

**Influence of Pharmaceutical Marketing on Prescription Pattern of Physicians of Kathmandu Valley****Malati Basnet**

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Email: [sateeshkumarojha@gmail.com](mailto:sateeshkumarojha@gmail.com)**Abstract**

Pharmaceutical marketing aims to increase awareness about the benefits and use of specific drugs, as well as to drive sales to pharmaceutical company. In this perspective this study tends to study the influence of pharmaceutical marketing on prescription pattern of physicians of Kathmandu valley. A total of 215 respondents were enrolled in study, with the help of self-administered questionnaire. The research design used was correlational and sampling technique convenience. The studies showed that the perceptual tools and strategy had a significant impact on the prescription generated whereas, the attitude of physicians didn't affect significantly on prescription provided. The study recommends pharmaceutical companies to adopt more ethical and transparent promotional strategies to strengthen trust among physicians. The study suggests regulators to enhance monitoring mechanisms to ensure marketing activities aligning with patient welfare and public health priorities.

*Key Words:* Attitude, Promotional Strategy, Prescription Generated

**1. Introduction**

Marketing is the process of promoting products or services to target customers through various channels to raise awareness, spark interest, and eventually create revenue or accomplish particular business goals. Pharmaceutical marketing is the practice of promoting and advertising pharmaceutical product, medications and medical devices to health care professionals, patients, and consumers. It aims to increase awareness about the benefits and use of specific drugs, as well as to drive sales to pharmaceutical company. Pharmaceutical marketing often involves targeted advertising, direct to consumer advertising (DTCA), physician detailing (sales representative visiting healthcare provider to promote products), medical conferences and digital marketing. Pharmaceutical marketing is subject to strict regulations and guidelines to ensure the responsible promotion of drugs and medical products, prioritizing patient safety and accurate information dissemination. Pharmaceutical company usually involve themselves in direct marketing activities to promote their products to healthcare professionals. The goal of direct marketing activity in pharmaceutical industry is to ensure that their product is sold to generate maximum revenue and profit. This is done by targeting the specific customer segments. (Corstjens,1991) Classified four major stakeholders for prescription drugs: Prescriber, Influencer, Consumer and Financier. It is found that globally the prescribing right is different, which means one medicine practitioner may be able to write prescription in one country but not allowed to generate prescription in another country, usually prescribers are: physician, dentists, pharmacist, nurses and optometrists. Influencers include hospital nurses, professors, reimbursement agencies and those who are the part of health care system. Consumers are the patient or patients' parties and financier are / may be partly patient, partly patient's part, partly government or third party (varies by country), managed health care organization (hospital, health Maintenance Organization etc.) In context of Nepal, financier is usually the patient party of the insurance: that may be government or private insurance facility.

Since doctors and other medicine practitioners who generate prescription are essentially the gatekeepers to medication sales, the majority of big pharma's marketing expenditure is directed towards them. Lidstone (1999) suggests that the goal of pharmaceutical companies is to encourage individuals to start using their product or continue using it. To do this, companies must use a range of marketing techniques to target healthcare professionals at different stages of the buying process. The initial stage involves creating awareness of the product among healthcare professionals who may not be familiar with it. In the subsequent stage, the aim is to generate interest among the healthcare professionals by showcasing the product's unique features, appearance, or innovative aspects. After this customer shifts from phase of interest to evaluation, under which the expert will take into account how the product affects his motivation, such as his or her lifestyle or appearance. Depending on their demands, the healthcare professional will evaluate, justify and search for the benefit of new product, including increased efficiency, treatment costs, medication uniqueness and safety. Once the healthcare professional becomes interested in a pharmaceutical product, the evaluation phase begins, which involves assessing the product's potential benefits and side effects. If the healthcare professional finds the product satisfactory, they may then move on to the trial phase, where they test the product to determine if it meets their expectations. At this stage, the pharmaceutical company must identify usage opportunities and suggest the product's usage to healthcare professionals. After the trial phase, the health care professional may begin using the product by prescribing it to patients. Now-onwards, the representative from, that pharmaceutical company should promote the particular drug (medicine) and regularly provide reminders of essential elements such as the features of brand, benefit to the patients, therapy area, and the product's benefit to reinforce its prescription. The final stage in the consumer cycle is the repeated usage or frequent prescription on convenient cases- this is the final objective for marketing of any medicine. When the health care professional or prescriber of particular drug from initiation moves to occasional prescribing and finally to regular prescribing, with the time and regular prescribing (pen-habit) this takes- the stage of automatically selecting the particular brand or medication as prescription drug or prescribing particular brand. Now, at this stage the major challenge for the pharmaceutical company's representative is, they have to maintain the environment and to keep the prescription sustainable that which require a prescriber's satisfaction towards brand, company and representative, representative and company needs to keep a satisfactory image and keep confirming and reminding the healthcare professional, the potential prescriber of the unique feature advantages and benefits of the particular product (brand). During all these different stages of pharmaceutical marketing, a pharmaceutical company in their pursuit of increased number of prescription leading profits to company, may use unethical methods enhance their prescription and also to push their products sales. Here, from the beginning of product introduction (molecule or brand), right to the end stage of converting non prescriber to occasional prescriber and finally to regular prescriber, the company may try to influence the healthcare professionals' i.e. prescriber's choice in choosing particular drug. The company does wide variety of activities to create the brand image, awareness.

