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St. Mary's University, Ethiopia

ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES

DEPARTMENT OF GENERAL MANAGEMENT

THE EFFECT OF PROMOTION ON DRUG PRESCRIPTION BEHAVIOR
OF PHYSICIANS: THE CASE OF ALERT SPECIALIZED HOSPITAL

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DECEMBER, 2020
ADDIS ABEBA, ETHIOPIA

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OF PHYSICIANS: THE CASE OF ALERT SPECIALIZED HOSPITAL**

**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY, SCHOOL OF
GRADUATE STUDIES, IN PARTIAL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF GENERAL
MANAGEMENT**

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DECLARATION

I, the under signed, declare that this thesis is my original work, prepared under the guidance of **ZEMENU AYNADIS (ASST. PROF.)**. All sources of material used while working on this thesis have been duly acknowledged. I further confirm that the thesis has not been submitted either in part or in full to any other higher learning institution for the purpose of earning any type of degree.

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Signature and Date

ENDORSEMENT

This thesis has been submitted to St. Mary's University College, School of Graduate Studies for examination with my approval as a university advisor.

Advisor

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ZEMENU AYNADIS

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LIST OF ABBREVIATIONS/ACRONYMS

ADR	Adverse Drug Reaction
ANOVA	Analysis of Variance
CMEs	Continuing Medical Educations
IFPMA	International Federation of Pharmaceutical Manufacture And Association
INN	International Nonproprietary Name
KOLs	Key Opinion Leaders
MRs	Medical Representatives
OTC	Over the Counter
PSRs	Pharmaceutical Sales Representative
SPSS	Statistical Package for Social Science
WHO	World Health Organization

ABSTRACT

Physician prescription behavior is affected by pharmaceutical marketing in a significant, positive way. Marketing efforts create awareness among physicians about new drugs and their specifics. The general objective of the study was to investigate the effects of promotion on drug prescribers' decisions making in Alert specialized hospital. In order to get a comprehensive data 140 physicians are included in the study. The study used both primary and secondary data that were collected through a semi-structured questionnaire, & quantitative analysis. This study adapted descriptive and explanatory (Cause and effect) study design for analysis Out of the 150 questionnaires that were distributed 140 questionnaires were filled and returned successfully. This represents a response rate of 93.3 percent. Data was analyzed using descriptive and inferential statistics. The finding of this study showed that companies are giving sample drug and promotional materials to remind the name of their brand. Most physicians believed that their prescription behavior was affected by the activity of medical representatives and pharmaceutical companies. The attitude of most physicians was almost similar on the importance of publicity on physician pharmaceutical industries interaction. Based on these findings, the study recommends that physicians need to strictly follow the prescription guideline/medical text books guidelines and prescribe only generic description of medicines, pharmaceutical companies need to use ethically acceptable promotional materials and methods, PSRs should be trained about ethical and professional promotion, the medical director of the hospital should supervise regularly to the competence of the PSRs.

Key words: promotion, prescribing behavior of physicians, PSRs

CHAPTER ONE

INTRODUCTION

1.1. Background of the study

Promotion is defined as the co-ordination of all seller initiated efforts to set up channels of information and persuasion in order to sell goods and services or promote an idea. Promotion is most often intended to be a supporting component in a marketing mix. Promotion decision must be integrated and co-ordinate with the rest of the marketing mix, particularly product/brand decisions, so that it may effectively support an entire marketing mix strategy (Samad and Sabeerdeen, 2016).

The pharmaceutical industry deals with the discovery, developing, producing and marketing pharmaceutical drugs for use as medication. Pharmaceutical companies may deal in generic or brand medications and medical devices. They are subject to a variety of laws and regulations that govern the patenting, testing, safety, efficacy and marketing of drugs. Unlike other industries, the main objective of pharmaceutical company marketing is to increase the profitability of the organization by accommodating the needs and wants of consumers.

In various commercial industries, other than pharmaceutical company, it is much easier for consumers to make the choice to which brand and item ought to be obtained consistent with their necessities and pre-requisitions, whereas in the pharmaceutical marketing consumers and customers fall into two distinct lines (Biswas and Ferdousy, 2016). Pharmaceutical companies have been using a range of marketing techniques to inform and convince medical practitioners about their products. Medical Sales representatives are considered the most expensive and widely used of these (Schramm et al., 2007).

In the promotion of prescription drugs, medical representatives usually offer information about their brand and current modes of therapy, the appropriate drug usage, clinical indications, contraindications and side effects to the prescribers and pharmacists. Moreover, they provide information about their brand usage and positioning. Medical representatives also endow with price of their products and promotional materials as a brand reminder (Buckley, 2004). Promotion of prescription drugs in Ethiopia is still at its infancy stage, though the practice has been started long time ago. The reason is that the number of stakeholders specially the branded

pharmaceutical companies who were active in promotion of prescription drugs was very few. Previously only few generic and branded multinational companies were involved in promotion of prescription drugs and because of this the number of medical representatives was limited.

In recent times because of increased competition between the incoming generic and branded multinational companies, the practice is getting an attention from both regulatory bodies' and manufacturers, and the number of medical representatives has been showing an increment.

The world health organization WHO defines drug promotion activities as all informational and persuasive activity by manufacturers and distributors the effect of which is to induce the prescription, supply, purchase and or use of medicinal drugs (WHO, 2005).

In general, Pharmaceutical companies promote their product through their medical representative (MRs) by using drug sample, printed product literature and gifts that helps them to increase acceptability of their product. Pharmaceutical promotion is all about informative action which makes physicians aware of new drugs and treatment options Gönül et al. (2001); however, evidences showed that there is a limit up to where detailing and other promotional efforts influence prescription pattern beyond where excessive effort becomes counterproductive (Gönület al., 2001, Manchanda and Chintagunta, 2004). According to Connett(2004) some of the most important elements used in promotion are as follows: advertising, sales promotion, personal selling and public relation. In addition the promotion element of the marketing of the organization includes all the relevant activities, materials, and media used by a marketer to inform and remind prospective customers about a particular product offering. No matter how it's successfully developed a product may be, it is worthless except its benefit are made clear and appreciated by the target customers.

1.2. Statement of problems

Promotion can influence prescribing more than we thought possible. Frequent exposure to promotion correlates with more expensive, less appropriate prescribing. People may not be aware of how much promotion influences them. Researches clearly shows that Physicians who report relaying more on promotion tends to prescribe less appropriately, prescribe more often and adopt new drugs more quickly.

Many developed and few developing countries have been studying the type and quality of Physicians contact with pharmaceutical companies (Manchanda and Chintagunta, 2004). In

addition (Nair et al., 2010) and a study by osingaleeflang and wieringa (2010), Switzerland suggested that, physicians prescribing behavior is affected by pharmaceutical promotion directed at physicians in a significant positive way. But, unlike those countries, in Ethiopia there is no well documented and/or published study which has looked into this type of relationship between physicians in green licensed private hospitals and pharmaceutical companies. In relation to this, companies have already understood the importance of promotion on prescription drugs to increase their sells volume and that's why they have already started employing medical representatives (MRs). But they do not have organized findings and evidence that helps them which kind of promotional techniques influence prescribers' behavior. Therefore, the result of this study had been help pharmaceutical companies to know the best promotional techniques to influence the most. Since countries are different in many aspects like culture, economic development and literacy, companies need to understand the right kind of promotional mixes that impact prescription decision in Ethiopia scenario.

1.3. Research question

- To what extent does PSRs affect prescribers' decisions making in Alert specialized hospital?
- To what extent does detailing affect prescribers' decision making in Alert specialized hospital?
- To what extent does a gift affect prescribers' decisions making in Alert specialized hospital?
- To what extent does sample drug affect prescribers' decisions making in Alert specialized hospital?

1.4. Objective

1.4.1. General objective

To investigate the effects of promotion on drug prescribers' decisions making in Alert specialized hospital.

1.4.2. Specific objectives

- To investigate the effect of PSRs on drug prescribers' decisions making in Alert specialized hospital.
- To study the effect of detailing on drug prescribers' decisions making in Alert specialized hospital.
- To determine the effect of gifts on drug prescribers' decisions making in Alert specialized hospital.
- To examine the effect of sample drug on drug prescribers' decisions making in Alert specialized hospital.

1.5. Research Hypothesis

The study used the following working hypothesis to be tested in the analysis:

H₀: Sample drug doesn't affect prescribing behavior of physicians;

H_a: Sample drug does affect prescribing behavior of physicians;

H₀: Gifts and promotional material doesn't affect prescribing behavior of physicians;

H_a: Gifts and promotional material does affect prescribing behavior of physicians;

H₀: Pharmaceutical sales representative (PSRs) doesn't affect prescribing behavior of physicians;

H_a: Pharmaceutical sales representative (PSRs) does affect prescribing behavior of physicians;

H₀: Publicity doesn't affect prescribing behavior of physicians;

H_a: Publicity does affect prescribing behavior of physicians;

1.6. Significances of the study

This study will help managers of pharmaceutical companies to know if the techniques and tools used in promotion are effective and efficient or if there is need for different approach. Why it is important to study doctors in training is because during this time behavior are formed and students' responses to this survey will present an interesting snapshot of how future physicians in Ethiopia

view the promotional effort by pharmaceutical industry. The study will contribute to the regulatory authorities that will help them to understand the current practice and give direction if there is an acceptable ethical practice. The findings of this study also will give a clue to conduct further investigation in the area and evaluate the ethical practices of prescription drug promotion.

1.7. Scope of the study

The study focused on the prescribing behavior of graduate medical students toward promotion by pharmaceutical companies in Alert Specialized hospital for 2020 fiscal year. It is directed towards examining the influence of promotional efforts, i.e. PSRs, detailing, gifts and sample drug, on 150 active physicians who are currently prescribing drugs due to large amount of money invested by pharmaceutical companies for promotion.

