

A Review Of Factors Influencing Physician's Prescribing Behaviour

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Abstract

The pharmaceutical industry is at a growing phase with medical practitioners playing a pivotal role in the system. Various factors can influence prescribing behaviour which successively will have a pronounced effect on the healthcare expenditures and the population as a whole. The purpose of this study was to evaluate various factors that influence physician prescribing behaviour (PB). The study is a qualitative review and is descriptive and interpretive. Five inclusive criteria were determined for preparing, abstracting and presenting the data. An electronic database including Google scholar, Emerald insight, PubMed, Mendeley and Nepal Online Journal were searched to identify the factors influencing the prescribing decision of the physician from 2017 to 2022. 16 studies met the inclusion criteria from 82 search results. A total of 16 factors were identified that influenced the physician's prescribing behaviour. The frequent occurring factors were: Detailing of Medical Representative (MR), Sales promotion, Quality of Medicines (QoM) and Price of the medicines. The findings suggest that PB are not only influenced by personal benefits but is also directed towards fostering the good health of the patient. Thus, a further study on the identified factors and physician prescribing behaviour in the Nepali pharmaceutical market may be an interesting research area.

Keywords: Pharmaceutical Marketing, Prescribing Theories, Prescribing Behaviour, Promotional Tools, Prescription, Pharmaceutical Industry, Quality of Medicines

Introduction

The pharmaceutical Market (PM) is highly regulated. The pharma companies cannot use print or electronic media to advertise their drug which differentiates this industry from other industries. Likewise, the medicines cannot be directly marketed to the consumers (patients), which is the main disadvantage of this industry. The customers of the pharma companies are the medical professionals, the ultimate decision-makers. They influence the purchasing decision of the patients

who are the actual consumers. Prescription is the ultimate decision made by the physician amongst many alternatives available. Therefore, numerous and diverse strategies are constructed by pharmaceutical companies in and around medical professionals to influence their Prescribing Behaviour (PB) and while doing so a great deal of time and money is spent. Moreover, there is no set of pre-determined factors that cater for the needs of the prescribers. The needs are changing so are the factors influencing them. Ahmed et al., (2020) have identified thirteen causal factors against physician prescribing intentions based on various theories and models. Brand of a drug, sales promotions, drug information availability, medical representative effectiveness, and characteristics of the patients were the top five among the thirteen identified factors that influenced the physician's decision to prescribe.

According to the World Health Organization (WHO), the substandard drugs are authorized medical products but fail to meet quality standards or specifications or both. A substandard drug is ineffective in the treatment of the disease, prolongs the duration of treatment, increases the healthcare expenditure to the patient and may cost the life of the patient (Luis & Moncayo, 2020). The study by Rasheed et al., (2019) pointed out that the poor quality of medicines has claimed the lives of hundreds of people in Pakistan due to failure in identifying the erroneous substance present in cardiovascular drugs and cough syrups. Similarly, a popular brand of ranitidine was recalled from the market by the United States Food and Drug Administration (USFDA) in 2020 due to the unacceptable level of human carcinogenic substance found in the drug (Dasukil et al., 2021). While India nicknamed as “Pharmacy of the World” with a maximum number of USFDA inspected facilities has 3 to 4 % of the market with substandard drugs (Luis & Moncayo, 2020). Similarly, Gyanwali et al., (2015) too have pointed out that substandard medicines were abundant in the Nepali market resulting in a wide range of impacts from an individual level to the national level. Moreover, the study by Neupane et al., (2021) also claims that the total number of recalled pharmaceuticals products from the markets is significantly higher among domestic manufacturers than foreign manufacturers. The reasons for recall may be the failure to comply with pharmacopeial standards and failure to meet various laboratory standards. Nonetheless, failure to comply with quality standards relates to a lack of quality in medicines. According to Dahal, (2020) one of the major criticism faced by a domestic pharmaceutical company in Nepal is its QoM. The author further adds that Nepali pharmaceutical medicines are second alternatives to foreign brands available in the market. However, it is found that most of the domestic manufacturers are in fact certified with Good Manufacturing Practice (GMP) by World Health Organization.

On the contrary, QoM, easy availability at a reasonable price is identified as an ultimate expectation of the physician from a pharmaceutical company (Ahmed et al., 2020). Quality, and safety of the medicines are of paramount importance to the patients. A study conducted by Parmata & Chetla, (2020) has proved that QoM is the foremost reason that determines the profitability of the pharmaceutical company. In the same vein, a brand of the drug is found to play an important role in the decision of the physician to prescribe (Ahmed et al., 2020). Moreover, a prescription is an intended behaviour related to the quality of the medicines, the brand of the medicines or the

image of the company (Aisyah, 2018). A similar view has been added by Faisal et al., (2020) that a corporate reputation or the brand image of the company helps develop a positive attitude towards the company and the medicines they manufacture which ultimately affects the PB. Pharma companies are fighting for their prescribers and the only way to survive is by gaining a competitive advantage in terms of QoM (Parmata & Chetla, 2020).