In recent years, there has been a growing concern worldwide, to access the effect of marketing activities done by all types of pharmaceutical company may that be the generic producing company, brand producers or other research-oriented pharma- producers, on prescribing habit of prescribers. In Kathmandu valley, Nepal, pharmaceutical marketing is prevalent, and it is seen as day-to-day activity of pharmaceutical companies and representative to facilitate various incentives towards physician to influence their prescription practices. However, there is a lack of research on the extent and nature of this influence, as well as its potential impact on overall healthcare system. Therefore, this research tends to investigate, 'the influence of pharmaceutical marketing on practices of physician in Kathmandu valley'. As per the Association of Pharmaceutical Producers of Nepal (APPON), there are more than 100 Nepalese Pharmaceutical companies listed who manufactures, sells and distributes medicines all over the Nepal. All these pharmaceutical company have different marketing strategies with different goals. All of them have same customers who are doctor patients, retailers and wholesalers. The differentiating factor is their segmentation, targeting and positioning in market. (W.J, 2015) The interesting fact of pharmaceutical market is that, the customer (prescriber) and final decision maker (consumer/ patient party) for the use of product or the service differ from that of other industry or market. Here both the segment is guided and driven by the healthcare professionals or the prescribers. The pharmaceutical company and their representative segment their potential prescriber for the product and target those prescribers to market their products using particular promotional strategies because patients are the end users but not the company's direct customers. And, these marketing strategy and promotional technique are seen to have significant effect on prescribing behavior. This create a question if there is really the need for physician to prescribe the specific brand. The objective of this article is to investigate the influence of pharmaceutical marketing activities on prescription generated in Kathmandu along with the attitude of physician towards the marketing and promotional activities of pharmaceutical company.

According to Campbell (2007), it is essential to comprehend the psychology of healthcare professional to gain their attention and increase the chances of them prescribing a specific brand. This study highlights the crucial variables that can enhance the marketing function of pharmaceutical company to optimize marketing and sales strategy and invest their resources efficiently to achieve consistent business performance all round fiscal year. Additionally, the research provides fundamental insights into pharmaceutical industry in Nepal and sheds lights on physician perception of branded drugs. Different tools used by pharmaceutical company to promote their product are:

- Detailing (Korenstein, 2011)
- Sampling (Riccardi, 2022)
- Regular meeting of medical representative and relation enhancement (Komesaroff, 2002)
- Conducting a medical education program, conferences with Key Opinion Leaders (KOL) or Key Business Leaders (KBL) as speakers or facilitators. (Lerer, 2002)
- Providing scientific papers, medical books, Journal subscriptions (Swarbrick, 2007)
- CME: Continuing Medical Education
- Organizing the conferences, education events, symposiums (Burton, 2003)

## 2. Literature Sources and Hypotheses

When the topic is of pharmaceutical industry, the end consumers and the decision maker: to decide which product or brand is to be used are distinct from those in other industries. The patients are the ultimate consumers, while the primary customers of pharmaceutical companies are the doctors. The motivation of the doctor as an individual to prescribe a medical product is affected by multiple factor which can be related to different theory such as personality trait theory.

Personality trait theory

This theory is a psychological theory that suggests that an individual's personality can be defined and understood by identifying and measuring a set of enduring characteristics or traits. These traits are relatively stable over time and are thought to be consistent across different situations. The idea of personality traits dates back to the ancient Greeks, but the modern trait theory was developed in the mid-20th century by psychologists such as Gordon Allport, Raymond Cattell, and Hans Eysenck. They found that extraversion, introversion, neuroticism, stability, openness to experience, agreeableness and conscientiousness are some of the basic aspects of personality that may be utilized to characterize a person. Following their lead, other psychologists such as Robert McCrae and Paul Costa created the Five Factor Model (FFM) of personality, which is now widely recognized as a model for personality traits. Conscientiousness, extraversion, agreeableness, neuroticism, and openness to new experience are the five major categories into which the five-factor model, divides personality.