1.8. Organization of the study

The study is organized in to five chapters. Chapter one deals with background of the study, definition of key terms, statement of the problem, research questions, objectives, significance, scope and limitation of the study. The second chapter is devoted to review of related literature. The third chapter is concerned with research approach, research design, sampling technique, data type and source, population and sampling procedure, data collection instrument, reliability and validity and data analysis technique. The fourth chapter will focuses on demographic variables of the respondents, data analysis and interpretation. The final fifth chapter will be consists of the major findings, conclusions and recommendations.

CHAPTER 2

2. REVIEW OF RELATED LITERATURE

2.1. Introduction

This chapter presents the review of existing literatures in the area of the effect of promotion on drug prescription behavior of physicians in order to acquaint readers with better understanding of the subject matter. Which incorporates the theoretical review, empirical review and, the chapter also presents the conceptual framework.

2.2. Theoretical review

2.2.1. Definition and concepts Pharmaceutical Marketing

Bates, et al. (2002) states pharmaceutical marketing as a synergistic integrated activity. Activities work in tandem with each other to drive prescribing behaviors. Vasiljev and Pantelic (2010) also present that based on specific nature of its products and in the complex interests of the main constituents of market demand the pharmaceutical market represents one of the most dynamic and controversial markets. And they recommend the understanding of marketing theory and best practice logic and comparing it with on-going everyday practice to improve marketing practice in the pharmaceutical sector.

Marketing of pharmaceutical product is a unique and fascinating discipline, spiced with continuous interaction with target audience, and most of the communication taking place on a one to one basis (Ahmed & Sattar, 2014), which is the most successful strategy of the many approaches of marketing (Belch & Belch, 2003). This on one hand helps out any noises or interferences, which happens when different channels are involved in the communication process: but on the other hand it poses a challenge to markets of being effective during the few minutes they get from the doctors (Ahmed & Sattar, 2014).

Pharmaceutical companies are using various kind of promotional approach to sell their products that is in-line with their marketing strategy (Edward & Fox, 2010). Traditionally, marketing strategies have been built around the four Ps; i.e., the kind of Product the company is offering, the Price the company is charging for the product, a Place that the product will be distributed and more accessible to consumers, and Promotion of the product to communicate the feature and

benefits of the product to the consumers (Belch & Belch, 2003). But, in the pharmaceutical industry two more Ps are relevant for the business; these are the Political relationship with the organization responsible for the payment and the Patients who have increasing economic input to their health and access to information (Edward & Fox, 2010).

There is no winning formula for pharmaceutical promotion. All one can do is to understand the purpose of each tool, and then try to create a mix which works well under the given scenario (Ahmed, et al., 2014). In clinic promotional mix includes detail aid; leave behind material, samples, gift/giveaways, and direct mailers. Out of clinic promotional mix includes clinical trials/studies, seminars/symposia/round table discussion sponsorships film shows advertisements, public relations, free medical camps, corporate marketing, hospital/ward improvement programs, E-marketing (Ahmed & Sattar, 2014).

Pharmaceutical marketing professionals are fast becoming aware of the latest development in discipline marketing, and they have also started to adopt latest theories in communication (Ahmed, et al., 2014). The model for marketing mix is made up of two streams of activities “the product chain” and “the prescription chain” (Wolpert, 2004). The product chain starts with the selection of the molecules and passed through all the manufacturing process and finally the product is sent into the market, or commercialized. When a patient is suffered from an illness, he either goes to a doctor in a hospital, or in his private clinic. At the hospital or clinic when a doctor prescribes a product, the patient may buy it from the hospital pharmacy or may choose to buy from a retailer outside the hospital’s pharmacy (Vashishta, 2010). This is how the product chain completes, starting from the hospital, and ending in the patients hands. The prescription chain starts with the information to the doctor by the company’s sales team. The information is communicated through either in clinic promotional activities, or out of clinic promotional efforts (Ahmed & Sattar, 2014). The doctor, if convinced, prescribes the product and the patient goes and buys the product, thus making the both product chain and prescription chain meet in the end, which was the basic marketing objective (Ahmed, et al., 2011).

The drug industry, the medical profession and the patient have a unique relationship. The industry makes products which it cannot sell to the patient (consumer) directly. On the other hand, the medical profession cannot treat the patient without drugs produced by the industry (Shahu Ingole, et al., 2011). To stand-in these relationships, companies use different promotional

techniques and approaches; for example, companies offer free meals, financial support for conferences, free drug samples and various items of both clinical and nonclinical relevance (Edwards & Ballantyne, 2009).

Many models attempt to determine the effects of pharmaceutical promotional efforts on the demand for pharmaceutical. Manchanda (2005) provided brief surveys by providing a significant body of emerging research that focuses on response model (i.e. quantifying the effect of a given instrument) and resource allocation (i.e. across all marketing instruments) models using data from the pharmaceutical industry. Many of these models are based on pooled data hence use a specific but very restricted model. These models are pooled over different brands which are in different stages of their product life cycle and pertain to different product categories (Peter, et al., 2010). A well-known model was developed by Rizzo (1999) and modified by (Windmeijer et al.(2005).

This Rizzo model is one of the first to empirically investigate the effects of marketing expenditures on price elastic of pharmaceutical demand, the outcomes indicate a persuasive effect of marketing efforts and are extensively cited in the marketing literatures (Narayana &Manchanda., 2009;Manchanda, 2005; Ahmed, et al., 2011)the effect had a substantial impact on public policy makers' opinions concerning the welfare effects of pharmaceutical promotion (Windmeijer, et al., 2005).The marketing activities towards practicing physician and medical students comprise: face to calls, where pharmaceutical sales representatives (PSRs) communicate pharmaceutical and marketing information to physicians(detailing)Limu, 2010, Provision of drugs at no cost (sampling) Zaki, 2014,Provision of different kinds of gifts, and etc.

The pharmaceutical marketing literature shows that physicians can be dynamic in their prescription behavior. Such dynamic behavior can arise from internal factors such as state dependence (Janakiraman, 2008 ; Manchanda, 2005)and learning (Narayana &Manchanda., 2009; Narayanan, et al., 2005) or from long term effect of marketing actions such as detailing and sampling (Janakiraman,et al., 2008; Manchanda, 2005; Narayanan, et al., 2005). By considering the research works an integrative non homogeneous HMM model was presented to dynamically target and allocate detailing and sampling across physicians. This model accounts for physician's heterogeneity and captures the dynamics in physicians' behavior and the long term effect of marketing activities (Montoya &Jedid, 2010).

The literature review done on researches on pharmaceutical promotion includes, that, ‘there is a wide range of evidence on different topics, using arrange of different designs, suggesting that promotion affects attitudes and behavior (Austad&kristen, 2011).

However there are gaps in the evidence and more high quality studies are needed to establish causal relationships between promotion and behavior of doctors and others (Norris, et al., 2005). Thus, the behavior object in this literature review and in this Survey is the effect of promotion efforts (PSRs, Detailing, Promotional Gifts, and Drug Samples) by pharmaceutical on medical students’ prescribing behavior.

2.2.2. Drug Promotion and Drug Advertising

Drug promotion in India or elsewhere has always attracted controversies as it is inherently unethical. (Thawani.V 2002). Unlike other commodities where consumers are choosers, prescription practices in the drugs category is driven by drug promotion. The very nature of prescription drugs market is ethically driven hence it is also called as the “ethical drug” market. In 1998, the World Health Organization (WHO), in an attempt to support and encourage the improvement of health care through the rational use of drugs and to curb unethical marketing practices, came out with a landmark “Ethical criteria for medicinal drug promotion”. It is an outline document which defines drug promotion as “as informative and persuasive activity by manufacturers and distributors in order to induce the prescription, supply, purchase and/or use of medicinal drugs”. However, as per the WHO this criterion does not constitute legal obligations; governments may adopt legislation or other measures based on them as they seem fit. It also advises that other groups may adopt self-regulatory measures based on them. Drug promotion also includes the activities of medical representatives, drug advertisements to physicians, provision of gifts and samples, drug package inserts, direct-to-consumer advertisements, periodicals, telemarketing, holding of conferences, symposiums and scientific meetings, sponsoring of medical education and conduct of promotional trials. It is well understood that the pharmaceutical companies do have trade interests in promoting their products for disseminating information about the drug it produces, but it should do so in a fair, accurate, and ethical manner. The blurring boundaries of what constitutes fair practices are of intense debate in issues involving drugs promotion. Many studies have noted that drug companies are involved

extensively in promoting their brands by paying huge kickbacks and the relationship between actors in the distribution network is almost

There seems to be obvious double standards in adoption of the code. While in the developed countries, these firms often publish reasonably ethical advertisements which are published in medical journals, the very same companies promote the same drug for different indications in developing countries.

It is well recognized that in case of prescription of a drug- where the doctor is decision maker for the ultimate user the patient, the industry has a powerful influence on prescribing habits (Lancet 1993). The industry is often blamed for its marketing practices, which has been considerable covered and discussed in western literature (Angell.M. 2005). It is noted that while doctors uniformly deny that their understanding of drug is influenced by the activities of industry, there is considerable evidence to support the efficacy of the personal encounter with a medical representative in shaping doctors' attitude towards drugs (Bhat.AD 1992). There is an essential difference between promotion and information. While delivering information to the doctors about new drugs, including its usefulness and efficacy may have precompetitive effects, marketing strategies adopted by firms may downplay the demand side and hence raise prices for consumers. How doctor decides which drug is to be prescribed to his patients is at the heart of controversy. Popular news reports and mapping of recent incidence of collusion between the profit-oriented pharmaceutical companies, pharmacists and doctors, it is noted that these actors are routinely wooed with gifts ranging from mobile phones to sponsored weddings and sometimes postpaid mobile connections are also provided. Interviews conducted during the course of this study reveal that it extends from sponsored conferences in five-stars to high-value gifts like motorcycles and. There are even cases where pharmacy companies helped doctors to set up small nursing homes. However, there are no concrete evidenceto point specific people, institutions or companies, since these interviews were held in confidence. A list of three collected news items published in the Times of India on drug promotion does portray various facets of drug promotion in India. Such incidences have long been noted in the medical fraternity, but have rarely been thoroughly investigated. In this study, based on earlier studies and reports, investigate such practices from a horizontal and vertical agreement point of view. This is despite the fact that inappropriate prescriptions could lead to dangerous side effects,

medical complications and needless expenses for patients. It has also been noted that medical associations have allegedly warned pharmaceutical companies, that they you don't sponsor our conference they will boycott your drugs. Some experts and commentators are also of the view that breakthrough drugs that enter the market early are promoted through scientific information. Some interviews also reveal that drug companies sponsor weddings and birthdays of doctor's kith and kin. Medical representatives are under constant pressure to push for higher sales they reason why they resort to providing perverse set of incentives to the doctors. The sales driven motivations for MRs warrant that MRs resort to activities that can call ethics of promotion into question. Studies have indicated that promotional materials provided by pharmaceutical companies through their representative cannot be entirely relied upon. Source of primary literature on drug promotion are articles published in peer reviewed journals, secondary literature includes abstracts of various types of published literature, reference from text books and other standard literature. Commentators point that few physicians are equipped with skills to critically evaluate and appraise it. It is noted that lack of proper methodological understanding among physicians to evaluate these drugs is the prime reason for them being swayed away with arguments presented in promotional literature. It is suggested that physicians must see if a new drug is relevant to their practice in terms of population studied, the disease and the need for new treatment (Shetty VV et.al., 2008).