The Pharmaceutical Market (PM) is getting competitive. The pharmaceutical industry is bracing itself and looking at newer ways to drive growth (Srivastava & Bodkhe, 2020). In a growing and competitive market staying ahead of the competition and identifying the different and unique ways to influence prescribing behaviour is the holy grail of pharma marketing. The companies are competing for the same branded generics to increase the quality and quantity of prescriptions. But the availability of substandard medicines raises a serious concern about the quality of the medicines that patients are consuming. Therefore, an attempt has been made in this regard to explore the various factors that influence the physician's decision to prescribe and the parameters that physicians consider to access the quality of medicines.

Method

A descriptive and interpretivism approach was preferred for this study using recent literature from the electronic database such as Google Scholar, PubMed, Emerald Insight, Mendeley, and Nepal Journals Online from 2017 to 2022.

Search method: The keywords used for searching the articles included pharmaceutical marketing, prescribing behaviour, prescribing theories, promotional tools, pharmaceutical industry, and quality of medicine.

Selection criteria: Initially title, abstract and research objectives of the articles were reviewed. The selection criteria after reviewing the articles were: **1.** The article must be published from 2017 to 2022, **2.** Full article must be available and must be written in English, **3.** The research objectives must mention the various factor affecting the prescribing behaviour, **4.** The finding must list out all the influencing factors affecting the PB.

Data Abstraction and processing: The selected articles were fed into the Mendeley desktop for easy organization and easy accessibility. Out of the selected reviewed article following information was abstracted and fed into the research matrix: the author's name, the year of publication, title, name of the journal, research objectives, method used, identified factors and findings. The recognized factors affecting the PB are listed in the table below:

Table 1: Factors influencing physician prescribing behaviour

Sn.	Identified factors	Contributing Authors	Frequency
1	Detailing of MR	Ahmed et al., (2020); Dar et al., (2021); Faisal et al.,(2020); Hailu et al., (2021); Kabir, S. H., & Maulan, S. (2021); Krunal, V. S. S. K. M. I. (2020); Murshid, M. A., & Mohaidin, Z. (2017); Napit, P. R. (2018); Yimer, B. (2021).	9
2	Sales promotion *	Ahmed et al., (2020); Dar et al., (2021); Davari et al., (2018); Faisal et al.,(2020); Kabir, S. H., & Maulan, S. (2021); Napit, P. R. (2018); Yimer, B. (2021).	7
3	Quality of medicines **	Dahal, A. R. (2020); Hailu et al., (2021); Napit, P. R. (2018); Parmata, U. M. D., & Chetla, S. P. (2020); Srivastava, R. K., & Bodkhe, J. (2020); Jayasooriya, T.D., & Samarasinghe, G.D. (2019)	
4	Price of the medicine	Davari et al., (2018); Hailu et al., (2021); Napit, P. R. (2018); Parmata, U. M. D., & Chetla, S. P. (2020); Srivastava, R. K., & Bodkhe, J. (2020); Jayasooriya, T.D., & Samarasinghe, G.D. (2019)	6
5	Frequency of visit from MR	Dar et al., (2021); Hailu et al., (2021); Kabir, S. H., & Maulan, S. (2021); Khazzaka, M. (2019); Yimer, B. (2021)	5
6	Image of the company	Ahmed et al., (2020); Faisal et al.,(2020); Hailu et al., (2021); Kabir, S. H., & Maulan, S. (2021); Parmata, U. M. D., & Chetla, S. P. (2020).	5
7	Drug Information Availability	Ahmed et al., (2020); Hailu et al., (2021); Murshid, M. A., & Mohaidin, Z. (2017); Yimer, B. (2021).	4
8	Free samples	Altawalbeh et al.,(2020); Khazzaka, M. (2019); Murshid, M. A., & Mohaidin, Z. (2017); Yimer, B. (2021).	4
9	Paid conference ***	Altawalbeh et al.,(2020); Dar et al., (2021); Kabir, S. H., & Maulan, S. (2021); Yimer, B. (2021)	4

