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REVIEW ON IMPACT OF DIFFERENT FACTOR'S ON PHYSICIAN PRESCRIBING BEHAVIOR

RAGINI SAXENA*

ABSTRACT

Physicians are the most pivotal players in the pharmaceutical market. Physician plays the part of backhanded purchaser for the patients by diagnosing, selecting a particular therapy segment and prescribing the particular brand of the separate medication. There are many conditions which lead or advance the relationship between the pharmaceutical companies and medical practitioners. The requirement for knowledge about the pharmaceutical products requires the high involvement of the physicians in the product field. Physician's perceived need for training and eventually develops an association with pharmaceutical companies in terms of continuing medical education.

This paper based on the review of several pieces of literature like research papers of different scholars and industrial experts, industry forecast reports, government reports and several other studies which describe the impact on Physician Prescribing Behavior. The main goal of this paper is to find new faces of enquiry, gain methodological ideas, and discover important variables which have their high impact on Physician Prescribing Behavior.

KEYWORDS: Pharmaceutical Marketing, Product, Price, Promotion, Samples, Continuing Medical Education (CME), Sources Of Information

INTRODUCTION

The Drug and Cosmetics Act 1940 (Schedule H drug) limits the marketing of the drugs to the registered medical practitioners, consequently for the new products and the data regarding clinical trials medical practitioners have to depend on the pharmaceutical industries.

Promotional goals can be achieved through various tools as mentioned in the Pharmaceutical Promotional mix below:

- Pharmaceutical advertisements (Broachers, information reviews on therapeutic areas and products/ sponsored articles/ internet/ sponsored journal's subscription/textbooks)
- Personal Selling (by Medical representatives detailing)
- Sales promotion (Consumer-Product Samples, Gifts, incentives based on a number of prescriptions, =Trade promotion Contests, and/ dealer incentives. Trade allowances, point of purchase (POP) displays, Training programs. Cooperative advertising)

*Faculty of Biological Sciences, University of Kashmir, Srinagar, Jammu and Kashmir.
Correspondence E-mail Id: editor@eurekajournals.com

- Customer Relationship Management (Educational training to patients. Provision of research grants, Sponsorship to patient support groups)
- Public Relations via corporate advertising, missions and cause marketing etc.
- Sponsorships.

Pharmaceutical Marketing is a specialized type of marketing unlike traditional advertising. In Indian Pharmaceutical market MRs are the key players of the whole marketing activity. The companies send MRs to showcase their products (drugs) to the physicians.

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REVIEW ON IMPACT OF PRODUCT ON PHYSICIAN PRESCRIBING BEHAVIOR:

Patrica Paredes & Manuela De La Pena (1996) [1] has done research on the factors influencing the prescribing behavior in the anti-diarrheal segment was viewed as relevant and incorporated into the review as their study secured diagnostic uncertainty as one of the important parameter driving the physicians prescribing behavior. Whether in the anti-diarrheal drug category the rationale behind prescribing an anti-microbial was the learning of the drug viability and the diagnostic uncertainty, was one of the major intention and it was ascertained that the main determinants of the inappropriate prescribing, as claimed against the drug impact of drug advancement, was the patients expectations of the treatment result. The other interacting factors like part of samples in the diagnostic uncertainty were not considered by the author.

Dieter Scharitzer & Harald C Kollarits (2000) [2] has investigated in their research the causal relationship between the satisfaction rating from physicians alluding to the Pharma sales representatives, their prescribing behavior and the financial achievement in six locale of Austria. The experimental study configuration examined the satisfaction scores mainly on image of the company and its administration in a broad sense, quality of the products offered, and ability of the pharmaceutical reps to cultivate relationship. Non-proportionate sample of 101 GPs were the wellspring of primary data. A positive relationship was traced between the satisfaction scores and financial performance of the company more than multi month development rate. The impact of physician's personal characteristics (physician specific variables) on perceived service quality was not considered.