According to John, Robins, and Pervin (2010), "Personality trait theory is based on the assumption that individuals have certain characteristic ways of thinking, feeling, and behaving that differentiate them from others and that remain relatively stable over time and across situations". This theory has been widely used in research on personality and has practical applications in various fields, including psychology, education, and organizational behaviour. Personality trait theory has been used in a variety of contexts, such as in the workplace to select employees or in clinical psychology to understand and treat mental health disorders. It can also help individuals gain a better understanding of themselves and others, as well as provide a framework for predicting behaviour and making decisions. This theory suggests that an individual's personality traits can influence their behaviour including decision making. When it comes to doctors and their choice of prescription brand, several personality traits may play a role in their decision-making process. (John O, 2010).

For example, doctors who score high in conscientiousness may be more likely to prescribe established brand name medications because they are perceived as being more reliable and trustworthy. They may also be more likely to follow established treatment guidelines and protocols. Prescribers falling to the categories of high in openness to experience are more likely towards prescribe newer, innovative medications or medications that are off-label for certain conditions. They may also be more open to alternative or complementary treatments. Doctors who score high in agreeableness may be more likely to take their patients' preferences and concerns into account when choosing a medication. They may also be more likely to consider the potential side effects and risks of a medication and weigh them against the potential benefits. Doctors who score high in neuroticism may be more risk-averse when it comes to prescribing medications, opting for medications that have a proven track record and lower risk of side effects. They may also be more likely to monitor their patients closely for adverse reactions or complications. Overall, personality trait theory can provide some insights into the decision-making process of doctors when it comes to prescribing medications. However, it is important to note that doctors' decisions are also influenced by many other factors, such as the activity of the pharmaceutical company, patient characteristics, the nature of the condition being treated, and the availability of different medications.

Personality traits can influence a variety of behaviours and decision-making processes, including the choices doctors make when prescribing medications. For example, research has suggested that doctors who score high in conscientiousness may be more likely to follow established treatment guidelines and protocols, which may influence their choice of prescription brand. Prescriber with higher quotient of openness are more likely to prescribe innovative or off-label medications. Those who score high in agreeableness may be more likely to take patients' preferences into account when prescribing medication.

However, it is important to note that doctors' decisions are influenced by a wide variety of factors, such as patient needs and medical evidence, in addition to their personality traits. Additionally, doctors receive training and follow ethical guidelines that require them to prioritize their patients' health and safety above their own personal preferences. So while personality trait theory may provide some insights into the decision-making processes of doctors, it should be considered alongside other factors that influence their decisions.

In the research titled "Influence of Pharmaceutical Marketing on Prescription Patterns of Physicians of Kathmandu Valley", the prescription patterns of physicians of the Kathmandu Valley is the main dependent variable. Which is, is the outcome or response variable that is being measured or observed in the study. The independent variable is the pharmaceutical marketing activities being carried out in the Kathmandu Valley. The independent variable is the variable that is being manipulated or changed in the study to see its effect on the dependent variable. In this study, the researcher is investigating how pharmaceutical marketing activities influence the prescription patterns of physicians. The independent variable, pharmaceutical marketing activities, is being manipulated to see how it affects the dependent variable, prescription patterns of physicians in the Kathmandu Valley. The independent variables are listed as following.