10	CME	Hailu et al., (2021); Kabir, S. H., & Maulan, S. (2021); Krunal, V. S. S. K. M. I. (2020)	3
11	Availability of medicine	Krunal, V. S. S. K. M. I. (2020); Parmata, U. M. D., & Chetla, S. P. (2020); Srivastava, R. K., & Bodkhe, J. (2020)	3
12	Patient compliance	Napit, P. R. (2018)	1
13	Physician's personal attributes****	Davari et al., (2018)	1
14	Country of origin	Hailu et al., (2021)	1
15	Patient's request for the drug	Ahmed et al., (2020)	1
16	Patient's expectation	Ahmed et al., (2020)	1

Result

The search criteria identified 82 articles and finally, 16 articles were selected for the review. A total of 16 influencing factors were identified. Detailing of MR, Sales promotion, Quality of Medicines, Price of Medicine, Frequency of visit from MR and Image of the company were the top 5 influencing factors. The descriptive and interpretivism qualitative method was used for data analysis and for driving to a conclusion.

Discussion

It is a well-established fact that the pharmaceutical industry tries to influence the prescribing behaviour of a physician by indulging in various promotional activities to create a win-win situation for both the company and the prescribers. The companies usually promote the products through personal selling, provide free medicine samples, sponsor various national/international conferences and continuous medical education (CME) programs and provide low to high-value gifts in persuading physicians to prescribe. Pharma companies also try to differentiate their product in terms of quality, price, availability of medicines in retailers, along with unique dosage forms, and safety parameters of medicine.

Various studies in the past have established a strong relationship between sales promotion strategies and physician decisions to prescribe. Yimer, (2021) revealed that financial incentives offered by pharmaceutical MR strongly motivated physicians to prescribe. Furthermore, promoting branded drugs through small gifts of various values helped in recalling the brand of the drug despite the competitive alternative available. Similar findings have been put forward by

Kabir & Maulan, (2021) that sales promotions including low and high-value gifts, and free medical drug equipment, resulted in significant and positive prescribing behaviour. Ahmed et al., (2020) too have identified sales promotions to have a positive and significant effect on the decision to prescribe. It is found that the promotional efforts of the pharmaceutical industry have a pivotal role in influencing the prescribing pattern. This is a very common and traditional promotional practice in PM. Likewise, the high-value gifts are primarily targeted at the senior doctors, consultants or the doctors having sizeable patients who can return their investments in future. Additionally, the prescription habits of junior doctors are influenced by senior doctors. However, such kind of promotional efforts are short-lived and ensures prescribers' patronage until they receive a more tempting offer from another company.

The role of MR is very crucial in any pharmaceutical company. They are responsible for effectively and efficiently communicating product benefits and marketing strategies developed by the company to the health professionals. Product detailing of MR, and frequency of visits of MR had the strongest influence on the prescribing behaviour (Ahmed et al., 2020). Moreover, Krunal, (2020) also have put forward detailing of MR to have a strong and significant effect on physician prescribing behaviour. In the same vein, the findings of Faisal et al., (2020) revealed that physicians prefer to interact with the MR having good product knowledge, scientific knowledge, and corporate knowledge which affected PB. Similarly, Khazzaka, (2019) also added that the frequency of visits by MR affects the prescribing decision. MR influenced the prescribing behaviour of the physician due to easy access, availability and reliable information they provide to the prescriber (Murshid & Mohaidin, 2017). MR are an indispensable part of pharmaceutical marketing. Detailing of MR reflects his/her communication skills, and knowledge about the product including scientific knowledge. Knowledge increases the confidence level and hence enhances the personality. Having good product knowledge and scientific knowledge begets an environment for discussion and communication with the prescribers. Also, regular communication and follow-up can improve the interpersonal relationship with the physician leading to maximum sales generation for the company.

Physicians participating in sponsored CME programs, and national/international conferences have been found to influence prescribing behaviour as an obligation. The study of Hailu et al., (2021) asserted that companies' sponsored CME programs, promotional drug brochures, and an invitation to visit a pharmaceutical plant are some of the top factors that influenced most physicians to prescribe. Kabir & Maulan, (2021) also have asserted that sponsored programs are an effective tool in influencing prescribing behaviour. Likewise, Altawalbeh et al., (2020) too have identified paid conferences as the most appropriate gifts from pharmaceutical companies that resulted in prescriptions. Krunal, (2020) have asserted that CME programs have a positive and significant impact on the doctor's prescription choice. Pharmaceutical companies pay for the travel cost, food and lodging cost, and personal costs of the prescribers attending international events. They bear all the financial burden of the physician. The physicians for the sponsored programs are selected

based on the number of patients and seniority level. Thus, prescribers are obliged to pay back the company through the prescription.