Zahra Ladha (2007) [3] led a study of thirty five respondents from general public and students of Simon Fraser University, Vancouver, BC, Canada amid July 2005 with a goal to investigate the discernment distinction between the bland drugs and branded drug efficacy, the distinction in the inclination of purchasers towards valuing of branded Vs nonexclusive drugs. The author also examined various factors affecting the brand switchover in the non-prescription drug categories (OTC) like brand name, value, advertising, specialist prescription, past experience and advancement. The study mainly considered the over the counter (OTC) item categories namely analgesics and anti-cool preparations. The author investigated the impact of brand name on the basic leadership of the buyers/patients and specialist's basic leadership is past the preview of the paper. The physician's recommendation remained the most important in case of the prescription drug purchase unlike the nonprescription drugs where brand name was observed to be profoundly important amongst the other factors like value, recommendation by family or companions.

Corporate branding strategy was proposed for the post patient expiry stage of a drug with a specific end goal to expand the life expectancy of the drug. The study endured couple of limitations

like small number and nonspecific respondents, no clear demarcation of the prescription and nonprescription drugs and non-inclusion of the prescribers. Just expressive statistics were utilized for the data analysis. Sriram Venkataraman & Stefan Stremersch (2007) [4] investigated in their research the part of the most important parameter of any drug that is the drug effectiveness and side effects parameters and their relative position in the overall promotion efforts of statins, gastrointestinal and coagulation drugs and erectile dysfunction drugs through the physician panel level prescription data. The carryover effects of the sample apportioning and the detailing with small varying force was enhanced by the high drug effectiveness properties and low side effects. The effects of competitive prescription were found to have positive influence on the own brand prescription.

REVIEW ON IMPACT OF PRICE ON PHYSICIAN PRESCRIBING BEHAVIOR

Fusun F. Gonul et.al (2001) [5] contemplated the impact of detailing in their research paper. The study considered the impact of detailing and samples towards the increased awareness about the contender's costs and its impact on the cost affectability of the physicians and the positive main impact on the company brand. Cost was observed to be the outstanding signal of quality as it is seen to be correlated with the drug efficacy and absence of side effects and contraindications. Seriousness of the patient condition smothered the value affectability in the specialty segment. The physicians were observed to be less value delicate if the patient status was health safeguarded. One of the important commitments of the authors the analysis of the US pharmaceutical marketing was towards the impact of detailing and samples. The study portrayed that there is negative impact associated with over/monotonous detailing and over utilization of samples on the prescription behavior of physicians**.**

REVIEW ON IMPACT OF PROMOTION ON PHYSICIAN PRESCRIBING BEHAVIOR

Melissa A. Fischer (2009) [6] et al in their research attempted a concentration amass study with a target to understand the reasons why prescribers interact with the Pharmaceutical Representatives (PR) in US. The PR interaction was seen to be beneficial for the patient care and overall practice health. There were disparities among the physicians about the impact of the PRs on their prescription drug decision. The major thought processes behind the interaction with the PRs were information acquisition, question determination about the new or old drugs and samples. One of the second line reason of the getting was to keep together with the pace of medical advancements previously it hits the network. 'Social Contract' was also the one among other reasons anticipated by the physicians for the gatherings with PRs.

Andree Bates et.al. (2002) [7] has said in their research paper the effectiveness of e-detailing (across various drug life cycle stages and for variety of segments of physicians according to their prescribing habits) and rate of profitability through a case study approach. The author attempted to compare the e-detailing with the traditional detailing practice on ROI by utilizing a measurements involving various parameters like detailing time, number of detailing every day, effectiveness of each detailing, cost per detailing, new market share. Although the author has remarked that e detailing increased the profitability as far as effectiveness of sales calls, decreased cost and potentially increased sales in USA for the particular pharmaceutical company however a pragmatic study should be undertaken on the utility of e-detailing for all therapeutic drug categories and complementary and or replacement nature of e-detailing is to be tried.

