

**ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES**



**ASSESSMENT OF PHYSICIAN PERCEPTION TOWARDS
MARKETING COMMUNICATION TOOLS
(IN ADDIS ABABA HEALTH CARE INSTITUTIONS)**

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MARCH, 2019

ADDIS ABABA, ETHIOPIA

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**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY
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**ASSESSMENT OF MARKETING COMMUNICATION TOOLS
INFLUENCE ON PHYSICIAN'S PRESCRIBING BEHAVIOR
(IN ADDIS ABABA HEALTH CARE INSTITUTIONS)**

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DECLARATION

I declare that this thesis is my original work and prepared under the guidance of Dr. AsfawYelma. All the sources of material used for this thesis have been duly acknowledged. I further confirm that this thesis has not been submitted either in part or in full to any other higher learning institutions for the purpose of awarding any degree.

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ENDORSEMEN

This is to certify that REKIK AMARE carried out her thesis on “Assessment of marketing communication tools influence on physician prescribing behavior, In case of Addis Ababa health care institutions” and submitted in partial fulfillment of the requirement for the award of the degree of masters of Art in Marketing Management at St. Marry University with my approval as university Advisor.

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Rekik Amare

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LIST OF ACRONYMS

AHWO	African Health Workforce
CMEs	Continuing medical education
ELM	Elaboration Likelihood model
FDA	Food and drug administration
FMHACAE	Food, Medicine, Healthcare Administration and Control Authority of Ethiopia-
GTP-I	First growth and transformation plan
GTPII	Second growth and transformation plan
MSRs:	Medical sales representatives
SPSS:	Statistical Package for Social Science
TPB:	Theory of planned behavior
WOM:	Word of Mouth
WHO:	World-Health Organization

ABSTRACT

The purpose of this study is to assess the physician perception towards marketing communication tools in Addis Ababa health care institutions by examining the physician perception towards the marketing communication tools including word of mouth, free drug sample, detailing aids, medical sales representative's knowledge, medical journal, brochures and leaflet, seminar, product launch meeting, sponsored medical events, CMEs, email communication and low value gift by 1-5 Likart scale questions. All responses were collected by using questionnaire through judgmental sampling (n=270). Data was analyzed by SPSS version 20. Descriptive statistics is used to measure the perception of physician towards the marketing communication tools; one-way ANOVA and independent sample t-test are used to analyze if physician perception towards the marketing communication tools is independent of the demographic characteristics of physicians and Correlation Matrix using the Spearman correlation is demonstrated to analyze relationship between extent of exposure to the marketing communication tools and physician perceptions towards the marketing communication tools. Hence, this study is considered as an attempt to assess marketing communication tools influence on prescribing behavior of physician. The Results reveal that physician prescribing behavior is mostly influenced by colleagues or senior doctor followed by seminar, MSR's information, CMEs, brochure and leaflets, detailing aids, medical journal, product launch meeting sponsored medical event, free drug sample, low value gift email communication. Perception of physician towards the marketing communication tools is independent of their practicing institution, patient administered daily and years of experience. The communication tools including medical journals, product launch, CMEs and mail communication is dependent of their educational level, whereas majority of the communication tools including word of mouth, detailing aids, free drug sample, MSR's knowledge, brochures and leaflets, sponsoring medical events, seminar and gift tools is independent of their educational level. Exposure to marketing communication tools and physician perceptions towards the communication is strong positive correlation in case of email communication followed by low value gift, product launch, brochures and leaflets, medical sales representative information, word of mouth seminar detailing aids medical journals, sponsoring medical events, CMEs.

Key Words: *Communication tools, physician prescribing behavior, perception, Health care institutions, Addis Ababa*

CHAPTER ONE

INTRODUCTION

1.1. Background of the Study

Pharmaceutical marketing is unique as the decision making of buying the medicine lies in the hands of the intermediate customer (i.e., physician) rather than final consumer (i.e. Patients). Thus pharmaceutical companies attempt to influence the customer doctors rather than the patients (consumer). Thus physicians are the most important players in the pharmaceutical system. Physicians write the prescription that determines which drugs (brands) will be used by patients. Influencing physician prescribing behavior is a key to boost pharmaceutical sales. Physicians may be influenced in much the same way as any highly involved consumer who can assimilate information and subsequently undertake extensive cognitive processing. (Arora and Taneja, 2006)

Pharmaceutical companies endeavor to influence prescription pattern in favor of their brands by offering various kinds of promotional inputs such as samples, gifts and sponsorships etc. (Arora et al., 2006). It has been suggested that doctors prescribing behavior may vary from country to country and thus national study are needed (Dorfman & Cather 2012) to understand physician prescribing behavior in different countries. Worldwide few studies have been done that address the influence of marketing activities on prescribing preference or behavior of physicians where different countries have been known to have a different results. On a study that explores the influence of pharmaceutical marketing on the prescription practices of physician in India the physicians agreed that the most important strategy that influenced prescription behavior was public relation of the company and Sales promotion and personal selling were rated after public relations (Narendran & Narendranathan, 2013). On another study that identify the influence of strategies and tools of marketing communication mix on physician's prescribing preferences in Pakistan, among the tools, most effective tools of communication were senior doctor references (word of mouth marketing), reputation of the company, sampling, price of the product, detail aids, seminars and scientific activities. Gifting, packaging inserts, emailing and print ads in medical journal were found to be less important and also there was a significant difference found among liking/preference of graduates and post graduates for marketing communication strategies and tools. Importance of peer group reference and reputation of the company was similar for both graduates and post graduates (Aisha & Kamal, 2015). On another study that explores the impact of different kinds of promotional tools offered by

pharmaceutical companies on the prescription of physicians in Bangladesh. Among all promotional strategies “public relation” was found most effective strategy that influence a physician’s prescription remarkably while “advertisement” of the pharmaceutical products in a journal or other printing object attracts the physician concentration least (Biswas K, Ferdousy UK (2016). On a recent study in Addis Ababa Sales Promotion strategy has been perceived to be the most important factor that influences physicians most while prescribing products of a particular company; Personal selling strategy has been perceived to be the second most important factor. Also perception of doctors towards this factor is independent of age, qualification, gender and marital status. Ownership of the institution and practicing area of physicians in which they are employed influence the importance given to personal selling. The advertising strategy has been perceived to be the third important influencing factor (Mulugeta & Achenif, 2017).

Marketing communications is a management process through which an organization engages with its various audiences. Through an understanding of an audience’s preferred communication environments, organizations seek to develop and present messages for its identified stakeholder groups, before evaluating and acting upon any responses. By conveying messages that are of significant value, audiences are encouraged to offer attitudinal, emotional and behavioral responses. Marketing communication is important in these exchange networks as it can help achieve one of four key tasks: (1) it can inform and make potential customers aware of an organization’s offering. (2) Communication may attempt to persuade current and potential customers of need they might have or reminding them of the benefits of past transactions with a view to convincing them that they should enter into a similar exchange. (4) Finally, marketing communications can act as a differentiator, particularly in markets where there is little to separate competing products and brands. According to (Kotler & Armstrong, 2012) marketing communication tools have consisted of advertising, sales promotion, personal selling, public relations, direct marketing. Also, (Kotler & Keller, 2009) divide marketing communication tools into seven categories; advertising, sales promotion, events and experiences, public relations and publicity, direct marketing and interactive marketing, word-of-mouth and personal selling. The other classification of marketing communication tools has been advertising, public relations, sponsorship, sales promotion, direct mail, sales force, packaging, point of sale, retail store design or commercial offices, exhibitions and conferences, word of mouth. (Smith & Zook, 2011)

Till now no empirical studies have been done in Ethiopia that assess the perception of physician towards marketing communication tools including advertisement (brochures and leaflets; Medical

journals) , personal selling (Free drug sample; detailing aid and medical sales representatives knowledge/information), word of mouth (colleagues or senior influence), direct and interactive marketing (email), public relations and events (Seminars; product launch meeting; sponsored medical events; CMEs) , sales promotion (gift), General information (company reputation and price). So this thesis is mainly concerned with the assessment of physician perception towards marketing communication tools in Addis Ababa, Where physician perception towards the marketing communication tools is measured. The thesis is also concerned in examining if there is any significant difference between perception of physician towards marketing communication tools that vary upon extent of exposure to the marketing communication tools and demographic profile of physician including age, years of practice, and the amount of patient administered daily, educational level, Ownership of the institution.

1.2. Statement of the Problem

Recently due to increased competition between the incoming generic and branded multinational companies and local manufacturers, the promotion and marketing practice is getting an attention from drug manufacturers and importers (Transitional Government of Ethiopia, 1993). According to revised document that contains list of human pharmaceutical suppliers issued by Food, Medicine, Healthcare Administration and Control Authority of Ethiopia- (FMHACA , 2014), there are a total of 254 pharmaceutical supplier companies in Addis Ababa which comprise Manufacturers, Importers and Wholesalers. Also every day different companies bringing different brands with continuously increasing the size of the market also the population growth and economic development of Ethiopia contribute for huge demand to health care services in general and pharmaceutical products in particular. In this competition physicians and health care professionals are the key customers for this industry; therefore; all the marketing and promotional activities are being focused towards them.

Pharmaceutical companies employ many methods to influence the prescribing habits of physicians and, in doing so; they spend billions on marketing annually in hopes of increasing their revenue and market share. The success of a marketing strategy depends on a number of factors, with some strategies generating far superior outcomes than others. A more focused understanding of the most effective marketing approaches could save pharmaceutical companies billions in advertising and increases their sales. Also that pharmaceutical industries spend billions of dollars for marketing 76 trew communication materials including samples, high sponsoring costs for CMEs and the like it's making the price of product higher and also the cost of treatment high where the burden lies to the

final consumer who are the patients and where this also result in neglecting developing new, innovative and lifesaving medicines because high cost on promotion result in constraint of budget for research and development. So there is a need to determine the most effective marketing communication in order for the pharmaceutical companies to best utilize their resource.

The visits of pharmaceutical medical representatives (MRs) to physicians and pharmacists combined with other promotional activities such as gifts, sponsored meetings and advertising might affect the attitudes towards the drug company and its medical products. Communications and interactions between pharmaceutical companies and physicians/pharmacists regarding drug promotion and marketing have been lately the focus of interest from pharmaceutical companies. These interactions are pervasive and often influential and beneficial for the patient or consumers (Hall et al., 2006). Interactions of pharmaceutical industry with the physicians which are usually mediated through pharmaceutical representatives have a significant impact on physician decision-making. This interaction can start as early as medical school during their training and this is said to influence their prescribing behavior when they become physicians. Pharmaceutical firms spend a significant amount of their budget on promotions (Chandan.N, 2017).

Many studies have been done that determine the influence of pharmaceutical marketing on physician prescription including Shamimulhaq et al. (2014) examined factors influencing the prescription behavior of physicians and concluded that the way sales person promotes their brands by using different promotional tools is the most influential than any others. In a rare qualitative study by (Jones, 2001) indicates that perceptions of the factors influence the decisions to start prescribing new drugs, including attitudes to drug information sources. Commercial sources of information, in particular pharmaceutical representatives, were an important information source for both consultants and GPs. (Taneja, 2008) revealed that perceived personal selling to be the most important factor with the highest explained variance of 14.636 %. On the contrary other research found that drug representatives did not affect the prescription behavior of physicians while text books are the most frequent sources of information in prescribing decisions of physicians (Al Zahrani, 2014).

Despite this, there exists very little published research examining customer response at the perceptual level. Thus, it becomes imperative to study the perception of physicians, at whom a major share of these promotional efforts is targeted. Aims and objectives of the study was to evaluate the perception of physician towards pharmaceutical companies interactions including advertising (medical journal, Brochure and leaflet), sales promotion (gift) , public relation and event(seminar, product launch meeting, sponsoring medical event), direct marketing and interactive marketing (email communication) and interactive marketing, word of mouth marketing (colleagues and senior doctors) and personal selling (free drug sample, detailing aid medical sales representative knowledge).

