailing: A prospective controlled trial". *Drug Infoi J, Vol. 33*, pp. 1067-77.

31. Donaldson, T. (1982). "Corporation and Mortality". *Prentice-Hall ,Englewood Cliffs.* NJ.

32. Doney, P. M., & Cannon, J. P. (1997). "An Examination of the nature of trust in buyer -seller relationships". *Journal of Marketing, Vol. 61*, pp. 35-51.

33. Economic Times. (June 2010, June 8). " Pharma to topple IT as big paymaster".

34. Ellison, S., Cockburn, I., Griliches, Z., & Hausman, J. (1997). "Characteristics of demand for pharmaceutical products: an examination of four cephalosporins". *RAND journal of Economics, Vol. 28 No. 3*, pp. 426 -46.

35. Fangwen, L. U. (2011). *"Experiments on Health and Education in Developing Economies".* Retrieved from Education Resources Information center: http://www.proquest.com/en-US/products/ dissertations/individuals.shtml

36. FDA. (2002). *"Consumer directed broadcast advertisements".* Retrieved August 12, 2012, from www.fda.gov/: http://www.fda.gov/ RegulatoryInformation/Guidances/ucm125039.htm

37. Fidler, H., Lockyer, J., Toews, J., & Violato, C. (1999). "Changing physicians' practices: the effect of individual feedback". *Journal of American Medical Association, Vol. 74*, pp. 702-14.

38. Fombrun, C. J., & Van Riel, C. (1999). "The reputational landscape". *Corporate Reputation Review, Vol. 1*, pp. 5-12.

39. Friedman , J. (Aug 2003). " Pharmaceutical trends: Marketing key topic at conference. Incentive". ., *177 11).*

40. Fugh, A. B., & Ahari, S. (2007). "How Drug Reps Make Friends and Influence Doctors". Public Library of Science.

41. Gibbons, R. (1998). " A comparison of physicians' and patients' attitudes toward pharmaceutical industry gifts". *J Gen Intern Med.*, 13(3) pp. 151-4.

42. Glass, H. E., & Poli, L. G. (2009). "Pressure points' on pharmaceutical industry executives: what lies Ahead?". *International Journal of Pharmaceutical and Healthcare Marketing, Vol. 3 No. 1*, pp. 74-83.

43. Glass, H. E., & Rosenthal, B. (2004). "Demographics, practices, and prescribing characteristics of physicians who are early adopters of new drugs". In *Pharmacy and Therapeutics* (Vol. 29 No. 1, pp. 699-708).

44. Gönül , F. F., & Carter , J. F. (2010, June 13). "Impact Of e-Detailing on the Number of New Prescriptions". *Health Care Management Science, 13 June (2),, Vol. 2*, pp.101- 111.

45. Gonul, F. F., Carter, F., Petrova, E., & Srinivasan, K. (2001). "Promotion Of Prescription Drugs and its impact on physicians' choice behavior". *Journal of Marketing, Vol. 65*, pp. 79-90.

46. Greene, J. (2007). " Pharmaceutical marketing research and the prescribing physician". *Ann Intern Med., Vol. 146*, pp. 742-748.

47. Groves , K., Sketris , I., & Tett , S. (2003). *"Prescription drug samples–Does this marketing strategy counteract policies for quality use of medicines? "*. Retrieved from J Clin Pharm Ther.,28 (4)pp. 259-71.

48. Haddad, J. (2002). "The pharmaceutical industry's influence on physician behavior and health care costs". *San Francisco Medicine*, 75(6).

49. Halperin, E., Hutchison , P., & Barrier, R. (2004). A population based study of the prevalence and influence of gifts to radiation oncologists from pharmaceutical companies medical equipment manufacturers. *Int J Radiat Oncol Biol Phys*, 59:1477-83.

50. Hartzema, A. G., & Christensen, D. B. (1983). "Nonmedical factors associated with the prescribing volume among family practitioners in an HMO". *Medical Care, Vol.21*, pp. 990-1000.

51. Henry, J. (2002, March). "National Survey of Physicians : Doctors and Prescription Drugs". *Kaiser Family Foundation*.

52. Holmer , A. (2001). "Industry strongly supports continuing medical education" JAMA. 285:2012-14.

53. IMS Health. (2009). *"IMS forecasts global pharmaceutical market growth of 4-6 percent in 2010; predicts 4-7 percent expansion through 2013"*. Retrieved March 16, 2010, from www.imshealth.com: http://www.imshealth.com

54. Janakiraman, R., Dutta, S., Sismeiro, C., & Stern, P. (2008). "Physicians ' persistence and its implications for their response to promotion of prescription drugs". *Management Science, Vol. 54 No. 6*, pp. 1080-1093.