Alasdair Mackintosh (2004) [8] in his article examined the incongruity of 30 second detailing dilemma. The author gives that physicians would

invest more energy with representatives who bring unbiased, prove based,=scientific information about products including head to head comparisons as well as side effects and value added administrations. With the crushing window access time instead of choking everything into 30 seconds the dubious association between the pharmaceutical reps and the physician can be taken to a more tailored and targeted see by adopting a differentiated detailing strategy. Specialists would like to have qualitative and very much balanced conversation with the sales compel which can be achieved through attitudinal and behavioral segmentation and personalization of administrations by giving information near physician's advantage.

Ramkumar Janakiraman et. al. (2008) [9] mentioned in their research paper the presence and impact of the habit persistence and its implications towards the physician response to the drug promotion by utilizing the physician panel data and prescription data of those. The tenacious physicians were found to be non-responsive to the detailing. Detailing and the patient heterogeneity due to higher practice size were found to have negative impact on the persistence development of the physicians. Only symposiums and out of office meeting were found to have some impact on the persistent physicians. Persistent physicians were found to be inert and less sensitive to the promotional activities.

Ying Xie (2004) [10] said in his dissertation on promotion blend management in Prescription Pharmaceutical Industry considered Direct to Consumer (DTC) advertisements and physician promotion in antidepressant category which were generally conveyed by utilizing the patient visit data and brand sales data through demand and binary decision display. The impact of DTC and physician promotion was seen on the patient treatment occurrence choice and the prescription behavior. DTC increased the primary demand for the therapeutic category the detailing had significant impact on the physician prescribing impact up to a particular stage (can-y over impact) and past that even wear-out impact was also watched.

Mizik, & R Jacobson. (2004) [11] in their study, discuss about quantifying the impact of detailing and sampling on the new prescription generation by utilizing the relapse display, prescribing and promotional information by month and physician along with the new prescription generation data for three brands was utilized by the authors for the model testing. The study found that there is determination in the physician's prescribing behavior w.r.t. the brands contemplated and detailing had statistically significant constructive outcomes on the prescribing behavior. In any case, sampling has comparatively insignificant impact on generating new prescriptions. One of the limitations of the study is physician characteristics, such as specialty, years of experience, practice size age which might have persistence effect on the prescribing behavior.

William R Swinyard & Michael L Ray (1977) [12] in their study investigated the interactive effects of advertising and personal offering. Experimental research configuration was adopted for studying the interactive impact of personal offering and advertising for Red Cross society social campaign at California. This study revealed contrasting discoveries to the standard conviction of advertising paving a way for personal offering. It was discovered that personal sales call paved a way to advertise for an established item supplier. This research paper was incorporated as it called attention to those promotional devices previously advertising, for example, samples, early on offers had more beneficial outcome and increased affectability towards ensuing advertising. Attribution impact in pharma-marketing is rarely examined. One of the limitations of the study is in advertising the author's experiment considered only print advertisement of the NGO organization.

Syed Saad Andaleeb, Robert F Tallman (1996) [13] attempted an exploratory study in Northwestern Pennsylvania for understanding the pharmaceutical sales representative's relationships with the physicians for their feelings and attitudes towards the relationship. The study discoveries are similar to those of the earlier investigations inside the Northwestern Pennsylvania setting revealing that the PSRs held the positive relationships with the physicians. Physicians saw the pharmaceutical sales representatives as an important wellspring of information yet not a vital part of their day to day practice.

Andrew Ching, Masakazu Ishihara (2007) [14] in their study mentioned the impact of detailing under the drug quality uncertainty in ACE inhibitor and diuretic drug segment in Canada. Information level of the physician, role of informative and persuasive detailing, the role of opinion leaders were considered for the purpose of model formation. The study revealed that under the drug quality uncertainty the effectiveness of sales persons detailing depends on the current set of information and the physician's information update measure via patients. Persuasion detailing good will stock was negative, small and negligible which could not influence the physician choice behaviour. The overall role of detailing in utility was minimal. Public awareness campaigns were found to affect the utility level of detailing as the well informed patient share their drug experience with the physician.