1.3. Basic research questions

In view of the problems, the central question of this study is what is the perception of physician towards marketing communication tools? Specifically, the following sub questions are raised:

- ✓ What is the Perception of physician towards marketing communication tools?
- ✓ Is there a relationship between extent of exposure to the marketing communication tool and physician perception towards marketing communication tools?
- ✓ Is there a significant difference between physician perception towards marketing communication tools that vary across demographic characteristics of physician including educational level, years of practice, institution and patient administered daily?

1.4. Objectives of the Study

The general and specific objectives of the study are presented as follows:

1.4.1. General objective of the study

The general objective of this research paper is to assess the perception of physician towards marketing communication in Addis Ababa health care institutions.

1.4.2. Specific Objective

The specific objectives of the study are to:

- ✓ Assessing the Perception of physician towards marketing communication tools?
- ✓ Assessing if there is a relationship between extent of exposure to the marketing communication tool and physician perception towards marketing communication tools?

- ✓ Assessing if there is a significant difference between physician perception towards marketing communication tools that vary across demographic characteristics of physician including educational level, years of practice, institution and patient administered daily?

1.5. Significance of the Study

This study has a great advantage for different parties. More specifically, the study compliments at least the following:

- ✓ This study is useful for the researcher to add knowledge regarding research development.
- ✓ The study is useful for the pharmaceutical or drug companies including manufacturer and importers to consider the least variables while formulating a marketing communication and also for further improvement.
- ✓ This study serves as a preliminary basis for other researchers' for further studies of the pharmaceutical or other related sectors too.

1.6. Limitation of the Study

Primarily the study is concerned with the perception of physician towards marketing communication tools. Marketing communication tools such as advertising, personal selling, sales promotion, direct marketing, public relations and event and word of mouth included in the study. Population of study is limited to Addis Ababa, Ethiopia. The geographic limitation is not only chosen because of time, access and cost restriction but also believed that a considerable number of pharmaceutical companies both local and international are available in Addis Ababa. Only actively working physicians found during data collection were included in the research, Due to limited time, resource and physicians are extremely busy with their work sample of physicians are included in the study. In addition, the sample frame was restricted to few healthcare institutions which are located in Addis Ababa. Despite discovering the whole perception of physician towards marketing communication tools, this study delimited to marketing communication tools only that are currently practiced by drug companies.

1.7. Organization of the study

The research paper organized into five chapters. The first chapter deals with introductory part of the paper which contains Background of the study, Statement of the problem, Research question, Objectives of the study, Significance of the study, limitation of the study and Organization of the paper. The second chapter reviews literatures related to the study. In this chapter various Theoretical

concepts and Empirical review that relates with marketing communication tools and physician prescribing behavior issues were discussed and Conceptual framework was also depicted. The third chapter described the Methodology employed in this study, including Research Design, Sampling Technique, and the sources of the data, the data collection tools employed, and the methods of data analysis used. Results, analysis of collected data, interpretations of the analyzed data were presented in the fourth chapter. And finally, the fifth chapter was presents summaries of major findings, the conclusions and the possible recommendations.

CHAPTER TWO

RELATED LITERATURE REVIEW

2.1. Theoretical Review of the Study.

2.1.1. Marketing communication tools

Marketing communications involves a mix of three elements: tools, media and messages. The primary element of the mix has customarily been the mix of tools (or disciplines) that can be used in various combinations and different degrees of intensity in order to communicate with a target audience. Each of the tools of the communication mix performs a different role and can accomplish different tasks. This reflects their different capabilities, their various attributes and key characteristics. These are the extent to which each of the tools is controllable, whether it is paid for by the sponsor and whether communication is through mass media or undertaken personally. One additional characteristic concerns the receiver's perception of the credibility of the source of the message. If the credibility factor is high then there is a greater likelihood that a message from that source will be accepted by receivers.

According to Kotler & Keller, "Marketing communications represent the "voice" of the company and its brands and are a means by which it can establish a dialogue and build relationships with consumers" (Kotler & Keller et al., 2009). The various researchers have done the classification of marketing communication tools. Agreeing to Kotler , (2009) marketing communication tools have consisted of advertising, sales promotion, personal selling, public relations, and direct marketing. Also, Kotler & Keller et al., (2009) divide marketing communication tools into seven categories; advertising, sales promotion, events and experiences, public relations and publicity, direct marketing and interactive marketing, word-of-mouth and personal selling. The other classification of marketing communication tools has been advertising, public relations, sponsorship, sales promotion, direct mail, sales force, packaging, point of sale, retail store design or commercial offices, exhibitions and conferences, word of mouth (Smith and Zook et al., 2011). Lastly, the marketing communication tools have been classified traditionally as advertising, public relations, sponsorship, exhibitions and trade fairs, E-communications, point-of-purchase communications, direct marketing communications, sales promotions, and personal selling (De Pelsmacker P, Geuens M. & Van den Bergh J 2010) In basically, all research has agreed on these communication tools i.e. advertising, public relations, direct marketing, sales promotions and personal selling. However, among the

marketing communication tools Internet has been named differently by researchers. For example, (De Pelsmacker et al., 2010) has named E-communications and Kotler & Keller et al., 2009) have named Interactive marketing. According to the above literature, I will be examining my literature review of this study as tools of marketing communications mix mainly advertising, sales promotion, events and experiences, public relations and publicity, direct marketing and interactive marketing, word-of-mouth and personal selling.

2.1.1.1. Advertisement

Advertising is any paid, non-personal communication through various media by an identified firm, non-profit organization or individual (De Pelsmacker et. al., 2010, p. 213). As a marketing communication tool advertisement is one of the most popular tools for businesses. It is also the most visible tool as in the context of brand building, advertisement communicates how company would like to be seen by the public. Advertisements are used to increase the consumption of the product or the services of the sender company, it is the biggest marketing tool however it is the most expensive one.

2.1.1.2. Public relations and publicity

Public relations are defined as function of management that establishes and sustains commonly beneficial relationships between an organization and the publics. One of the oldest definition about public relations was stated by Rex F. Harlow: “Public relations is the distinctive management function which helps establish and maintain mutual lines of communication, understanding, acceptance and cooperation between an organization and its publics; involves the management of problem or issues; helps management to keep informed on and responsive to public opinion” (Cutlip et al., 2009) He examined public relations in terms of managerial concept and operational concept. There are some advantages of public relations in marketing practices such as increasing brand awareness, provides acceptance and credibility for brand, cost effectiveness, clutter busting and reaching the hard to reach (Duncan, 2005, p. 309). PR aims reaching difficult audiences like investors and opinion leaders that mostly avoid advertising or direct mailing (De Pelsmacker et al., 2010).

2.1.1.3. Direct and interactive marketing

Direct marketing is a communication directly with target customers for obtaining immediate and measurable customer response. Direct marketing has main tools for example, catalogue companies, mobile text, mail, telephone and Internet. Mostly, direct marketers sell products or services via mail and telephone (Kotler & Armstrong, et al., 2010). Owing to direct marketing, consumers can buy products without going inside, ordering online or via telephone. Direct marketing is used a complementary channel by many companies. The fundamental purpose of direct marketing is to reach specific consumers to inform about products and services. The other marketing communication tools such as mass-media advertising can be used for reaching target customers (Kotler et al., 2012, p. 402). Moreover, direct marketing offers direct communication rather than through intermediaries.

2.1.1.4. Sales Promotions

Sales promotions are divided into two parts. First one is the “consumer promotions”. It consists of premiums, gifts, prize and incentives. The other sales promotion is the “trade promotions” which includes free merchandise, discount and bonus (DePelsmacker, et al., 2010). Sales promotions provide increasing of business’ sales for a short period of time. The results of sales promotions are seen instantly rather than advertising; because, promotional tools are short-term oriented.

2.1.1.5. Personal selling

Personal selling is face-to-face communications and it informs customers for keeping or building a long-term relationship with customers. Personal selling can be shaped according to the customers’ personal wishes and needs. Businesses have representatives in order to communicate with customers and feedbacks taken from customers have been analyzed by business to understand customers’ needs. There have been two main functions of personal selling. Retaining current customers and acquiring new customers (Duncan et al., 2002). The aim of personal selling is “to find potentially interested people, to inform them, to illustrate by means of demonstrations of how the product works, to build close relationships, to guide customers to a purchase and to offer after-sales service” Personal selling is two-way communication and owing to its features the main advantage of personal selling is building a trusting relationship with customer. (DePelsmacker et al., 2010)

2.1.1.6. Word of Mouth

Customers are in a communication with each other every day and they talk about many products. For instance, food products, travel services, TV shows, movies and etc. (Kotler & Keller et al., 2009). Thus, they influence each other as either being aware or unaware. Westbrook (1987) define the word of mouth as “informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services and/or their sellers”. However, Keller & Kotler (2009) consider word of mouth as the element of marketing communication tool. Nothing can be reliable on customers about what their friend or family say. It is stated that word of mouth campaign is more powerful than other forms of advertising. Because, if a movie is recommended by a friend, it is more likely seen than learned about it through an advertisement (Duncan et al., 2002).

2.1.1.7. Events and experience

They include sponsorships of sports, arts, entertainment and cause events as well as activities that create novel interactions of consumers with product or brand. An example of experience can be providing air conditioned bus ride to potential consumers to make them excited about buying an air conditioner. Another example is internet companies providing internet at airports for free use by travellers.

2.1.2. Global Pharmaceutical marketing and its expenditure

Evidence suggests that pharmaceutical companies invest one-third of all sales revenue on drug promotion. In most cases those promotional costs are higher than research and development new drug development expense. In 2012, the pharmaceutical industry spent more than \$27billion on promotion (Cegedim strategic data, 2012) more than \$24 on the marketing to physician and over \$3 billion on advertising to consumers (mainly through television commercials). (Ashley W, 2000) The approach is designed to promote drug companies products by influencing doctors prescribing practice.

Detailing: these marketing approaches refer to face-to-face promotion activities directed towards physicians and pharmacy directory. Pharmaceutical representatives typically visit doctors to pitch their drugs. As of 2012, approximately 72,000 pharmaceutical sales representatives were employed in the United States. Samples providing free medication samples to physicians have been shown to cause significant increase in new prescriptions for the promoted drug although companies assert that samples benefit indigent patients, research indicates that most are given to insured patients whose

medications are covered. Indeed, patients who are given sample ultimately have higher prescription costs than those who do not receive them because they are then prescribed the sampled drug rather than the less-expensive generic alternative.

Educational and promotional meetings: sales representative's invite doctors to meeting during which industry-paid physicians discuss the use of particular drug. These speakers are often leaders in their fields, which increase the draw, according to an analysis by ProPublica, an independent investigative news organization, eight pharmaceutical companies provided more than \$220 million in speaker payments to physicians in 2010. The companies host these events at restaurants and provide meals to physicians who attend.

Promotional mailing: pharmaceutical companies send unsolicited promotional materials to most doctors' offices. Typically these brochures consist of a drug's benefit and positively describe the results of recent clinical trial, which often funded by the same company. One study found that these materials were highly biased in favor of the company's products, mainly because they selectively reported trials in which the sponsored drug outperformed that of competitors.

Journal and web advertisements; these are standard promotional techniques that provide an important source of revenue for medical journals. The accuracy of statements in such ads is regulated by the US Food and drug administration, or FDA. According to one study, journal advertising generated the highest return on investment of all promotional strategies employed by pharmaceutical companies, with return ranging from \$2.22 to \$6.86 per advertising dollar spent from 1995-1999. In April 2009, FDA warned 14 major drug makers for running search advertisements for many of their products that highlighted the products effectiveness without noting any of their risk.

Drug-to-consumer advertisement: In 1997 FDA issued guidance that enabled pharmaceutical companies to more easily advertise to the public, since then spending on these direct-to-consumer ads has nearly quadrupled. One study showed that 43 percent of respondents thought that only completely safe drugs were allowed to be advertised has proved effective in motivating patients to ask for the Branded product, even when equivalent exist. Furthermore these ads have encouraged one-third of respondents to speak to their doctors about the promoted drug and one-fifth to request the prescription. In United States and New Zealand are the only member countries of the organization for economic development in which drug companies can advertise prescription drug directly to consumers.

