PART II

FACTORS THAT MOTIVATE A PRESCRIPTION

The literature scan suggests that the factors that motivate prescriptions from clinicians can be broadly categorized in five factor groups. They are:

1 Patient-Doctor relationship

2. Medical Representative factors

3 Promotional factors

4. Economic factors

5. Miscellaneous, which do not belong to any of the above groups.

While the above factor groups collectively interplay to motivate prescriptions, they all affect the emotional part of the prescribing process. There are several studies, write-ups and personal experience articles available, which deal with either one or two of the factors. Very few studies analyze the factors by focusing on their collective interplay to assign relative weightage to these factors. This study, therefore, is designed to explore their collective interplay and assign them weightage in terms of their effect on the prescribing process of the physicians.

2.1 PATIENT-DOCTOR RELATIONSHIP

Patient-doctor relationship is an important factor, which motivates prescription from a physician. The presence of a patient in the consulting room of a physician and his interaction with the physician unleash the complexities of human interaction, which overpower the rational judgement of a physician, whether to prescribe and what to

prescribe. His scientific knowledge and training ideally should guide him to decide whether and what to prescribe. He may rationally conclude that a prescription is not indicated. However, at times he perceives that the patient expects a prescription. He knows that the patient has been a regular to his clinic and is apprehended that displeasing him by denying a prescription may lead him to believe that the clinician is an under-prescriber. This could possibly lose him a steady patient. His practice could be at risk

There are sub-factors in this factor group. They are individually dealt with, in the light of available literature, hereunder.

2.1.1 Patient's demand for prescription

Dr. Matthew Hollon of the University of Washington in Seattle worries that the physicians are under increasing pressure to fill prescriptions for patients bent on receiving prescriptions for one of the advertised medications. According to Dr. Hollon, one 1989 study found that many doctors were writing prescriptions that were not always warranted by the patient's condition. He concluded that " Patient demand was the most commonly cited motivation" for over-prescription of drugs. [1]

Nicky Britten of the Department of General Practice, United Medical and Dental schools of Guy's and St. Thomas's Hospitals, London, UK, in his article published in Family Practice, emphasized that the research identified patient demand as a powerful factor influencing the prescribing habits of physicians The research evidence presently shows that even the doctors cite patient demand as an influencing factor in their prescribing habits [2] His paper describes patients' ideas

about doctors' prescribing habits. It was based on semi-structured interviews with 30 adult patients in two general practice setups. The proportion of patients reported as expecting a prescription varied from 41% to 60%. It has also been found out that more patients receive prescriptions than those who really desired prescriptions It was also suggested that most doctors overestimated patients' expectations for a prescription.

Nicky Britten's study explored the concept of patient demand for prescriptions from the patient's point of view. The study concluded that patients do have definite opinions about doctors' prescribing habits. The patients who said that doctors under-prescribed felt that they needed help that was not forthcoming, and that those who felt that doctors over-prescribed were aware of pressures on the doctors to do so The study also further suggested that the desire for a prescription in a particular consultation could be related to the stage in the illness at which the patient decides to consult For some patients the decision to consult is almost equivalent to a decision to take a prescribed medicine, while other patients are looking for reassurance that their symptoms are not serious enough to warrant a medicine. These findings suggest that it would help if doctors addressed these expectations explicitly and, where appropriate, asked patients if they were hoping for a prescription.

Another study carried out by Nicky Britten with Obioha Ukoumunne explored the patients' expectations of receiving prescriptions and the physicians' response to these expectations The study reported in the *British Medical Journal* also attempted to determine the factors most closely associated with the decision to prescribe.[3]The

study involved 544 patients from 15 general practice setups. 67% of patients hoped for a prescription while the doctors perceived that 56% of the patients expected prescriptions. The doctors wrote prescriptions in 59% cases. The results suggested that doctors' perceptions of patients' expectations were the strongest predictor of the decision to prescribe. The study concluded that in an area of low prescribing and high expectations, the decision to prescribe was closely related to actual and perceived expectations, but the latter was the more significant influence. The study demonstrated that patients' hopes of receiving a prescription exceeded both doctors' perceptions and the level of prescribing. It was observed that a quarter of patients who hoped for a prescription did not receive one. Another finding was that in a fifth of the consultations, in which the prescription was not strictly indicated on purely medical grounds, Doctors' perception of patients' expectation, rather than the patients' actual expectation was the strongest determinant of the decision to prescribe. Doctors who felt pressurized were less likely to write a prescription if they perceived that the patient wanted one, and if they did write a prescription, it was less likely to be indicated than when the doctor did not feel pressurized.

In an article published in *British Journal of General Practice*, Jones I and Britten N. report that non-cashing of prescription by patients is sometimes the measure of quality of doctor-patient relationship.[4] In another article published in *British Medical Journal*, Nicky Britten stresses that objective evidence consistently suggests that doctors overestimate patients' expectations. His analysis proves that about one fifth of the patients visiting general practitioners go out with prescriptions they did not expect. He mentions that much of the evidence is equivocal because researchers did not try to define or measure the demand. Instead, they concentrated in

evaluating the doctors' perception for patients' demand for prescription. He observes that about 5-7% of prescriptions are not cashed, and at times the dispensed drugs are not consumed He concludes that, "prescribing levels actually exceed patients' expectations, and that the demand (either perceived or actual) is greater than need"[5]

A survey carried out in the general practice setting in South Wales, and reported in the *British Medical Journal*, Christopher Butler and his associates found that patients' expectations were seldom made explicit, and at times were not met. They concluded that the prescribing decision was greatly influenced by considerations of the doctor-patient relationship. Consulting techniques, which made patients' expectations explicit, preserved relationships and facilitated acceptable management, were more important [6]

In a questionnaire study reported in the *British Medical Journal*, Jill Cockburn found that though patients brought expectations to the consultation for prescription, it was the doctor's opinion about the patients' expectations that was the strongest determinant of prescribing.[7] The study also showed that the patients who expected prescriptions were three times more likely to be prescribed medicines for new disease conditions. It also came out that if the general practitioner thought that the patient expected a prescription, he was ten times more likely to receive one

In an article titled, "Are we prescribing too many antibiotics?", Caroline Wellbery discusses the excessive prescribing of antibiotics to patients with minor self-limiting ailment like common cold He thinks that one reason can be the patients' expectation for prescriptions, which are at times made explicit. Another possibility is that the

driving force behind the over-prescribing of antibiotics is the physician himself. He hypothesizes that physicians perceive that their patients will not be satisfied without a prescription for antibiotics, and therefore are compelled to prescribe even if a prescription is not indicated. Their motivation could either be the concern that a satisfied patient would recover quickly or a fear that the dissatisfied patient may opt for another physician [8]

In an article published in *PRESCRIBER*, Nicky Britten discusses the report of the Audit Commission, which stimulated a debate about over-prescribing. The authors of the report clearly believed that patients' expectations were responsible for some of the over-prescribing. They further observed that general practitioners had a tendency to overestimate patients' expectations and subsequently, many prescriptions were not cashed.[9]

A study conducted by the Department of Social Medicine, Harvard Medical School, Boston, about 'Physician motivation for nonscientific drug prescribing' concluded that of the 110 responses elicited, the most common reason offered for non-scientific prescription of drugs was 'patient demand' (51 statements, 46%). Such non-scientific use included the use of the 'vasodilators' for senile dementia or peripheral vascular disease, Cephalexin for viral upper respiratory tract infections and Propoxyphene instead of Paracetamol or Aspirin for mild pain.[10]

A study probing the patients' reactions to a physician refusing a prescription concluded that when patients requested for prescriptions for drugs advertised in media and the doctors did not oblige, the most likely reaction was 'disappointment'

(46%) One fourth of the respondents resorted to persuasion and seeking the prescription elsewhere, while 15% considered terminating relationship with the physician.[11]

In a letter addressed to the editor of the *British Medical Journal*, Wolfgang Himmel and Michael Kochen observed that the journal had published several studies during the year 1997 on the influence of the expectations that patients have of prescriptions. They noted that the most striking result of those studies was that not only the patients' expectations influenced physicians' decision to prescribe, but so also the physician's perceptions of these expectations, whether these perceptions were accurate or not. They also added that their own study, in a general practice setting in Germany, found that nearly all patients, who, in the physicians' opinion, expected prescriptions left with prescriptions. However, the physicians accurately perceived the patients' wish in only 41% cases. They did not detect any difference in patient satisfaction irrespective of whether such wish was fulfilled or not. [12]

In another letter to the editor of the *British Medical Journal*, James Ramsden reported that his study carried out in five Oxford general practice consultations had similar results as reported by Cockburn and Pit study. He found that out of 371 respondents, 184 (50%) patients received a prescription, and that the patients who expected a prescription were more than twice as likely to receive a prescription However, their findings also suggested that the physicians' confidence in the pharmacological efficacy of their prescription was not affected by whether a patient expected a prescription or not. This clearly implied that the physicians were not

pressured into giving a prescription that they did not believe to be of any benefit to their patients.[13]

An editorial article of *British Medical Journal* summarized various articles, studies and letters pertaining to the issue of doctor-patient relationship affecting the prescribing behaviour of the physicians. It noted that the decision to prescribe was influenced by many factors, to do with the doctor, the patient, and the doctor-patient relationship. It also conceded that several studies had shown that the prescribing behaviour of doctors was heavily influenced by their perceptions of the social background, beliefs, attitudes and expectations of the patient.

It is therefore proposed that,

A doctor obliges a patient by a prescription if he perceives that the patient expects a prescription.

Whether the doctor obliges a perceived request for prescription depends on the patient-doctor relationship.

When a patient requests for prescription of a drug, the doctor will not prescribe if he thinks it to be unsafe, but may prescribe it even if it is non-efficacious.

2.1.2 Patient demand for generic prescription

A generic drug is an un-branded drug. After the expiry of a patent, the copy of the original patent product sold in the market is referred to as a generic version of a drug. It is labelled using only the active pharmaceutical ingredient (API).[14] Hospitals

and institutions buy generic drugs in bulk quantity, and prices and margins in this market are much lower than in the retail segment. The generic products enjoy low unit margins compared to patented prescription drugs It is a market with high volumes but low margins.

The global market of generic drugs has been growing at 12-13%. The world generic market was US$ 23 billion in 2001. The US and Germany are the two largest generic markets in the world. The Indian pharmaceutical companies are well positioned to exploit the overseas generic market due to high process development skills, and low manufacturing cost base.[15]

A generic pharmaceutical company, in the developed world, wishing to market an equivalent generic to an innovator's patented product uses a significantly less costly and faster process, called the Abbreviated New Drug Application (ANDA). It is important to understand that the generic manufacturer relies on the safety and efficacy data provided earlier by the innovator. He only has to prove to the product licensing authority that his product is technically equivalent to the branded product.[16]

The pharmaceutical industry has a unique feature of a clearly defined generic sector, which eagerly awaits the expiry of a patent protection of high selling patented molecules The rationale of a generic drug is that after the expiry of a patent for a drug, other manufacturers are free to produce an equivalent formulation without making heavy investment in R&D; and make it available at a very economical price for the benefit of the larger section of the population. The World Health Organization has been strongly recommending the use of generic drugs the worldover.[19]

Many Indian pharmaceutical companies have started producing generic drugs, which are generally sold at 50% price when compared to their equivalent branded drugs In India, the rural chemists and doctors prefer to buy generic drugs because of the price factor.[17]During the eighties; there were very few companies who were manufacturing generics. Presently, there are about 60 large companies who are churning out generics. The generic drugs contribute about 3% of the total pharmaceutical market in India. The percentage of generic prescription to total prescriptions is 11.5%.

An article appearing in the Detroit News, USA reported that the doctors at Henry Ford Health System were being strongly encouraged to prescribe generic drugs as part of a cost-cutting exercise enforced to save the health care providers. The goal of this strategy was to maximize the use of generic drugs where they were appropriate for use. As a result of this effort, the use of generic drugs increased to 55% of all prescription drugs. [18]

Increasing awareness amongst the general public about the generic drugs vis-à-vis prescription drugs in India has led to patients at times demanding for a generic prescription from the physician. A survey conducted by the American Association of Retired Persons (AARP) concluded that requests for generic versions of prescription drugs have significantly increased since 1991 among Americans aged 50 and older.[20]Given the fact that the healthcare costs are increasing continuously, this trend is going to strengthen.