55. John, A. H. (1997). "Effects of an Educational Intervention on Residents'Knowledge and Attitudes Toward Interactions with Pharmaceutical Representatives". *GEN. INTERNAL MED, Vol. 639*.

56. Jonathon, D. R. (2012, Jan 10). "Drug Reps Soften Their Sales Pitches". *Wall Street Journa*.

57. Katz, D., Caplan, A., & Merz, J. (2003). "All gifts large and small" . *Am J Bioethics.*, 2(3), pp.39-46.

58. Kennedy, M. S., Ferrel, L., & LeClair, D. T. (2001). "Consumers' trust of salesperson and manufacturer: an empirical study". *Journal of Business Research, Vol. 51 No. 1*, pp. 73-86.

59. Kissan, J., & Mantrala, M. (2009). "A model of the role of free drug samples in physicians' prescription decisions". In *Marketing Letters* (Vol. 20 No. 1, pp. 15-29).

60. Landefeld CS , C., & Steinman , M. (2009, January). "The Neurontin legacy--marketing through misinformation and manipulation". *J. Med. , 360 (2)*, pp. 103-6.

61. Landon, B. E., Reschovsky, J., Reed, M., & Blumenthal, D. (2001). "Personal ,organizational and market level influences on physicians' practice patterns". In *Medical Care* (Vol. 39 No. 8, pp. 889-905).

62. Layton , R. M., Sritanyarat , W., & Chadbunchachai, S. (2007). "Sources of information for new drugs among physicians in Thailand" ,. *Pharm World Science, Vol. 29*(6), pp. 619-27.

63. Leffler, K. B. (1981). "Persuasion or information? The economics of prescription drug advertising". *Journal of Law And Economics, Vol. 24 No. 1*, pp. 45-74.

64. Liebman, M. (1997). "Hard facts about a soft spend: How print advertising pays off". *Med Marketing Media*, 32(4):66-74.

65. Liebman, M. (2000). Listen up, publishers say–journal advertising sells! *Med Marketing Media*, 35(3):89-94.

66. Lurie , N., Rich , E., & Simpson, D. (1990). " Pharmaceutical representatives in academic medical centers. 1990;. *J Gen InternMed., Vol. 5*, pp. 240-254.

67. Madhavan, S., Amonkar, M. M., Eliott, D., Burke, K., & 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. 207-215.

68. Maignan, I., & Ferrell, O. C. (2001). "Corporate citizenship as a marketing instrument". *European Journal of Marketing, Vol. 35 Nos 3/4*, pp. 457-484.

69. Manchanda, P., & Chintagunta, P. K. (2004). "Responsiveness of physician prescription behavior to sales force effort: an individual level analysis". In *Marketing Letters* (Vols. 15 Nos 2-3, pp. 129-145).

70. Mckinney, W. P. (1990). Attitudes of Internal Medicine Faculty and Residents Toward Professional Interaction with Pharmaceutical Sales Representatives. *JAMA 1693 , Vol. 264*.

71. Miles, M. P., & Covin, J. G. (2000). "Environment marketing : a source of reputatonal competitive and financial advantage". *Journal of Business Ethics, Vol. 23 No. 3*, pp. 299-311.

72. Miles, M. P., & Manilla, L. S. (2004). "The Potential impact of social accountability certification on marketing: a short note". *Journal Of Business Ethics, Vol.50 No. 1*, pp. 1-11.

73. Mizik, N., & Jacobson, R. (2004). "Are Physicians 'Easy Marks? Quantifying the Effects of Detailing and Sampling on New Prescriptions". In *Management Science* (Vol. 50 No.12, pp. 1704 -1715).

74. Mohr, L. A., Webb, D. J., & Harris, K. E. (2001). "Do consumers expect companies to be socially responsible? The impact of corporate social responsibility on buying behavior"". *Journal of Consumer Affairs, Vol. 35 No. 1*, pp. 45-73.

75. Mukherjee, A., & Bhavsar, U. (2009). "Antecents and consequences of corporate reputation: stakeholder perceptions towards Big Pharma ". *Society for Marketing Advances Annual Conference.* New Orleans,USA.

76. Murray, D. (2002). " Gifts: What's all the fuss about?". *Med Econ.*, 79(19) pp. 119-20.

77. Nair, H. S., Manchanda, P., & Bhatia, T. (2010). "Asymmetric social interactions in physician prescription behavior: the role of opinion leaders". *Journal of Marketing Research, Vol. 47 No. 5*, pp. 883-95.