2.2.3. Method of pharmaceutical advertising

2.2.3.1. Advertising to the General Public:-

The Drug & Magic Remedies(Objectionable Advertisement) Act & Rules mentions a list of ailments for which no advertising is permitted. It also prohibits false or misleading advertisements which, directly or indirectly, give false impressions regarding the true character of the drug, make false claims, or are otherwise false or misleading in any particular respect.

There is an OPPI Code of Pharmaceutical Marketing Practices, 2010, based on the IFPMA code. Currently, there is no specific law which prohibits the advertising of prescription drugs.

2.2.3.2. Advertising the Products in Medical Journal: -

Journal advertisements attract attention because they are visually appealing also see them as a way of keeping medical practice nor up-to-date. The Ethical Criteria for Medicinal Drug Promotion developed by the World Health Organization (WHO) suggest the types of information

that, as a minimum should be contained in a journal advertisement (WHO 1988). The aim is to ensure that basic information needed for prescribing decisions is present. The medicine's International Nonproprietary Name (INN), usually the generic name, is a key piece of information that should always be included. Generic names help doctors and pharmacists to identify which class a medicine belongs to and can prevent doctors from unknowingly prescribing two medicines from the same class to a patient.

2.2.3.3. Direct mailing of publicity material to doctors:-

It is the sending of publicity material like Textual and Audio-Visual Promotional Material to Doctor. There has been a massive growth in direct mail campaigns over the last 5 years. Direct mail allows an organization to use their resources more effectively by allowing them to send publicity material to a named person within their target segment.

2.2.3.4. Medical conferences, especially for a new product: -

Companies organize medical conference to promote new products in order to provide the information like uses, dose regimen, contradiction & adverse effect etc. to the medical practitioner.

2.2.3.5. Electronic or Broadcast Media Advertising:-

Electronic or broadcast media consists of (i) radio, (ii) television, (iii) motion pictures, (iv) video and (v) the internet. The radio is audio in nature, appealing only to the sense of sound (ears). Radio advertising is more effective in rural areas, as compared to urban regions. Television, as an advertising medium, is more attractive and effective because it is an audio-visual medium appealing to both the senses of sight sound (eyes and ears). Different methods, such as spot announcements, sponsored programmes' etc. are used for broadcasting advertising messages. However, broadcasting media are very expensive form of advertising and sometimes it also undertaken through movies, video, and the internet.

2.2.3.6. Outdoor Media: -

This includes posters, neon signs, transit, point of purchase (POP), etc. Outdoor advertising can be a good supporting media to other forms of advertising. It is a good form of reminder advertising, especially, the POP advertising.

2.2.3.7. Other Media: -

This includes direct mail, handbills, calendars, diaries, cinema advertising and internet and so on. These miscellaneous media can play an important supporting role to the major media such as television, and newspapers.

2.4. Empirical literature review

2.2.4.1. Influence of promotion on physicians' prescribing behavior

In the developed and few developing countries studies have been conducted to investigate whether pharmaceutical promotion has an overall increase on prescription drugs (Spurling et al., 2010). Though physicians could not agree on the influence of promotion on their prescription behavior (Burashnikova et al., 2008). The results of these findings prove that promotion of drugs affect prescription behavior of physicians positively (Vancelik et al., 2007). To affect the prescription behavior of physicians positively and get increased prescription, MRs use variety of promotional techniques including gifts, drug samples, sponsorship, CMEs and journal advertising (Majumdar et al., 2003). However, the impact of promotional effort on prescription generation depends on the kind of brands (Pedan and Wu, 2011), disease categories, specialty of the physician, work settings and economic status of a patient (Joyce et al., 2011, Spurling et al., 2010, Tan et al., 2009,). Though the effect of promotion on prescription is positive a study proved that the efforts of pharmaceutical promotion have a positive effect on prescription up to a point after which excessive expenditure on pharmaceutical promotion has a counterproductive effect (Gönül et al., 2001). To show the impact of promotion on the impact of prescription drugs studies were conducted and proved that promotion of competitive drugs adversely affect the physicians' prescription behavior and have a negative impact on less promoted products (Pedan and Wu, 2011). Similarly another study also showed that the interaction of medical representatives have an influence on prescribing behavior of promoted drugs (Wang and Adelman, 2009, Zipkin and Steinman, 2005). In general different research findings suggested that drugs promotion has a positive impact on physicians' prescription behavior. However, studies recommend that to optimize their return on investment pharmaceutical companies should use an efficient allocation of resource (Pedan and Wu, 2011).

It has been discovered that innovative promotional techniques in pharmaceutical industry play a key role in keeping physicians' involvement and getting their interest in the product that

companies are promoting (Siddiqi et al., 2011). To influence the prescription behavior of physicians', pharmaceutical companies strengthen their relationship with physicians in different ways; for example, a study revealed that around 94% of physicians have some kind of relationship with pharmaceutical companies and most of these relationship involve receiving free medical samples, meals, payments and other promotional materials. Around 28% of respondents received payments for consulting, giving lectures or enrolling patients in trial (Campbell et al., 2007). The relationship of physicians with pharmaceutical companies affect their prescription decision, especially the relationship of KOLs with pharmaceutical companies has a strong influence on their own prescription behavior and fellow doctors that favors a sponsoring company products(Campbell et al., 2007, Nair et al., 2010).

Some researchers also studied that publication of new evidence has a modest impact on change of practice but promotional activities appears to increase the adoption of the evidence; therefore, companies who need to accelerate the adoption of their evidence may need to undertake more active promotion rather than relaying only on publication of an article and creating new guidelines (Majumdar et al., 2003).

2.2.4.2. The Influence of Medical Representatives (MRs) on Physicians Prescribing Behavior

The influence of MRs visit on physicians prescribing behavior is studied and results showed different level of outcomes. A study done in Russia found that around 30% of physicians 14 Admitted that their prescribing behavior is affected majorly by MRs visit while about 60% of physicians reported a minor influence but it is only 3.2 % of physicians who reported that their prescribing behavior is not affected by MRs visit(Burashnikova et al., 2008). Similarly one systematic review that included about 29 articles that studied the impact of MRs Visit also revealed that around 17 studies found an association between MRs visit and an increment of prescription for the promoted drug and none of the studies found less frequent prescribing for promoted drugs(Spurling et al., 2010). Similarly study conducted on the influence of MRs interaction with physicians at rural family clinic showed that restriction of MRs decreased prescription of branded (Hartung et al., 2010a). In contrast to the above finding a study revealed that the most influential factor in physicians' prescription decision is their previous experience

with the product and of the marketing techniques that companies apply detailing by MRs has the highest influence on prescription decision (Pitt and Nel, 1993).

Pharmaceutical promotion can have a positive effect on quality use of medications; however, it might have also a negative influence on quality use of drugs and might affect the patients' wellbeing. Therefore, physicians should be aware of the different ways of promotional techniques that are directed to them (Kyle et al., 2008). Despite the different techniques companies are using to promote their products, a study revealed that physicians' prescription behavior is influenced more by the scientific information they receive from medical representatives. Regarding the impact of promotional materials such as gifts, the impact is different on consultants and physicians. Consultants are influenced more by scientific information and not interested on small gifts but physicians' behavior is influenced more by the gift they get (Siddiqi et al., 2011). The impact of promotional techniques that pharmaceutical companies use differ among the different settings; example, a survey showed that physicians in solo practice, two-person, or small group practices were more likely to have frequent interactions with pharmaceutical industries than those physicians practicing in hospitals or clinics (Campbell et al., 2007).

Medical representatives visit their physicians in their territory with different promotional materials such as brochures, pens, clinical reprints, gifts and samples (Kyle et al., 2008). The positive aspect of medical representatives' visit to physicians is that they come with new information about drugs that benefit patients, encourage Adverse Drug Reaction (ADR) reporting of their company products and provide samples to physicians that can help needy patients (Burashnikova et al., 2008). The negative side is that they promote medicines as if medicines are a primary option to treat medical anomalies and encourage reliance only on medication rather than non-drug options (Edwards and Ballantyne, 2009).

The interaction and relationship that occur between MRs and physicians has been criticized for long time due to its potential influence to compromise the interest of end users, of course patients. This can be due to excessive sales pressure, presentation of the benefits of a drug without providing negative aspects, the opportunity to supply gifts and promotional items such as pens, coffee cups, notepads, and the provision of free lunch to the physicians and staff. Some have suggested that the personal relationships that develop between the doctor and MRs may bias clinical decision making.

Therefore, guidelines have been developed that limit these interactions (Samson, 2011). A standardized method of providing training on physicians' interactions with MRs increases the likelihood that physicians will use information about a medication in a manner in line with most acceptable manner (Gross and Ference, 2011). Pharmaceutical promotion can have a positive effect on quality use of medications; however, it might have also a negative influence on quality use of drugs and might affect the patients' well-being. Therefore, physicians should aware of the different webs of promotional technique that are directed to them (Kyle et al., 2008).