It is therefore hypothesized that,

In all the cases in this study, the psychological factors and folk beliefs were more important than pharmacological considerations. Another study suggested that the doctors even found it difficult to dissuade the patients from continuing with the obsolete drug.

It is therefore posited that,

The influence of the original prescriber and the patient's dependence on the drug dissuade the physician from changing the prescription.

2.1.4 Patient's favourable- unfavourable attitudes towards a drug

Researchers have observed that less attention has been paid to patient's feelings toward a treatment therapy. It is also a fact that on several occasions the encashment of a prescription depends upon patient's favourable-unfavourable attitudes toward a drug.

A study conducted by N.Britten in two general practice settings, involving 30 patients, found that while the medication was taken for granted, the patients had many fears and powerful negative images of medicines.[22] The study concluded that, "any assessment of the appropriateness of a proposed treatment for an individual patient should include an exploration of his or her preference, orientation towards medicines and social context". This study brought out three main ideas about medicines and self-reported adherence to treatment: properties of medicines, orientation towards medicines, and the actual use of medicines. Patients had both positive and negative ideas about medicines. Positive statements like, "that magic word antibiotic", " In the old days it was penicillin for everything....." and negative

statement like, "I have a belief whether I am right or wrong that all medicines to an extent are carcinogenic ..."

Patients were either inclined towards taking medicines and had preference for the same, or they disliked taking medicines It was found that the actual use of medicines differed from patient to patient, some adhered to drug schedules, while others had fancy ideas of their own and re-arranged schedules on their own The study strongly recommended that the prescriber should implore the patient to find out his favourable or unfavourable attitude towards a drug therapy and should accordingly select a drug regimen. Thus, the findings imply that a patient's favourable-unfavourable attitude towards a drug can affect the prescribing behaviour of a clinician.

Another study reported in '*Family Practice*' suggested that two sets of patient preferences were explicit: a preference for self care and a preference for drug treatment.[23] The results of another study demonstrated that 72% preferred a non-drug 'home remedy' when given a choice between that and two different drug options. The study reported in '*Family Practice*' hypothesized that the doctors may be more aware of the pressure to prescribe than the opposite. In other words, this could mean that drugs are being prescribed for patients who do not want them and if prescribed they are not likely to cash their prescriptions The study explored patients' attitudes towards drug treatment and attempted to test the hypothesis that the doctors' prescribing habits show greater association with attitudes in favour of prescribing than attitudes in favour of self-care

The results of this study established that patients received prescriptions broadly in line with their attitudes and expectations even though more prescriptions were issued than expected. In other words, the patients' favourable-unfavourable attitudes towards drugs affected prescribing habits of clinicians

It has been observed that those patients, who have been regularly taking an obsolete or inappropriate drug, prefer to stick to the drug, calling the drug 'an old friend'. Some of them even thwart the doctor's efforts to change the dosage. Some patients feel very comfortable with the drug they are used to, and put forward perceived symptom control as the reason for continuing with the drug A major factor for their attachment to the drug is its familiarity and their reliance on the drug. Such patients mostly succeed in achieving their objective of getting a prescription for the drug during consultation, despite the clinician's reluctance to prescribe.

It is therefore suggested that,

If a patient has unfavourable attitude towards a drug, the clinician will not prescribe the drug.

2.1.5 Patient's desire for control over a disease

Jones I. and Britten N., in an article appearing in *British Journal of General Practice*, observed that the number of uncashed prescriptions was a measure of doctor-patient relationship. While this hypothesis yet remains to be tested, the study conducted by them concluded that in a small number of patients, the wish to maintain control over the disease was a factor, which in the context of the patient-doctor relationship, affected the probability of the cashing of the prescription and also the prescription behaviour of a physician.[4]

2.1.6 Patient's visit to clinic

A study conducted in US and reported in *Drug Benefit Trends* observed that office visits by patients resulted in prescription of drugs.[23a] While this observation may appear to be too obvious, it suggests that patient's visit to a consultation, may generate a prescription, which is hitherto not required It could be an inappropriate or uncalled for prescription When a patient calls on for consultation, the patient-doctor relationship factors are at play, which lead to giving out of a prescription to the patient.

The study reports that during 1996, there were 734.5 million visits to the consultations, representing an overall rate of 2.8 visits per person. An average of 1.3drug prescription per visit was reflected in the study. Persons of 75 years and above had the highest rate of physician office visit (6.3 visits/person) More female patients visited physician offices than male patients. This study is strongly suggestive of a probability that the patient's visit to a clinic is a factor, which leads to prescription generation.

Thus the literature suggests that patient-doctor relationship may be a good predictor of the prescription behaviour of the physicians. When a patient interacts with a physician, their relationship and interpersonal factors are at play, which definitely affect the prescribing process of the physicians.

2.2 MEDICAL REPRESENTATIVES

Way back in 1850, a medical detail man, for the first time in history, knocked on the door of an American clinician and requested to spare a few moments from his time. More than 150 years later, the dialogue, or at times the monologue (!) still continues, and the clatter is ever increasing.[24] The present day medical detail man or a medical representative or a professional sales representative (PSR) is armed with information & specialized training, and empowered to extend favours, gifts and trinkets to the physicians

Medical representatives are indisputably the single most effective tool that the pharmaceutical companies employ to convince the physicians to prescribe their drugs.[25]Medical detail man is the most powerful component of pharmaceutical promotion. A medical representative is the most direct point of contact with the physicians.[26]

In US, top 40 pharmaceutical companies employed 35,000 detail men during 1994. The figure rose to 56,000 within a span of four years. A letter published in *Academic Medicine* estimated that in 1988, pharmaceutical companies spent approximately US$ 5,000 per physician for promotion, and one third of this spending was on account of the detail men. This translates to US$ 5 billion expenditure by pharmaceutical companies per year[27] Another data source suggested that in 1998, pharmaceutical companies in US spent US$ 5 3 billion on medical representatives and US$ 1 billion for arranging marketing events for physicians, in the first eleven months of the year. There happened to be one medical representative and a spending of US$ 100 per eleven physicians An informal survey of top forty

pharmaceutical companies in US disclosed that they globally employed around 100,000 full-time detail men. The pharmaceutical industry also supports the living of another 10,000 to 15,000 people employed as direct-to-physician marketing specialists.[28] Another estimate puts the total number of Medical Representatives in US during the year 2002 at around 65,000. This figure may or may not include the contract medical representatives.[32] Lexchin J. in an article published in the *International Journal of Health Services*, states that over 50 percent of the promotional expenditure of pharmaceutical companies is devoted to medical detail men. Freiman mentions that the average annual cost of recruiting, training, and supporting a PSR in USA is around US$ 100,000. In North America and Great Britain, more than one third of the pharmaceutical industry's promotional budget is allotted to take care of the sales force.

Although very costly, personal selling remains the pharmaceutical industry's foremost choice for promotion. The reason is very simple: it is the most effective tool for promotion of prescription medicines. The rule of eighty-twenty, as it is popularly referred to, also applies to the pharmaceutical industry. Twenty per cent of the physicians contribute to 80 per cent of the sales generated by a medical representative. Therefore a small increase in the number of effective prescribers leads to a major change in the volume of prescriptions. Alexander believes that this is why pharmaceutical companies globally commit US$ 15-20 billion a year to support the field force. This translates to one medical representative per nine-to-eleven physicians in the developed world. In other words, pharmaceutical companies spend US$ 8,000 to 13,000 per physician per year in direct selling efforts.

The salaries and expenses of medical representatives remain the largest single marketing expenditure of pharmaceutical companies.[29] A June 1997 article in *Scrip* Magazine stated that sales and marketing expenditure for a typical brand-based pharmaceutical company was 35% of the sales revenue, roughly 20% on the sales force and 15% on advertisement, promotion and marketing expenses

2.2.1 Medical Representatives variables

Study of the published literature on the role of medical representatives in affecting the prescribing behaviour of clinicians suggests that MR factor is the single most important factor, which shapes the prescribing habits of the physicians. The medical representative factor comprises several MR variables like: information source, regularity of visits, trustworthiness, sincerity & honesty, overall personality, medical representative gender, detailing technique, selling technique, prescription demand, educational background etc. It probably is the combination of several such variables and its relative weightage, which decides the total impact on the prescribing habits of the physicians.

2.2.1.1 MEDICAL REPRESENTATIVE AS A SOURCE OF INFORMATION

As suggested earlier, the prescription process starts with the decision with regard to choice of the drug molecule to be prescribed. This decision is largely shaped by the prescriber's reservoir of technical information about a set of pharmacological agents, which could be prescribed in a given disease condition. In an ideal situation, a clinician's prime concern should obviously be the advancement of his patient's health. A physician's first and foremost commitment ought to be, by oath and by law, to his patient; whereas a medical representative is obliged to look after the interest of

the organization he serves There is an inbuilt conflict, and that too by default, of the objectives of the interacting parties, who are presumed to be working in the interest of the ailing patients.

While diagnosis of disease condition is an art of medicine, treatment is the applied form of this art. The clinicians who have been in practice for about fifteen years come across several new molecules, which approximately account for almost 75-90% of the prescription market; as these molecules have been introduced in the market after they left the medical school. This means they do not have formal training and experience in using these drugs, which have replaced the earlier drugs used for the same purpose. Thus they need to keep themselves update. Scores of medical journals, magazines, articles, newspapers, research papers etc. are available and it is practically impossible for them to screen through ceaseless flow of published medical literature. Internet is another online source of information on drug molecules, which is relatively handy for the curious physician. Every weekend, they are invited to participate in Continuing Medical Education (CME) programmes, seminars, workshops etc., which are designed for knowledge update and are more often than not, sponsored by drug companies.

Obviously the information is likely to be coloured, skewed in favour of the drug company promoting a particular molecule. It could be anything between good to bad, from evidence-based truth to honest factual errors, half-truths and intentional lies, manipulation of information and statistical jargon. The drug companies are bound to control, filter and monitor the information so as to suit their best interest.

The medical representatives are probably the most highly trained professional sales persons across all industries. Their employers, the drug companies, know very well that they are highly influential, but they do not openly admit this; while doctors know very well that this influence is harmful, but they would not admit this fact. Doctors do understand that the MRs are trying to influence their prescribing, but they continue to believe that they are beyond such influence

In a highly competitive medical practice environment, the physicians face constraint of time. Most of them use even the last moment of their available time for advancing their medical practice and are neither inclined nor interested in screening the medical literature for enriching their information backup. Under the circumstances, they find the medical representative an easy and handy source of information for new drugs that they are to try on their patients. Physicians find it difficult to keep up with rapid changes in the pharmaceutical industry, and depend on medical representatives for information about the newest discoveries.[25]

A survey of the faculty and house staff at hospitals in Minnesota and Wisconsin revealed that more than a quarter of the doctors had changed prescriptions at least once in the preceding twelve months after a conversation with a medical representative.[28]

Another study, published in the *Journal of American Medical Association*, summarized sixteen previous studies and confirmed that the physicians who regularly saw drug company representatives were more likely to prescribe 'irrational' drugs than physicians who did not see medical representatives. Joel Lexchin

reviewed English language studies carried out between 1966 and 1996 The results were consistent over time and in all four countries under study, they proved a consistent association between doctors' reliance on the information provided by the medical representatives and inappropriate prescribing.[29]

It is estimated that as many as 85% of the primary care physicians in US see medical representatives three to six times per week. In India, a physician having good practice sees, on an average, 4-6 representatives per day and each of them tries to detail them 6-8 products per visit. The influence of the medical representatives is so promiscuous that a *British Medical Journal* editorial in its July 1999 issue reminded the physicians that, "Their job is primarily to sell their company's products. They are an important part of the pharmaceutical industry's promotion methods, and they are highly successful in altering doctors' prescribing habits." The survey carried out by Elizabeth Creyer and Ilias Hrsitodoulakis and reported in the journal '*Marketing Health Services*' shows that physicians form a more positive impression of medical representatives when they provide them with accurate information.[25]Ferguson R.P., in an article published in the *Journal of the American Medical Association*, states, "the increasing complexity of the products and the increasing number of company mergers (resulting in diversity of products) mean that the amount of information physicians have to process about pharmaceutical products has increased substantially In this regard the PSRs can play an important role". The medical representatives, trained as scientists, business strategists and communicators, can help physicians do a better job in their practice, by educating them about the increasing array of new products. Huston P. concludes, in an article titled "Doctors want more industry-sponsored meetings", published in *Medical*

Marketing and Media (March 1993) that physicians rank medical representatives among the three most useful sources of information about pharmaceutical products [26]

The most pertinent question regarding the information is: which source of information is considered more important by the physicians in their decision making. commercial or scientific? The scientific sources comprise articles, research papers, editorials and letters published in medical journals, pharmacological journals and publications, product monographs appearing in official pharmacopoeias and extra-pharmacopoeias, textbooks of pharmacology etc. The commercial sources include product information monographs, literatures and other promotional materials brought out by the pharmaceutical companies, advertisements in medical journals & medical indices, detail talks by medical representatives, clinical trial publications, presentations in seminars, symposia and workshops sponsored by the pharmaceutical companies, etc.