- Detailing: Pharmaceutical sales representatives, commonly referred to as "detailers," engage in carefully planned and executed educational activities. These activities entail providing scientific information to healthcare professionals about a detailed information of the medication or the treatment, which includes features, advantages and benefits of the product or medicine. To facilitate productive discussions about a drug, these sales representatives use a detail aid or visual aid, which can be in the form of a print piece such as a booklet or brochure, or an electronic document containing comprehensive product information. (McGraw, 2002)
- Sampling: The act of distributing drug samples to physicians and patients can create a dependence on expensive medications that may not be more effective than other options on the market. The Dictionary of Modern Medicine from 2002 defines a sample as smaller quantity of medicinal product which is not intended for sale instead provides a lesser quantity and patient have to purchase the remaining dose to complete treatment. Which ultimately promote the drug sales.
- Scientific papers: In this context, the term "scientific papers" refers to a range of promotional materials provided by pharmaceutical manufacturers or distributors, including brochures, booklets, mailings, cards, scientific reprints, leave behind leaflets (LBLs), Some of the company may provide drug monogram also. These materials contain drug-related information that is intended for use by medical practitioners, pharmacists, or nurses, and they are disseminated by or on behalf of the manufacturer, packer, or distributor. (Swarbrick, 2007)
- Regular meeting of the doctors: Pharma company organize different kind of regular meetings of doctors. Usually, such meetings are done with doctors of same speciality or some time cross- speciality so that there can be discussion of different challenges and treatment of wide variety of co-morbid conditions. These kind of linked gathering of medical professionals either formally or informally to decide and discuss on specific concern, adhere to a predetermined agenda, which ultimately talks about brand, company or specific treatment approach.
- Use of key opinion Leaders (KOLs) or key business leaders (KBLs): These are senior Consultants and Physicians who are usually the older and the most experienced ones. Key opinion leaders may be different for different companies, therapy wise and territory wise. What key opinion leaders does is advocate about the particular brands through their prescriptions and on scientific talks. They may be head of department of medical college or president of or executive members of different medical associations. On the other hand, key business leaders are those prescribers who drive maximum business to company, directly and also indirectly through their influential prescription power. In every town there may be some big-shot name in medical fraternity who are the role model for aspiring medical personnels, pharma company usually get in-touch and involved with such big-shot as their KOLs and KBLs

- CMEs- CMEs also called as Continuing Medical Education programs are usually pure academic programs wherein doctors talk about different diseases, treatment and overall medical issues. These programs can also be called as the classroom education program for medical practitioners. The role of pharma company here is to sponsor venue, food and stay if the program is at outskirts. Here the company also influence the participants to write and sell their product and earn loyalty for the particular brands through their hospitality and personal relationships. In context of Kathmandu valley it is found that CMEs (classes) are regularly conduct by medical colleges, where pharma company provide the food-packs and other logistics.
- Sponsorship of Conferences: There are a lot of national and international conferences regarding various fields of medicine around the globe. Certain registration fee is required for the participation. Pharma Companies sponsor such registration fees for conferences or any other educational events sometimes including the travel fares and accommodation.

In the present era, the way pharmaceutical company and their representatives influence the practitioner and sellers (chemist or pharmacist) has become the major concern in health care industry. Pharmaceutical marketing refers to the promotional activities done on regular basis targeting the practitioners and sellers to boost the business. Currently, the effect of pharmaceutical marketing to prescription practices has been a subject of debate among healthcare professionals, policymakers, and scholars. This literature review aims to explore the existing literature on presence and effect of the activities of the pharmaceutical company specially on practicing prescribers and seller of Kathmandu valley of Nepal.

Hurley, Lane and Stafford have conducted the research describing the relationship between the availability of free prescription drug samples and physicians prescribing patterns on a national scale (Hurley, 2014). The research focuses on the need to attention of the policy maker and guidelines to check and be informed on the use of the sample provided by company. The objective of the study was to investigate the relationship prescription pattern and amount and frequency of the sample provided. The key findings of the study was the availability of sample influences the prescription pattern resulting on increased prescription of branded drugs, higher prescription costs and deviation of preferred choices.

Zahrani (2014) attempted to examine the impact of drug representatives on physicians' prescribing behaviour, as well as their attitudes toward these representatives, and other factors that may influence their prescribing habits. Similarly, Khosru and Sultana (2011) sought to analyse the promotional techniques employed by pharmaceutical companies, physicians' attitudes and reactions to such activities, and the effect of gift-giving as a promotional tool on physicians' prescribing practices. Globally there are many study and research done on the impact of pharmaceutical marketing activities on the prescription pattern and prescription habit of prescribers. A study conducted by Ghimire et al. (2014) in Nepal found that 81.4% of physicians reported receiving gifts from pharmaceutical companies, and 76.3% reported attending conferences or seminars sponsored by pharmaceutical companies. The study also found that physicians who received gifts or attended conferences or seminars were more likely to prescribe the sponsor's products.