A study conducted in Eastern Turkey showed that around 40.7 % of the GPs reported that activities of medical representatives have a strong effect on their prescription decision (Vancelik et al., 2007). Another study that assessed the prescription behavior of GPs revealed that physicians with high prescription cost were getting more frequent visit from medical representatives (Watkins et al., 2003). In addition to the frequency of visits, physicians' prescription behavior is also affected by individual difference across medical representatives (Manchanda and Chintagunta, 2004). A sales presentation by an ethically honest and well trained medical representatives ensures that the prescribing patterns of physicians are not negatively affected compared to the false information coming from inappropriately trained medical representatives (Alkhateeb, 2011).

2.2.4.3. Influence of Key Opinion Leaders (KOLs) on Fellow doctors and Students

In the medical world especially in medical schools and research institutions KOLs have a strong influence on their students and colleagues (Bulte and Joshi, 2007). In academic institution the source of influence of KOLs is not only from their expertise but also the position they hold and clinical experience. Since the KOLs believed to have long years of experience and practical clinical knowledge their recommendation is valued by their students and fellow doctors (Tichelaar et al., 2010). KOLs in the pharmaceutical industry play a great role. They can influence the prescribing behavior of their students and colleagues in their circle. One study showed that physicians' prescription behavior is significantly influenced by the behavior of research active specialists or KOLs in the physicians reference group (Nair et al., 2010). Similarly a study conducted on the final year medical students revealed that students prescribe the drug that their teachers and KOLs use as an example during lecture (Tichelaar et al., 2010). The contribution of KOLs to pharmaceutical companies is not only by prescribing or influencing

the prescription behavior of fellow physicians' to use a given drug but also they help companies during the clinical practice guidelines development (Campbell et al., 2007). A study proved that the proper use of KOLs have a multiplayer effect on the prescription choice behavior of fellow physicians (Nair et al., 2010). And research findings suggest that pharmaceutical companies may focus also on physicians that are perceived to influence the prescription behavior of other fellow physicians (Campbell et al., 2007). Similarly other related studies also revealed that the use of different promotional mixes such as sampling, detailing and other promotional aids together with KOLs has a synergistic effect and facilitate the adoption of new drugs by many physicians (Pitt and Nel, 1993).

2.2.4.4. The Influence of continuing medical educations (CMEs), sponsorships and journal Advertisement on Prescription Decision

In the medical world nothing is static and all the time there is a change. The mode of diagnosis, treatment approach, patient care and emergence of new technologies are influencing the healthcare industry in a way that is different from the past. Therefore, in order to remain current in light of the fast changing medical environment and cope with constantly evolving treatment The influence of company sponsored CME has been studied and results showed that the prescription behavior of physicians were affected after the CME. One systematic review that included 10 studies that focused on effect of CME on physicians prescribing behavior found that attending company sponsored CME led to an increase in prescription of the sponsor's product. This effect is assumed to be resulted from manipulation of the presentation content by the sponsoring company in such a way that favors its products (Wazana, 2000).

In CME sessions event organizers can choose a topic that is in line with the sponsor company product offerings. The content of the CME presentation favorably highlights the sponsor company offerings. In addition, during the process of selecting a qualified speaker, the event organizers choose the one who has a positive attitude towards the sponsoring company offerings. The commercial influence that results from these decisions is not necessarily acknowledged or even conscious, but might well reflect the cumulative effect of subtle influences and financial dependency that can affect even the best-intentioned CME providers (Marlow, 2007).

In the past, physicians were relying on drug firms particularly on medical representatives for information about use of drugs particularly for newer drugs but recently the trend is changing and physicians also started relying on drug firms to finance their scientific meetings such CME, congress and patient case presentation (Lichter, 2008). A historical review of studies on these relationships revealed that the relationships between these two different groups created a gray area for the pharmaceutical companies that can help them manipulate the information that these physicians receive; however, some of the studies that were revised pointed out the need of reforms for the betterment of the healthcare system (Marlow, 2007, Rodwin, 2010).

2.2.4.5. The Influence of Free Drug Samples on Physicians Behavior

Pharmaceutical companies usually promote new and expensive drugs that lead to higher cost of prescription medication (Miller et al., 2008, Symm et al., 2006) however, many physicians believe that drug samples can benefit uninsured and poor patients but studies showed that the availability of free drug samples rather leads to higher cost since physicians' prefer to prescribe non generic expensive drugs that have free samples (Warrier et al., 2010). Availability of samples encouraged prescribing habits inconsistent with practice guidelines and in conflict with teaching and formulary policies; for example, study showed that the elimination of free drug samples can increase the prescription of generic and more affordable drugs by more than three times to uninsured patients (Miller et al., 2008).

There are many studies that support the influence of free drug sample availability on physicians' prescription decision; however, most doctors deny that the availability of free drug samples affect their prescription behavior (Warrier et al., 2010). A study showed that elimination of free drug samples decreased the prescription of branded drugs and increased the use of non-promoted branded products significantly. The decrease in the prescription of promoted brands might be due to substitution effect from non-promoted branded drugs or generic products (Hartung et al., 2010).

Physicians who distribute free drug samples believe that they are helping their patients but this depends on the kind of disease they are treating. If the problem is an acute disease the patient might benefit from the free sample but for a chronic disease patient the benefit is short lived and after finishing the samples dispensed the patient needs to buy the medication for long term use (Symm et al., 2006, Warrier et al., 2010).

A study done on family physicians also showed that availability of free drug samples make physicians to prescribe drugs having samples than who do not have. This means if the physicians' prescription behavior is influenced by availability of free drug samples, one might expect to see more prescription for drugs having samples. Under the same circumstance, if availability of free samples influences physicians' prescription decision, one might also expect to see lesser formulary preferred medication prescription that leads to higher cost to the patient since this distributed samples are used to promote new and expensive drugs (Symm et al., 2006). Similarly a study done on resident physicians showed that resident physicians with access to drug samples in clinic were more likely to write new prescriptions for heavily advertised drugs and less likely to recommend OTC drugs than their peers. There was also a trend toward less use of inexpensive drugs (Adair and Holmgren, 2005). Though drug sampling is one of the most common marketing techniques practiced in the pharmaceutical industry, the tendency to hand out free drug samples decline as the age of the drug increase (Schramm et al., 2007).

In general it is believed that free drug samples have an impact on physicians prescribing behavior; however, the impact differs depending on the experience of the prescriber and seniority (Adair and Holmgren, 2005, Joseph and Mantrala, 2009) experienced doctors demand fewer samples whereas inexperienced doctors ask for more samples (Joseph and Mantrala, 2009).

2.3.4.6. The effects of Gifts on Physicians Prescribing Decisions

Gifts such as stationeries, coffee mugs, stethoscope and others which are related to the physicians' day to day activity in regard to patient care are usually emblazoned with product and /or company names and are called product reminder but their potential to influence prescription behavior extends beyond the advertisement they bear. Some physicians see these industry gifts as professional entitlements and if these doctors did not get any gift from a given pharmaceutical company, they are less likely to prescribe the company's product because they think that the company did not give them attention (Katz et al., 2010).

Drug companies use different selling techniques to bring their products to the physicians' attention (Iserson et al., 2007). Among these techniques gift giving is the most common one (Schramm et al., 2007, Watkins et al., 2003). Usually health professionals accept gifts as innocuous as stationeries, coffee mugs and fast foods, or as substantial as travel, cash honoraria and research support (Watkins et al., 2003). There are also extreme cases of gift giving, for

example, taking active prescribing physicians to a luxuries entertainment place, dancing clubs and cash awards. Irrespective of the content, gifting is ubiquitous. A 2001 survey from the Kaiser Foundation noted that 61% had received meals, free access to entertainment, sporting events or travel, and nearly one in seven had received financial benefits (The Kaiser Family Foundation, 2002). Similarly a study revealed that availability of gifts in the medical industry ensures the generation of prescription but the prescription is generated at the expense of patients' well-being(Oldani, 2004).

A study showed that even if most of the gifts that physicians receiving are in line with professional and pharmaceutical guidelines still there are some personal gifts which are not. For example, gifts such as tickets to sporting events and entertainment and travel expenses to physicians' partners were against the accepted norms(McNeill et al., 2006). According to this study around 51% of physicians still accept personal gifts.

The appropriateness of gifts to physicians is under scrutiny and studies also conducted to see the reaction both from the public and physicians. One study showed that both physicians and member of the public believe that certain gifts from pharmaceutical companies are appropriate but not others. Regarding the appropriateness of gifts the result showed that the response from the public was more permissive. For example, gifts such as food, spirometer/ECG, conference with partner and stethoscope were more accepted by the public. Public respondents believed to judge the acceptability of gifts based on the relevance to the medical practice. On the other hand physicians were evaluating acceptance of gifts based on various factors such as value of the gifts, its relevance to their practice and whether or not the gift transferred to other staff or family members. The items that 50% of physicians agreed to be acceptable were either very low cost or relatively low cost and directly relevant to their practice. Physicians were less accepting moderate cost and expensive gifts even though it has relevance to their practice. In general both the members of the public and physicians were not supporting acceptance of gifts that were clearly irrelevant to the medical practice (Mcneill et al., 2010).

2.3.4.7. The Effect of Price on physicians prescribing Decision

The list of studies on physicians' price sensitivity for prescription drugs is relatively short, and the evidence is not conclusive. For example; a study done by(Gönül et al., 2001) shows that generally speaking physicians' priority in prescription decision is efficacy of the drug and the

patient conditions but not price; however, in Medicare patients the decision factor is price of the drug. Likewise a study done by(Campo et al., 2005) shows that price generally does not affect prescription decision, especially when prescription choices have limited financial consequences. Sometimes price sensitivity is revealed when new generic drugs are entering to the market. Studies show that the availability of generic drugs make the price sensitive physicians switch from branded to generic drug because these physicians believe that they reduced the financial burden of their patients by prescribing cheaper generic drugs (Gonzalez et al., 2008). Likewise physicians' prescription decision is also affected by the availability of insurance or Medicare. For instance, physicians become more price sensitive when they treat patients without insurance coverage and they prescribe cheaper drugs but when these doctors find out that their patients are reimbursed generously, they become price insensitive to prescribe branded drugs (López-Valcárcel et al., 2011). Though the findings about influence of price of prescription drugs are not conclusive at the moment, it is expected that price will be one of the most important marketing tool to sell drugs. This is due to government regulation and insurance companies' guidelines that enforce prescription of generic drugs, and also the apparently higher sensitivity of younger physicians (Campo et al., 2005).