REVIEW ON IMPACT OF SAMPLES ON FACTORS ON PHYSICIAN PRESCRIBING BEHAVIOR

Jesper Schramm et.al (2007) [15] has examined in their research paper the extent and composition of pharmaceutical industries sales representative's marketing techniques with special reference to sampling in respect to drug age for antidepressants, cardiovascular drugs, NSAIDs and an asthma drug through the experimental study design involving a group of 47 general practitioners (GPs) at Denmark. The study considered two major parameters namely the drug age vs the kind of promotional methods adopted by the pharmaceutical companies. The outcomes of the study showed companies had adopted a wide variety of promotional methods. There was statistically significant decline in the proportion of visits where drug samples were offered to the physicians. Leave behind Literature (LBL) on therapy improvements was seen to be the prominently used promotional method as the drug age increased followed by the samples & gifts

Lisa D Chew et al. (2000) [16] in their study mentioned the impact drug sample availability on the physician prescribing behavior in the ambulatory setting. Physician characteristics, severity of illness, patient cost were the criteria under study. It was found out the samples are successfully displacing the preferred brand in a consequence where cost matters for the patient, but up to limited extent. Samples encouraged drug prescription among the younger physicians and consequently prescribing the similar medicines. Urinary tract Infection, hypertension and depression therapy segment drug sample dispensing was monitored.

REVIEW ON IMPACT OF CONTINUING MEDICAL EDUCATION (CME) ON PHYSICIAN PRESCRIBING BEHAVIOR

Marc A Rodwin, (2010) [17] in his research paper he discussed the historical view of the CMEs and their changing nature. Advertising was viewed as educational tool and prescribers often relay on it. Continuing Medical Education (CME) was made to provide an alternative. However, because CME relies on grants, industry funders chose the subjects to offered. Pharmaceutical firms support CME to promote sales and commercial support biases prescribing and promotes inappropriate drug use. A historical review reveals parallel

problems between advertising and industry-funded CME. To preclude industry influence and improve CME, there should be independent funding by taxing medical industries, facilities and physicians. Independent public and professional authorities should create CME curricula. An independent agency should allocate all funds to educational institutions for approved curricula. The association of pharmaceutical industry was viewed to be ambiguous.

James Chase (2005) [18] in his article examined the part of Marketing and Media to discover the wellsprings of information favored by the clinicians. The study was led at CME settings by meeting the physicians. CME, Medical journals and the companion interaction were found to the initial three valuable sources by the physicians putting the sales representatives on the following level of the ladder.

Iain Black (2005) [19] in his paper specified educational part of proceeding with medical education asserts that pharmaceutical companies need to guarantee the drug promotion is inserted inside more extensive disease management. The author has examined the part of CME on further three categories of education namely inclining, enabling and fortifying which affects convictions, attitudes and behavioral intensions of physicians. The validity factor differentiates the academic detailing and detailing which ultimately chooses the respectability of CME. The utility of CME is still to be assessed in high risk therapeutic categories.

Peter Dumovic & Christine de Vris (2004) [20] in their research investigated the medical advancement communication strategies and their impact on the prescription behavior of the physician. Various techniques for imparting the medical updating like companion reviewed literature, practice rules, interactions with the feeling leaders, informal exchange with the colleagues and postgraduate educational activities were evaluated based on their ease of access and their availability at the specialist's disposal. Their research anticipated that associate review literature and clinical rules were less handy and endured the time lag as compared to the educational activities. The authors also called attention to the impact of pharmaceutical industry's participation in the educational program on the prescription behavior. One of the result of the study is to encourage the educational program to be led by the accredited educational organization. One of the major limitation of the study is it included no empirical data to sustain the claim.

Susan M. Petroshius et.al. (1995) [21] in their research examined the attitudes of the physicians towards the pharmaceutical drugs and cosmetics advertising towards Physicians purchasers, its impact on their prescription behavior, as well as their responsiveness towards the patients. Self-administered questionnaire was sent across 250 physicians (retrieval rate was half) including attitudinal scale. The more youthful less experienced physicians were observed to be more attentive towards the advertisement of the drugs as compared to the senior physicians. Internal solution physicians were also observed to be least responsive towards the advertising.