A study involving about one hundred clinicians to ascertain the contribution of various information sources, as perceived by the clinicians, in the Indian context has revealed interesting findings.[44] The study tried to assess the relative importance of various information sources as perceived by the physicians.

TABLE 1 INFORMATION SOURCES - I

SOURCE	% OF PHYSICIANS MENTIONING
Medical representatives	46%
Medical journal articles	32%
Medical journal advertisements	12%
Direct mail advertisements	10%
Doctor friends/peers	8%
Staff meetings	6%
National conventions	5%
Other sources	3%

In a highly competitive medical profession, where the physicians are constrained for time, convenience and availability of information sources are the most crucial factors, which can mould physicians' opinion about products. They look for concise and screened information, which could be easily availed. Concentration is a pre-requisite for reading and registering technical information, and concentration puts heavy demands on time, which is a scarce commodity in the life of a practicing physician. Under the circumstances, when a medical representative walks in his clinic with ready-to-digest information and a smart detail talk, he is inclined to welcome the information and weigh his clinical judgments on the same.

Another survey regarding the main source of information as perceived by the physicians brought out contrasting results. 31 Family Physicians (FPs) and 47 General Internal Medicine (GIM) doctors were included in the study. The doctors were asked to indicate their main source of information from amongst several variables The outcome is summarized below

TABLE 2 INFORMATION SOURCES- II

MAIN SOURCE OF INFORMATION	*FPs*	*GIMs*
Journal articles	61%	49%
Lectures	51%	49%
1993 5th Joint National Committee	23%	38%
Colleagues	42%	34%
Medical Representatives	23%	9%

Although the study was carried out with a specific reference to information about the anti-hypertension drugs, it could be representative of the general perception of physicians at large, in terms of weight assigned by them to the information sources.[30]

In a letter published in *Archives of Family Medicine*, Dec.,1994, Dr. M. Lee Chambliss disputes the importance of pharmaceutical marketing. His letter is in response to an article written by Levy R. and published in the same journal, wherein he stated that the writer had grossly overestimated the difficulty that physicians faced in obtaining drug information from scientific sources. Levy observed that, " direct access to the medical literature is difficult and time-consuming for practicing physicians". He further mentioned that the scientific information must be measured against the present system in terms of scope, objectivity, timeliness of information, effectiveness of communication, and cost. Lee argued that commonly available familiar and scientific information sources like *The Medical Letter, Drug Facts* and *Comparisons and Drug Evaluations Annual* etc. are much better sources than the commercial information. These publications provide the information in a concise and authentic way. As regards the effectiveness of communication, he believes that the

physicians can gain more knowledge from 5-10 minutes reading of these references than from talking with a drug sales representative or viewing a journal advertisement[31]

Yugal Sikri, Director, pharmaceutical product division, Parke-Davis, India, in a recent interactive session on "Pharma industry-Medical profession interface" at Mumbai stated that, " interestingly, a doctor admits that a Medical Representative updates his knowledge and on the other hand he turns down the MR." He also informed the participants that a contemporary market survey involving some top doctors in Mumbai revealed that it is the Medical Representative who is the main source of information for doctors because the doctors do not have time to go through volumes of books in their libraries, innumerable medical journals, and surf the pharma or health websites.[33]

Michel Robinson, a spokeswoman of the National Pharmaceutical Council, an association of the pharmaceutical companies, says that as the Food and Drug Administration speeds up the approval of new drugs, more and more unfamiliar products must be introduced to the prescribing doctors. She emphasizes that against this backdrop the sales force performs a vital educational role for the industry by introducing, to the prescribing doctors, new families of brand name drugs and updating them on the older ones.[24]

Over the last 20 years, various studies have demonstrated that doctors admit they rely a great deal on information supplied by medical representatives instead of

medical journals. Many physicians are unaware of the powerful effect medical representatives have in shaping their opinions on pharmaceutical products.

A study conducted in 1995 in three Eastern European countries demonstrated that the physicians exhibited a high degree of reliance on the information provided by the medical representatives. In this study, the doctors were asked their preferred source of information and how frequently they used this source. In Hungary, 91% of the general practitioners surveyed said that they relied on medical representatives as their prime source of information. Even the internists and cardiologists relied heavily on medical representatives for information. A similar survey in Poland showed a high degree of reliance on medical representatives among gynaecologists and psychiatrists. Similarly, in Czech Republic, doctors identified medical press as their most frequent source of medical product information. [29]

The results of another questionnaire survey conducted among doctors and pharmacists in Estonia, Latvia and Lithuania, in late 1996, corroborated the earlier findings. Ninety-five percent of doctors and ninety-six percent of pharmacists reported that they received information on new drugs from pharmaceutical representatives, as against only sixty-eight percent of doctors who said that they received information on new drugs from the medical journals and hearing about them from colleagues.[29]

Dr David Rapoport, MD, a physician in Canada, in a letter published in the *Journal of the Canadian Medical Association*, candidly admits that his day starts with a mug of coffee, which has a message from a pharmaceutical company on it, and he ends his day reading a product advertisement in a medical journal published by a

pharmaceutical company He states that, " My office policy on seeing representatives from pharmaceutical companies is generous. If I am not too busy, I discuss their products and compare products with competitors. The representatives are well educated and personable, but they cannot all be right... Am I influenced? Yes "[34]

An exploratory study conducted under the auspices of the School of Business, Pennsylvania State University, USA, during 1996 concluded that physicians viewed MRs as an important source of information, but also felt that they could get needed information from other sources without the assistance of the MRs [35]

Dr. Avoron at Harvard, who conducted a pivotal study in early eighties, states that his study demonstrated that although doctors maintained they were guided by medical literature, they were actually possessing information about certain drugs which could only have come from the medical representatives.[36]

Thus there is overwhelming evidence that the doctors consider the medical representatives a very important source of information on medical products and that the information provided by the MRs helps them in their medical practice.

Therefore it is posited that:

Physicians believe that Medical Representatives are an important source of information and when MRs provides information and educational support to them, they are inclined to be more favourably disposed to them.

2.2 1.2 A MEDICAL REPRESENTATIVE AS A TRUSTWORTHY PERSON

The relationship between a medical representative and a physician, like any other relationship, has a common bond of trust. The trust develops over a period of time and gets reinforced through several interactions wherein the medical representative presents his detail talk in an honest and un-manipulative manner; and briefs the physician on all the aspects, whether good or bad, of the medical product he is trying to promote.

The accuracy of information provided by the medical representative has always remained a disputable issue. It is also perceived as the main hurdle in the doctor-MR relationship. The medical fraternity maintains that the medical representatives highlight only the favourable aspects of their products and conveniently forget to bring to their attention the adverse effects of their products. Various attempts have been made to assess the accuracy of information provided by the medical representatives over years, through studies and investigations.

An anonymous network of general practitioners and a small number of hospital pharmacists, readers of the independent French drug bulletin *La revue Prescrire* has been monitoring the behaviour of medical representatives and the accuracy of their information and claims in respect of medical products. An assessment of the results over the period 1991 to 1997 has demonstrated that, (1) overall, the drugs' indications were extended or changed in about 27% of the visits of the MRs (2) the dose regimens were not in accordance with the data sheet in 15% (3) Side-effects, contraindications and interactions were not mentioned in 76% of the visits.[37]

The survey conducted by Elizabeth Creyer and Ilias Hrsistodoulakis suggested that physicians formed a more positive impression of medical representatives when they provided accurate information, were trustworthy and behaved ethically. They also observed that when the physicians formed more positive impressions of the medical representatives, they held a more positive attitude towards the pharmaceutical industry.[25]

The anonymous network study also suggested that medical representatives almost always stated the indications and the drug's brand and generic names, but usually failed to include safety information such as side effects and contraindications, and many statements contained inaccuracies. In other words, there appeared to be lack of balance in the information provided, with greater emphasis on drug's benefits and inadequate information on adverse effects, precautions and contraindications. The study, although limited in scope and extent, supported the research findings that there is a consistent association between doctors' reliance on the information provided by medical representatives and inappropriate prescribing.

A Merck spokesman avers that the role of their representatives is to effectively promote their products through need-based selling approach. He further states that Merck's medical representatives provide accurate information to physicians and other healthcare personnel, so that Merck's products will be prescribed when indicated.[28]

Dr Alastair Benbow, Vice President and Medical Director at SmithKline Beecham comments that the MRs have to be pragmatic as the time the doctors have for

obtaining the information on drugs is limited When a physician interacts with a medical representative with whom he has developed a truthful relationship over a period of time; and when the physician trusts him, then getting information from the medical representative is okay, as the same is expected to be balanced and unbiased. He emphatically states that, " After all, you only need to make one mistake as a representative. If you lie or mislead a doctor, you're not going to be invited back, nor should you be" [28]

A Wyeth executive commented, " Believe me, any detailer who lies to a doctor-client in the morning is not going to have any doctor-clients by lunchtime These are intelligent people we're dealing with and if the element of trust is breached, if they don't believe what the detailer is saying about a drug, if they think we're trying to pull the wool over their eyes, they're not going to prescribe the drug or ever let that detailer come back. Who loses if we don't supply the highest quality, most accurate information? We do."

A study conducted at the University of South Australia's school of Pharmacy recorded sixteen detail talks made by the medical representatives to doctors and then compared them to the information contained in Australian Approved Product Information (AAPI). It was observed that adverse effects, contraindications and conditions not conducive to prescription of the drugs were omitted by the detail men. Thirteen out of sixteen detail talks were inaccurate and promoted off-label use and non-authorized applications of the drugs.[28]

Dr David Grifith, a consultant geriatrician at Mayday University hospital in England, wrote an editorial in the British Medical Journal about the quality and truthfulness of the information the medical representatives offer to the physicians. In an interview he stated that, " There is a plethora of very good information available to doctors today. It is just a question of taking the time to access it. Yes, getting information from a drug company representative may be the easiest way of all, but easiest is not necessarily the best, the quality of the information is questionable and seeing drug reps in order to save time is a cop out. I'd be very surprised if they actually lied about a product. But I know they are selective with their facts and economical with information. I believe drug-company representatives and the bias that they bring to healthcare is disadvantageous to healthcare."[28]

A study conducted to assess the information medical representatives provide to physicians, in Canada, and reported in *Canadian Family Physician* in 1997 concluded that medical representatives presented only selected, usually positive, information about their products. The study also suggested that the doctors should not be passive recipients of information provided by the medical representatives, but should critically compare the same with that contained in scientific publications.[38]

Robert Perry, MD, while responding to a study reported in *JAMA* which claimed that the physicians failed to recognize the inaccuracies in the detail talks of the medical representatives, stated that he generally found the medical representatives to be genuinely committed to their products and provided needed services to practicing physicians. He expected that certain data provided by the MRs could be skewed in

attempt to promote their products, but always based his final judgment on other non-biased sources.[39]

A study, published in *JAMA* in 1995, found a dozen factual errors in tape recordings of 13 presentations made by medical representatives to doctors. Expectedly the errors invariably favoured their own drug over the competition.[24] Dr. Bellomo of Jersey city sees half-dozen or more representatives a week, spending as long as half an hour with each of them. He avers that the information they provide is valuable at least "90 percent of the time" He acknowledges that one of the medical representatives passed on a new warning about a drug, which was officially not announced He declares, "That person is welcome in my office anytime."[39]

Ms. Atkinson of Du Pont states that only one doctor among 385 she visits in her territory told her that he has a policy not to see the medical representatives. But she still leaves the product leaflets in his clinic. Her company's prescription tracking service confirms that this doctor does prescribe her products.[28]

Dr. Peter Mansfield of MaLAM makes a very interesting observation, "At the very heart of the relationship between drug companies and doctors lies a critical contradiction." Research suggests that the physicians do listen to the detail talk of medical representatives, and at the same time they understand that the information provided by them may be biased towards their company products for obvious reasons. This is a dilemma they face everyday, and are led to believe that if they find a trustworthy medical representative, it would be safe to believe in the information provided by him

Therefore it is proposed that,

When the physicians trust a medical representative and believe him to be honest and true to his word, they are inclined to prescribe his products.