Contrary to the above findings physicians' prescription decision is also affected by their own financial gain. Physicians who prescribe and at the same time dispense drugs tend to prescribe more expensive drugs to benefit out of the higher margin. This kind of behavior suggests that such physicians are acting like imperfect agents to the patient (Liu et al., 2009). A study showed that besides other therapeutic and compliance factors the cost of a drug affect the prescription decision of physicians (Tan et al., 2009, Tichelaar et al., 2010). For instance, a study conducted by (Reichert et al., 2000) showed that 88% of physicians are conscious about cost of a drug during prescription decision and 71% of the physicians are willing to scarify efficacy to make drugs more affordable to their patients; however, all these doctors lack accurate information about the price of the drugs they are prescribing. Similarly a study conducted on General Practitioners (GPs) also showed that price of a drug is an important factor when they choose their first line drugs (Buusman et al., 2007). and prescribing information, healthcare professionals must continually update their practice knowledge and skills. One of the mechanisms that healthcare professionals use to satisfy their thirst for knowledge is CME (Ladd, 2011). Most of the time conducting a full scale CME program regularly is expensive and in such cases

organizers seek for assistance from pharmaceutical companies either to get partial or full sponsorship. The support from pharmaceutical companies can occur in several ways, including exhibit hall displays and educational grants for programs on specific topics, speaker fees and meal symposia (Singh et al., 2011).

2.5. Conceptual framework

The main objective of this study was to examine the effects of drug promotion on drug prescribers. Based on the objective of the study, the following conceptual model was framed from the empirical and theoretical literature review. As described previously in the related literature review parts, the predictor variable is promotional efforts by pharmaceutical company while the dependent variable is health professionals' prescribing behavior. The independent variables are PSRs, Detailing, Gifts and Sample drugs.

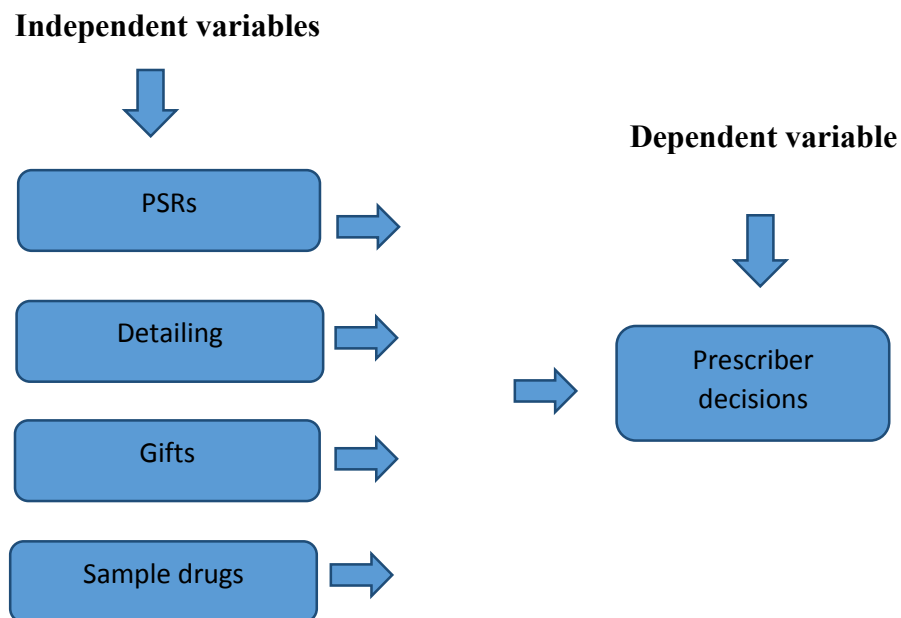


Fig. 1. Conceptual framework

Source: literature review

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Introduction

This chapter gives a brief introduction about the selected methodology applied in this research and approaches used to collect the required data for the research in order to achieve the overall objectives of the study. In this research, Alert specialized hospitals are considered as a study unit. Therefore, in the following sections a detail view of the research methodology is given.

3.2. Research design

Kothari (2004) stated that the study design is the conceptual arrangement within which the study conducted; it constitutes the blueprint for the collection, measurement and analysis of data. Therefore, this study adapted descriptive and explanatory (Cause and effect) study design for analysis. This study was used explanatory type of study since it attempts to describe the effect of independent variables on dependent variable.

3.4. Research Approaches

Based on the research problem and questions developed in chapter one in line with the underlying philosophy of the research approaches quantitative research approach was used.

3.5. Data types and Data sources

To address the objective of this thesis, different type of data was employed. The following primary and secondary data sources are used.

3.5.1. Primary data source

Primary data were gathered through questionnaire. The questionnaire was designed for physicians of different specialty who are practicing in Alert specialized hospitals. The survey captured information related to Socio demographic variable, prescribing decisions and its determinants, physician's exposure to promotional activities, preference to promotional tools, the impact of pharmaceutical promotion on prescribing behavior

3.5.2. Secondary data sources

The secondary source of information include: relevant reports, unpublished sources, reference books, internet websites were recognized and as a main source of information were used as a main input for the design of spatial database application. The reference materials includes journals, report, books, internet websites were also recognized as a main source of information.

3.6. TargetPopulation of the study

The source of population was all physicians practicing in Alert specialized hospitals. The study population includes all physicians who are actively prescribing at the time of the study, working in Alert specialized hospitals. Currently the hospital has 150 physicians who are actively prescribing.

3.7. Sample size determination

As to the sample size determination, roscoe 1975 proposed sample size larger than 30 and less than 500 are appropriate for most researches but in this case a census data was collected in Alert specialized hospitals and there are 150 physicians who are actively prescribing. Thus in orders to get a comprehensive data all exiting physicians will be included in the study.

3.8. Data Collection Instrument

In this study the researcher used a self-administered structured questionnaire to collect data. Close ended questions is included in the questionnaire. The most suitable method to collect primary data is to distribute questionnaire. A five point Likert scale questionnaire was developed to provide the respondents ease of answering the questions as per their level of agreement (McLeod, 2008). The Likert scale follows the format of: 1) Strongly Disagree; 2) Disagree; 3) Neither Agree nor Disagree; 4) Agree; 5) Strongly Agree. The development of the questionnaire was based on the variables.

3.9. Reliability and validity

Reliability determines that the results of an instrument be stable and consistent. Validity, on the other hand, means that the individual results of an instrument are significant and allow the researcher to draw valid conclusions from the sample population being studied (Cresswell, 2003). Reliability is determined by the Cronbach's alpha (α) coefficient, which It is measured on a scale of 0 to 1.0, and an instrument is viewed extremely reliable if the instrument has a

reliability coefficient statistic of $\alpha > .80$. When $\alpha < .60$, reliability is considered poor to barely reliable.

Total numbers of questions in the questionnaire were 23 testing variables. From the analysis the Cronbach's alpha result found from the data collected from 140 respondents for 23 questions, the overall Cronbach's alpha score is 0.64. The coefficient 0.6 is an acceptable reliability coefficient; since score is above the standard threshold level the questionnaire were reliable (Dawson, 2007). The values of the reliability analysis were listed on the following Table 3.1.

Table 3.1: Reliability Statistics

No	Dimensions	Cronbach's Alpha	N of Items
1	Sample drug	0.8	4
2	Gifts and Promotional Material	0.6	4
3	Pharmaceutical sales representative (PSRs)	0.5	5
4	Publicity	0.7	5
5	Physician Prescription Behavior	0.6	5
	Average Cronbach's alpha	0.64	

Source: Own survey and SPSS output, (2020)

3.10. Data analysis technique

The data collected from questionnaire was analyzed by using data analysis tools. Verification conducted and completed questionnaires identified. Then the data coded in to SPSS (Statistical package for social science), according to the selected variables and the questions has been asked. The data analyses performed using descriptive and inferential statistics for independent and dependent variables. SPSS Version 20 practiced the study to analyze the data.

3.11. Ethical consideration

To ensure unanimity, voluntary participation and confidentiality of respondents a covering letter has been prepared explaining the aim of the research, the confidentiality of the responses and instructions for completion. The questionnaire was drawn up containing questions on the variables and demographic data all physicians who are actively prescribing. They will be asked to complete the questionnaire anonymously and return them directly to the researcher.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

4. Introduction

This chapter presents result and discussion part of the paper. As explained in the earlier chapters, this study aimed at investigating the effect of drug promotion on drug prescription behavior of physicians: A case of alert specialized hospital. Therefore, this part of the paper tries to analyzes, summarizes and presents the result of the collected data that influence prescribing behavior of physicians.

4.1 Rates of Response

Respondents response rate refers to the proportion of questionnaires that were returned and filled during the study in relation to total number of questionnaires expected to be filled. In this study, a total of 150 questionnaires were distributed to target respondent, out of the total 150 questionnaires, 140 useable questionnaires were obtained (93.3%) response rate.

Sample Size	150
Completed and Returned Questionnaires	140
Response Rate	93.3%

4.2. General Information about the Respondents

The first part of the questionnaire consists of general information about the respondents. This part of the questionnaire requested a limited amount of information related to the personal and professional characteristics of the respondents. Demographics information of the respondents was presented by gender, educational level, physician’s interaction with pharmaceutical sales representative (PSRs), and respondent’s experience. Accordingly, the following variables about respondents were summarized and described.