Similarly, free drug samples distributed by MR to medical professionals are the most frequent, easy accessible and effective promotional tool. Moreover, Kabir & Maulan, (2021) pointed out that pharmaceutical companies offer free drug samples to attract sales of the medicines through prescriptions. Similarly, Altawalbeh et al., (2020) too have asserted that free drug samples have been shown to significantly change the prescribing behaviour of physicians that are different from their preferred choice. Likewise, Murshid & Mohaidin, (2017) compared the influence of MR and promotional tools used in developed and developing countries on PB. The study pointed out that free samples strongly and positively influenced PB in both developed and developing countries. It is seen as one of the main motivations of prescribers to interact with the MR. The brand name along with the slogans and company name is printed on the catch cover of the sample. The prescribers use these samples themselves or make them available to family members, friends or needy patients. Samples create an opportunity for firsthand experience for accessing the safety and effectiveness of the given drug by the physician. Also, these are made available during the time of free health camps by the pharmaceutical companies to the prescribers. This pursuit helps in creating a preference for the drug for both physician and the patient.

QoM is considered among the top factors influencing PB. QoM and affordability were pointed out by Jayasooriya & Samarasinghe, (2019) as having the strongest effect on doctors' prescribing intentions of branded medicines. Also, the findings revealed that doctors did not perceive all the branded medicines high in quality, safety and efficacy. Likewise, Parmata & Chetla, (2020) also have identified QoM, affordability, availability and reputation of the company playing a vital role in physician decision to prescribe. Doctors prescribing intentions are best allied with the benefit of the patient. Also, they are rational decision-makers. Therefore, the good quality of the medicines having the least side effect is the important factor that is considered by the physician before prescribing. Moreover, doctors are also compelled to prescribe a drug considering patients' capability to afford that brand.

Prescribers and retailers are considered the important stakeholders of the industry. Likewise, there is an ethical concern in the relationship between pharmaceutical companies with prescribers and retailers. In the same vein, recall of substandard medicines is increasing in PM. The rising cost of medical expenditure, personal benefits of the concerned stakeholders, and recall of the medicines can be some of the reasons behind trust issues faced by domestic pharmaceutical manufacturers. Various literature in the past has put forward the quality concern over Nepali pharmaceutical manufacturers. Dahal, (2020) have asserted that lack of trust in quality medicines has always been a contentious issue for domestic manufacturers. Neupane et al., (2021) confirmed that the number of low-quality medicines is increasing in Nepal. Baral, (2021) has stated in his article that the Nepali pharmaceutical industry lacks innovation, ability and investment to undertake research and development of the medicines. According to WHO (2022), quality is the sum of all the activities and responsibilities required to ensure that the medicine that reaches the patient is safe, effective

and acceptable for consumption. Even though Nepali pharmaceutical companies are WHO GMP certified, QoM remains a grave concern. The substandard drug has a momentous impact on morbidity, and mortality and adds an economic burden to the entire population. In the meanwhile, QoM is also considered one of the major influencing factors by the physician. Physicians are the important stakeholder in the industry. Therefore, accessing the quality parameters of the medicine from the prescribers' point of view can be explored further for the welfare of the population.

Conclusion

This qualitative study enhances the current knowledge on pharmaceutical marketing strategies in influencing PB. A total of 16 factors were identified that positively influenced the prescribing habit of the prescribers. The professional characteristics of MR are found to have a prominent and strong influence over the prescribing practice. The product knowledge, scientific knowledge, and MR's knowledge about the industry help in building a good relationship between the MR and the prescriber which helps in creating a positive corporate image in the prescriber's mind and leads to prescription generation. Along the line, sales promotion activities ranging from low-value gifts to high-value gifts, and sponsored conferences are very traditional yet very common promotional efforts by a pharmaceutical company in influencing the PB. Such kind of efforts helps in recalling the brand by the physician among many alternatives available. In the same vein availability of a free drug, and samples helps in accessing the dose and effectiveness of the drug by the prescriber avails in brand recall and brand preferences. Similarly, CME programs are also identified as effective promotional tools that influenced prescribing behaviour. Even though substandard medicines are present in the pharmaceutical market, QoM though mentioned was not much prioritized in many research articles.

The study pointed out the fact that prescriptions are not only prescribed for the treatment and prevention of the disease but also prescribed for the financial benefits of the prescribers. However, it was also found that QoM, the low cost of medicines, and the brand image of the company also have a prominent role in PB. This finding is an interesting indication that regardless of personal benefits, prescriptions are also generated for the welfare and benefit of the patients. So, sales promotion and physician prescribing behaviour need not be generalized. Therefore, further study might be needed to investigate the relationship between identified factors and PB with a focus on the Nepali pharmaceutical market.

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