Continuing medical education (CEM): in 2011, the pharmaceutical and medical industries provided 32 percent of all funding for continuing medical education courses in the United States \$752 million out of \$2.35 billion to prevent these courses from functioning as indirect marketing. They are regulated by the accreditation council for continuing medical education. (Cegedim strategic data et al., 2012)

2.1.3. Pharmaceutical industry in Ethiopia

The government of Ethiopia is encouraging the growth of the healthcare and pharmaceutical industry through a number of initiatives. The first growth and transformation plan (GTP-I) has successfully enhanced the healthcare environment with increased facilities, better access to services and improvement in health indicators. Owing to the success of GTP-I, GTP-II is being implemented to further increase the access of health services across the nation. There is an evident growth in the share of generic medication, with increased production by manufacturing plants in Ethiopia and supply from foreign manufacturers. This increase in share has resulted from high demand (owing to escalating population and increase in incidences of non-communicable diseases), as well as low cost of generic medicines that works in the favor of this price-oriented market. The government has also collaborated with the world-Health Organization (WHO) and launched the national strategy and plan of action for pharmaceutical manufacturing development in Ethiopia. This plan is expected to increase pharmaceutical production in the country, improve medicine quality, and strengthen the national medicine regulatory system. There is a plethora of Ethiopian and non-Ethiopian pharmaceutical companies offering generic and branded medication. Local manufacturer have small market share but their share is expected to increase with the implementation of upcoming reforms in the industry. The governments offers tax incentives (income tax exemptions and tax-free loans) to those manufacturers who intend to set up or revamp existing production facilities in the country (Analysis of the Ethiopian pharmaceutical market, 2016).

2.1.4. Theories related to factors influencing prescribing decision

This section elaborates on relevant literature related to marketing, social, behavioral and consumer theories. These theories may help the requirement of how drug information sources are processed when decision to prescribe drug made.

- ✓ Agency theory: the theory presents a frame works for analyzing relationships between interdependent to identify the problem that exists between parties and mechanism to solve it. The agency relationship occurs when the first party relies on the second party to perform certain actions on behalf of the client. The focus is really on two critical agency relationships, that of the physician (agent) and patient (principal), and the pharmaceutical firm (principal).In the first relationship, the pharmaceutical firms as principal obviously depend on the doctor as the agent to select drugs they are offered in the market. The patient, in their role as principal, is acting as agent, to select the appropriate drug. Physician makes decision of prescribing drugs on behalf of their patients. The principal might be concerned that the agent may not take actions that are in the best interest of principal. Based on the above approach

with respect to pharmaceutical firm (principal) motivated to sell its products (adapting various marketing efforts) and generate profit, (Vancelik S & Beyhun NE, 2007)While full disclosure is required, the firm typically emphasizes only a limited amount of the available information related to both the sales of that product to the physician and its safe use, (Gonul FF & Carter F) it is believed in its product (drugs), and being at arm's length from the patient: physician relationship, is assuming less risk (Theodorus M, Tsiantou V, 2009) its success is often influenced by environmental factors over which it may have little control.

- ✓ Theory of persuasion: persuasion has an effect on everyone on a regular basis, by controlling decision making or a successful attempt to convince or influence. The persuasion is also defined as a human communication intended to manipulate others by altering their philosophies principles or points of view. Persuasion comprises both emotional and cognition responses to the condition which people find their selves. Theoretically persuasion has four key dimensions sender of information (e.g., drug company), (Vancelik S et al., 2007) the receiver (e.g., physician) (Gonul FF et al., 2001) the exchange between the sender and receiver, either interactive or active (Theodorus M et al., 2009) the modification in behavior (e.g., prescription behavior), which can be elective, and there is a certain amount of time required for the deal to occur. Persuasion stipulates that behavior of individual's changes willingly when they are subjected to a particular stimulus, and thus the mind alters the interaction. In most cases this alteration of mind is related to singular needs of individuals (physicians) and their desires (e.g., prescriptions needed by their patients). Such change could be achieved instantaneously or it may take several days or months or even years (need more conviction).
- ✓ Elaboration Likelihood model: is the most extensively used model in the context of persuasion theory. The model proposes that individual uses both cognitive ability and emotional reaction to interpret data and make decisions. More specifically, ELM model indicate that the source of information and the way that can be offered, as well as the receiver characteristics (physician), may affect the understanding of the information needed to make appropriate decisions, which in turn has a persuasive influence on behavior (e.g. physician prescribing) ELM model is composed of two methods of persuasion: the focal and peripheral. The focal method comprises a high level of planning and cognitive effort while peripheral method includes a lower level. Petty Suggested that fewer people are interested in a case, they pay less attention to the information provided and are less motivated to argue cognitively. In contrast, when the incentive for the issue is low, the way of the terminal

becomes more significant. Consequently marketing efforts of pharmaceutical companies can be studied if the delivery of the information through Medical sales representatives or drug company representatives effectively convinced physicians and subsequently change their prescribing behavior.

- ✓ The buyer behavior-stimulus response theory: The model of the buyer behavior stimulus-response is similar to ELM model because both models need emotion and awareness to convince the individual. The model is the process of buyers (physician) consciousness from external stimuli to the purchase decision. As a consumer a doctor is confronted with several of the same influence that an individual might face with a typical purchase decision. The model proposed that the stimulus combined with a proper adjustment and specific population will result in a response that can be expected by seller. The marketing mix factors and other stimuli enter the "black box" which is known as the client (i.e. the physician) and generate some choice replies/ purchases. All of these stimuli enter the black box of the buyer and are converted into range of observed response of the purchaser. On either hand the vendor wants to absorb how stimuli are translated into replies with in the black box of the consumer, which consist of two parts. The buyer properties will affect how stimuli are absorbed, visualized and interpreted by the marketing motivators. The characteristic of the purchaser can be attributed to private variables such as social and psychological factors. Secondly, the decision making process of the buyer (physician) will ultimately define what; if any, buy (prescriptions) behavior occur. The goal of marketing for pharmaceutical companies, such as drug information, free drug samples, other promotional tools is to stimulate behavioral change in doctors as regard prescription. Further marketing strategies related to product, place, promotion and place are considered tools for motivating the physicians to prescribe specific brands.
- ✓ Theory of planned behavior: this theory the most appropriately and frequently considered behavioral theory when attempting to modify or influence prescribing behavior. This tests the ability of attitude, personal norm and perceived behavior or influence physician prescribing. TBP has proved to be successful analytical tools to handle the factors influencing prescribing behavior. Attitude expressed the degree of like or dislike for something, which may affect the tendency or behavior to act in specific ways. To be precise, attitude is the extent to which physician has favorable or unfavorable attitude towards marketing efforts will influence their prescribing. The attitude of physician towards the marketing efforts of pharmaceutical companies will determine their prescribing behavior. Attitudes can be measure as the degree

at physician approves of four factors, specifically, available drug information, drug brand, sales promotion, effectiveness of MSR.

2.1.5. Theoretical models on prescribing decision of physician

The prescribing decision is a complex process that involves a number of factors. In many cases, the decisions of physicians' are multifactorial. Physicians may adopt several strategies when making prescribing decision. Despite the several opinions on physicians' decision-making in literature, none of the theories can solely explain the drug prescription decision of physicians and its related factors. Consequently, complex theories have been used to understand how several factors influence physician decision-making in general practice. Some studies have attempted to develop theoretical models to explain the factors influencing prescribing behavior of physicians. The most influential models of physician prescribing behavior are elaborated below in this section.

- ✓ Knapp and Oeltjeln model: the model takes into consideration of the demographic variables such as age and site of practice. It also includes four variables such as severity of the disease, possible decision, benefits and side effects of medication and physician specialty. However several factors had been proved to significantly impact on the prescribing decision of physician.
- ✓ Hemminkis model: (Hemminki, 1975) proposed a more complex model of prescribing where variables like years of practice, the number of work hours the amount of patient administered to daily to effectively explain the drug prescribing decision of physicians.
- ✓ Raisch proposed very complex model (Raisch, 1990) that incorporates several direct and indirect factors influencing prescribing decisions. The direct factors include formularies, prescribing restrictions and required consultations, while the Indirect factors comprise promotions of pharmaceutical firms and visits by medical sales representatives (MSRs), opinions of colleagues, the scientific data derived from randomized and controlled clinical trials as well as medical training. The demographics variables of physician and practice factors such as case mix and organizational structure were also included. Factors such as individual and practice are thought to affect prescribing decisions by influencing the thought process of the physician.

2.2. Methodological Review

2.2.1. Pharmaceutical Marketing communication tools

The different marketing communication that are widely used and studied in this research are advertising, personal selling, sales promotion, word of mouth ,general reputation of the company and price of product, public relation and events, direct and interactive marketing, and personal selling.

In pharmaceutical marketing advertisement includes promotion of drugs in non-personal way through literatures, magazines or banner in conferences. Catch cover of free drug samples and words on the packaging of gift items are also included under advertisements. For this study Medical in journals, Brochures and leaflets of the medicines provided by the company are included in the advertisement section.

Sales promotions are varied Often they are original and creative, and hence a comprehensive list of all available techniques is virtually impossible. For this study it includes brand reminders low value gifts like pens, paper weights, writing pads are included.

Public relation in pharmaceutical marketing includes various program designs to promote the brands. It involve product launch meeting, clinical or scientific meetings, conducting a discussion by a specialist doctor related to products, sponsoring physician for conferences etc. In this study it includes Seminars, Sponsoring Medical events, CMEs and Product Launch meetings.

Personal selling is one kind of direct marketing. It is the detailing by the promotional personnel of the brand and the way the sales personnel handle objects and use visual aids. Drug sampling, price benefit, buy one get one free comes under the domain of personal selling. Sampling, detailing aids and knowledge of medical representatives are extracted to be major communication tools in personal selling and also included in the research.

Direct and interactive marketing is a type of advertising campaign that seeks to elicit an action from a selected group of consumers in response to a communication from the marketer. The communication itself may be in any of a variety of formats including postal mail, telemarketing, and direct e-mail marketing and point-of-sale interactions. In pharmaceutical marketing it involves sending information of the brand advertisements via post, telephone, email or others. In this research mailing is the marketing communication studied.

In pharmaceutical marketing Word-of-Mouth Marketing includes senior or colleague's doctor references and lastly general reputation of the company and price of products are included in pharmaceutical marketing communication by the company representative to the physician.

2.3. Empirical Review

2.3.1. Influence of Pharmaceutical Marketing on physician prescribing behavior

Over the years pharmaceutical firms have grown more sophisticated in their efforts to influence prescribing habit by training sales representatives known as medical detailers (medical sales representatives) who meet with physician, tell him about new drugs and pitch company products (Rodwin, 2010). Currently, one of the most used techniques is detailing by pharmaceutical sales representative (Hoffman, 2012), who communicate directly with physician about virtues of a particular product. Pharmaceutical sales representative detailing was found to be the most commonly mentioned main source of new drug information (Sung, 2004). Similarly the finding of (Campo, 2005) indicated that visit from sales representative were appreciated by most physician and considered a quick and valuable source of information about the drug. In fact (Bauer and wortzed 1966) found that sales representative are main source of information leading to prescription of a new drugs, while direct mail advertising came second information from medical journal came third. However unlike (Bauer et al., 1966), campol et al (2005) did not find medical representatives to account for the majority, but instead only 28.4%. These finding more closely align with William and Hensel (1991) (William and Hensel, 1991), who reported the significant decline of sales representative detailing as a source of information about pharmaceuticals and increase in the influence of colleagues moreover this study found symposium seminar ranked second highest as a source of information followed by medical magazine and journal then the internet. On another study one of the most used techniques is detailing by pharmaceutical sales representative (Hoffman et al., 2012) who communicate directly with physician about the virtues of a particular product (Sung J. Shim et al., 2004) to influence physician prescribing behavior. Advertisement on the journal is found to be moderately and not effective approach to influence the prescription behavior of physician (Biswas and Ferdousy et al., 2016). Al-Haddad, 2014 study found that pharmaceutical advertisements strongly influence patient doctor relationship (Al-Haddad, 2014).