Table 4.2.1, Background of the respondent

Demographic Questions	Measurement scale	N=140	100 %
Gender	Male	78	56.0
	Female	62	44.0
Educational Level	Internal medicine	21	15.0
	Orthopedics	28	20.0
	General Practitioner	42	30.0
	Pediatrics	28	20.0
	Other	21	15.0
		140	100%
physicians interaction with PSRs	Every day	35	25.0
	< once a week	28	20.0
	1–3 times a month	77	55.0
		140	100%
Respondents Experience	Less than a year	49	35.0
	1 - 5 years	70	50.0
	6 – 10 years	21	15.0
		140	100%

As the above figure depicts, male respondents constitute the largest portions of respondents, which is about 56% of the sample size, while female respondents cover 44% of the total.

According to the above table, 21 (15%) of the respondents were internal medicine, 28 (20%) of the respondents were orthopaedics, and 42 (30%) of the respondents were general practitioner while the rest 28 (20%) and 21 (15%) of the respondents were paediatrics and from other department respectively. the result indicated that the respondents are from different departments.

Concerning physicians interact with PSRs, the largest number of respondent's falls within the range of 1–3 times a month, which constitutes 55% of the sample, while the second-largest portion of respondent's interact with every day with PSRs, which is about 35% and the remaining 20% of respondent's interact once in a week.

The length of service of the respondents indicates that 35% of them have less than one year experience, and the remaining 50% and 15% of respondents have 1-5 years and 6-10 years of experience with alert specialized hospital. This may reveal that all of them are familiar with the system in place and are able to give reliable information about the current situation.

4.3 Descriptive Statistics

The benefit of promotion is indispensable both for marketer and costumer as it is communicate product information between seller and buyer. And it is useless to say that without promotion newly developed treatment options are not easily communicated to prescribers and users. However, in pharmaceuticals (medical) context it requires high ethical standards because decision maker (physician) and user (patient) are different, therefore pharmaceutical promotion may create conflict of interest. After collecting, screening, and organizing the data gathered through a questionnaire filled by different physicians, the researcher came across the following findings of the effect of drug promotion on prescribing behaviour of physicians.

The data collected are tabulated in which it shows the frequency/percentage of respondents and the mean and standard deviation from the total 140 respondent. The measurement instrument used to calculate sample drug, gifts and promotional material, pharmaceutical sales representative (PSRS), publicity and physician prescription behaviour are scaled from 1= Strongly Disagree, 2= Disagree, 3= Neutral, 4=Agree and 5= strongly Agree.

4.3.1 Physicians Perception related to sample drug

Free drug sample is usually small and packaged portion of merchandise distributed free especially as an introduction to potential customers. Free samples have been shown to affect physician prescribing behaviour. Physicians with access to free samples are more likely to prescribe brand name medication over equivalent generic medications (Sufrin and Ross, 2008). The respondents were asked to indicate their levels of agreement. The findings are presented in the Table 4.3.1 below.

Table 4.3.1 Physicians Perception related to sample drug

S.n	sample drug		SD	D	N	A	SA	Total	MS
1	Availability of sample drug items does have a role in medication choice.	F		7	52	65	16	140	3.6
		%		5.0	37.1	46.4	11.4	100	
2	Availability of promotional sample drug can influence prescription choice.	F	-	7	81	44	8	140	3.3
		%	-	5.0	57.9	31.4	5.7	100	
3	Sample drug encourage physician to prescribe drug.	F	-	-	14	66	60	140	3.3
		%	-	-	10.0	47.1	42.9	100	
4	Free drug samples encourage trying the drug.	F	-		7	36	97	140	3.6
		%	-		5.0	25.7	69.3	100	
Valid N									3.45

Source: Own Survey (2020)

The first question under physicians perception related to sample drug is “Availability of sample drug items does have a role in medication choice.” From the participants of the survey, the vast majority are agreed on the issue and they accounted 46% agree and 11% strongly agree. Basing the finding, we can say that; Availability of sample drug items does have a role in medication choice.

The second question is “Availability of promotional sample drug can influence prescription choice.” Perception of the physicians showed that, 31% research participants agree and 6% are strongly agree that, promotional sample drug can influence prescription choice. But the majority number of respondents, 56% not decided to answer the question in either of the way, agree or disagree.

The third presented question is “Sample drug encourage physician to prescribe drug.” For this question 47% of respondents answer “Agree” and 43% “Strongly agree”. This implies that, Sample drug encourage physician to prescribe drug.

As can be inferred from the table 4.3.1 there is a fairly high agreement for items “Free drug samples encourage trying the drug.” A total of 140 respondents 97 which are 69% agreed that; Free drug samples encourage trying the drug by the physicians.

4.3.2 Physicians Perception related to gifts and promotional material

Gifts such as stationeries, coffee mugs, stethoscope and others which are related to the physicians’ day to day activity in regard to patient care are usually emblazoned with product and/or company names and are called product reminder but their potential to influence prescription behavior extends beyond the advertisement they bear (Katz et al., 2010).Table 4.3.2 below illustrates the reflection of the respondents regarding physicians perception related to gifts and promotional material.

Table 4.3.2 Physicians Perception related to gifts and promotional material

S.n	Gifts and promotional material		SD	D	N	A	SA	Total	MS
1	Availability of gifts and promotional materials can influence prescription choice.	F	-	-	22	45	73	140	3.36
		%	-	-	15.7	32.1	52.1	100	
2	Low cost gifts (pen, paper weights, writing pads, etc. depicted drug brand) from pharmaceutical suppliers remind drug brand while prescribing.	F	-	-	79	53	8	140	3.49
		%	-	-	56.4	37.9	5.7	100	
3	The firms interest to educate the physicians on new medicine through financing their participation to international scientific conference.	F	-	-	14	66	60	140	3.33
		%	-	-	10.0	47.1	42.9	100	
4	Financial incentives, given that there are similar competitive medicines motivate physicians to prescribe.	F	-	-	30	44	66	140	3.26
		%	-	-	21.4	31.4	47.1	100	
Valid N									3.36

Source: Own Survey (2020)

According to item number 1, physicians were inquired to suggest if availability of gifts and promotional materials influence prescription choice. As can be seen from the above table, about 84% of the respondents agreed. From the response given above, we can infer that availability of gifts and promotional materials can influence prescription choice.

The second question stated that: low cost gifts (pen, paper weights, writing pads, etc. depicted drug brand) from pharmaceutical suppliers remind drug brand while prescribing. The physicians respond that, 56% neutral on the idea that low cost gifts from pharmaceutical suppliers remind drug brand while prescribing, in the contrary 38% and 6% of the respondent's physicians were agree and strongly agree respectively.

Based on the survey, "The firm's interest to educate the physicians on new medicine through financing their participation to international scientific conference." the physicians answered that: 89% of the respondent physicians agree about the firm's interest to educate the physicians on new medicine through financing their participation to international scientific conference.

The respondents were asked "Financial incentives, given that there are similar competitive medicines motivate physicians to prescribe." About 31% and 47% of the respondents selected agree and strongly agree respectively. They responded having a scored mean value of 3.36 this shows that the physicians were "agreed".

4.3.3 Physicians Perception related to pharmaceutical sales representative (PSRS)

Pharmaceutical companies typically direct their promotional effort to physicians and pharmacists to alter their prescribing and dispensing pattern (Manchanda&Honka, (2013), Zaki (2014) and Kamal et al. (2015). Currently, one of the most used techniques is detailing by pharmaceutical sales representatives, who communicate directly with physicians about the virtues of a particular product (Hoffman, 2012).The respondents were asked to indicate their levels of agreement. The findings are presented below in table 4.3.3.

Table 4.3.3 Physicians Perception related to pharmaceutical sales representative (PSRS)

S.n	pharmaceutical sales representative (PSRS)		SD	D	N	A	SA	Total	MS
1	Sales representatives provide accurate and up to date detailing regarding drug brand.	F	-	-	7	37	96	140	3.64
		%	-	-	5.0	26.4	68.6	100	
2	The sales representative scientific knowledge on the medicine encourages physician's prescription decision.	F	-	-	64	68	8	140	3.60
		%	-	-	45.7	48.6	5.7	100	
3	Frequency of sales representative's visit has an influence on prescription choice.	F	-	-	7	66	67	140	3.43
		%	-	-	5.0	47.1	47.9	100	
4	The pharmaceutical company profile and image influence the prescription behavior.	F	-	-	35	105	-	140	3.75
		%	-	-	25.0	75.0	-	100	
5	The physician – sales representative interpersonal relationships motivates the physician to prescribe the medicine.	F	8	14	90	21	7	140	3.04
		%	5.7	10	64.3	15.0	5.0	100	
Valid N									3.46

Source: Own Survey (2020)

Regarding the first question which was sales representatives provide accurate and up to date detailing regarding drug brand depicted that, 26% and 69% of the respondent customers agree and strongly agree respectively. Overall the survey result showed that sales representatives provide accurate and up to date detailing regarding drug brand.

The above table shows that sales representative scientific knowledge on the medicine encourages physician's prescription decision. About 49% and 6% of the respondents selected agree and strongly agree respectively and about 45% of the respondents selected neutral. This shows that

sales representative scientific knowledge on the medicine encourages physician’s prescription decision.

The third question stated that: Frequency of sales representative’s visit has an influence on prescription choice and the physician’s respond that, 47% and 48% of the respondent’s physicians were agreed and strongly agree respectively. Generally, most of the physician’s decide that frequency of sales representative’s visit has an influence on prescription choice.

Regarding to the pharmaceutical company profile and image influence the prescription behaviour. (75%) customers agreed that pharmaceutical company profile and image has an influence.

The respondents were asked the physician – a sales representative interpersonal relationship motivates the physician to prescribe the medicine. About 10% and 15% of the respondents selected disagree and agree respectively. However, majority (64%) of the respondents were neutral regarding this issue.

Average mean scores of indicators of physicians perception related to pharmaceutical sales representatives (PSRS) are at the range of agree, above 3.46.