REVIEW ON IMPACT OF SOURCES OF INFORMATION ON PHYSICIAN PRESCRIBING BEHAVIOR

Raymond Bauer & Lawrence Wortzel (1966) [22] in their paper mentioned the Physician and his source of information about drugs studied various sources of information used by doctors for acquiring the new drug / product information and its impact on adoption of a new brand / product. The objective was to study the predominance of commercial or scientific source of information in physician's awareness and decision making. This paper considers mainly detail men, journal papers and articles, medical journal advertisement, direct mails, doctors conversation samples and staff meetings as major

source of information. The study lead to a conclusion that doctors with little variation have used both the commercial and noncommercial sources for acquiring information but commercial sources convinced them to prescribe a particular brand. The importance commercial or scientific sources changes according to the severity of treatment. Impact of sales promotional practices by pharmaceutical companies was not considered in this study.

Theodore Caplow (1951) [23] in his study he included 129 practicing physicians from Midwest dealt with physician's attitude towards commercial and professional sources of information majority of physicians. Commercial advertisements in the medical journals and direct mails were been viewed favorably by the physicians. The interaction with other physicians received mixed response as a source of information. The study did not cover relative importance of commercial and professional sources of information, frequency of usage of the said source of information, its impact on the physician's decision making.

Ben Griffin (1959) [24] in his study conducted a national level survey using cross sectional sample of over 1000 physicians with an objective to understand the predominantly used source of information and their relative importance for themselves and for 'most of the doctors.' Detail Men, Medical journal (papers and articles) were considered to be the useful sources which are frequently used by the physicians. The doctors were found to be indifferent towards their own behavior and 'most of the doctors'. But awareness and usage parameters were not clearly established in this study.

Caplow & J. Raymond (1953) [25], in his research conducted a survey of 182 physicians for understanding various sources used for adoption of almost 302 brands from multiple specialty report that commercial source acted as first source of information and the same source convinced them to prescribe the respective brands. The study does not consider characteristics of drug under consideration, disease for which it is prescribed and its impact on physician's information need.

Peter W Turnbull & Noreen E Parsons (1993) [26]. In their study investigated the adoption of nonspecific drugs in general medical practice by considering commercial and noncommercial wellsprings of GPs, part of partners, Govt. arrangements, medical multifaceted nature and part of patients in Northwestern districts of England. It was an inside and out qualitative study approach across a non-stratified sample of 39 GPs. Their study revealed the negative attitudes towards nonexclusive drugs as those are seen to be of mediocre quality than the branded equivalents and also the physician's vulnerability to legislation incase if the patient endured as an outcome of taking nonspecific drug. Factors contributed towards improvement of attitude were the practice pattern like single practice and number of years of involvement in the general practice. The impact of the branded drug promotion towards the brand loyalty was found to have negative impact on the non-specific drug prescribing behavior. Nonspecific drug adoption from low therapeutic hazard categories versus high therapeutic hazard categories was not investigated.

Smith & Brian D (2009) [27] in their paper focuses on Key Account Management described the history of the Key Account Management practice along with the differentiating features of KAM from traditional sales management. The author identified following features of KAM like it creates more than financial value for the organization, it's a key to both the partners, it has multiple relationships and performs facilitating function rather than selling ultimately focuses on long term relationships creating mutual value for both organization and key accounts. In maturing pharmaceutical markets where value creation by price reduction is not possible KAM enables &

ensures effective targeting. Localized knowledge of key accounts is the prerequisite of KAM and successful implementation of KAM would call for multidimensional value measurement system involving qualitative parameters along with the quantitative indicators like sales & profits.