Sample left by sales personnel may be the only reminder to the product long after the detailing. Sampling which is part of any visit by a sales person is not a major factor that influences prescription according to a study (Narendran, R. et al., 2013). On another study sales personnel and physician

felt that sampling was only somewhat effective in influencing prescription practice. Similar result was found where free drug samples attracts less because physician do not actually needs these huge amount of drugs from companies (Biswas and Ferdousy et al., 2016). According to Abdullah Al-Areefi (2013), physicians in yemen knew that visits from pharmaceutical sales representatives could influence their prescribing habits, in addition physician received free product samples and give aways as well as many kind of support in their daily practice (Abdullah, et al. 2013). Schramm (2007) identified and examined the marketing techniques used by pharmaceutical sales representatives with a focus on product sampling in relation to product sampling in product aging where tendency to give samples decreased with product aging (Schramm, J., & Andersen, M., 2007).

Word of mouth marketing is a very effective communication strategy that can be adopted by pharmaceutical companies (Aisha et al., 2015). On a recent study in Pakistan 97% of the physician respondents had high to very high influence for senior doctor's reference. Similar result was found in another study (Harikesh and Puneet, 2010)

Reputation of the company is extremely important for influencing physician to prescribe a drug (Dexter N, 1994). Similar result was found in a study (Aisha et al., 2015) where a high response were seen by both graduates and post graduates for reputation of company where 90% of respondents importance of reputation of company was very high and another study as well in which the mean score of respondent's for reputation of the company was 4.6. (Khajuria, Khajuria, 2013)

Price of product has high consideration and is area of concern for physician, where physician consider cost very important when prescribing drugs (Aisha et al., 2015). Similar result reported in another studies have shown the importance as well. (Ryan, Yule, Taylor, 1996) Also according to World Bank Bangladesh lies into middle income country so product cost is also a thing to consider while prescribing a drug. A drug with a high efficacy and low cost are highly appreciated by the physicians (Biswas et al., 2016).

Public relations and publicity are used for long term strategic image building developing credibly and raising the organization profile, to enhance other marketing activities. It is a planned element of the wider promotional mix, working in synergy with others. In medical institution in Bangladesh conference occurs in very frequent basis. Sponsoring this event is found to be excellent way to get into the good list of a physician (Biswas et al., 2016).

Direct mailing has been found to be not effective to influence the physician to write the product on prescription where most consider it as junk categories (Biswas et al., 2016).

2.3.2. Perception of physician towards pharmaceutical marketing

Physicians have a positive attitude towards Pharmaceutical sales representatives. Physicians perceived Pharmaceutical sales representatives as important sources of education and funding, while some studies reporting skeptical attitudes about the contribution of Pharmaceutical sales representatives towards teaching and education. Conference registration fees, informational luncheons, sponsorship of departmental journal clubs, anatomical models and free drug samples were considered as appropriate gifts. (Lichstein PR, Turner RC, O'Brien, 2013) 40. Most of the physicians considered pharmaceutical information provided by Pharmaceutical sales representatives, industry-sponsored conferences and CME events as important instruments for enhancing their scientific knowledge.22 (Lieb K, 2014). Compared with senior residents, significantly more junior residents felt that pharmaceutical representatives have a valuable teaching role 10(Hodges B,1995). Most studies found that physicians do not believe that Pharmaceutical sales representative's interactions impact their prescribing behavior, while other studies found that there was some extent of influence. In addition, physicians considered their colleagues more susceptible than themselves to Pharmaceutical sales representatives marketing strategies. There was a strong correlation between the amount of gifts and the belief that PSR interactions did not influence their prescribing behavior (Lieb K, 2014).

A better score on knowledge and attitudes were significantly associated with fewer interactions with representatives and their gifts. Conference registration fees, informational luncheons, sponsorship of departmental journal clubs, anatomical models and free drug samples were considered as appropriate gifts Most of the physicians considered themselves immune to the influence of gifts. Most common gifts received were medical samples, promotional material, invitations for dinners and scientific journals. 19. (Alosaimi FD and Qadi M, 2014). Most of the physicians who accepted drug samples had a positive attitude towards the pharmaceutical representatives. Accepting samples lead to higher branded drug prescription rather than generic prescribing. 22. (Lieb K, et al., 2013). Sponsored lectures/symposia of pharmaceutical companies influenced behavior of the attendees leading to the attendees prescribing more drugs from the sponsoring companies without sufficient evidence supporting superiority of those drugs. The majority of attending physicians failed to identify inaccurate information about the company drug.18. (Ziegler MG, 1995)

Pharmaceutical company-sponsored conference travels to touristic locations have quantifiable impact on the prescribing rational of attendees. A significant increase (three times) in the prescribing rate of two company drugs was observed after the physicians attended a company- sponsored symposium with all their expenses covered. Despite this significant difference in the prescribing patterns, physicians insisted there was no impact on their prescribing behavior.(57 Orłowski JP, Wateska L, 1992). Physicians who attended company-sponsored CME events had more positive attitudes towards and inclination to prescribe the branded drugs. We found that physicians who refused CME sponsorship were seen to prescribe higher proportion of generics and lower expenditure medicines when compared with physicians who attended CMEs. (Lieb K, et al., 2013)

Previous research indicated that doctors/pharmacists who receive gifts are more positive towards the company and more likely to prescribe/dispense the company's products (Ashker and Burkiewicz, 2007). It has been suggested that physicians who rely on drug company information, through drug detailers (MRs) or promotional literature, prefer expensive brands, adopt newer medicines more quickly, show more inappropriate prescribing and write more prescriptions' that their colleagues (Lexchin. J , 1993).

2.3.3. Extent of interactions between physicians and pharmaceutical industry

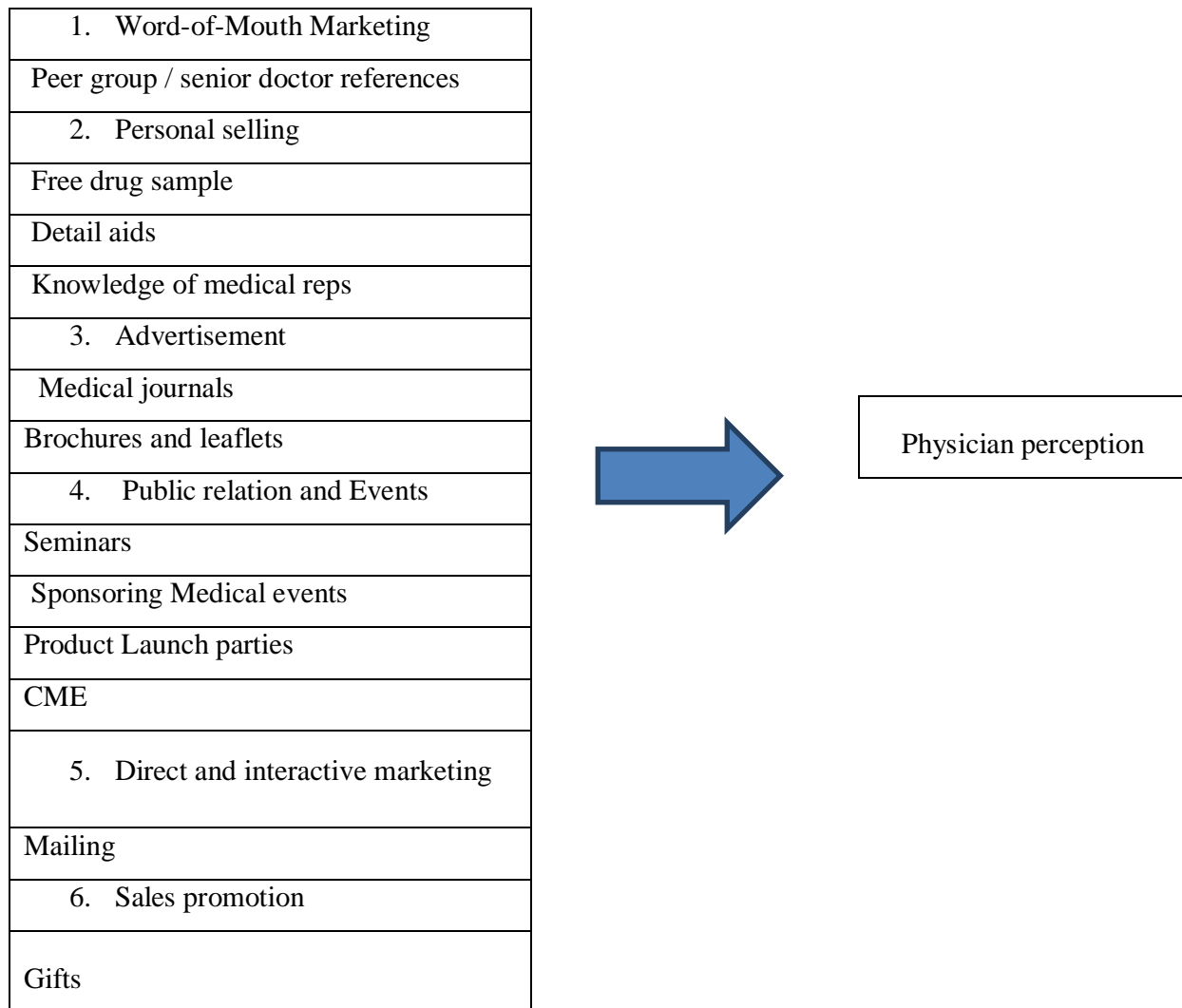
Pharmaceutical sales representative interactions are a regular feature in the daily lives of physicians across the world. Most of the attending physicians and residents have at least one interaction with industry representatives per month. The frequency of interactions or gifts offered and accepted varies with private versus public hospital setting and the position of the physicians in the medical hierarchy (Alssageer MA, Kowalski SR, 2012). Junior residents received twice as much free drug samples from Pharmaceutical sales representative's interactions than senior residents (Hodges B, 1995) Pharmaceutical sales representative interactions were significantly higher at the beginning of residency. The majority of program directors of internal medicine residencies in the USA allowed Pharmaceutical sales representatives to meet with residents during working hours and permitted Pharmaceutical sales representative's sponsorship of conferences (Lichstein PR, Turner RC et al., 1992). Attending physicians and physician specialists had more PSR interactions and received higher numbers of medical samples and promotional material than residents. Participants working in private practice alone or in both sectors were more likely to receive gifts than physicians working in the public sector. Most common gifts received were medical samples, promotional material invitations

for dinners, invitations for CMEs, scientific journals and free lunches (Alssageer MA, Kowalski SR, et al., 2012)

2.4. Conceptual frame work

In pharmaceutical market with a broad of range, it is not possible for a physician to remember all brands so drug companies use different marketing communication tools to inform physician about their brand drug, to create awareness, to grab-attention of physician, to remind brand drug and persuade or convince physician to prescribe their brand. Twelve marketing communication ways were noticed during a preliminary discussion with sales personnel and physicians and from a literature. This communication ways were further classified under seven marketing communication tools namely) i) Advertisements ii) Sales promotion, iii) Public relation iv) Personal selling v) Direct marketing vi) Word of mouth vii) General (Reputation of company and price of product) .

Figure 1- Conceptual frame work



Source: Kotler & Keller et al., (2009)

CHAPTER THREE

METHODOLOGY OF THE STUDY

This chapter contains research design, sample selection technique, source and instrument of data collection and finally ends with a discussion regarding data analysis techniques and tools.

3.1. Research Design

The research frameworks have been intended to assess the perception of physician towards marketing communication tools. Taking this into account, the relevant research design for this study is explanatory and descriptive research design as it shows detailed picture of the situation and detail description of the findings displayed in tables and plots as well as to developed inferences on the relationship between marketing communications tools and prescribing behavior of physician. To achieve the aforementioned objective, the study has been applying quantitative approach in analyzing the data and survey through administered questionnaires where perception of physician towards marketing communication tools is measured by likert 5 scale.