4.3.4 Physicians Perception related to publicity

In order to remain current in light of the fast changing medical environment and cope with constantly evolving treatment and prescribing information, healthcare professionals must continually update their practice knowledge and skills (Ladd, 2011). The respondents were asked to indicate their levels of agreement. The findings are presented below in the table 4.3.4.

Table 4.3.4 Physicians Perception related to publicity

S.n	Publicity		SD	D	N	A	SA	Total	MS
1	Supplier’s product launch meeting, lunch or dinner encourages physician prescribing drug brand.	F	-	7	59	74	-	140	3.48
		%	-	5.0	42.1	52.9	-	100	
2	Suppliers sponsor physician for	F	-	7	72	61	-	140	3.39

	conferences to influence them to prescribe their brands more.	%	-	5.0	51.4	43.6	-	100	
3	Suppliers arranging clinical or scientific meetings on several special days.	F	-	7	58	75	-	140	3.49
		%	-	5.0	41.4	53.6	-	100	
4	Frequency of medical representatives' visit has a role in brand reminding and influence prescription choice.	F	-	-	59	81	-	140	3.58
		%	-	-	42.1	57.9	-	100	
5	Suppliers conducting a discussion by a specialist doctor are helpful to remind drug brands to prescribe.	F	-	-	72	53	15	140	3.59
		%	-	-	51.4	37.9	10.7	100	
	Valid N								3.50

Source: Own Survey (2020)

The description presented in table 4.3.4 tells us 53% of the respondents were found to be confident with the above statement. The rest 42% of the respondents, however, found to be neutral regarding the aforementioned statement, while 5% of them show their disagreement with supplier's product launch meeting, lunch or dinner encourages physician prescribing drug brand.

Table 4.3.4 above depicts suppliers sponsor physician for conferences to influence them to prescribe their brands more, 5% of respondents were disagreed; about 51% and 44% of the respondents were neutral and agree respectively.

About "Suppliers arranging clinical or scientific meetings on several special days", the feeling of respondents indicates that 41% and 54% of customers neutral and agree respectively. Thus, it indicates that suppliers arranging clinical or scientific meetings on several special days.

The respondents were asked that suppliers conducting a discussion by a specialist doctor are helpful to remind drug brands to prescribe. About 38% and 11% of the respondents selected agree and strongly agree respectively. However, 51% of the respondents were neutral regarding this issue.

They responded having a scored mean value of 3.50 this shows that the physicians were “agreed”. It is found that supplier’s product launch meeting, discussions, lunch or dinner encourages physician prescribing behavior.

4.3.5 Physician prescription behaviour

Physician prescription behaviour is affected by pharmaceutical marketing in a significant, positive way. Marketing efforts create awareness among physicians about new drugs and their specifics (Carter, 2001). Physician response on their prescription behaviour is presented in table 4.3.5 below.

Table 4.3.5 physician prescription behaviour

S.n	Physician prescription behaviour		SD	D	N	A	SA	Total	MS
1	Initial perception (clinical observation) of the medicine matters most to me.	F	-	7	37	89	7	140	3.69
		%	-	5.0	26.4	63.6	5.0	100	
2	Detailing of the sales representatives has a role on my prescription behavior.	F	-	-	64	76	-	140	3.54
		%	-	-	45.7	54.3	-	100	
3	Sales promotion does encourage me to prescribe medicine.	F	-	7	66	67	-	140	3.43
		%	-	5.0	47.1	47.9	-	100	
4	Advertisement of brands on scientific journals inspires my prescription behavior.	F	-	-	43	89	8	140	3.75
		%	-	-	30.7	63.6	5.7	100	
5	Financial sponsorship for training, conferences, and gatherings persuade me to prescribe a medicine.	F	-	-	65	68	7	140	3.59
		%	-	-	46.4	48.6	5.0	100	
Valid N									3.65

Source: Own Survey (2020)

Table 4.3.5 above depicts, initial perception (clinical observation) of the medicine matters most to me. 5% of respondents were disagreed; about 5% and 64% of the respondents were strongly

agreed and agree respectively. This tells us initial perception (clinical observation) of the medicine matters to physicians.

With regard to “Detailing of the sales representatives has a role on my prescription behaviour”, they responded having a scored mean value of 3.5 this shows that the respondents were “agreed” that a sales representative has a role on prescription behaviour of physicians.

The description presented on table 4.3.5 tells us (48%) of the respondents agreed that sales promotion does encourage physician to prescribe medicine. The rest 47% of the respondents, however, found to be neutral regarding the aforementioned statement, while 5% of them show their disagreement.

Concerning “Advertisement of brands on scientific journals inspires my prescription behaviour” The feeling of respondents indicates that 6% and 64% of customers strongly agree and agree respectively. Thus, it indicates that the majority of the physician inspired by advertisement of brands on scientific journals.

Lastly, the respondents were asked financial sponsorship for training, conferences, and gatherings persuade me to prescribe a medicine. About 47% and 5% of the respondents selected agree and strongly agree respectively. However, 46% of respondents were neutral regarding this issue.

As it can be observed from the above table, physicians have generally developed positive perception regarding physician prescription behaviour. It indicated that the grand mean value is 3.65 which is above the cut-off point 3.2.

4.4 Inferential Analysis

The inferential analysis section includes correlation and regression analysis to assess the relationship between drug promotion and prescribing behaviour of physicians.

4.4.1 Correlation Analysis

The correlation coefficient examines the strength and direction of the linear relationship between two variables. The correlation coefficient can range between -1 and +1, the larger the absolute value of the coefficient, the stronger the relationship between the variables. The sign of the coefficient indicates the direction of the relationship (Fikre et al, 2009).

Correlations are perhaps basic and most useful measure of association between two or more variables (Marczyk, Dematteo and Festinger, 2005). The correlation between dependent and independent variables along with the causal effect was analysed using Statistical Package for Social Science (SPSS).

Table 4.4.1: Relationship between drug promotion and prescribing behavior of physicians

		Correlations				
		SD	GP	PSR	P	PP
SD	Pearson Correlation	1				
	Sig. (2-tailed)					
	N	140				
GP	Pearson Correlation	.632**	1			
	Sig. (2-tailed)	.000				
	N	140	140			
PSR	Pearson Correlation	.497**	.713**	1		
	Sig. (2-tailed)	.000	.000			
	N	140	140	140		
P	Pearson Correlation	.635**	.780**	.956**	1	
	Sig. (2-tailed)	.000	.000	.000		
	N	140	140	140	140	
PP	Pearson Correlation	.514**	.602**	.897**	.886**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	140	140	140	140	140

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

Source: SPSS Output from survey result, 2020

According to Bartz (1999), the interpretation of correlation value is as follows:-

Between 0 to .20 → Very low correlation

Between .20 to .40 → Low correlation

Between .40 to .60 → Moderate correlation

Between .60 to .80 → Strong correlation

Between .80 to 1.0 → High correlation

Based on the classification, the result in the above table is interpreted as below:-

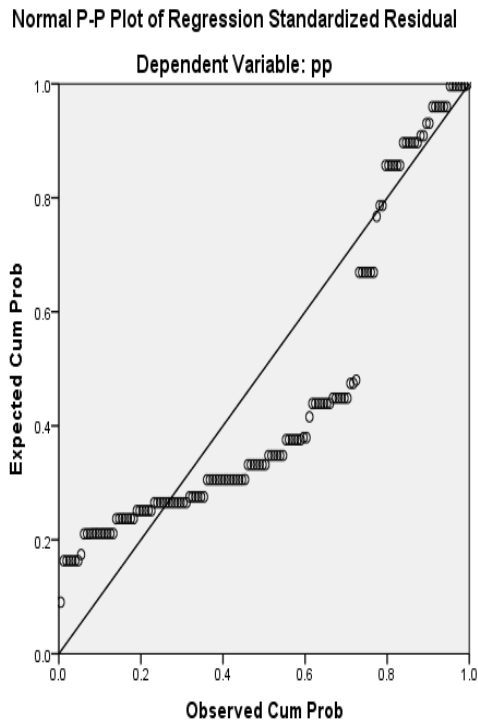
- There is strong, positive and significant correlation between pharmaceutical sales representative (PSRs) and prescribing behavior of physicians ($r = .897^{**}$ $P \leq 0.01$).
- There is strong, Positive and significant correlation between publicity and prescribing behavior of physicians ($r = .886^{**}$ $P \leq 0.01$).
- There is strong, positive and significant correlation between gifts and promotional material and prescribing behavior of physicians ($r = .602^{**}$ $P \leq 0.01$).
- There is moderate, positive and significant correlation between sample drug and prescribing behavior of physicians ($r = .514^{**}$ $P \leq 0.01$).

4.4.2 Normality Test

One of the assumptions in panel regression analysis is whether variables in the model are obtained from a normally distributed population or not. If the disturbances are normal allows exact inference about the estimate and standard error of estimated coefficients. The study employed the relevant normality tests. Useful figure that the researcher can inspect to see if a distribution is normally distributed is called a P–P plot (probability–probability plot). This figure plots the cumulative probability of a variable against the cumulative probability of a particular distribution.

As we have seen in the below figure (figure 4.4.2), the dots are closely plotted to the straight line, which indicates a small or no deviation from normality and there are no extreme cases observed. Therefore, the assumptions of simple linear regression have been met and we can assume that the model is accurate and can probably generalize to the population.

Figure 4.4.2 Normality Test



4.4.3 Multicollinearity Test

Multicollinearity refers to the situation where two or more of the predictors in a regression model are highly correlated. It implies that one can be linearly predicted from the others with a substantial degree of accuracy (Akimande O. et al, 2015).

If there is multicollinearity in the model, the estimated coefficients possess large standard error, which means the coefficients cannot be estimated with great precision or accuracy (Gujarati, 2009). To alleviate this problem one or more of the correlated variables must be dropped from the model. Therefore, the study checks for the presence of Multicollinearity in the model. The collinearity statistics result for all independent variable constituents were performed on SPSS and presented as follows.