78. Narayanan, S., & Manchanda, P. (2009). "Heterogeneous learning and the targeting of marketing communication for new products". *Marketing Science, Vol. 28 No. 3*, pp. 424-41.

79. Narayanan, S., Desiraju, R., & Chintagunta, P. K. (2004). "Return on investment implications for pharmaceutical promotional expenditures: The role of marketing-mix interaction". *Journal of Marketing, Vol. 68 No. 4*, pp. 90-105.

80. Narayanan, Sridhar, Manchanda, P., & Pradeep. (2005, August). "Temporal Differences in the Role ofMarketing Communication in New Products Categories". *Journal of Marketing Research, Vol. 42*, pp.278-290.

81. Neslin , S. (2001, May). "ROI analysis for pharmaceutical promotion (RAPP): An independent study". *Association of Medical Publications.*

82. Nielsen, A. C. (2003, June). *" Important sources of medical information ".* Retrieved Dec 10, 2003, from www.perq-hci.com/News/research/important_sources.pdf .

83. Norris, Paulinel, Herxheimerl, Andrew, Lexchin, & Joe. (2004). Drug Promotion: What we know, what we have yet to learn". *World Health Organization*, pp. 11.

84. Orlowski , J., & Wateska, L. (1992). The effects of pharmaceutical firm enticements on physician prescribing patterns: There's no such thing as a free lunch. *Chest*, 102(1):270-3.

85. Pearl, D., & Stecklow, S. (2012, August 16). "Drug firms' incentives fuel abuse by pharmacists in India". *The Wall Street Journal*.

86. Prabhu, D., Kline, S., & Dai, Y. (2005). "Corporate social responsibility practices, corporate identity and purchase intention: a dual-process model". *Journal of Public Relations Research, Vol. 17 No. 3*, pp. 291-313.

87. Rajan, T. D. (2006). " Getting into the physician's mind". *Express Pulse, Vol. 4*.

88. Rao, P. M. (2008). "The emergence of the pharmaceutical industry in the developing world and its implications for multinational enterprise strategies". *International Journal of Pharmaceutical and Healthcare Marketing, Vol. 2 No. 2*, pp. 103- 116.

89. Relman, A. (2001). "Separating continuing medical education from pharmaceutical marketing" . *JAMA*, 285(2009-12).

90. Rizzo, J. A. (1999). "Advertising and competition in the ethical pharmaceutical industry: the case of antihypertensive drugs". *Journal of Law and Economics, Vol. 42 No. 1*, pp. 89-113.

91. Robertson, D. C., & Nicholsom, N. (1996). "Expressions of corporate social responsibility in UK firms". *Journal of Business Ethics, Vol. 15 No. 10*, pp. 1095-106.

92. Roy, N., & Pai, S. A. (2013). "Drug promotional practices in Mumbai: a qualitative study". *Indian Journal of medical ethics, Vol. 10 No. 3*.

93. Ryan, M., Yule, B., Bond, C., & Taylor, R. J. (n.d.). "Do physicians' perceptions of drug costs influence their prescribing?". In *PharmacoEconomics* (Vol. 9 No. 4, pp. 321-331).

94. Sahad, P. V., & Sharma, E. K. (2005, December 4). "The Long Term Prescription". *Business Today*, pp. 138.

95. Scherer, F. M. (1993). "Pricing, profits and technological progress in the pharmaceutical industry". *Journal of Economic Perspectives, Vol. 7 No. 3*, pp. 97-115.

96. Scott, J. (2003, Aug 10). *Docs want to hear from knowledgeable reps.*. Retrieved from Pharm Representative: Available at: pharmrep.adv100.com/pharmrep/article/articleDetail.jsp?id =118400.

97. Shah, N. (2004). " Pharmaceutical supply chains: key issues and stragies for optimisation". In *Computers and Chemical Engineering* (Vol. 28, pp. 929-941).

98. Sillup, G. P., & Porth, G. P. (2008). "Ethical issues in the Pharmaceutical industry: an analysis of US newspapers". *International Journal of Pharmaceutical and Healthcare Marketing, Vol. 2 No. 3*, pp. 163- 180.

99. Snider, J., Hill, R. P., & Martin, D. (2003). "Corporate social responsiblity in the 21 century: a view from the world's most successful firms". *Journal of Business Ethics, Vol. 48 No. 2*, pp. 175-187.

100. Steinbrook, R. (2006). "For Sale: Physicians' Prescribing Data". *The New England Journal of Medicine*, 354 (26), pp. 2745-2747.

101. Steven , P. (2007). "Drug representatives: Giving you lunch or stealing your soul?". *Dermatology Online Journal, Vol. 13*(4), 5.