3.2. Description of the Research Area

The study is conducted on physicians practicing in Addis Ababa Health care institutions centers the capital city of Ethiopia. Addis Ababa is the largest city in Ethiopia located almost at the Centre of the country. Addis Ababa is also a center for all multinational and generic pharmaceutical companies who are operating in the country; the focus of most companies, especially the branded companies is in Addis Ababa.

3.3. Data collection

The required data used in the study was obtained through both primary and secondary data sources. The primary data were collected using well designed questionnaire where the respondents are physician working in health care institution. The well designed questionnaire was used to collect quantitative data and it consists of twelve marketing communication tools perception measured based on Likart scale of 1-5.

The secondary source of data were also been obtained through document analysis to strengthen the study. A number of literatures on pharmaceutical marketing were reviewed. Moreover, articles from

journals in reliable international online archives published and unpublished research papers related to the study area were referred.

3.4. Population and sampling technique

Sampling is the selection of a fraction of the total number of units of interest for the ultimate purpose of being able to draw general conclusions about the entire body of units Patrick (2008). There are several decisions to be made in organizing a sample such as identifying target population, selecting sample and determining the sample size.

3.4.1. Target Population

The data source population constitutes all physicians practicing in Addis Ababa health care institutions. Physicians who were not actively prescribing at the time of the survey are not part of the study subjects. Population is defined as the complete set of units of analysis that are under investigation Yalew (2011). It is defined as the total group to be studied. According to African Health Workforce (AHWO) (June, 2010) report, there are a total of 934 physicians in Addis Ababa. From these 396 are general practitioners and 538 are specialists working in public and private health institutions.

3.4.2. Sampling Technique

The target population includes physician who a) Were residents of Addis Ababa b) Worked in the city's private and governmental health care institutions and c) Met with drug company representatives d) Given that physicians are very difficult to reach, a judgmental sampling is sampling approach that was used to distribute the questionnaires to the physicians to the healthcare institutions.

3.4.3. Sample Size

According to the data obtained from African Health Workforce Observatory (AHWO, June, 2010), physicians working in the country accounts for 934 in addis ababa, among these 396 are general practitioners and 538 are specialists working in public and private health institutions (Mulugeta and Achenif 2017).

The sample size is calculated by Cochran's sample size formula.

Cochran's formula is: $n^0 = Z^2 Pq / e^2$

e is the desired level of precision (the margin error)

p is the proportion of the population which has the attribute in question

q is 1-p

z value is found in z table

The physician who will be active at the time of survey and have a registration certificate to work and not on an annual leave will be approximately 50% or where p value is 0.5 and the confidence interval is 95% level which gives Z value of 1.96. Also the desired precision is 5% or 0.05.

A random sample of $(n^{\circ}) = ((1.96^2) (0.5)(0.5)/0.05^2)$, $n^{\circ}=385$

So a random sample of 385 physicians in target population should be enough to give the confidence interval level we need. Hence the population size is smaller Cochran formula for sample size calculation in smaller population is used.

$$n = n^{\circ} / 1 + (n^{\circ} - 1) / N$$

Where N is the population size, N=934

$$n = 385 / (1 + (385 - 1) / 934) = 272$$

A total sample size of 272 taken respectively from the health care institutions.

Inclusion Criteria

- ✓ Physicians who were active in prescription writing at the time of the survey.
- ✓ Physicians having registration certificate to work as a physician.

Exclusion Criteria

- ✓ Those in annual leave and/or not at the working site during the survey period.
- ✓ Those who haven't been exposed to any drug promotions.
- ✓ Not having license to practice as physician.

3.5. Methods of Data Analysis

After collecting the data through questionnaire from physician working in healthcare institutions, the data analysis was performed. Frequency counts, tables, plot diagrams and other descriptive statistics (means, standard deviations etc.) were applied as found appropriate. Additionally inferential statistics that included correlations (spearman correlation) ANOVA and F –Test and Independent sample test are used.

3.6. Description of Variables and Measurements

A self-administered survey questionnaire was developed and data was gathered. As the physician perception towards marketing communication tools is measured'. As the 12 main marketing communication tools used by pharmaceutical firms are taken into consideration to measure physician perception.

3.7. Validity and reliability

3.7.1. Validity

Content validity of a measuring instrument is the extent to which it provides adequate coverage of the investigative questions guiding the study (Mugenda & Mugenda, 2003). In this study, content validity determined by consulting the research advisor. To improve the instruments, the research advisor and subject matter experts took a look at every question in the questionnaire and did their own analysis to ascertain that the questions answer research objectives of the area under study.

3.7.2. Reliability

Reliability is a measure of the degree to which a research instrument yields consistent results or data after repeated trials. For this study, internal consistence reliability determined by Cronbach"s alpha. It is useful in assessing the consistence of the results across items within a test. It represents number between 0 and 1. According to Zikmund et al., (2010) scales with coefficient alpha between 0.6 to 0.7 indicate fair reliability and/or higher are considered adequate to determine reliability. The result of the Cronbach"s alpha for this study instrument for marketing communication tool perception and exposure to marketing communication tools is 0.945 and 0.829 this indicated that to accept the scale of items for further analysis.

3.8. Ethical consideration

During data collection researcher gave a verbal explanation to each participant on the nature of the study which includes its purpose, the procedures involved, the risks and benefits of involvement.

Each participant is informed that participation in the study is voluntary. The respondents was assured that the information they provides is confidential and use for academic purpose only, moreover a statement conforming the prohibition of including any identity details or personal reference in the questionnaire. This would be to avoid any biased response or unauthentic data which provided by respondents and to make participants certain that he/she cannot be traced; this would offer them enough room to express their ideas and point their response freely and safely.

The data gathered in the process of the study were kept confidential and would not be used for any personal or other interest. The study was controlled to be within acceptable professional ethics.

CHAPTER FOUR

RESULTS AND DISCUSSION

This Chapter focuses on the results of analysis and discusses and presents the findings. In order to address the research problem the study used a closed ended questionnaire. The data were collected from the samples; a total of two hundred seventy (272) questionnaires were distributed to the respondents after reaching them based on judgmental sampling. Out of the total questionnaires (252) giving 93.38 % complete response rate were returned but twenty (20) accounted for 6.62% of them were rejected due to many omissions in filling. The missing data of 18 were filled by the trial data collected. So, the analysis was made based on 252 successfully responded questionnaires and 18 trial samples with a total of 270 (99.26%) which was analyzed by SPSS version 20. Hence, this study is aimed at to examine the perception of physician towards marketing communication tools in the health care institutions as area of the study.

4.1. Reliability analysis

The reliability of the questionnaire items were tested by Cronbachs alpha. The result was summarized as follows;

Table 1- Reliability statistics

	Cronbach's Alpha	N of Items
Exposure to marketing communication tools	0.829	12
Perception towards marketing communication tools	0.945	60
Total		72

Sources: SPSS Version 20 Output

The result of the Cronbach's alpha for this study instrument was found to be in the acceptance range greater than 0.7. All the items of marketing communication tool perception and exposure to marketing communication tools is 0.945 and 0.829 this indicated that to accept the scale of items for further analysis.

4.2. Demographic Characteristics of Respondents

To observe what demographic trend that the sample population had, the questionnaire started off with demographic characteristics of respondents. Accordingly, the feedbacks of the respondents were

summarized and described in the subsequent tables. These attributes included; Gender, Age, Educational level, year of practice, Patient administered daily, ownership of institution.

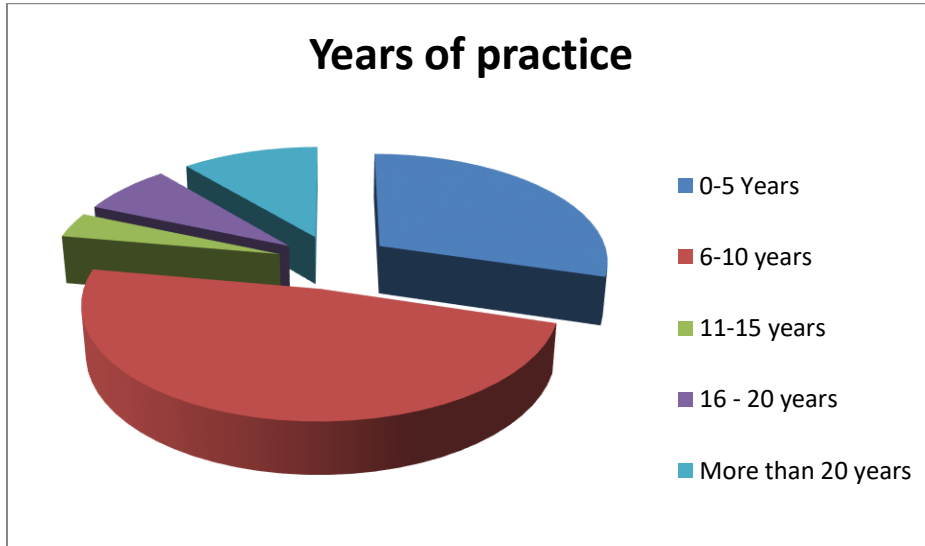
Table 2 -Demographic Profile of respondents

Characteristics		Frequency	Percentage
Gender	Male	185	68.50%
	Female	85	31.50%
Total		270	100%
Age (years)	21- 30	75	27.80%
	31- 40	135	50%
	41- 50	30	11.10%
	51- 60	25	9.30%
	61-70	5	1.90%
Total		270	100%
Educational level	General practitioners	90	33.30%
	Specialist	180	66.70%
Total		270	100%

Sources: SPSS Version 20 Output

From the total number of the respondents, 68.5% were found to be male respondents and 31.5% were female respondents. Comparing the percentages of males and females, physician“ population is male dominated. In view of age distribution, most of the respondents of 50% (135) aged between 31 and 40 years. In addition, 27.8% (75) of respondents aged between 21 and 30 years, 11.1% (30) of them aged between 41 and 50 years, 9.3% (25) respondents aged between 51 and 60, 1.9% (5) respondents aged between 61 and 70 . This implies that most of the respondents 77.8% were ranged from 21-40 ages and hence the physicians are youthful, energetic and potential prospects to the pharmaceutical companies. Concerning the educational level of respondents, as it is presented in the table 3, 33.3 % of the respondent physicians are general practitioner and 66.7 % are specialists. This showed that the majority of the respondents are specialties. This displayed that the research consisted of different categories of physician respondents.

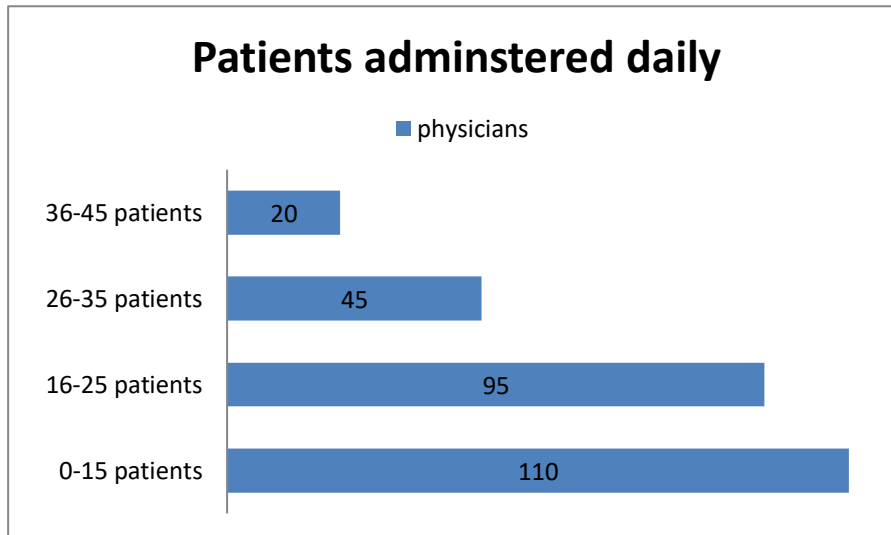
Figure 2-Years of practice



Sources: SPSS Version 20 Output

From the total number of the respondents, 29.6% were found to have 0-5 years' experience, 48.1% were found to have 6 to 10 years' experience, 3.7 % with experience of 11-15 years and 7.4% and 11.1% for 16 to 20 years and more than 20 years' experience respectively. The majority of respondents are with 6 to 10 years of experience.