Table 4.4.3: Multicollinearity Test

Coefficients^a

Model	Collinearity Statistics	
	Tolerance	VIF
SD	.430	2.324
GP	.360	2.778
PSR	.565	3.337
P	.448	2.886

Source: Own Survey (2020)

The values of Variance Inflation Factor (VIF) for all independent variables or factors are less than 10 (Gareth James, 2013). Hence, there is no multi- co-linearity among independent variables. Therefore, it is possible to use correlation and multiple regressions analysis.

4.4.4 Multiple Regression Analysis

Linear regression estimates the coefficients of the linear equation, involving one or more independent variables that best predict the value of the dependent variable (Field, 2005). It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables. More specifically, regression analysis helps one understand how the typical value of the dependent variable changes when any one of the independent variables is varied, while the other independent variables are held fixed.

Table 4.4.4.1: Model Summary

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.911 ^a	.830	.825	.15431

a. Predictors: (Constant), p, sd, gp, psr

b. Dependent Variable: pp

Source: Own Survey (2020)

R – Indicates the value of the multiple correlation coefficient between the predictors and the outcome, with a range from 0 to 1, a larger value indicating a larger correlation and representing an equation that perfectly predict the observed value (Pedhazur, 1982). From the model summary (R = .830) indicates that the linear combination of the four independent variables strongly predict the dependent variable (prescribing behavior of physicians).

R-Squared is the proportion of variance in the dependent variable which can be explained by the independent variables. The R-squared in this study was .825, the weighted combination of the independent variables explained in the model summary are affect approximately 82.5% of the variance of prescribing behavior of physicians and the remaining 17.5% is by extraneous uncontrollable variables. This result also indicates that there may be other variables that could have been neglected by the current study in predicting prescribing behavior of physicians.

Table 4.4.4.2: Analysis of Variance

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.705	4	3.926	164.886	.000 ^b
	Residual	3.215	135	.024		
	Total	18.920	139			

- a. Dependent Variable: pp
- b. Predictors: (Constant), p, sd, gp, psr

Source: Own Survey (2020)

ANOVA is used to assess the statistical significance of the result by testing the Null hypothesis that multiple R in the population equals 0. (Pallant J., 2005). The model of this study hence proves to be statistically significant by showing .000 significance. The above ANOVA table shows the acceptability of the model. The p-value is less < 0.05 i.e. 0.001. From the ANOVA table it has been determined that F = 164 and Sig. is .000 which confirms that the independent variables have significant impact on prescribing behavior of physicians.

Table 4.4.4.3: Regression Coefficients

Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.313	.152		2.068	.001
SD	.055	.038	.078	1.445	.001
GP	.155	.045	.204	3.443	.001
PSR	.651	.148	.610	4.388	.000
P	.383	.151	.412	2.543	.001

Source: SPSS Output from survey result, 2020

Based on these results, the regression equation that predicts prescribing behavior of physicians based on the linear combination of independent variable is:

Regression Equation

$$Y = a + bX1 + bX2 + bX3 + bX4...$$

$$PP = 0.313 + .078SD + .204GP + .610PSR + .412P$$

Where, SD = Sample drug

GP = Gifts and Promotional Material

PSR = Pharmaceutical sales representative (PSRs)

P = Publicity

PP= Physician Prescription Behavior

Four major hypotheses were constructed in this study to test the effect of drug promotion on prescribing behavior of physicians.

Hypothesis Testing

Hypotheses # 1

H1:- Sample drug has a positive and significant influence on prescribing behavior of physicians

The result in the above table shows that sample drug has a beta coefficient of .078 with a significant value of .001. This indicates that sample drug makes a positive, statistically significant and unique contribution to the predication of prescribing behavior of physicians. Therefore, controlling the variance explained by all other variables in the model; relative advantage contributes 7.8% to the variance explanation of the dependent variable.

Hypotheses # 2

H2:- Gifts and promotional material has a positive and significant influence on prescribing behavior of physicians

The result in the above coefficient table shows that gifts and promotional material has a beta coefficient of .204 with significance value of .001. This indicates that gifts and promotional material makes a positive, statistically significant and unique contribution to the prediction of prescribing behavior of physicians. Therefore, controlling the variance explained by all other variables in the model, gifts and promotional material contributes 20% to the variance explanation of the dependent variable.

Hypotheses # 3

H3: - Pharmaceutical sales representative (PSRs) has positive and significant influence prescribing behavior of physicians

As per the result in the above table, PSRs has beta coefficient of .610 with significance value of .001. This is an indication that PSRs makes a positive, statistically significant and unique contribution to the predication of prescribing behavior of physicians. Further controlling the variance explained by all other variables in the model, PSRs contributes 61% to the variance explanation of the dependent variable.

Hypotheses # 4

H4: Publicity has positive and significant influence on prescribing behavior of physicians.

As per the result in the above table, publicity has a beta coefficient of .412 with significance value of .001. This indicates that publicity makes a positive, statistically significant and unique contribution to the prediction of prescribing behavior of physicians. Further, controlling the variance explained by all other variables in the model, publicity contributes 41% to the variance explanation of the dependent variable. Consequently, considering the significance of publicity to prescribing behavior of physicians, H4 is accepted.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary of Finding

The main purpose of the study was to analyze factors that influencing drug promotion on prescribing behavior of physicians: A case of alert specialized hospital. Information collected from respondents through questionnaire was analysed quantitatively using percentage, weighted mean correlation and regression techniques using SPSS version 20. The study results indicated that the current promotional techniques had a great role in influencing physicians' prescription pattern. As the findings of this study indicated in table 4.4 the descriptive statistics of the respondents agreed with four dimensions that influencing drug promotion on prescribing behavior of physicians. Moreover, the respondents agreed with the four dimensions.

The study was conducted using a questionnaire distributed to 140 physicians from alert specialized hospital. The collected primary data were analyzed using descriptive and inferential statistics. As depicted in descriptive statistics, physician prescription behavior was the highest mean score of 3.65 and followed by publicity (Mean = 3.50), PSRS (Mean = 3.46), sample drug (Mean = 3.45), and gifts and promotional material (Mean = 3.36).

The finding of this study showed that companies are giving sample drug and promotional materials to remind the name of their brand. Most physicians believed that their prescription behavior was affected by the activity of medical representatives and pharmaceutical companies. The attitude of most physicians was almost similar on the importance of publicity on physician pharmaceutical industries interaction.

With regard to the Pearson correlation analysis, it can be clearly seen as that the four dimensions namely sample drug, gifts and promotional material, pharmaceutical sales representative (PSRS), and publicity are positively related to physician prescription behavior.

The relationship looks like the following:-

- There is strong, positive and significant correlation between pharmaceutical sales representative (PSRs) and prescribing behavior of physicians ($r = .897^{**}$ $P \leq 0.01$).
- There is strong, Positive and significant correlation between publicity and prescribing behavior of physicians ($r = .886^{**}$ $P \leq 0.01$).
- There is strong, positive and significant correlation between gifts and promotional material and prescribing behavior of physicians ($r = .602^{**}$ $P \leq 0.01$).
- There is moderate, positive and significant correlation between sample drug and prescribing behavior of physicians ($r = .514^{**}$ $P \leq 0.01$).

Multiple linear regression analysis was applied to evaluate the extent of factors that influencing physician prescription behavior and came up with the following equation:

$$Y = a + bX1 + bX2 + bX3 + bX4...$$

$$PP = 0.313 + .078 SD + .204 GP + .610 PSR + .412 P$$

$$R^2 = 0.825$$

The regression analysis clearly shows that 82.5% of variance in prescribing behavior of physicians is explained by sample drug, gifts and promotional material, pharmaceutical sales representative (PSRS), and publicity.

5.2 Conclusion

The primary objective of the study to investigate the effects of promotion on drug prescribers' decisions making in Alert specialized hospital Primary data was gathered by using structured questionnaire. Quantitative descriptions were applied on the data gathered to analyze the information obtained. By undertaking a detailed analysis of the situation, the following findings were obtained. Majority of the respondents indicated that:

- Availability of promotional sample drug influence prescribing behavior of physicians.
- Financial incentives, given that there are similar competitive medicines motivate physicians to prescribe.
- Frequency of sales representative's visit has an influence on prescribing behavior of physicians.
- Supplier's product launch meeting, lunch or dinner encourages physician prescribing drug brand.

- Financial sponsorship for training, conferences, and gatherings persuade physician to prescribe a medicine.

5.3 Recommendations

The main purpose of the study was to analyze factors that influencing drug promotion on prescribing behavior of physicians. The study applied an explanatory study on alert specialized hospital and tried to infer the findings through testing the hypotheses. And based on the conclusions drawn above the following recommendations are forwarded for the concerned bodies:-

- Physicians need to strictly follow the prescription guideline/medical text books guidelines and prescribe only generic description of medicines.
- Pharmaceutical companies need to use ethically acceptable promotional materials and methods.
- Pharmaceutical companies should reduce providing sample drug. Here diversifying promotional materials other than brochures may turn physician's prospect on the matter to a promising direction.
- PSRs should be trained about ethical and professional promotion.
- PSRs should act professionally and communicate unbiased scientific information. Their drug information should be balanced to all needed information of the medicine like side effect and contraindication.
- Alert specialized hospital could prepare printed product literature to provide detailed information about their hospital pharmacy product to physicians. So that both the hospital and the physicians can benefit from the interaction.
- The medical director of the hospital should supervise regularly to the competence of the PSRs.
- When prescribing, it is also better if physicians inform their patients regarding the existence of low cost but similarly effective generic medicines as the brand ones.
- Regulatory authorities need to follow the ethical practice of pharmaceutical promotion.

5.4. Suggestions for Further Research

In general, the findings of this study offer additional insights into the effect of drug promotion on prescribing behavior of physicians. This study included only four factors, there could be some other relevant factors that may be perceived as important by customers, but those were excluded from this study. Secondly, targeting only physicians located in alert specialized hospital could not adequately represent population of physicians in Ethiopia. Therefore, it necessitates for conducting of further research by incorporating other health professional staffs located in other geographical area of the country.

Future researches, Furthermore, can conduct a survey on the feedback of hospital pharmacist towards prescribing behavior of physicians. Therefore, future researches could expand their analysis.

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