Jones et.al (2001) [28] in their study led an overview of thirty eight consultants and fifty six general practitioners at teaching hospital and general hospitals in Birmingham, UK investigated the impression of the medical practitioners and various factors influencing the new drug prescription choice for eight new drugs. General practitioner's particular drug prescriptions and the hospital apportioning of those drugs were observed. They announced that consultants recommended less new drugs pertaining to just their specialty than the general practitioners who endorsed more number of new drugs for a varying range of conditions/indications. Consultant's choice of new drug prescription was based on the logical confirmation about the new drug. However, the incessant utilization of the new drugs by the general practitioners was observed to be because of the more elevated amounts of contacts with the medical representatives. Medical representatives were considered to be an important wellspring of information by both the consultants and the general practitioners. Consultants, although presented less number of new drugs, affected the prescription behavior of the general practitioners along with couple of other factors like nature of the drug and saw hazard. Although it was reconfirmed that in UK pharmaceutical industry adoption of the new drugs was resultant of various and complex factors, quantitative study were required to help the same.

Herbert Jack Rotfeld (2005) [29] in his paper tried to delineate the criticism towards the medical marketing. The critic asserts that all marketing of medical products is abusive, misleading and promotional efforts influence the doctors to put the patient interest second. The author affirms that like another consumer purchased product from cars to paints the primary source of the product information for the physician is the pharmaceutical industry. The post patent expiry competitive environment adds on the commercial interest to the informative & educative intentions of the pharmaceutical promotional practices. The author also counter questions the ethical issue in DTC advertising which is the new conduit for the consumers / patients. Yet the author warns that there must be a degree of advertising dollar combat with different companies trying to maintain a loud and strong financial share of advertising. The pragmatic utility of each promotional practice is to be found out through applied research which will ascertain the decision on promotional spending.

Donna Kelly & Michael Gibbson (2008) [30] in their study compared & contrasted the utility of ethnography research methodology approach against the usual survey approach in medial marketing. The author affirm few of the situations in medical marketing where in ethnography approach finds its first place among other methodologies like how the physician utilize the pharmaceutical product information for their own & patients, Situations where product features / benefits based differentiation is just not possible as your product could be easily relegated to the commodity role. Even in case of new segment entry where the company a little or no experience author suggests the ethnography approach as one of the best to be adopted. But although ethnography has advantages over other methods like quantitative (sui-vey method) the author couldn't justify the lower acceptance of this approach across social research.

Puneet Manchanda et. al. (2005) [31] in their study concentrated on decision behavior of the physicians and the patients anticipated various research openings in the separate field. The researcher pointed towards the value elasticity

situations affecting the prescription patterns to be one of the main concern. It was discovered that detailing is akin to advertising in Pharma market had positive yet small impact. The researchers recognized numerous research openings.

Geer et. al. (2002) [32] in there research paper evaluated two models and their abilities to explain the impact of government containment measures and its impact on the physician prescription behavior. Theory of planned behavior and the composite attitude behavioral model were compared by utilizing prescription data of general practitioners and the pharmacy drug apportioning data. The author observed composite attitude behavioral model to be more useful than the TPB show. Habit was observed to be one of the important factor influencing the intensions of the physicians. The age of the physician was found to be the important factor in determining the cost consciousness.

Chee Woi Lim & Toru Kirikoshi (2005) [33] in their study utilized the neural network to anticipate the impact of promotion on the prescription yield and sales uptake for US antibiotic market. The five descriptors which were utilized for the study were number of visits, cost per visit, time went through with the physician, medical journal advertising cost and the samples. Prescriptions and sales of the two picked antibiotic brands were checked. The study found that neural network would be wise to predictability of the impact of promotion on the prescription and sales that the numerous relapse display.

Smith B D. (2009) [34] in his qualitative study of European Pharmaceutical companies explored the scale, nature and current trends of Key Opinion Leaders (KOL) management activity. The qualitative study involving thirteen executives selected with the help of one of the leading KOL software supplier reveals that companies generally manage KOL at a Therapy Area (TA) level rather than at the corporate level. Number of KOLs identified by the companies ranged from around 20 at global level, 30-50 at regional level and in hundreds at national level. KOLs were mainly involved in publications and clinical trials by the pharmaceutical companies but other activities like conference speaking, membership of professional bodies were also frequently undertaken. The firms either had a specific KOL management function or the role was left to another department and it was viewed as national, regional or global activity.

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