2.2.2 Selling techniques of medical representatives

Eli Lilly, a multinational giant, sets goals for its representatives in terms of 'achieving sales targets' and ascertaining growth in their respective territories The skills expected from them are effective communication, interpersonal skills, negotiation skills, project selling and a 'return on investment' mentality

It is obvious that the emphasis during the training of medical representatives is on sharpening their selling techniques and expose them to more sophisticated methods of generating and growing sales. Smart companies also ensure to match, wherever possible, the personality type of their medical representatives with their clients. A former Abbott laboratory representative was widely quoted as saying, "Prescription drugs are marketed now as if they are cosmetics or candy"[28]

SmithKline's Alastair Benbow makes a summarizing statement that, "In the end, it all comes to one basic truth- that a detailer is only as good as the product. If the product is not particularly effective or has a poor safety profile, then no amount of detailing will influence that. As a profession, we are science data driven. Unless the science and data are good, you haven't got a chance."[28]

It is an admitted fact in the pharmaceutical marketing that most medical representatives keep a record of the personality profile of their doctor clients, wherein they maintain various degrees of information, from the names and birth dates of a doctor's children, favourite food joints, movies, picnic places, and the likings and dis-likings of their spouses. An Indian company used to collect, through its medical representatives, information about the birth dates, wedding dates and clinic opening dates of physicians and used to mail greetings on such occasions regularly. Although not candidly admitted by the physicians, the programme was liked by them, more importantly, it was liked very much by their spouses.

There is anecdotal evidence to suggest that frequently offered lunches by the medical representatives have become such a powerful weapon that some young upcoming physicians actually turn to medical representatives for treatment advice, finding 'the pizzaman' more easily accessible than the physician in charge.

A survey conducted by Mansfield P.R. and published on WHO's website suggested that medical representatives use 'misleading logic' and 'methods of influence' to induce the physicians to prescribe more expensive and less appropriate drugs.[40] Mansfield suggested that the types of misleading logic used by the medical representatives included, false statements, omission, fine print, evidence of poor quality, surrogate endpoints, statement of relative risk, ambiguity and widening the indications etc. Various methods of influence used by them are gifts (reciprocal obligations), appeal to authority, social validation or appeals to conformity, liking/friendship, commitment consistency, scarcity, appeals to sympathy, magic words, images that appeal to desire and repetition for agenda setting

Syed reports that the presentations of some medical representatives are too biased and some of them also engage in negative selling. He further refers to findings of a survey that some medical representatives adopt aggressive promotional styles, particularly in the medical education settings He concludes that it is likely that the particular style adopted by the medical representatives while making their presentations before the physicians may affect the attitudes of the physicians towards them and in turn may affect their prescribing behaviour.[26]

Selling techniques have been widely studied in the literature of personal selling It is suggested that sales personnel are likely to adopt different behavioural styles in their selling efforts to achieve exchange. Accordingly some medical representatives may adopt a hard-sell approach, while others may choose to use an adaptive approach. Successful medical representatives attempt to build relationships with customers, try to understand their needs, and help them solve the problems that they may face. It is also suggested that where a pushy fast talker may fail, a persuader will succeed. Some physicians perceive that the medical representatives are becoming too aggressive, which in most cases would not be liked by the physicians. Such techniques may even harbour unfavourable attitudes in the minds of the physicians for such medical representatives.

It is conceivable that the physicians do not like that they be pressurized for making out prescriptions for products that they do not consider worth prescribing. The clinicians also do not like aggressive selling techniques of the medical representatives. They generally dislike it when the medical representatives try to spend more time with them and take more than needed time to detail their products

Doctors do not like those medical representatives who demand prescriptions from them and insist for a fixed quota of prescriptions for a particular product.

In the present competitive pharmaceutical marketing environment, the medical representatives have to achieve their targets. At times, they indulge in requesting for prescription through appeal for sympathy. Such appeals are looked upon by the physicians as undesirable selling techniques, and are not favourably responded. The physicians do not like when they think they are being manipulated for writing prescriptions by hook or by crook. Such selling techniques are not viewed as conducive to healthy relationship between the doctor and the medical representative.

Therefore, it is hypothesized that,

The physicians do not get favourably impressed by misleading logic and various methods of influence used by the medical representatives. They do not appreciate aggressive selling styles adopted by the MRs. They do not like to be manipulated for prescriptions. A medical representative making persistent demands is not favourably looked upon by the physicians.

A medical representative knows that the physicians need to be constantly reminded of their brands. They even expect them to be regular in their visits. A physician is called upon by 4-6 representatives a day and each one of them tries to hammer down 6-8 brands on him. Under such circumstances, a physician would find it convenient to avoid prescribing requests from a medical representative under the pretext of his not being regular in calls. When a MR is fairly regular in his visits to a

physician, the physician feels he is under a moral obligation to prescribe his products. It is therefore posited that;

If a medical representative regularly visits the physician, the physician is likely to oblige him by prescriptions

Earlier the job of a medical representative was considered exclusive to men, as it involved a lot of travelling and hardship. However, the pharmaceutical companies in India have started employing lady medical representatives in large cities where territories can be created within the city only, to avoid travelling. Such territories are assigned to lady medical representatives; and the move has been fairly successful. They have been found more sincere and devoted to their job when compared to their male counterparts.

No studies are available to suggest whether there exists gender empathy amongst the physicians. Nevertheless, in the Indian context, it is possible that lady medical representatives are looked upon more favourably by physicians; and it is likely that the physicians would oblige them with prescriptions. There is anecdotal evidence and a belief prevailing amongst the medical representatives that lady medical representatives are favoured by the physicians. Therefore it is proposed that.

Lady medical representatives are likely to get sympathy prescriptions from physicians

2.2.3 Educational background of medical representatives

Medical representatives are probably the most highly trained salespersons across all industries. In Britain, the medical representatives are first employed as apprentice medical representatives and within two years of their appointment, they have to pass through a comprehensive industry-wide accreditation examination, or else they will be sent home. Many of them come to this profession with a University level science degree. It is understandable because they have to understand how the drugs act.[28]

There are no international guidelines as to what should be the education level and training of medical representatives. Should they possess thorough biomedical knowledge, or should they understand basic normal anatomy and physiology of the affected body system, the disease and its pathophysiology, and the mechanism of drug action etc? Several studies indicate that medical representatives often make misleading or inaccurate statements. It is also suggested that they generally do not intend to do so. It is because of inadequate knowledge or lack of communication skill, that they falter and end up making misleading or inaccurate statements about technical aspects of drugs[41]

Some medical representatives get specialized training in one or more group of drugs and learn their field of medicine very well. Some become so expert that they become part of the healthcare team Those promoting surgical equipment are sometimes allowed to remain present while the equipment is put to use for the first time.

A qualified medical representative is more likely to avail better product knowledge, and knowledge, as in case of any field, is likely to be respected by the physicians.

When a medical representative provides information, which is backed by a sound knowledge of the subject matter, he earns the confidence and respect of the physician. The physicians are more inclined to help him by prescribing the products promoted by him

Therefore, it is posited that,

Better educational background of a medical representative helps him earn favour of the physicians.

A medical representative possessing adequate product knowledge and having effective communication is favoured by the physicians.

A medical representative with good overall personality has more chance of earning prescriptions from clinicians.

2.2.4 Personal relationship with physicians

"People do business with people and hence relationship pharma marketing is essential in today's pharma marketing process", says Sunil Chiplunkar, senior product and training manager, Juggat Pharma, Bangalore [42] He further explains that there were times in the pharmaceutical industry when quality was an important selling criterion, and it alone could motivate doctors to prescribe the products But soon it became a qualifier Next there was an era of brand equity and corporate image Today, these have also become qualifiers and what now really matters is the

'relationship' with the prescribers He emphasizes that this is an era of 'relationship marketing'

What is required is building 'customer bonds' A bond should be built between the target doctor/chemist and the pharmaceutical company Relationship marketing is a communication process, involving continuous dialogue between the doctor and the medical representative In wake of fierce competition in Indian pharmaceutical markets, product differentiation is getting increasingly difficult and competitive practices are also more or less similar In fact there is promotional clutter; and to be heard above that requires building emotional bonds through mutual trust, goodwill and respect. Chiplunkar states that, " relationship marketing is effective because it is based on the fact that 70 percent of purchase (prescribing) decisions are made emotionally".

An ironical view is that feeding doctors is a tried and true drug company method for initiating and then maintaining a relationship This effort starts when the doctors are in their first year of hospital residency; and they have yet not formed prescribing habits. It is always good to catch them young. Medial representatives tend to develop relationships with their prescribers in the larger interest of their business. At the same time the doctors suspect that their sole interest is to get prescriptions from them. They try to keep them away by an arm's length. The physicians try to maintain a distance from the medical representatives and do not generally allow them to develop stronger relationships, as they are apprehended that closer relationships will lead to pressure for prescribing.

A study conducted by Pipa Wysong suggested that when the doctors spend more time with the medical representatives, they are more likely to prescribe costlier drugs He found that those family physicians who interacted with medical representatives more than once a week, 80% of the time, were statistically more likely to use more expensive drugs, which the medical representatives were actively promoting to them.[30]

Therefore it is posited that,

The clinicians generally discourage medical representatives to make frequent visits to their clinics.

The clinicians generally do not get impressed by the corporate image of a company.

The clinicians generally do not encourage the medical representatives to build relationships with them as they suspect that this will lead eventually to pressure for more prescriptions.

2.2.5 Volume of patients seen by the clinicians

Syed and Robert report that the physicians who see a larger number of patients are more favourably disposed to medical representatives than those who see relatively a fewer patients. The logic is that busy physicians who have to interact with a number of patients day in and day out get less chance to critically evaluate various medicines and would rather rely on the information provided by the medical representatives

A study conducted by Huston suggested that those physicians who prescribed a high volume of drugs ranked medical representatives as a prime source of information.[43] He also showed that such physicians also place high value for other services like samples and gifts

We therefore hypothesize that,

The physicians, who see a larger number of patients, are more likely to be favourably disposed to the medical representatives.

2.3. PROMOTION

WHO defines pharmaceutical promotion as, " all informational and persuasive activities by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/or use of medicinal drugs." Thus stimulation of sales, the aim of promotion is built in the definition of the promotion. Promotion includes the activities of medical representatives and all other aspects of sales promotion such as journal and direct mail advertising, participation in conferences & exhibitions, the use of audio-visual materials, the provision of drug samples, gifts, hospitality for medical profession and seminars, etc.

Pharmaceutical promotion is a costly affair. In an article, published in *Scrip* magazine in 1997, the authors Devlin and Hemsley estimated that pharmaceutical companies allocated 35% of their revenues to marketing.[45] Promotion takes away the largest chunk of these allocations

The marketing interest of a pharmaceutical marketer and the healthcare interest of the state are always at crossroads This dilemma is characterized by the continuous tension created by state's commitment to optimal use of medicines, when they are absolutely needed; and the pressure the companies undergo to continuously expand sales WHO described this dilemma as, " an inherent conflict of interest between the legitimate business goals of manufacturers and the social, medical and economic needs of providers and the public to select and use drugs in the most rational way."