The practice of pharmaceutical marketing can be dated back to 19<sup>th</sup> century and earlier but at present time the marketing and effect of pharmaceutical promotions is under the surveillance and is subject of global interest. There are many tactics adopted by pharmaceutical companies (Chiu, Selling drugs: marketing strategies in the pharmaceutical industry and their effect on healthcare and research., 2005) such as physicians-targeted promotions which are free samples, journal advertisements (Marco CA, Gifts to physicians from the pharmaceutical industry: an ethical analysis., 2006), printed product literature and other gifts that helped them to increase the acceptability of their products (Goyal R, 2013). It is found that almost 20% of total sales of the pharmaceutical company is spent on marketing and sales activities and regulatory body as little as no tactics to stop or reduce this (M., 2008). It was estimated that 84% of pharmaceutical marketing efforts are directed toward physicians because from the manufacturer's point of view, physicians are the key decision makers (Gönül FF, 2001), (Al-Areefi MA, 2013) the gatekeepers to drug sales (J., 2004). The structure of pharmaceutical industry is different from one country to another. It is affected by different factor such as health care system, insurance coverage, policy, most importantly it is also affected by the financial status of the particular country. The pharmaceutical industry or pharmaceutical market of the particular counter is sometimes also affected by the international rules, laws and regulations and also by the decisions of different institutions as World health organizations.

Pharmaceutical marketing is a complex and multifaceted concept. This includes wide variety of the activities, tools and strategies that directly or indirectly effect the number of prescriptions generated. These strategies may include free drug samples, gifts, meals, conferences, seminars, and symposia, among others (Sah et al., 2017). These marketing strategies are designed to create a positive image of the company's products and influence physicians to prescribe their products.

The finding of this particular research is in the flow with the other research on the topic that has shown that pharmaceutical the prescribing habit of the practitioner can be deviated or influenced by the pharmaceutical company and their representatives. For instance, a study conducted by Al Ameri et al. (2018) in Qatar found that pharmaceutical promotion had a significant influence on prescribing practices of physicians. There is the study that has concluded the physician having frequent interactions with medical representatives and pharma- company and receiving their input are frequently writing the promoted drugs. The study conducted by Shrestha et al. (2018) in Kathmandu valley found that pharmaceutical marketing had a significant impact on the prescribing practices of physicians. The study found that physicians who received gifts or attended conferences or seminars frequently prescribed the medicine brands of the sponsors.

Pharmaceutical promotion is a common practice that can influence the prescription generated to cure diseases or particular condition of patients. The study by Satyal et al. (2019) aimed to investigate the influence of pharmaceutical promotion on the prescribing practices of physicians in Kathmandu Valley, Nepal. The research suggested, most physicians reported receiving promotional materials from pharmaceutical companies, with physician's samples being frequently used promotional tool. The study also found that physicians who received promotional materials or the scientific journals generated the prescription of the particular brand in compared those who did not received or objected to receive those. Furthermore, the study found that there was a lack of awareness among physicians about the potential negative outcomes of marketing and sales promotion of companies on the prescription being generated in treatment plan. British Medical Journal published a special edition in May 2019 that focused to the connection among the prescriber, sellers and producers of the medicinal products. The issue was titled "time to untangle doctors from drug companies" and included articles and discussions on every kind of transaction may that be the relational of business between the health care practitioners and pharmaceutical industry.

A study conducted by Sisay et al. (2019) in Ethiopia found that pharmaceutical promotion had a significant influence on the prescribing practices of physicians. The study found that physicians who received promotional materials preferred particular brand for the treatment of their patient in specific condition than those who did not receive the promotional materials. Another study conducted by Satyal et al. (2019) in Kathmandu valley found that 94% of physicians reported receiving gifts from pharmaceutical companies, and 86% reported attending conferences or seminars sponsored by pharmaceutical companies. The study also found that physicians who received gifts or attended conferences or seminars generated more prescription of the sponsors. Today pharmaceutical industry is highly competitive and profitable industry with its roots to the chemical industry of late nineteenth century in Upper Rhine valley near Basel, Switzerland. During this time, it was discovered that dyestuffs had antiseptic properties, which led to the emergence of modern pharmaceutical companies. Many of these companies, such as Hoffman-La Roche, Sandoz, Ciba-Geigy, and Novartis, started as family dyestuff and chemical companies in the Rhine region and are still thriving today. (Kumar, R., et al. (2020)

Pharmaceutical marketing is a global issue that affects prescribing practices of physicians worldwide. A systematic review by Fabbri et al. (2020) found that pharmaceutical marketing had a significant impact on prescribing practices of physicians in low- and middle-income countries. The study also found that most of the promotional activities were not adequately regulated, which increased the risk of biased prescribing practices.