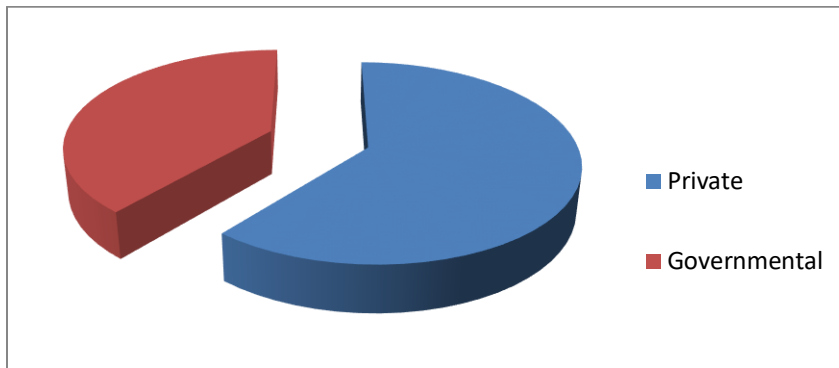
Figure 3- Patient administered daily



Sources: SPSS Version 20 Output

From the total number of the respondents, 40.70 % were found to see 0-15 patients per-day, 35.20% were found to see 16-25 patients per-day, 16.70% physician see 26-35 patients per-day and 7.4% physician see 36-45 patients per day. 75.90% of physicians see patients ranging 0-25 patients per day this could be due to more data's are collected from private institutions where physician number of patients to see is most of the time fixed.

Figure 4- Ownership of institution



Sources: SPSS Version 20 Output

From the total 270 physician 165 with 61.10% are from private institutions and 105 with 38.90% of the physician are from governmental institutions.

4.3. Descriptive Statistics

4.3.1. Physicians Perception towards marketing communication tools

This section of the questionnaire tested the perception of physician towards marketing communication tools employed by drug companies. To compare the respondent's perception about marketing communication tools descriptive statistics such as mean and standard deviation is used. A series of five statements were presented to respondents and respondents were asked to rate their level of agreement with each statements. All of the variables were measured using five point Likert scale ("1"strongly Disagree; to "5" strongly Agree). The interpretations of the Likert scale results are: scores of 1 to 2.32 indicate low level, Scores of 2.33 to 3.65 indicate medium level, and scores of 3.66 to 5 indicate high level. Alhakimi and Alhariry, (2014).

4.3.1.1. Physician Perception towards Word of mouth

Table-3 Descriptive features of physician perception dimensions towards Word of mouth

Perception Dimensions	Mean	Standard deviation (SD)
Word of mouth		
Discussion about a drug with colleagues and senior physician beneficial?	3.9444	0.52508
Discussion about a drug with colleagues and senior physicians awareness creating?	3.8519	0.52476
Discussion about a drug with colleagues and senior interesting?	3.9259	0.66377
Discussion about a drug with colleagues and senior unforgettable?	3.8704	0.38784
Discussion about a drug with colleagues and senior persuasive/convincing?	3.7963	0.70525
Average	3.8778	0.56134

Sources: SPSS Version 20 Output

As shown in the above table 3, the highest level of agreement with mean value of 3.94 is recorded for perception of physician towards word of mouth communication as beneficiary. Word of mouth communication is effective in grabbing the attention of physicians with a mean value of 3.9259; Unforgettable in the mind of the physicians with a mean value of 3.8704; active in creating awareness about a drug with a mean value of 3.8519; effective in persuading and convincing physician with a mean value of 3.7963. The standard deviation ranged between 0.70525 and 0.38784 which show some level of variance. The overall mean for the perception of physician towards word of mouth is 3.8778. Hence the mean score are in between 3.66 to 5 which indicate high level of agreement this implies that word of mouth communication tools are considered by physicians as beneficiary, effective in creating awareness, attention-grabbing, unforgettable and persuasive communication tool.

4.3.1.4. Physician Perception towards personal selling

Table 4-Descriptive features of physician perception dimensions towards free drug sample

Perception Dimensions	Mean	Standard deviation (SD)
Free drug sample		
Are free drug samples useful?	2.5556	1.08841
Free drug samples create awareness about a brand drug?	2.6704	1.11706
Free drug sample motivating to know more about a brand drug?	2.6778	1.1584
Free drug sample are memorized/recalled?	2.6407	1.05279
Free drug sample impact drug choice?	2.6333	1.21132
Average	2.6356	1.12559

Sources: SPSS Version 20 Output

As shown in the above table 4, the medium level of agreement with mean value of 2.6778 is recorded for perception of physician towards free drug sample engaging; mean value of 2.6704 is recorded for perception of free drug sample awareness creating; mean value of 2.6407 free drug sample memorability; mean value of 2.6333 free drug sample impact drug choice and mean value of 2.5556 free drug sample usefulness. The standard deviation ranged between 1.21132 and 1.05279 which show small level of variance. The overall mean for the perception of physician towards free drug sample is 2.6356. Hence the mean score are in between 2.33-3.65 which indicate medium level of agreement.

Table 5 -Descriptive features of physician perception dimensions towards detailing aids

Perception Dimensions	Mean	Standard deviation (SD)
Detailing aids		
Detailing aids useful drug information source?	3.1296	1.00272
Detailing aids received from pharmaceutical company create awareness about a drug?	3.2778	1.19504
Detailing aids are interesting?	3.1852	1.15803
Detailing aids are memorable	3.0185	0.87278
Detailing aids are persuasive?	2.8519	1.08054
Average	3.0926	1.06182

Sources: SPSS Version 20 Output

As shown in the above table 5, the medium level of agreement with mean value of 3.2778 is recorded for perception towards detailing aids awareness creating; mean value of 3.1852 is recorded attention-grabbing; mean value of 3.1296 is recorded for useful drug information source; mean value of 3.0185 memorable; and mean value of 2.8519 recorded for persuasive. The standard deviation ranged between 1.19504 and 0.87278 which show some level of variance. The overall mean for the perception of physician towards detailing aids is 3.0926. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

Table 6- Descriptive features of physician perception dimensions towards medical sales representative knowledge.

Perception Dimensions	Mean	Standard deviation (SD)
Medical sales representatives information		
Medical sales representative are drug information source?	3.2778	0.73208
Medical sales representative information about a drug creates awareness?	3.2778	1.0278
Medical sales representative information about a drug is interesting?	3.2222	1.03232
Medical sales representative information is recalled?	3.7037	0.80955
Medical sales representative's information about a drug is persuasive?	2.9444	0.93301
Average	3.2852	0.90695

Sources: SPSS Version 20 Output

As shown in the above table 6, the highest level of agreement with mean value of 3.7037 is recorded for perception towards medical sales representative information as unforgettable. Medium level of agreement with mean value 3.2778 is recorded for medical sales representative information usefulness and creates awareness; mean value 3.2222 is recorded for MSR's drug information interestingness; mean value 2.9444 is recorded for MSR's information persuasiveness. The standard deviation ranged between 1.03232 and 0.73208 which show some level of variance. The overall mean for the perception of physician towards MSR's information is 3.2852. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

4.3.1.5. Physician perception towards advertisement

Table 7- Descriptive features of physician perception dimensions towards medical journals

Perception Dimensions	Mean	Standard deviation (SD)
Medical Journals		
Medical journals are useful drug information sources?	3.037	0.92393
Medical journals create awareness about a drug?	2.963	0.81717
Medical journals about a drug are interesting?	2.963	0.86146
Medical journals are memorable?	3.1852	0.92616
Medical journal are persuasive?	3.0741	0.9013
Average	3.0444	0.886

Sources: SPSS Version 20 Output

As shown in the above table 7, the highest level of agreement with mean value of medium level of agreements mean value of 3.1852 is recorded medical journal memorable; mean value of 3.0741 is recorded for persuasiveness of medical journals; 3.037 is recorded for medical journal as drug information sources; mean value of 2.963 is recorded for medical journal awareness creating and interesting. The standard deviation ranged between 0.92616 and 0.81717 which show small level of variance. The overall mean for the perception of physician towards medical journal is 3.0444. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

Table 8-Descriptive features of physician perception dimensions towards brochures and leaflets

Perception Dimensions	Mean	Standard deviation (SD)
Brochures and leaflets		
Brochures and leaflets useful drug information source?	3.1667	0.95921
Brochures and leaflets create awareness about a drug?	3.1852	0.96546
Brochures and leaflets are appealing to read?	3.2222	0.97681
Brochures and leaflets memorable?	3.1852	0.86386
Brochures and leaflets information's are convincing?	2.7593	1.07238
Average	3.1037	0.96754

Sources: SPSS Version 20 Output

As shown in the above table 8, the medium level of agreements was seen towards brochures and leaflet where mean value of 3.2222 is recorded for appealing; mean value of 3.1852 is recorded for

awareness creating and memorable; mean value of 3.1667 useful drug information source and mean value of 2.7593 is recorded for persuasive. The standard deviation ranged from 1.07238 to 0.86386 which shows some level of variance. The overall mean for the perception of physician towards brochures and leaflet is 3.1037. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement. The overall mean for the perception of physician towards medical journal is 3.0444. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

4.3.1.6. Physician perception towards public relation and event

Table 9-Descriptive features of perception dimensions towards seminars

Perception Dimensions	Mean	Standard deviation (SD)
Seminars		
Attending Seminars are beneficial?	3.463	0.81146
Seminars create awareness about a drug product?	3.537	0.85605
Seminars are interesting/ engaging?	3.3333	1.00186
Seminars are memorable?	3.5	0.85686
Seminars are influential on prescribing?	3.463	1.06853
Average	3.4593	0.91895

Sources: SPSS Version 20 Output

As shown in the above table 9, the medium level of agreements was seen for seminars where mean value of 3.537 is recorded for awareness creating; mean value of 3.5 is recorded for memorable ; mean value of 3.463 is for beneficial and persuasive; mean value of 3.3333 interesting. The standard deviation ranged from 1.06853 to 0.81146 which shows some level of variance. The overall mean for the perception of physician towards seminar is 3.4593. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

Table 10-Descriptive features of physician perception dimensions towards product launch meetings

Perception Dimensions	Mean	Standard deviation (SD)
Product launch meeting		
Attending Product launch is beneficial?	3.037	1.17221
Product launch meeting creates awareness?	3.037	1.21886

Product launches meetings are interesting?	2.8889	1.13522
Product launches meetings are memorable?	3.1481	0.89208
Product launches meetings are convincing?	2.7407	1.07671
Average	2.9704	1.09902

Sources: SPSS Version 20 Output

As shown in the above table 10, the medium level of agreements was seen for product launch meeting where mean value of 3.1481 is recorded for memorable; mean value of 3.037 is recorded for awareness creating and beneficial; mean value of 2.8889 is recorded interesting and mean value of 2.7407 is recorded for convincing. The standard deviation ranged from 1.21886 to 0.89208 which shows some level of variance. The overall mean for the perception of physician towards product launch meetings is 2.9704. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

Table 11 -Descriptive features of physician perception dimensions towards sponsored medical events.