The pharmaceutical marketers have been using several tools to effectively promote their products to the medical profession. These tools together comprise the 'promotion mix'. The conventional tools are samples, gifts & trinkets, advertisement & publicity, hospitality for the medical profession, CME programmes, seminars & workshops, peer group influence, technical information and evidence, etc. Severe competition and constant pressure to expand sales, at times, lead to unethical promotional practices. Almost two-third of world's countries has either no laws to regulate pharmaceutical promotion or do not enforce the regulations. The marketers employ new and emerging strategies for drug promotion, which are not envisaged by the drug regulation authorities Larry Sasich of US Public Citizen Health Research Group once commented that Regulation would always lag behind the ingenuity of the advertising executives.

Nevertheless, promotion is the most important factor group, which affects the prescribing behaviour of the physicians.

2.3.1 Gifts and trinkets

It is not an uncommon site to see the doctors' tables topped with innumerable innocuous looking items bearing brand names/logos belonging to pharmaceutical companies. An enquiry into their source and purpose led to dialogue as follows,

" Where did you get all this stuff?"

"They give it to you"

"Who?"

"The drug companies. The reps They always hand you something."

"And what do you do for them?"

"Nothing"

"Then why do they give this stuff to you?"

"Don't ask me, ask them"

So the same question was asked of an American Home Products marketing person, while he was in charge of a stand filled with gifts and trinkets to be distributed to physicians, at a large pharmaceutical fair.

"Why do you give all this stuff away?"

"They're harmless reminder items."

"By harmless, you mean, they're not bribes?"

"Bribes are absolutely not our style. That's not what this is all about. If you're insinuating that we expect something in return, you're dead wrong. If we give a doc a coffee mug that has our logo on it, it's just a friendly gesture to remind him who we are. If we give him a cheap plastic ruler that has our drug's name and dosage

information on it, that just makes it easier for him to remember how much to prescribe."

"What about tickets to football games....aide-memoire?"

"It keeps the door open".[46]

Gift relationship between the pharmaceutical industry and the physicians is unique in the sense that what is implicit is not admitted by either side. Inherent to this relationship is the dilemma to concede or not, on the physicians' part, that their prescribing behaviour can be affected by ball pens and coffee mugs. On the pharmaceutical industry's part, it is very inconvenient to allow this relationship to be viewed as bribes.

Dr. J.C. Patel, Hon. Physician at Bombay Hospital, Mumbai, in an article published in the *Journal of General Medicine*, states that, "Drug companies would not give gifts to doctors if these were not to serve the business objectives of the pharmaceutical industry. No bottomline-oriented company would give out of mere disinterested charity. In general, Indian drug firms follow the methods of drug promotion widely adopted in the west."[47]

Dr. Patel's article has a special relevance for this study, as it explores the gift relationship in the Indian context, while critically examining such practice in the international arena. He believes that the medical representative offering the gift expects the physicians to reciprocate the same by way of prescriptions of his products.

The main objective behind giving gifts and trinkets, as ostentatiously claimed by the pharmaceutical companies, is to enhance brand name recall of their products Dr Patel's reply to this claim is, both *Yes* and *No*. He elaborates that the principle of reciprocity as described by the social scientist, explains this relationship. A human being tends to help those who help him. Dr. Patel believes that this principle is one of the fundamental principles, which guide the human transactions and integration; and he would be certainly inclined to prescribe the products of a company who has offered him a gift However, he thinks that the duration for which he will continue prescribing the products depends on several factors like, his liking of the gift, its utility, its recall value, the ease with which the name of the product can be recalled, and also the number of patients who could be prescribed the product.

He also avers that all those gifts that he receives are not useful for recall purpose. He firmly believes that for gifts to have recall value they have to be before a physician's eyes for part or full time, or should be of some utility to him or his family. Although he has his own reservations about similar perception of the recall value of gifts by other physicians, who may have different ideas of utility and hence the recall value of gifts; he thinks that if the companies can design the gifts as per the liking of individual prescriber, the gifts would certainly have a good recall value.

JAMA published an article by Chrenn et al, which postulated that whenever a physician accepts a gift, an implicit relationship is established between the physician and the company or its representative and there is an obligation to respond to the gift Although the gift helps the doctor to recall the product, it costs money, which is ultimately paid by the patient.[48]

A study conducted by S. Madhavan and his colleagues and reported in the *Journal of Clinical Pharmacy and Therapeutics* in 1997[49] concluded that the physicians slightly agreed that pharmaceutical companies give gifts to physicians to influence their prescribing, moderately disagreed that they do so as a form of professional recognition of physicians, and strongly disagreed that their prescribing behaviour could be influenced by the gifts they received.

This article is one among several articles, which indicate that the 'gift relationship' between a physician and a pharmaceutical company may lead to inappropriate prescribing by the physicians. The acceptance of gifts creates an obligation on the physician to reciprocate the favour. The resulting change may always not be based on sound therapeutics, and spending patients' money without his knowledge and consent raises serious ethical issues. The gift relationship between the doctor and the pharmaceutical companies may endanger the patient-doctor relationship and may also threaten the integrity of the medical profession.

A study conducted by Bricker E.M. concluded that in a medical practice setting with a hospital background, 67% of internal medicine faculty and 77% of residents believed that accepting gifts could potentially influence prescribing, especially if the gifts costlier than US$ 100 were involved.[50]

An article published in *Nebraska Medical Journal* claims that physicians may respond to gifts by being more willing to grant interviews to sales representatives from the companies who offer the gifts. The writer of this article states that although

the gifts should have no influence on clinical decisions, promotional perks in subtle ways may influence medical practice decisions.[51]

In a letter published in the *Medical Journal of Australia*, Anthony Jorm argues that the gifts the pharmaceutical companies give out go to the medical practitioner rather than the consumer of the product, i.e. the patient. The role of the medical practitioner is not that of a consumer, rather that of an intermediary who is expected to act in the best interest of the patient, i e the ultimate consumer. The patient would expect that a physician would choose the best drug for him in an unbiased and objective manner; and would not be influenced by gifts and trinkets. Further, these gifts are ultimately paid by the patients through higher prices for medicines. Thus the patient ends up paying the physician twice, once for the consultation and then for the prescription. [52]

An editorial article in the *American Journal of Medicine* reiterated that, "it would be naïve for the physicians to presume that they are immune to the blandishments of gifts, samples etc. It is equally naive to view that medical representatives are always pernicious and biased, working for monolithic enterprises motivated solely by profit..... Somewhere between these two extremes lies the ethically responsible and appropriate course for a sentient physician."[53]

Dr. R. Smarta, a pharmaceutical marketing consultant envisages the role of gifts in lieu of samples, when the samples are too costly to distribute. Under such circumstances, the gifts replace costly samples and act as good product reminders.[54]

The study conducted by S Madhavan et al suggested that the most commonly received gifts by the physicians were trinkets like pens, paperweights etc (77 4%), followed by books (41.7%) and meals (41%) Major gifts like hotel accommodation and air travel tickets were offered to 7-8% of the responding physicians. The mean value of such gifts ranged between US$ 256 19 to US$ 416 per year.

Several articles report that the commonly received gifts by the Indian doctors include stationery, time-related items, bags, books, folders, office/desk, medical, house hold, personal and innovative items. Such gifts may range from small to big, alarm clocks to air tickets, calendars to cars, writing pads to refrigerators, ashtrays to air-conditioners and telephone diaries to television.

Dr J.C Patel, in an elaborate article, as referred earlier, gives details as to which gifts would generally be appreciated by the doctors He thinks that when the company names or product names are written in very bold and conspicuous types, the doctors are hesitant in displaying such calendars in their clinics/dispensaries. Instead, calendars exploring nature or depicting pictures of birds or animals, and imprinted with small lettered brand names/company names are welcome. Fancy trinkets create a clutter on the consulting desk and unless designed with innovation, utility and retention quality, they help neither the doctors nor the pharmaceutical companies

The medical profession and the lawmakers have serious reservations over the issue of the gift relationship between physicians and pharmaceutical companies. Various medical and pharmaceutical associations like American Medical Association (AMA),

Canadian Medical Association and the Association of British Pharmaceutical Industry etc have evolved code of conduct specifying which gifts could be accepted/offered and which could not be

Although the ethical aspect of the gift relationship between physicians and pharmaceutical companies may be a highly disputed issue, the fact remains that gifts are a very powerful tool, which affects the prescribing behaviour of the physicians. Therefore, it is postulated that,

Gifts and trinkets affect the prescribing behaviour of the physicians.

2.3.2 Samples

The original intention behind distributing samples amongst physicians was to facilitate trials on patients and providing an opportunity to the physicians to have first hand experience of using the drug and evaluating its efficacy.

In the United States, some doctors have admitted that they see medical representatives with a view to receiving free samples from them. In UK and other similar countries, where the drug cost is met by the exchequer, doctors find the free samples handy for use in emergency situations and also during odd times when the pharmacies are closed.[55]

More often than not, the doctors use free samples because they are handy. It is likely that while doing so they perhaps dance to the tune of the pharmaceutical companies which want them to form a habit of using their drug. Once a drug is found helpful, both the doctor and the patient exhibit hesitation in changing over to other

drug The medical representatives find it very expedient to provide free treatment of a costlier new drug for a week for a patient, as they are very sure that this would be more than compensated, when the patient on being discharged, will be recommended the drug for use over several months

In Japan, the medical representatives are more than welcome to call on the physicians with bags full of samples of newer and costlier drugs, as the system there encourages them to use newest and obviously most expensive drugs In South Africa, when a legislation was proposed to ban free sampling to the physicians by the pharmaceutical companies, the doctors objected vehemently and insisted that the medical representatives should call on them like regular patients do and sample them adequately. They argued that although their visits took a toll of their time, they more than compensated the time loss with samples they offered. In other words, the medical representatives added an additional dimension, in this case, a monetary one in the doctor-pharmaceutical company relationship.

Dr.Bellomo of Jersey City sees half-a-dozen medical representatives a week. He believes that drug samples are handy to start a patient on a treatment at odd hours of night, when the drug stores are closed. He also thinks that it is a way to ease the cost of treatment for non-affording patients. However, he feels that this is a smart way by which the doctors and the patients are hooked on newer and more expensive drugs, when economical, safer and equally efficacious drugs are available.[56]

It is widely quoted that sampling usually establishes a good product faster and kills a poor product quicker than any other form of advertising. Sampling can at most be as

good as the product. Dr. Smarta believes that sampling is one of the oldest techniques for overcoming the skepticism of doctors and converting them to the product.[57]. Typically, three fourth of the promotional budget is allocated to sampling, in the early phase of the product launch The national average sampling cost is estimated to be around 4% of the pharmaceutical product sales. In rupee terms, it works out to an astounding Rs.650 million!

The Canadian Medical Association has formed guidelines for distribution of samples, which specify that the distribution of samples should not involve any form of material gain for the physician or for the practice with which he is associated The guidelines further emphasize that when the physicians accept samples, they are responsible for their age-related quality and security; and also to ensure their proper disposal in case of non-use before expiry period.[58]

All said and done, samples are viewed both by the pharmaceutical marketers and physicians as great motivators of prescriptions. Therefore it is posited that,

Free sampling of drugs to physicians affects their prescription behaviour and leads to prescription generation for sampled products.

2.3.3 Authentic information

Educational intervention appears to positively affect the prescribing behaviour of physicians. As earlier stated, part of the prescription process is rational, wherein the physician tries to rely on the repertoire of his professional knowledge to find out the most suitable drug molecule to be used in a given disease condition. So far his

concern for the patient benefit is genuine, and he will be guided by unbiased technical information on the pros and cons of the use of a particular medicine.

Naturally therefore, he will depend on the scientific information for his search Such scientific sources are editorial articles in leading professional journals, original and peer reviewed articles in medical journals, research publications, monographs in extra-pharmacopoeia, clinical trials etc. It has also been observed that physicians attached to medical colleges tend to ask for more technical information on drugs when compared to their counterparts in smaller hospitals [59]

If we look at the new drug adoption process of physicians, the above observation gets validated. Like any other customer adoption process, the physicians' new drug adoption process has five steps: Awareness, Interest, Evaluation, Trial and Adoption.