In 2006 article "Pharmaceutical Marketing - Time to Change," discussed two different pharmaceutical industry activity: pull and push. This discussion included the topics about the market with the presence of these activity and found that the 'Pull' is present in country like United States, where the makers or the producers directly advertise their products to consumers through mass media. This kind of promotional activity is also called the direct-to-consumer advertising (DTCA) However, such kind of activity has been the topic of debate and discussion among practitioners, professionals and health-related agencies. Proponents of DTCA argue that it helps consumers become better informed and more aware of the therapeutic options available to them, thus allowing them to make more equitable decisions about their healthcare. Mintzes' research supports this view, finding that consumers who learn about drugs through advertisements are more likely to choose those drugs and persuade their physicians to prescribe them. This strategy is opposed to the push strategy, which is used in many countries which is against direct to the consumer advertising. Push strategy, pharmaceutical companies rely on marketing to healthcare professionals to influence them to prescribe their drugs over others. This approach is seen as a more viable and reliable method for pharmaceutical companies in countries where direct advertising to consumers is not permitted. (Buckley, J, 2016)

Multiple studies, including those conducted by Wazana in 2004 and Chren in 1989, have established a strong connection between the prescribing behavior of doctors and the receipt of gifts, sponsorships, or unrelated payments. These studies highlight the impact of gifts on doctors' prescribing practices. (McInney WP, 1990), (Banks, 1992) A review of 29 empirical studies examining the relationship between the medical profession and the pharmaceutical industry found that doctors are more likely to prescribe drugs based on factors such as the pharmaceutical company's detailing skills, product sampling, scientific materials, relationship with the doctor, and participation in continuous medical education (CME) meetings conducted by pharmaceutical companies as a promotional tool. (Wazana, 2004) After the study of available research works it can be concluded that, there is a strong connection between the prescription being generated in medicine sector and promotional and marketing activities being done by the pharmaceutical company. Therefore, this research aims to find out the Influence of marketing strategies on prescribing pattern of physicians of Kathmandu valley Lexchin has conducted an analysis. In this analysis three type of interaction between the prescriber and pharmaceutical company was studied, firstly about the company funded clinical trials, secondly the CMEs and sponsorship of the medical programs by pharmaceutical producers and the therapy or treatment related information provided by pharmaceutical company to practitioners. The analysis further examines the influence of these interactions on prescribing behaviour in relation to the content, quality and focus of trails, CMEs (Wu, Y., et al. (2021). Pharmaceutical companies aim to create a competitive edge for their products by developing better formulations than those of their competitors. To achieve this, they engage in extensive promotion of their drugs to healthcare providers. Medical representatives use visually appealing presentations and highlight the feature, advantage and benefits of their product over other available treatment option and brands to entice prescribers. The literature reviewed suggests marketing and promotional activities of producers and marketers towards prescriber has a significant change on the prescription pattern of particular brand of drug in Kathmandu valley. The studies indicate that physicians who receive gifts or attend conferences or seminars sponsored by producers or marketers are tilted towards generating their prescriptions. Studies suggest exposure to pharmaceutical promotion is connected with biased treatment practices, resulting in expensive treatment cost and financial burden to patients. Which shows the need for stricter regulations and ethical guidelines to address these concerns and ensure evidence-based and cost-effective prescribing practices. This raises several ethical concerns, and policymakers and healthcare professionals should take necessary measures to address these concerns. The key concepts needed to be dealt with while studying the pharmaceutical marketing and its influence on prescription generation are: pharmaceutical market strategy, prescription generated, patient health outcome, along with their relationship and interaction. Pharmaceutical marketing includes various promotional strategies employed by pharmaceutical companies, such as direct to physician marketing, advertising, detailing, samples, conferences and sponsored events.

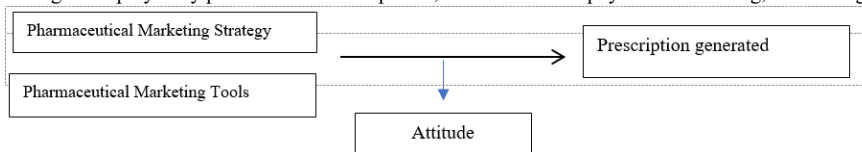


Figure 1: Research Framework

Prescription practices refer to the decision-making process of healthcare providers when prescribing medications, which can be influenced by factors beyond clinical consideration, such as marketing efforts. The most important aspect in this system is patient health outcome. The impact of prescription practices on patient health and wellbeing including the affordability is a critical aspect to consider.

The conceptual frame work provide visual representation of the variables and their hypothesized relationship:

Hypothesis 1 (H1): The marketing strategy of pharmaceutical industry enhance the prescription generation of the particular brand being promoted.