Perception Dimensions	Mean	Standard deviation (SD)
Sponsored medical events		
Attending medical events is beneficial?	2.7963	1.06271
Drug advertisement on a medical event creates awareness about the drug?	2.7593	1.08958
Drug advertisement on a medical event is attention-grabbing?	2.7222	1.0278
Drug advertisement on a medical event is unforgettable?	2.7037	1.04951
Drug advertisements on medical events are influential?	2.4444	0.95759
Average	2.6852	1.03744

Sources: SPSS Version 20 Output

As shown in the above table 11, medium level of agreements was seen for sponsored medical events where mean value of 2.7963 as beneficial; mean value 2.7593 is recorded for creating awareness; mean value of 2.7222 is recorded for interesting; mean value of 2.7037 is recorded for unforgettable; mean value of 2.4444 is recorded for drug advertisement on a medical event influential. The standard deviation ranged from 1.08958 to 0.95759 which shows small level of variance. The overall mean for the perception of physician towards sponsored medical event is 2.6852. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

Table 12-Descriptive features of physician perception dimensions towards CMEs

Perception Dimensions	Mean	Standard deviation (SD)
CMEs		
CMEs are beneficial?	3.3519	1.04111
CMEs create awareness about a drug?	3.2963	0.99496
CMEs are interesting?	3.2778	1.14743
CMEs are memorable?	3.0556	1.24083
CMEs are convincing?	3.1667	1.2156
Average	3.2296	1.12799

Sources: SPSS Version 20 Output

As shown in the above table 12, medium level of agreements was seen for CMEs where mean value of 3.3519 as beneficial; mean value 3.2963 is recorded for creating awareness; mean value of 3.2778 is recorded for interesting; mean value of 3.1667 is recorded for convincing and mean value of 3.0556 is recorded for memorable. The standard deviation ranged from 1.24083 to 0.99496 which shows some level of variance. The overall mean for the perception of physician towards CMEs is 3.2296. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

4.3.1.7. Physician perception towards direct and interactive marketing

Table 13-Descriptive features of physician perception dimensions towards email

Perception Dimensions	Mean	Standard deviation (SD)
Email		
Email communications are suitable?	1.9444	0.99098
Email communication creates awareness about a drug?	1.7037	0.59831
Email communication is interesting communication?	1.6296	0.61868
Email communication about a drug recalled to your mind?	1.9444	0.97204
Email communication about a drug is significant?	1.5926	0.52868
Average	1.763	0.74174

Sources: SPSS Version 20 Output

As shown in the above table 13, low level of agreements was seen for email where mean value for 1.9444 is recorded for useful and notable; mean value of 1.7037 is recorded for awareness creating; mean value of 1.6296 is recorded for motivating and mean value of 1.5926 is for significance of mail communication. The standard deviation ranged from 0.99098 to 0.52868 which shows some level of variance. The overall mean for the perception of physician towards email communication is 1.763. Hence the mean score are in between 1 to 2.32 which indicates low level of agreement.

4.3.1.7. Physician perception towards sales promotion

Table 14-Descriptive features of physician perception dimensions towards low value gifts

Perception Dimensions	Mean	Standard deviation (SD)
Low value gifts		
Are the Low value gifts received from company representative important?	2.8519	1.16337
Low value gift create notice about a brand drug?	2.8333	1.18463
Low value gifts are thoughtful of the drug companies?	2.4444	1.05017
Low value gifts help in reminding of a drug name, company name or logos?	2.5	1.12011
Low value gift impact prescribing?	2.1667	1.01568
Average	2.5593	1.10679

Sources: SPSS Version 20 Output

As shown in the above table 16, medium level of agreements was seen for gift where mean value for 2.8519 is recorded for importance of gift; mean value of 2.8333 is recorded for awareness creating; mean value of 2.5 is recorded for drug name and company reminder; mean value of 2.4444 is recorded for appealing. Low level of agreement with mean value of 2.1667 is recorded for influence on prescribing. The standard deviation ranges from 1.18463 to 1.01568 which shows some level of variance. The overall mean value for perception of physician towards low value gift is 2.5593. Hence the mean score are in between 2.33 to 3.65 which indicate medium level of agreement.

4.3.2. Comparison of physician perception on the marketing communication tools

Table 15 shows the overall means of all items in the marketing communication tools and constructs for physician's level of perception. Accordingly to the finding of means word of mouth represented

the highest mean score of 3.8778, the second rank seminar with mean value of 3.4593; third rank medical sales representative information with mean value of 3.2852.

Table 15- Over all perception of marketing communication tools

Perception Dimensions	Mean	Standard deviation (SD)
Word of mouth	3.8778	0.56134
Seminars	3.4593	0.91895
Medical sales representatives information	3.2852	0.90695
CMEs	3.2296	1.12799
Brochures and leaflets	3.1037	0.96754
Detailing aids	3.0926	1.06182
Medical Journals	3.0444	0.886
Product launch meeting	2.9704	1.09902
Sponsoring medical events	2.6852	1.03744
Free drug sample	2.6356	1.12559
Low value gifts	2.5593	1.10679
Email	1.763	0.74174

Sources: SPSS Version 20 Output

4.3.3. Respondents exposure to the overall marketing communication tools

In order to compare the respondent's exposure to the marketing communication tools applied currently by pharmaceutical companies' descriptive statistics such as mean and standard deviation is used. The result of the finding presented below. As indicated below table-18 the respondents expressed that they have highly experienced brochures and leaflets with the mean value of (Mean= 3.4074 and SD=0.99288), Medical sales representatives information with the mean value of (Mean= 3.1852 and SD=1.14187) and Word of mouth with the mean value of (Mean= 3.0926 and SD=0.84635). Whereas respondents have the lowest exposure to the marketing communication tools including CMEs with the mean value of (Mean=1.5370 and SD=0.87750) and Mail communication with the mean value of (Mean=1.6481 and SD=0.61449.). Generally, the finding revealed that the pharmaceutical companies are investing more on giving physician brochures and leaflets about their product, hiring medical sales representatives and word of mouth to create awareness about their drug

product and convince physicians to prescribe their drugs. On the contrary pharmaceutical companies are investing less on email communication and providing continuous medical educations.

Table 16-Descriptive features of exposure to the marketing communication tools

Exposure to Marketing communication tools	Mean	Std. Deviation(SD)
Exposure to WOM	3.0926	.84635
Exposure to free drug sample	2.1259	.88296
Exposure to detailing aids	2.4815	1.01551
Exposure to Medical sales representatives	3.1852	1.14187
Exposure to medical journals	2.2963	.65752
Exposure to brochures and leaflets	3.4074	.99288
Exposure to Seminar	2.2407	.81654
Exposure to Product launch	2.2222	.81040
Exposure to sponsored medical events	2.0556	.82743
Exposure to CMEs	1.5370	.87750
Exposure to mail	1.6481	.61449
Exposure to low value gift	2.5926	1.14908

Sources: SPSS Version 20 Output

4.4. Correlation analysis and discussion

Correlation Matrix which was created by using the Spearman correlation coefficient (r) is demonstrated in the table-20 how each physician extent of exposure to the marketing communication tools have correlated with physician perceptions towards the marketing communication tools. Correlations are the measure of the linear relationship between two variables. A correlation coefficient has a value ranging from -1 to 1. Values that are closer to the absolute value of 1 indicate that there is a strong relationship between the variables whereas a value closer to 0 indicates that there is little or no linear relationship. Hence, correlation coefficients indicate the strength and direction of the relationship. The p-value also indicated the probability of this relationship's significant. The relationship between physician extent of exposure to the marketing communication tools and their perception towards the marketing communication tools shown as follow;

Table 17: Correlation Matrix

Perceptions-marketing communication tools	Exposure-marketing communication tools	Sig (2-tailed)	N	Types of Correlation
WOM	0.333	0.000	270	Spearman Correlation
Free drug sample	0.347	0.000	270	Spearman Correlation
Detailing aids	0.265	0.000	270	Spearman Correlation
Medical sales representatives	0.347	0.000	270	Spearman Correlation
Medical journals	0.246	0.000	270	Spearman Correlation
Brochures and leaflets	0.455	0.000	270	Spearman Correlation
Seminar	0.326	0.000	270	Spearman Correlation
Product launch	0.553	0.000	270	Spearman Correlation
Sponsored medical events	0.205	0.000	270	Spearman Correlation
CMEs	0.199	0.000	270	Spearman Correlation
Mail	0.795	0.000	270	Spearman Correlation
Low value gift	0.503	0.000	270	Spearman Correlation

Sources: SPSS Version 20 Output

According to the result indicated in the table-16 physician exposure to marketing communication tools is positively and significantly correlated with the physician perception towards CMEs $r=0.199$; sponsoring medical events $r=0.205$; medical journal $r=0.246$; detailing aids $r=0.265$; seminar $r=0.326$; word of mouth $r=0.333$; medical sales representatives information $r=0.347$; brochures and leaflets $r=0.455$; low value gift $r=0.503$; product launch $r=0.553$; mail $r=0.795$ at acceptable significant $p<0.01$. A strong positive correlation, between exposure to the marketing communication tools and perception towards marketing communication tool for mail; moderate positive correlation for low value gift, product launch, brochures and leaflets; weak positive correlation medical sales representative information, word of mouth; seminar; detailing aids; medical journals; sponsoring medical events; Very weak positive correlation with CMEs. This implies that an increase or decrease in exposure to the marketing communication tools leads to boost or decline. It means that they vary together; high scores on one are associated with high scores on the other, and that low scores on one are associated with low scores on the other.

4.5. Independent sample t- test

Independent sample t-test is used to compare two groups' mean scores on the same variable.

4.5.1. Relationship between institution and perception towards the marketing communication tools

The variable consists of two groups as private and governmental working physicians as the independent variable and the dependent variables are the perception towards marketing communication tools. As shown in Appendix B in the case of WOM , Free drug sample, detailing aids, Medical sales representatives, Brochure and leaflet, Seminar and low value gift perception is dependent on physician working institution where as Sponsored medical event, CMEs, mail communication, Product launch meeting and Medical journal are independent of physician working institution.

4.5.2. Relationship between educational level and perception towards marketing communication tools

The variable consists of two groups as GP and specialist working physicians as the independent variable and the dependent variables are the perception of physician towards marketing communication tools. As shown in Appendix B in the case of physicians perception towards the communication tools including WOM, MSRs, medical journal, brochure and leaflet, seminar, product launch meetings, CMEs, low value gift, email communication where significance value are under 0.05 of the t-test for so Equality less than (0.05) is dependent of their educational level, whereas Detailing aid, Free drug sample are independent of educational level of physician.

4.6. ANOVA and F-test

ANOVA and f- test is used to compare more than two groups' mean scores on the same variable.

4.6.1. Relationship between patient administered and marketing communication tools

The variable consists of more than two groups as patients administered daily are (below 0-15, 16-25, 26-35 and 36-45) patients as the independent variable and the dependent variables are the perception towards marketing communication tools. As shown in the Appendix B where the marketing communication tools as significance value under F-test of means is less than (0.05) on all marketing communication tools except CMEs. So this implies that there is significant difference between marketing communication tools influence and physician prescribing behavior that vary upon

physician potentiality or number of patients administered daily, whereas CMEs are independent of patient administered daily.

4.6.2. Relationship between years of practice and marketing communication tools

The variable consists of more than two groups as years of practice of physician (0-5, 6-10, 11-15, 15-20 and more than 20) years as the independent variable and the dependent variables are the perception towards marketing communication tools. As shows in the Appendix marketing communication tools as significance value under F-test of means is less than (0.05) on all marketing communication tools except free drug sample. Therefore, the perception of physicians towards various kinds of marketing communication is independent of year of practice. So this implies that there is significant difference between marketing communication tools influence and physician prescribing behavior that vary upon physician years of experience, whereas free drug sample are independent of years of practice.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMENDATIONS

This chapter provides a summary, conclusions and recommendations of the research undertaken in the study. Conclusions are given based on the research objectives of the study. The general explanations of the findings were discussed and recommendations drawn from the conclusions of the research to improve its marketing communication strategy by giving due attention for the appropriate marketing communication tools.