The physician first becomes aware about a new drug molecule while going through reputed medical journals, mainly originating from countries where research for new molecules is carried out. The articles in these journals discuss about the progress of the clinical trials on a new drug molecule, its efficacy, side effects and its advantages over the existing line of treatment for a particular ailment. If he is convinced that the new drug molecule offers advantage in terms of efficacy, safety or both, his interest is aroused. At this stage he craves for maximum authentic information for evaluating the drug for suitability in his practice environment. This is the stage when the pharmaceutical companies should load him with maximum information about clinical trials, its usage, feedback and reinforcement from other clinicians

Every time a physician ventures use of a new drug, he is aware that he is taking a risk Hence this is the time when he needs most to be reassured with information he can trust and rely upon It is better if this information is from an authentic source and is backed by unbiased and reliable evidence

Therefore it is proposed that,

Product information from authentic sources positively affects the prescription behaviour of physicians

2.3.4 CME programmes, seminars, symposia, workshops and conferences related hospitality

A survey conducted by Syed Andaleeb and Robert Tallman[60] explored the physicians to find out how the pharmaceutical companies could better serve them. More than one half of them responded with the suggestion that the pharmaceutical companies should provide more company sponsored meetings. The research also suggested that when the companies did accept the sponsorship for such meetings, they were favourably looked upon by the physicians

An original article published in the *Nebraska Medical Journal* emphasized that many of the promotional activities of pharmaceutical companies potentially served a valuable purpose. Even AMA council on Ethical and Judicial affairs has recognized the role of pharmaceutical companies in advancing continuing medical education (CME). It has been conceded that subsidies from drug companies to meet some of

the costs of professional meetings or continuing medical education conferences may contribute to improvement in patient care.[61]

Nevertheless, the role of the pharmaceutical companies has been looked upon as dubious and commercial in a number of published articles The potential of undue influence cannot be denied in situations where the pharmaceutical company donates money to subsidize a continuing medical education programme; and then may try to influence selection of topics and speakers so that the speakers exhibit bias in favour of company's products, and thereby undermine the objectivity of the programme.

The fact remains that most governments even in the developed world experience severe budgetary constraints and are looking for ways to cut expenditure. The 'monitored care' healthcare systems tend to keep their cost down CME is the obvious victim. However, continuing medical education is required for various board certifications and for access to some hospitals. Conscientious physicians consider it essential for self-advancement and keeping them abreast with new developments in the field of medicine. The pharmaceutical industry has seized this opportunity to fill the void

The implicit message is clear and unambiguous: It is a trade-off where the physicians receive information which suits the pharmaceutical companies while they earn their CME credits; and the pharmaceutical industry foots the bills for food, travels, entertainment and other extravaganza. At times, the continuing medical education is determined by what the marketing department of a pharmaceutical company wants, and not by what the doctors actually need. The code of conduct

expects that at no point during the CME programme the sponsoring company should exert control over the proceedings. In reality, the programme is projected as 'hands-off-sponsorship', but the company's interest is taken care of by the speakers who are favourably inclined to company's expectations.

In the United Kingdom, the Rules mandate that the cost of drug company hospitality should not exceed anything a doctor would not normally spend during such a programme. But there are no criteria to evaluate what a doctor can 'normally' spend.

A study conducted in the United States concluded that the prescribing behaviour of the physicians, who attended a meeting at a holiday resort where they were flown on a weekend, was definitely affected. When these twenty doctors reached their homes, the prescriptions of the product took off. Call it CME or marketing, but the fact can not be denied that more a drug company is attached to a prescriber, more likely he is to either prescribe the products of that company or recommend that drug for inclusion in the hospital formulary.[62]

The present day CME programme has to have four ingredients for success: a unique product that fits in tidily with the topic of the programme, an expansive budget from the pharmaceutical company, a faculty with academic background and a mechanism for 'educationally influential physicians' to be called in as registrants. The term 'educationally influential physician' connotes a physician who is a trend- setter in his field of practice, whose practice system is closely watched by other practitioners and is imitated.[63]

A survey of eighteen major pharmaceutical industries in US, in 1988 suggested that these companies spent US$ 165 million on symposia, gifts and reminder items, which was four times they spent during the year 1975 Out of this expenditure, the major expenditure was on symposia amounting to US$ 86 million, which increased fourteen-fold from 1975 to 1988 The total spend for the entire pharmaceutical industry was not ascertained, but it could be guessed considering that a single symposia cost about half a million dollars. Nevertheless, both AMA guidelines and Senate testimony conceded that the CME expenditure did serve an important purpose The best interest of the patients is served when the physicians are kept up-to-date on the latest trends in therapeutics.[64]

Seminars are an important opportunity for marketers to introduce their new products. The marketing director of a Pune based pharmaceutical company said that whenever he plans to introduce a new product, which has a potential for patient benefit, it is very convenient to organize a seminar to introduce the product to the physicians. The doctors, he believes, anyway take their own judicious judgment about whether or not to prescribe a drug [65]

On the other hand, it has been alleged that offering sponsorship for doctors, at times, even for their families, is an inducement to earn their favour. It has also been alleged that pharmaceutical companies attempt to control scientific information by sponsoring sessions at CME programmes, where speakers of their choice advocate the use of particular drugs promoted by the pharmaceutical companies. Leading medical journals like *National Medical Journal of India* and *Indian Paediatrics* have warned that it is the unsuspecting customer who ultimately pays for the fun and

merrymaking that goes along with the sponsored programmes. These journals have exclaimed that the money taken from the pockets of the patients are put in the pharmaceutical companies coffers, and part of it is also partaken by the medicos.[66]

Richie Bavasso, a CME provider states that the support coming from the pharmaceutical industry has relatively remained constant, mainly because of the stagnation in the types of programmes that can be supported. He elaborates that the number of congress symposia, grand rounds, publications etc., though they may differ in contents, more or less remains the same year after year. He, however, concedes that companies do spend on CME programmes during pre-drug approval/pre-launch, as there is no better option.

On being asked how do the sponsors measure the value of the CME programmes, he states that it is a tough question to answer. He does not accept the baseline script writing assessment of prescriber participants as a method of any worth, as he believes that the myriad of other interfering factors, that may influence the prescribing behaviour of the physicians, in a defined time frame, cannot be controlled. He also fears that a CME accredited sponsor would lose his accreditation if he even tries to demonstrate the value of such a programme to his commercial supporter.

The CME accreditation authority in US, effective from January 2000, had made it mandatory that all the CME activities must be evaluated in terms of the following criteria:

1 Change in physician practice behaviour

2 Improvement in patient care

The evaluation is to be done after the administration of the CME programme and between 3-6 months after the programme.

He believes that most commercial supporters, i.e the pharmaceutical companies consider CME programmes in the 'goodwill' category. The exceptions are those who have to launch new products/new treatments for the first time. Such companies wisely use CME to build market awareness of the disease in anticipation of a treatment to be introduced The most important aspect concerning CME is that the faculty is of prime importance, as the participants like to hear from the experts.[67]

The Department of Primary Care and General Practice, University of Birmingham, UK conducted an overview of interventions that change the prescribing behaviour of the physicians, which was reported in *Pharm World Science* during 1999. This review attempted to locate various CME programmes from various databases and tried to categorize them into three categories: positive, negative and inconclusive studies. The researchers could locate 79 studies, which described 96 interventions and showed that 49 out of these effected prescribing change in the control group.[68]

Dr. Arun Bhatt, in his article titled 'Drug Promotion and doctors: A changing relationship?', states that in India there are hardly any meetings, seminars or conferences held without the funding from the pharmaceutical industry. He believes that the pharmaceutical industry is the primary source of CME, but these activities can often be promotional and undermine the unbiased exchange of scientific information.[69]

In an editorial article Daniel Ostergaard, in the *Journal of Family Practice*, argues that inevitable tension exists between the two goals of education and product promotion He believes that bias is the inherent quality of promotion The physicians are maneuvered to choose one product over the other through various means. He suggests that it is in the interest of the pharmaceutical industry to ensure that the physicians are adequately and accurately trained in clinical areas where the company has product interests. The refinement of their skills will certainly enhance patient care. He concedes that the medical fraternity is grateful to the pharmaceutical industry for participating in the education process, but at the same time warns that education and promotion must be properly distinguished.[70]

Dr. David Rapoport, a practicing physician from Canada often wonders whether he is affected by the promotional activities of the pharmaceutical industry He narrates an incident when he was invited to attend a sponsored CME programme in restaurant of a fine hotel. After two cardiologists delivered excellent lectures, the programme was halted for a lunch. During lunch hour, he was in company of three of his doctor friends, who claimed, during conversation, that they very strongly felt that they were not influenced in their prescribing habits by such sponsored programmes. However, Dr. Rapoport is aware that day in and day out, he is constantly exposed to various stimuli from pharmaceutical companies. He starts his day with morning coffee, which is served to him in a coffee mug bearing the logo of a pharmaceutical company, and ends his day reading 'infomercials' in medical journals. He makes a candid confession, " Am I influenced? Yes."[71]

"Conferences and symposia are appropriate occasions to elicit feedback that might otherwise remain unexpressed.", says Dr. R Smarta, in his popular publication, 'Revitalizing the Pharmaceutical Business'. He thinks that the pharmaceutical companies organize such programmes to familiarize the medicos about their products and brands, while their moods are nice and mellow. During such events, the doctors are at ease, away from the clatter of their day to day routine, and hence are more accessible. Some Indian pharmaceutical companies like Lupin, US Vitamins and Torrent use this strategy extensively to promote their products. [72]

The American Medical Association, in the year 1990, adopted a voluntary code, christened, "Guidelines for Gifts from Industry to Physicians". This was promptly followed by the adoption of "Code of Pharmaceutical Marketing Practices" by the pharmaceutical manufacturers' association. Both the above were precursors to the senatorial hearings on promotional practices in pharmaceutical industry, to be chaired by Senator Edward Kennedy. Deriving his conclusions from the marketing practices of ten major pharmaceutical companies in US, Senator Kennedy reported that their spends on seminars, gifts, dubious honoraria and other promotional activities amounted to US$ 165 million in 1988. He categorically referred to the case of Wyeth-Ayerst, a pharmaceutical major, who offered 'frequent flier' points for each prescription written for the company's drug 'Inderal LA' The company, after investigation and subsequent fine, switched to a similar scheme bearing a different name, called 'frequent prescriber'[73]

The Canadian Medical Association distinguishes between education, training and product promotion Its code of conduct mandates that most primarily the CME

activities should address the educational needs of the targeted medical audience The ultimate decision on the organization, content and choice of CME activities should lie in the hands of the physician-organizers. The code further states that although the CME programme may acknowledge the financial or other aid received, it should not identify the products of the pharmaceutical firms that fund the CME activities [74]

At times the pharmaceutical companies themselves sponsor CME programmes, where the speakers of their choice endorse their products This leads to Peer Selling and is in direct contravention of the code of ethics set up by the medical associations.

A plethora of evidence suggesting that the sponsorship and hospitality offered to the physicians by the pharmaceutical industry affects their prescription behaviour and acts as prescription motivators is further reinforced by the fact that the medical associations all over the world are concerned about the blurring boundaries between the education and the promotion. Whether the medicos accept it or not, the evidence strongly suggests that such sponsorship efforts of the pharmaceutical industry never go in vain and they definitely benefit in terms of increased prescriptions. Therefore it is postulated that,

Sponsoring CME programmes, seminars, workshops, conferences and offering hospitality to the medical profession is a factor that affects the prescription behaviour of the physicians.

2.3.5. Publicity and advertisement

Advertisement of drugs is one of the earliest methods adopted by the pharmaceutical industry for promotion of drugs. All the medical journals in India carry numerous advertisements of pharmaceutical products. The pharmaceutical industry spends a large amount on advertising. The advertisement inserts appear in medical journals, medical indices like CIMS, MIMS, IDR etc , posters and displays in conferences and seminars, literatures and visual aids etc

In India, public advertising of prescription drugs is not allowed. A statute, namely, Drugs and Magic Remedies (Objectionable Advertisements) Act, prohibits the advertisement of drugs, which claim to diagnose, mitigate, treat or cure several classes of ailments. Only some Over The Counter (OTC) items are allowed to be advertised which pertain to some simple ailments like cold, cough, fever, constipation etc

The advertisement and printed promotional materials like literatures, leave-behinds, visual aids, direct mailings to physicians and posters/displays etc. usually carry rational, emotional and ego-gratifying appeals directed to the physicians They are effective when they blend all these appeals in a balanced manner.[75] More often than not the marketing interest lies in eliciting an emotional response.