Hypothesis 2 (H2): The marketing tools used by the company enhance the prescription of the particular brand being promoted.

Hypothesis 3 (H3): There is positive attitude of physician towards pharmaceutical marketing.

Pharmaceutical marketing, that consist of different market strategy and tools used by pharmaceutical company, to place their product in market. Marketing strategy should be well defined that address the targeted customer, their needs and align with the regulatory requirements. In other hand the tools used should complement the strategy and provide the appropriate and efficient medium for communicating about the brand also providing the information about their safe and responsible use.

Strategy used in pharmaceutical marketing:

- Market Segmentation
- Brand positioning
- Key Messaging
- Marketing channels
- Compliance and regulations

Tools used in pharmaceutical marketing:

- Doctor calls made by sales representative
- Use of most appropriate digital medium
- Organizing medical educational program to physicians and also to patients
- Distribution of sample and promotional materials like: brochures, posters
- Gifts (nominal and high value)

### 3. Research Methodology:

The research, influence of pharmaceutical marketing on prescription pattern utilize a quantitatively approach as its primary goal is to investigate the factors that significantly affect the prescription generated. The study used statical methods to examine the change in dependent variable when analyzed along with independent variables. After this initial data analysis, the most appropriate approach to gather data and required input for the study is survey method. According to (Hawkins et al., 1983), suitable method for collecting information for the study is through survey, as it is a quantitative approach. A questionnaire was formed that included the information including basic demography of the participant, to gather theirs' background. The questionnaire included the question to access the effect of different marketing strategy and tools of pharmaceutical company and tried to analyze their effect on prescription generated. The population of the study were physician practicing at Kathmandu, those who has obtained the NMC number, that is the unique identity number given by Nepal Medical Council on clearing the qualifying exam, after clearing MBBS. The sample unit consisted of physician working in different private and public hospitals of Kathmandu valley. Physicians, included all the practicing doctors of different specialties like consultant physician, diabetologist, endocrinologist, neurologist, general practitioners, who has completed MBBS, cleared NMC qualifying exams and above. The total number of physicians approached were 400 but only 215 responded the questionnaire. Convenience sampling procedure were used to come to the sample size. Questionnaire were distributed by electronic media using whatsapp, viber, gmail. Among the responded, there were 78% of male and 22% of female. Among these responded 35.6% had an experience of less than 5 years, 39% were working in same industry for 5-10 years, 18.6% were working for 10-15 years where as 6.8% had an experience of 15 years and above.

**3.1 Measures:** The influence of pharmaceutical marketing on physician can be through their various promotional strategy targeted to prescriber or pharmacist or patient themselves, as direct advertising is not allowed on main stream media or any social media. Pharmaceutical company uses different strategies and tools to create brand value, make relationship with physician thus generate the prescription.

**Interaction of physician with pharmaceutical company:** At present context the primary point of interaction between the pharmaceutical company and physician are medical representatives, sales calls and the sales team behind them. According to NMSRA, Nepal Medical Sales Representative Association there are around 5000 sales representatives, representing 212 companies (domestic and foreign) affiliated to them under their 15 different units. They make a regular sales call, stay in touch with individual physician and make sure of prescription generation and that these prescriptions are honored from chemist of pharmacist end. Thus, a successful sales call is completed. The medical representative or sales team are the direct point of contact between company and prescriber.

In the study, the physician is asked about their individual experience and the effect of the activities of pharmaceutical company on their practice. Majority of the physicians readily answered the questionnaire. Their view towards marketing strategy and tools were measured on Likert scale. Along with it, the physicians were asked about the intensity of effect of each marketing strategy and tools on prescription habit.

**3.2 Result and Discussion:** Table 1 shows mean and standard deviation calculation for effect of pharmaceutical marketing strategy toward prescription generated, effect of marketing tools towards prescription generated and attitude of physicians towards pharmaceutical marketing in Kathmandu. The analysis shows that mean value is highest with promotional tools, which shows that various mentioned tools of pharmaceutical marketing have highest effect on the amount of prescription generated. While the attitude of physician towards marketing activity has lower value, with 9.73 which shows that physicians in Kathmandu have relatively

unfavorable inclination towards the marketing activities. The standard deviation value shows how spread the data set is, the highest S.D is 3.76, which indicate the data for promotional tools is most spread out.