102. Stone, K. (2009). *About.com Pharma ,What Strategies Can a Pharma Marketer Use to Reach Doctors ?* Retrieved from http://pharma.about.com/od/Sales_and_Marketing/a/What-Strategies-Can-A-Pharma-Marketer-Use-To-Reach-Doctors.htm.

103. Sufrin, C., & Ross , J. (September 2008). "Pharmaceutical industry marketing: understanding its impact on women's health". Obstet Gynecol Surv 63 (9). pp. 585-596.

104. Sujatha, R., Selvaraju, S., Nagpal, S., & Sakthivel, S. (2005). *" Financing and Delivery of health care services in India".* New Delhi.

105. Talias, M. (2007). "Optimal decision indices for R&D project evaluation in the pharmaceutical industry: Pearson index versus Gittins index". *European Journal of Operational Research, Vol. 177*, pp. 1105-12.

106. Tan, R. S. (2003). "Physician executives as opinion leaders in biotechnology and pharmaceuticals". In *Physician Executive* (Vol. 29 No.3, p. 26).

107. Temin, P. (1980). *"Taking your Medicine: Drug Regulation in the United States"*. Cambridge,MA: Harvard University Press.

108. Tengilmoglu, D., Kisa, A., & Ekiyor, A. (2004). "The pharmaceutical sales rep/physician relationship in Turkey: ethical issues in an international context". *Health Marketing Quaterly, Vol. 22 No. 1*, pp. 21-39.

109. Theodorou , M., Tsiantou V., V., & Pavlakis , A. (2009). "Factors influencing prescribing behaviour of physicians in Greece and Cyprus: results from a questionnaire based survey". *BMC health services research, Vol. 9*, pp. 2-8.

110. TNS Health Press Release. (2009). *"Physicians in Europe rate Novartis #1 on service delivery, while Merck earns top honors in the US"*. Retrieved june 22, 2011, from www .tnsglobal.com: http://www.tnsglobal.com/new /news-AB84EC66A4C4450CABB3254471EB F901.aspx

111. Torres, I. M., Sierra, J. J., & Heiser, R. S. (2007). "The effects of warning-label placement in print ads: a social contract perspective". *Journal of Advertising, Vol. 36 No. 2*, pp. 49-62.

112. Vermont, A. (2002). "Reporting of gifts to physicians". *Med Marketing Media*, 37(7):6.

113. Vicciardo , L. (1995, Aug 30). *The secret weapon in marketing intelligence: "Meetings and events analysis is a powerful new tool in researching marketing strategy and success"*. Retrieved Dec 7, 2003, from www.cpsnet.com/reprints/1995/ 08/secret.html (accessed 2003 Dec 7).

114. Walker, H. (1971). "Market Power and Price Levels in the Ethical Drug Industry". Bloomington, IN: Indiana University Press.

115. Wang, A. (2009). "Advertising disclosure and CSR practices of credit card issues". *Management Research News, Vol. 32 No. 12*, pp. pp. 1177-1191.

116. Watts, D. J., & Dodds, P. S. (2007). "Influentials, Networks, and Public Opinion Formation" . *Journal of Consumer Research, Vol. 34*.

117. 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.

118. WHO. (2007, March 4). *" Drug promotion: What we know, what we have yet to learn"*. Retrieved from www.who.int: http://www.who.int/ medicines/areas/rational use/drug Promodhai.pdf

119. WHO. (2009). *World Health Statistics-2009*. Retrieved December 15, 2009, from www.who.int: www.who.int/entity/whosis/ whostat/EN_WHS09_Full.pdf

120. Wilkes, M., Doblin, B., & Shapiro, M. (1992). "Pharmaceutical advertisements in leading medical journals: Experts' assessments. d. 1992; 116:912-9". *Ann Intern Med, Vol. 116*, pp. 912-9.

121.Wilson, D. (October2, 2010). *Duff Wilson "Side Effects May Include Lawsuits".* New York Times.

122.Wittink , D. (September 2002). "Analysis of ROI for pharmaceutical promotion (ARPP): A secondindependent study". *Presentation to the healthcare industry .*

123.World-Self Medication Industry. (1999). "Guiding Principles in Self Medication". London,UK.

124.Wright, R. F., & Lundstrom, W. J. (2004). "Physicians' perceptions of pharmaceutical sales representatives: a model for analyzing the customer relantionship". *Journal of Medical Marketing: Device ,Diagnostic and Pharmaceutical Marketing, Vol. 4 No. 1*, pp. 29-38.

125.Ziegler , M. G., Lew, P., & Singer, C. B. (1995). "The accuracy of drug information from pharmaceutical sales representatives". *Journal of American Medicine association, Vol. 273*, pp. 1296-1298.