Newspaper advertising has also lately become popular in India. The pharmaceutical companies release the advertisements of their new products at the time of launch to create awareness and interest among the prescribers. IDPL, Wockhardt, Torrent

and Zieta are some of the pharmaceutical houses, which used this strategy smartly during early 1970s.[76]

A physician is made aware of a new product through advertisement and publicity articles His interest is aroused when he faces clinical situations where the new drug could be tried Pharmaceutical companies also arrange to get released several journal articles, which carry detailed information on the new drug along with the results of its clinical trials A physician's confidence is boosted when he reads several such articles endorsing the use of the new drug in befitting disease conditions Thus advertisement and publicity work in tandem to generate awareness and interest among the prescribers about new molecules

Various emerging strategies for advertising and publicity are, use of industry-sponsored scientific and educational activities, claims for products based on inadequate scientific evidence, use of press releases and materials produced by public relations firms, direct-to-consumer advertisement and altering the approved draft of promotional materials and disseminating to the physicians such altered information. There could be ethical issues related to such emerging strategies, but the fact remains that the pharmaceutical industry is going ahead full steam with such tools.

Presently, the role of advertisement in drug promotion is under close scrutiny.
Some researchers have undermined the role of advertisement in promotion. For example, Waud believes that drug advertisement has no role in promotion.[77] Ahmed reports that during 1989, the total quantity of unsolicited promotional materials

received by a general practitioner in France amounted to 160 kgs [78] The product literatures and leaflets have been found in more than half cases to contain insufficient information Important warnings and precautions have been found to be missing in many an advertisement published in medical journals.

The drug advertisement and publicity aims at soothing and enthusing the physicians for encouraging widespread use of the drug product. Despite concerns expressed by physicians and healthcare professionals, advertisement and publicity are powerful tools to alter the prescription behaviour of physicians. Hence it is posited that,

Drug advertisement and publicity are factors that motivate prescriptions from physicians.

2.3.6 Peer group influence

Kelley[79] and Merton[80], based on their readings on social psychology suggest that a person's attitude formation can be affected by his professional and other groups. Peer effect appears to be very strong among the physicians. To cite an example, the CME faculty are held in respect and reverence and are treated as role models in medical practice. Even the prescribing habits are influenced as the residents and junior doctors try to follow the faculty. Pharmaceutical companies know this fact and influence such influential physicians and convince them to use their products. In turn, such professional role models influence the prescribing habits of their followers.

The peer group theory suggests that the groups establish normative rules and enforce compliance to such rules by providing for rewards and punishments respectively for those who uphold and violate these rules.

The doctors who are favourably skewed towards a company are preferred as faculty during conferences, CME programmes and seminars. The participating physicians believe in the faculty as they are recognized as leaders in the field and are frequently peer-reviewed. They exert substantial influence on the participating physicians and affect their prescription behaviour.

The study of prescription behaviour of physicians suggests that discussion on the usage of new drugs among the physicians increases the interest of the physicians and they are inclined to use the drug, if their peers endorse its use

Therefore it can be proposed that a physician's peer in the medical field can influence his prescribing habits. Hence, it is postulated that,

Peer group influence is a factor that affects the prescription behaviour of physicians.

2.3.7 Attraction effect

At times the physicians are faced with situations, when they have to make choice from amongst alternatives, which are equally safe and efficacious. Janet Schwartz, in an article published in *Medicine Decision Making*, observes that addition of a third

alternative to an existing two-option choice set can increase the conflict encountered by the physicians in making their choice.[81]

He quotes from a study conducted by Redelmeier and Shafir[82], which evaluated physician behaviour under two different practice condition sets created for the study. In one condition set, the doctors had two choices, either a drug called Ibuprofen or no drug at all. In another condition set, Piroxicam was added. In the second condition set, more physicians chose not to prescribe any drug as compared to their choice of prescribing Ibuprofen in first condition set. These results were consistent with consumer research study findings that cognitive biases resulting from increasing the number of alternatives in a choice set can affect consumer behaviour.

The study conducted by Janet Schwartz concentrated more on the attraction effect, which would occur when a third alternative is added to a choice set. It was found that the addition of the third alternative influenced the preference for the two original options.

Let us consider a situation wherein there are two medicines available for treating a disease condition. Medication A is highly effective but has many side effects, whereas medication B has moderate efficacy but has few side effects. If now a third medication which has moderate efficacy and also moderate side effects is introduced, (a decoy called medication Z), it is suggested that this introduction will increase the possibility that medicine B will be chosen.

This suggests that introduction of an inferior alternative will increase the likelihood that an existing option will be chosen This effect is also referred to as the asymmetric dominance effect because the decoy is dominated by the target, but not by the competitor

Simply put, it can be said that when considering only the target and the competition, the decision is difficult because both options are attractive and the decision involves tradeoffs. When the third alternative is introduced, the decision maker, in this case the physician, can identify clearly one alternative in the original choice set which is better than the other one in the original choice set.

In a typical pharmaceutical market, where there are numerous alternatives available to treat a particular disease condition, and these alternatives are ever increasing, the attraction effect may represent a heuristic used to simplify the decision making that involves large decision choice sets.

However, real life examples are rare in the actual market place and the use of the attraction effect would rarely be called for to effectively alter the prescribing behaviour of physicians.

2.4 PRICE

Price of medicines is one of the strongest elements in pharmaceutical marketing mix. It is also, unfortunately, the most often misused element.[83]

The supply cost of branded drugs should include the cost of investment in research and development, an amortization of the cost of R&D even when it fails to deliver a commercially viable and marketable product, the cost incurred on the establishment and maintaining the manufacturing facility, the cost of meeting various regulatory requirements, product inputs, cost of marketing them to doctors, hospitals & patients, and a reasonable return for the manufacturer [84]

However, the price of patented drugs is not elastic. It has nothing to do with supply or demand. At least the cost of supply has no relevance with the price of the drug The pharmaceutical sector is unique in this regard. It is a seller's market. The ultimate consumer, the patient, has no choice in the matter of a course of treatment, as the interface between the product and the patient is the doctor, for whom the issues of price and affordability are secondary, or the pharmacies whose interest is in selling medicines at higher prices.[85]

Prescription drugs generally do not compete on price factor. In fact they need not. The patient's priority is to get well soon. The issue of price comes in play only when it is too high to be affordable.

As far as the demand part is concerned, it is up to the marketing department of a pharmaceutical company. As long as the marketing department is successful in

convincing the doctors that a particular drug is the best in its segment, they continue to prescribe; and the demand continues to exist and at times grows.

The inelasticity of the demand of medicines is justified in the light of these facts: one, people do not buy medicines just because they are cheap, and two, people do not compromise on their health.

The pharmaceutical companies adopt different pricing policies depending on the competition, regulatory controls, the stage in the life cycle of a product and target markets

One method frequently adopted by patent holders is marginal revenue curve method. So long as the manufacturer continues to earn marginal revenue, there is justification in increasing the price of a drug. The price is increased to a level at which it becomes prohibitively unaffordable and starts losing revenues.[86]

Competition is another factor, the presence or absence of which drives the price of a product, downwards or upwards. In a competitive market, the economy is taken care of by a new entrant, whose entry forces the earlier producer to cut the prices. In pharmaceutical markets, there is virtually no competition as long as the patents are in place. The brand owner has a natural desire to maximize the profits by fixing the price at a higher level.

The regulatory mechanisms exist in certain countries where price control regimes are in place to check unreasonable price rises of drugs. In Australia, since 1993, new

drugs with no advantage over the existing drugs are required to be offered at the same price A voluntary agreement between Department of Health and the Association of the British Pharmaceutical Industry decides the prices of products for sales to the National Health Scheme. Health insurance companies, Health Management Organizations (HMOs) and at times the Government in all over Europe and North America exert pressure on the pharmaceutical manufacturers to keep the prices of drugs in control. In our country, Drugs (Prices) Control Order (as amended from time to time) provides the mechanism to check the prices of drugs.[87]

Presently America is probably the only free pharmaceutical market in the world. The prices in America are therefore highest for most drugs. The American pharmaceutical companies charge higher prices for their drugs, as they reckon that Americans have more money to pay than anyone else and can afford to pay higher prices. This percolates down to one important fact that the drug prices are related, more often than not, to the purchasing power of people.

The type of target markets is also a deciding factor for pricing policy. The drug companies offer most lucrative prices to get their products included in hospital formulary. The idea behind this gambit is to earn perpetuating business when the patient is relieved from the hospital and starts buying the drug from the pharmacies at the market price.

The pharmaceutical companies put forward the argument that the drug prices are justified in the wake of huge expenditure to be incurred for research and development efforts to invent new molecules. They presently put the cost of

inventing and developing a commercially viable new molecule to the tune of US$ 500 million. This cost needs to be recovered over a period of operable patent The patents generally allow exclusivity for 21 years. By the time the drug reaches the market place, around ten to twelve years have already elapsed, leaving about ten years during which the cost of the drug development needs to be recovered. The manufacturers also have to provide for cost incurred for research, which does not lead to a viable new molecule.

Therefore the drugs are priced in accordance with cost perception of an individual manufacturer. If the drugs are priced too low, the company has to face the wrath of its shareholders and other stakeholders On the other hand, if the drug is priced too high, the legislative bodies raise hue and cry about swindling public money. As higher pricing rarely affects sales, the companies tend to err on the higher pricing side

The real indicator of what it costs a company to manufacture a drug is indicated by the price reduction, when a drug goes out of patent. It has been observed that when this happens, and the first entrant enters the market with the generic version of that drug, the price is reduced to 75-80%. When another competitor enters the market with a second generic version, the price is set at 25-30% of the original price. When several versions of the drug appear in the market place, the final price settles at around 10% of the original price. This probably is the cost of the supply of the drug.

The pharmaceutical industry stands out as a unique industry, even in the group of industries relying on patents for their survival and growth. Comparison of drug

industry with the computer industry reveals this striking difference. The computer memory doubles every so many months and the prices halve. With every new molecule entering the pharmaceutical market, the prices go up. And on every occasion, the new molecule is not necessarily better than the earlier one. In fact the rate of real progress in research slows down, as the companies are not intent on replacement. They need to exploit whatever patent period is left to their benefit.

The price is also used as a marketing tool by the pharmaceutical companies. Price has been used as a barrier for other companies to enter the market. Higher price can also be used to differentiate two brands: brand with the higher price is projected to possess higher quality. Low price generally hurts the image of a product. But at times pharmaceutical companies have used low price to generate higher volumes of sales. Strong promotional efforts are required to overcome low price-low quality image of a brand.

Subsequent versions of a new group of drug molecules can be priced at higher level to project better efficacy of the new versions. An example in point is that of the molecules of the quinolone group, wherein molecules like p-floxacin and o-floxacin, which were introduced after ciprofloxacin, were priced at higher level than ciprofloxacin.

Some pharmaceutical companies use penetrative pricing as a strategy to beat competition. But a popular view holds that cutting prices is usually insanity, if the competition can go as low as you can. Usually an entrepreneur initiates the price cuts. But price cut on its own does not help much. The marketer needs to create a

lot of noise about the same in the market place. It is a good idea to increase sampling when prices are reduced.

Clinical trials contribute a major portion of the cost of developing a new drug. Proving to the regulators that a new drug safely does what it is expected to do is a very expensive process. Exhaustive drug testing can cost as much as US$ 150 million or more for a new molecule. Coupled this with the fact that hardly 10% to 20% of drugs that enter early trials make it to the market gives us an ideas about the development costs of a new drug molecule.[88]

In India, statutory provisions are made under the Essential Commodities Act, through the Drugs (Prices) Control Order, to control the prices of medicines. The second version of DPCO, which was enacted in 1979, controlled the prices of about 345 molecules and its formulations. The coverage extended to around 90% of the total pharmaceuticals sold in the country. Subsequently, the statute was revised twice during 1987 and 1995, bringing down the number of drugs covered to 145 and 74 respectively and the total coverage to 65% and 40% respectively. The New Drug Policy, 2002, which is supposed to be the forerunner of the revised DPCO aims at reducing the control to only over 30 drugs and total coverage to around 25%.