**Table 1 Descriptive Statistics**

|                      | Mean  | Std. Deviation | N   |
|----------------------|-------|----------------|-----|
| Promotional Strategy | 11.75 | 2.97           | 213 |
| Promotional tools    | 12.50 | 3.76           | 213 |
| Attitude             | 9.73  | 2.56           | 213 |

Table2 shows the relationship between the promotional strategy, promotional tools with prescription generated and attitude of the physician towards the promotional activities of pharmaceutical company in Kathmandu. Pearson correlation analysis showed that promotional strategy and promotional tools has positive effect on prescription generation ( $r=0.217$ ,  $p<0.05$ ) and ( $0.285$ ,  $p<0.05$ ). Similarly, the relation of pharmaceutical promotion with attitude of physician is found to be positive ( $r=0.285$ ,  $p<0.005$ ).

**Table 2 correlation between marketing strategy, tools and prescription generated**

|                      |                     | Promotional Strategy | Promotional tools | Prescription Generated |
|----------------------|---------------------|----------------------|-------------------|------------------------|
| Promotional Strategy | Pearson Correlation | 1                    | .217**            | 0.13                   |
| Sig. (2-tailed)      |                     |                      | 0.001             | 0.059                  |
| N                    |                     | 213                  | 213               | 213                    |
| Promotional tools    | Pearson Correlation | .217**               | 1                 | .285**                 |
| Sig. (2-tailed)      |                     | 0.001                |                   | 0                      |
| N                    |                     | 213                  | 213               | 213                    |
| Attitude             | Pearson Correlation | 0.13                 | .285**            | 1                      |
| Sig. (2-tailed)      |                     | 0.059                | 0                 |                        |
| N                    |                     | 213                  | 213               | 213                    |

\*\* . Correlation is significant at the 0.01 level (2-tailed).

The reliability analysis or Cronbach's alpha value of each item being tested in the study is given in table:3, it shows the listed items: promotional strategy, promotional tools, and attitude of physician are moderately related to each other and the data collected is consistent. During the analysis two cases were removed by SPSS showing total of 213 sample out of 215 collected, that also increased internal consistency of the data.

**Table 3 Reliability Testing**

|                      | Cronbach's Alpha | Items |
|----------------------|------------------|-------|
| Promotional Strategy | 0.536            | 5     |
| Promotional Tools    | 0.654            | 5     |
| Attitude             | 0.654            | 5     |

**Testing of Hypothesis**

Through the t-test we can see that the marketing strategy used by pharmaceutical company has an influence on prescription generated ( $t=8.271$ ,  $p=0$ ) by physician for the specific brand. Thus, hypothesis 1 is accepted. Similarly, value of t-test for influence of promotion tools on prescription generated of the specific brand shows that, there is significant influence ( $t=1.055$ ,  $p=0.293$ ) of the promotional tools on prescription generated for the specific brand. Thus, hypothesis 2 is accepted. It is found that the attitude of physician towards the pharmaceutical marketing, both tools and strategy have significant influence on prescription generated ( $t=3.99$ ,  $p=0$ ). Thus, hypothesis 3 is accepted.

**Table 4: Hypothesis Result**

| Hypothesis | Regression weight      |                        | B     | t     | p     | Result |
|------------|------------------------|------------------------|-------|-------|-------|--------|
| H1         | Promotional strategy → | Positive Attitude      | 0.671 | 8.271 | 0     | Accept |
| H1         | Promotional strategy → | Prescription generated | 0.61  | 1.055 | 0.293 | Accept |
| H2         | Promotional Tools →    | Attitude               | 0.814 | 3.99  | 0     | Accept |

**4. Conclusion and Recommendation**

Pharmaceutical company harbor a high degree of social responsibility through their product i.e., medicines and medical devices. Access and selection of these products is critical choice and can make a significant difference in quality of life and sometimes life or death of an individual. So, the study of the factors that affect the choice of medicine or therapy is of utmost importance. Through the analysis of the different strategy and tools used by pharmaceutical company in market, it is found in the study that these promotional strategy and tools used by pharmaceutical company has significant influence on the prescription generated by the physician. It is also concluded the attitude of physician towards pharmaceutical marketing in Kathmandu is positive.

Drug promotion is essential both for pharmaceutical industry and physician for business sustainability and dissemination of medical information about medicines and devices. Thus, there is a need to take a path ahead that lies in the middle ground of supporting industry and ensuring the practice strictly adhere to guideline laid down by regulatory body. It is necessary for pharmaceutical companies to adopt more ethical and transparent promotional strategies to strengthen trust among physicians. Furthermore, the regulatory has to enhance monitoring mechanisms to ensure marketing activities aligning with patient welfare and public health priorities.

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