The agenda note on availability and prices of medicines, which was put up before the meeting of the consultative committee of Members of Parliament attached to the Ministry of Chemicals and Fertilizers on 9th May, 2002 declared that the prices of 54%, 51% and 49% medicines had gone up during the years 1999,2000 and 2001, respectively. The prices of 12%, 8% and 9% of medicines had decreased during the

same period, while the prices of 34%, 41% and 42% of medicines had remained unaltered during the said period. The overall price increase during 1994-2000 was reported to be between 2.4% to 3 6% [89]

2.4.1 Price: a factor that affects prescription behaviour

V.K. Mehta, Director of Ind-Swift, a Chandigarh based pharmaceutical company says, "We believe drugs that are block-busters internationally are not so in India because of high prices. We are using price reduction to grow the market."[90]

The price comes in play where the purchasing power is constrained due to money. The per capita drug consumption in India is just over US$ 3. This implies that the public at large will not buy the medicines prescribed to them if the cost is beyond their buying power.

A small scale study conducted by Kangis P and Van Der Geer L, under the auspices of University of Surrey, U. K. suggested that if information is provided to the prescribers regarding the economics of a drug molecule, their prescription behaviour is likely to be affected. A sample of 30 general practitioners and 30 specialists in Greece was chosen and pharmaco-economic information was provided to them for various drug molecules. Their prescribing behaviour before the experiment and after the experiment was observed. It was concluded with credible level of significance that the information, which takes into account the economic performance criteria, affects the prescribing behaviour of the clinicians.[91]

Another study conducted by Nicky Britten and Ian Jones suggested that cost is a factor in determining whether a prescription will be cashed or not Nine out of a total of 22 patients included in the study reported that their medicine was cheaper over the counter and hence they purchased accordingly. Five patients indicated that the cost of the prescription was a factor in not cashing the prescription.[92]

Therefore it is posited that,

The price of a drug is a factor that affects the prescription behaviour of physicians.

2.4.2 The price of a new product

As suggested earlier, in the developed countries, the development cost of a new drug in the pharmaceutical sector is estimated to be around US$ 500 million (approx. Rs. 25 billion) over a span of 10-12 years. However, in a developing country like ours, the cost could be around Rs. 10 billion, over a period of 10 years. In terms of yearly investment in R&D, it could work out to be about 20-25% of the overall sales of the largest Indian pharmaceutical company.[93]It can therefore be conceived that no Indian company would dare venture in this segment of research. Most of the Indian pharmaceutical companies carry out formulation development research on existing drug molecules.

If we have a look at the prices of different brands of the same drug molecule, it can be seen that there is a wide disparity in prices of these brands. For example, Hoechst's brand of Levofloxacin costs ten times that of Rexcel's. This is true for

many drugs in the Indian market, both in the controlled category and the de-controlled category.

It is argued that the crucial factor that determines the ability of a pharmaceutical company to sell the product is not the price of the product In the pharmaceutical sector, there is no direct relationship between the consumer and the market. Unlike other consumer segments, the drug is purchased on advice of an intermediate agency: the doctor, who probably does not always take the price into consideration. An analysis of the top selling brands in the Indian pharmaceutical market suggests that the top selling brands are not the most economical brands. In fact in most cases it is the other way around.

Patents provide exclusivity to the manufacturers of pharmaceutical products. Since India has become a signatory to the GATT, after 2005, the amended Indian Patents Act will provide product patents. Therefore a manufacturer will have exclusivity to manufacture and market a new product for an assigned patent period. Unless a competitor enters the market with a lower price formulation of the same drug, the original manufacturer will have the liberty to charge the price at will. The statutory mechanism, as usual, will react late. By then the manufacturer will have made his money at his will.

As earlier suggested, the patient's foremost consideration is getting well as soon as possible. Price comes into play only when it is so high that the patient cannot afford it. The encashment of a prescription is constrained only by non-affordability at the patient's end.

Therefore, it is proposed that,

A doctor prescribes costly drug to a patient when he is convinced that the patient can afford it.

2.5 MISCELLANEOUS FACTORS THAT AFFECT PRESCRIPTION BEHAVIOUR

The prescription behaviour of the physicians is affected by several other factors, which cannot be grouped under any of the foregoing factor groups. Nevertheless they need to be evaluated as they play a significant role in altering the prescription behaviour of clinicians.

2.5.1 Feedback/reinforcement from patients

Feedback from patients is a major factor, which reinforces the use of a new drug. A doctor becomes aware of a new drug by journal articles and advertisements released by pharmaceutical companies. When a doctor faces a disease condition warranting the use of such a drug, he considers using the drug; and with his first use, the process of evaluation starts. If the information received by him so far is in favour of the drug, he tries the drug on few patients. If the outcome of the trials is positive, he will use it in more patients. With each successful trial the doctor would be inclined to use the drug in more number of patients. Thus continuous reinforcement will ensure continuous use of the drug, leading to regular prescription of the drug.[94]

A study of general practitioners' reasons for changing their prescribing behaviour conducted by David Armstrong and his associates concluded that behavioural

change in physicians was reinforced and sustained by experience with individual patients.[95]

The study further suggested that one of the most important sources of influence on the prescribing behaviour of clinicians was the practitioners' personal experience with a drug or illness. For example, the use of Acyclovir for Shingles was recommended to a clinician during a course of a clinical meeting. The doctor was more than convinced when she herself had to undergo the disease condition. The experience of the unpleasantness of illness, and its subsequent mitigation with the use of Acyclovir reinforced her faith in the drug

Another doctor used to prescribe Diclofenac as just another anti-inflammatory drug in her day-to-day practice. However, she found it very useful for pain relief during her own postnatal pain. When she returned to her work, her faith was more strongly reinforced and she started prescribing the drug more frequently. A female clinician who participated in the trial had more faith in counselling for patients with psychosomatic disorders. She was surprised to see the results of Fluoxetine, a drug for such diseases, in one of her patients. She then tried the drug in two of her middle class women patients; and was happy to see that the drug completely changed the lives of these patients. Her faith was reinforced in the drug and she started prescribing the drug regularly.

Most doctors, whenever they change their prescription, look for reinforcement from their patients. A patient's positive feedback reinforces the behavioural change of the clinician. However, a negative feedback, in terms of either non-efficacy or major side

effects was enough for the doctor to stop prescribing the drug One of the participating doctors read a review article in MIMS about the Angiotensin Converting Enzyme inhibitor (ACE inhibitor) drug and its efficacy in reducing mortality in patients with hypertension. She also observed that many of the hospital doctors prescribed this drug extensively. She discussed about this drug with one of her doctor friends and then was encouraged to try it on one of her patients. The patient gave a very positive feedback about its very impressive results. Her experiment worked well and thereafter she became a very regular prescriber of the drug

A contrary example, which involved negative feedback in case of one of the participating doctors, was related to the use of Fluoxetine, which was recommended by several journal articles. Especially the editorial article in *British Medical Journal* recommending the drug as a safer alternative encouraged her to use the drug. However she received a little positive feedback from the first patient to whom she prescribed the drug. Later on several letters in BMJ and mixed feedback from patients made her lose her interest in prescribing this drug.

Therefore, it is posited that,

When a doctor receives positive feedback from patients, he is more likely to prescribe the drug on regular basis.

When a doctor receives negative feedback from patients, he reduces the number of prescriptions of the drug or stops prescribing it.

2.5.2 Corporate image of a company or a brand

There were times when the quality benchmark alone was enough to generate prescriptions. Those were the early days of the pharmaceutical industry in India; and quality was the sole reason to prescribe a drug, as it was a value, which was considered to be difficult to be instilled in a drug product in those days. The technology was primitive and production techniques were not yet standardized.

But soon the technological advancement revolutionalized the industry and quality could be easily built up in pharmaceutical products, provided that the company producing the drugs was capable enough to afford new technology and trained personnel. Quality can only be infused in the products, if the producer has a clear and well-defined intention to do so. Thus the idea of a company being trustworthy in the matter of quality of drugs became popular. The corporate image of a pharmaceutical producer and the brand equity of his products could influence the prescription habits of physicians.

A lot of anecdotal evidence is available suggesting that doctors exhibit loyalty towards companies and brands. Empirically, the doctors prescribing more than three products of a company have been refereed to as 'corporate loyal'. They consistently prescribe the company's products and are also proud of their choice of the company and the products. Their prescription behaviour has been moulded and influenced by the corporate image of the company. They find the company to be reliable and they hold its products in esteem. They are also inclined to influence the prescription behaviour of other doctor colleagues in favour of the company of their choice.[96]

Similarly, the doctors also exhibit brand loyalty. Hardcore loyal doctors prescribe only one brand all the time Their prescribing behaviour is difficult to alter. They exhibit an undivided loyalty to a brand. Soft-core loyal doctors prescribe two brands of a particular drug molecule. Their loyalty is divided between two brands only. The pharmaceutical industry is technologically driven and the doctors' perception has been skillfully moulded to believe that the size of the company matters a lot when it comes to installing and adopting new technology. Therefore company variables like the corporate image of a company or a brand, its size and experience are the factors that influence the prescription behaviour of physicians.

Therefore, it is postulated that,

The corporate image of a company / brand is a factor that motivates prescriptions from physicians.

2.5.3 Challenging events

David Armstrong's study had identified three models of prescription behaviour. One of them is the challenge model of change. It is true that most of the changes in prescription behaviour occur after gradual accumulation of information leading to a change. Nevertheless, at times some shifts in the prescription behaviour are brought about abruptly due to some challenging events encountered by the doctors.

The mechanism of such abrupt change works in an altogether different way than the slow adaptation process. In fact it is the lack of preparedness for a change that causes the reassessment of the prescribing policy. Clinical disaster is one of the

challenging events that cause a rapid shift in the prescribing behaviour In his study David Armstrong describes the clinical disaster encountered by two general practitioners Both the cases were concerning death due to Amitriptyline overdose Another doctor experienced a dangerous interaction between Erythromycin and Theophylline.

When doctors are put to stress due to such challenging events in their clinical practice, they exhibit a rapid shift in their prescription behaviour. When faced with a potentially dangerous drug or its side effects, they either reduce the number of prescriptions of the drug or stop prescribing the same. At times, doctors who are more academically oriented call the medical representative of the company manufacturing the drug and ask for clarifications or further information about the drug.

Thus, it can be hypothesized that,

When doctors face challenging events like non-efficacy or major side effects for a drug, they reduce the number of prescriptions of a drug or stop prescribing the same.

2.5.4 Volume of patients seen by a doctor

The doctors with large practices use new drugs early in the course of treatment and are better prescribers.[97] The specialists and well-informed practitioners, who are generally socially active are too busy to devote the required time to read medical literature to keep them update. They therefore generally depend on the information

provided by the medical representatives and also the promotional information provided by the pharmaceutical companies for choosing a drug for prescription.

Thus it has been largely held that the physicians who see a large number of patients would be more favourably disposed to the pharmaceutical companies and their medical representatives, than physicians who see a relatively fewer number of patients. Such physicians assign a higher value to the services provided by a pharmaceutical company and its medical representative, like promotional information, samples etc. As earlier referred Huston's descriptive study[98] found that physicians who wrote a high volume of prescriptions rank pharmaceutical sales representatives high as a source of information

Thus it can be realized that the number of patients handled by a doctor has relationship with the prescribing behaviour of the doctor However this relationship needs to be evaluated in terms of their preparedness to change their prescription habits. They seem to be welcome to the stimuli advanced by the pharmaceutical companies and are inclined to respond favourably.

2.5.5 Ethnicity of a doctor

There is anecdotal evidence that doctors who are of Asian origin issue more prescriptions than non-Asian doctors. A study conducted in UK suggested that foreign trained doctors were more likely to be high-cost prescribers than their UK trained colleagues.[99] Another study concluded that doctors qualified outside the British Isles were more likely to issue a prescription [100]

A study was conducted at the Center for Research in Primary Care, University of Leeds, U.K. to assess the effect of doctor ethnicity and country of qualification on prescribing practice.[101]The results suggested that being an Asian doctor and qualifying from the Indian subcontinent contributed to the frequency, but not to the cost of prescribing variation. A positive correlation was found between the frequency of prescribing with being an Asian doctor and qualifying from the Indian subcontinent. But as far as the cost of prescription is concerned, no such correlation could be established.

The relationship between doctor's ethnicity and prescribing behaviour is quite interesting to learn and understand. However, in the context of the pharmaceutical market place in our country, it is not relevant for the present study.

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