5.1 Summary of Major finding

- Demographic distribution of the respondents was analyzed
- Descriptive analysis of mean score was made to determine physician perception towards the marketing communication tools including WOM, free drug sample, detailing aids, MSRs, medical journal, brochure and leaflet, seminar, product launch meeting, sponsoring medical event, CEMs, mail communication and gift.
- Descriptive analysis of extent of exposure to the marketing communication tools was also analyzed.
- Correlation Matrix which was created by using the Spearman correlation coefficient (r) where extent of exposure to the marketing communication tools have been correlated with physician perceptions towards the marketing communication tools.
- Independent sample t-test is used to compare the relationship between institution and educational level with perception towards the marketing communication tools is analyzed.
- ANOVA and f- test is used to compare the relationship between patient administered and perception of physician towards the marketing communication tools is analyzed.
- Summary of the demographic characteristics of respondent: - the respondents are male dominated. The age distribution also implies that the respondents are adult who are believed to have a great energy to the execution of the marketing communication tools. The majority of the respondents are specialists and the remaining are General practitioners with doctoral degree. The data gathered related with the job experience of the sample respondents witnessed the appropriateness of the samples as majority of the respondents' acquire experience between 6-10 years. 77.8% of the respondents ranged from 21-40 ages this implies that the physicians are youthful, energetic and potential prospects to the pharmaceutical companies.

- In the quantitative part, this section will also presents the major findings of the study based on the means score, independent sample t-test and ANOVA F-test and correlation.
- The following results of means score describes the average perception of the respondents towards marketing communication tools.
 - The overall mean for the perception of word of mouth is 3.8778, indicating that the majority of the respondents are towards higher level of agreements with the statements specified in the perception dimensions concept of the study.
 - The overall mean for the perception of physician towards MSRs information is 3.2852, CMEs is 3.2296, brochure and leaflets 3.1037, detailing aids is 3.0926, medical journal is 3.0444, product launch meeting is 2.9704, sponsored medical event is 2.6852, free drug sample is 2.6356, low value gift is 2.5593 indicating that the majority of the respondents are towards medium level of agreements with the statements specified in the perception dimensions concept of the study.
 - The overall mean for the perception of email communication is 1.763 indicating that the majority of the respondents are towards low level of agreements with the statements specified in the perception dimensions concept of the study.
 - The overall mean for the perception of email communication is 1.763 indicating that the majority of the respondents are towards low level of agreements with the statements specified in the perception dimensions concept of the study.
- Correlation Matrix using the Spearman correlation coefficient (r) is demonstrated in the extent of exposure to the marketing communication tools have correlated with physician perceptions towards the marketing communication tools. According to the result exposure to marketing communication tools is positively and significantly correlated with the physician perception towards CMEs $r=0.199$; sponsoring medical events $r=0.205$; medical journal $r=0.246$; detailing aids $r=0.265$; seminar $r=0.326$; word of mouth $r=0.333$; medical sales representatives information $r=0.347$; brochures and leaflets $r=0.455$; low value gift $r=0.503$; product launch $r=0.553$; mail $r=0.795$ at acceptable significant $p<0.01$. A strong positive correlation, between exposure to the marketing communication tools and perception towards marketing communication tool for mail; moderate positive correlation for low value gift, product launch, brochures and leaflets; weak positive correlation medical sales representative information, word of mouth; seminar; detailing aids; medical journals; price; sponsoring medical events; Very weak positive correlation with CMEs. This implies that an increase or decrease in exposure to the marketing communication tools leads to boost or decline. It

means that they vary together; high scores on one are associated with high scores on the other, and that low scores on one are associated with low scores on the other.

- Physician perception towards the marketing communication tools including WOM, Free drug sample, detailing aids, Medical sales representatives, Brochure and leaflet, Seminar and low value gift perception is dependent on physician working institution where as Sponsored medical event, CMEs, mail communication, Product launch meeting and Medical journal are independent of physician working institution.
- physicians perception towards the communication tools including WOM, MSRs, medical journal, brochure and leaflet, seminar, product launch meetings, CMEs, low value gift, email communication where significance value are under 0.05 of the t-test for so Equality less than (0.05) is dependent of their educational level, whereas Detailing aid, Free drug sample are independent of educational level of physician.
- Physician perception toward the communication tools including WOM, MSRs, medical journal, brochure and leaflet, seminar, product launch meetings, low value gift, email communication ,Detailing aid, Free drug sample are all dependent on physician patient administered daily whereas CMEs are independent of physician patient administered daily.
- Physician's perception towards various kinds of marketing communication including WOM, MSRs, medical journal, brochure and leaflet, seminar, product launch meetings, low value gift, email communication ,Detailing aid, CMEs is independent of year of practice. So this implies that there is significant difference between physician perception towards marketing communication that vary upon physician years of experience, whereas free drug sample are independent of years of practice.

5.2. Conclusions

Drug companies design marketing communication tools in the form of materials including gifts and sample; organized event including seminar, CMEs, product launch meetings and sponsored medical events; drug information's in the form of detailing aids, medical journal, brochures and leaflets, medical sales representative information; different communication ways including email communication. This communication tools are developed in the hope of influence physician prescribing behavior by being useful drug information source about a drug or being beneficiary for the physician., by creating awareness about a brand drug, by being interesting, appealing and attention grabbing to physician to follow through, helping physician to recall or memorizing and by effectively persuasive, convenience physician.

This study aimed to assess the perception of physicians towards marketing communication tools and its impact on physician prescribing behavior by measuring the perception of physicians towards the marketing communication tools. In addition, an assessment is made to determine if there is a correlation between the extent of exposure and physician perception towards the marketing communication tools, and also to examine if the perception of respondents towards the marketing communication tools is dependent on the physician demographic profile, including practicing institution (government and private), educational level (Gp, specialist), work experience, and patient administered daily.

Physician perception towards word of mouth is positive, which implies that physician perception towards colleagues or senior doctor recommendation is positive. Physician perception towards seminars, MSR information, CMEs, low value gifts, brochures and leaflets, detailing aids, medical journal product launch meetings, sponsored medical events, free drug samples, and low value gifts is positive.

Physician perception towards the marketing communication tools including WOM, free drug samples, detailing aids, medical sales representatives, brochures and leaflets, seminars, and low value gifts is dependent on the physician's working institution. Physician perception towards the communication tools including WOM, MSRs, medical journals, brochures and leaflets, seminars, product launch meetings, CMEs, low value gifts, email communication is dependent on educational level. Physician perception towards the communication tools including WOM, MSRs, medical journals, brochures and leaflets, seminars, product launch meetings, low value gifts, email communication, detailing aids, is dependent on patient administered daily. Physician's perception towards various kinds of marketing communication including WOM, MSRs, medical journals, brochures and leaflets, seminars, product launch meetings, low value gifts, email communication, detailing aids, CMEs is independent of year of practice.

Exposure to marketing communication tools and physician perceptions towards the communication tools show a strong positive correlation in the case of email communication; moderate positive correlation for low value gifts, product launch, brochures and leaflets; weak positive correlation for medical sales representative information, word of mouth; seminar; detailing aids; medical journals; sponsoring medical events; Very weak positive correlation with CMEs. This implies that an increase or decrease in exposure to the marketing communication tools leads to a boost or decline. It means that they vary together; high scores on one are associated with high scores on the other, and that low scores on one are associated with low scores on the other.

5.3. Recommendations

- The pharmaceutical companies should focus on word of mouth marketing by inviting key opinion leader to present their product in an event organized by Drug Company including seminar, product launch meetings and CMEs.
- Pharmaceutical company should allocate budgets to public relation and event in the form of Seminar, CMEs and product launch meeting to achieve their marketing and sales objectives.
- Medical sales representatives of pharmaceutical companies should be provided with appropriate training that would enable Reps to act in such a way that the communication is desirable and appreciable by the physician.
- Pharmaceutical companies should consider educational level developing the marketing communication tools including company reputation, medical journals, product launch, CMEs and mail communication.
- Pharmaceutical companies should consider demographic variables of physicians including site of practice, educational level, potentiality and years of practice while segmenting and targeting there key customers.

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APPENDIX A: QUESTIONARY

SCHOOL OF GRADUATE STUDIES DEPARTMENT OF MARKETING MANAGEMENT

Questionnaire to be filled by Respondents

Dear Respondents:

The purpose of this questionnaire is to collect information on a case study to Assessment perception of physician towards marketing communication tools. The intention of the study is for a partial fulfillment of Master of Marketing Management from St. Mary's University. I request your help to spend some minutes of your time by filing the provided questionnaire. The valid information that you may fill in this questionnaire has a great importance for the realization of the study. Please, be aware that while you react to the questionnaire:-

Please, be aware that while you react to the questionnaire:-

- ✓ The collected data will be used only for academic purpose.
- ✓ Your Response is kept confidential.
- ✓ The data will be analyzed collectively.
- ✓ Writing your name is not necessary.
- ✓ Please circle your answer for part I and put a tick (✓) mark just inside the given box for Part II and Part III

I thank you in advance for your cooperation and spending your valuable time in filling and taking part in the study.

Rekik Amare

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Part I

Sex

- a. Male
- b. Female

Educational level

- a. Medical Doctor
- b. Specialist Doctor
- c. Sub-specialist

Age

- 1. 21- 30
- 2. 31- 40
- 3. 41- 50
- 4. 51- 60
- 5. 61-70

Years of practice

- 1. 0-5 Years
- 2. 6-10 years
- 3. 11-15 years
- 4. 16 - 20 years
- 5. Above 20 years

The amount of patient administered daily on average

- 1. Below 15 patients
- 2. 16 - 25 patients
- 3. 26 - 35 patients
- 4. 36 -45 patients

Ownership of the institution

- 1. Private
- 2. Governmental

Part II: Respondents perception about marketing communication tools Respondent's level of agreement on the issues below; this part is kindly requires you to express your view on the issue being asked appropriately,1=strongly disagree=SD,2=disagree=DA,3=not sure=NS,4=agree-A,5=strongly agree-SA

S no	Items	SD (1)	DA (2)	N (3)	A (4)	SA (5)
Word of mouth						
1	Discussion about a drug with colleagues and senior physician beneficial?					
2	Discussion about a drug with colleagues and senior physicians awareness creating?					
3	Discussion about a drug with colleagues and senior interesting?					
4	Discussion about a drug with colleagues and senior unforgettable?					
5	Discussion about a drug with colleagues and senior persuasive/convincing?					
Free drug samples						
1	Are free drug samples useful?					
2	Free drug samples create awareness about a brand drug?					
3	Free drug sample motivating to know more about a brand drug?					
4	Free drug sample are memorized/recalled?					
5	Free drug sample impact drug choice?					
Detailing aids						
1	Detailing aids useful drug information source?					
2	Detailing aids received from pharmaceutical company create awareness about a drug?					

3	Detailing aids are interesting?					
4	Detailing aids are memorable					
5	Detailing aids are persuasive?					
Medical sales representatives information						
1	Medical sales representative are drug information source?					
2	Medical sales representative information about a drug creates awareness?					
3	Medical sales representative information about a drug is interesting?					
4	Medical sales representative information is recalled?					
5	Medical sales representative's information about a drug is persuasive?					
Medical journal						
1	Medical journals are useful drug information sources?					
2	Medical journals create awareness about a drug?					
3	Medical journals about a drug are interesting?					
4	Medical journals are memorable?					
5	Medical journal are persuasive?					
Brochures and leaflet						
1	Brochures and leaflets useful drug information source?					
2	Brochures and leaflets create awareness about a drug?					
3	Brochures and leaflets are appealing to read?					
4	Brochures and leaflets memorable?					
5	Brochures and leaflets information's are convincing?					
Seminar						
1	Attending Seminars are beneficial?					

2	Seminars create awareness about a drug product?					
3	Seminars are interesting/ engaging?					
4	Seminars are memorable?					
5	Seminars are influential on prescribing?					
Product launch meetings						
1	Attending Product launch is beneficial?					
2	Product launch meeting creates awareness?					
3	Product launches meetings are interesting?					
4	Product launches meetings are memorable?					
5	Product launches meetings are convincing?					
Medical events						
1	Attending medical events is beneficial?					
2	Drug advertisement on a medical event creates awareness about the drug?					
3	Drug advertisement on a medical event is attention-grabbing?					
4	Drug advertisement on a medical event is unforgettable?					
5	Drug advertisements on medical events are influential?					
CMEs						
1	CMEs are beneficial?					
2	CMEs create awareness about a drug?					
3	CMEs are interesting?					
4	CMEs are memorable?					
5	CMEs are convincing?					
Email communication						
1	Email communications are suitable?					
2	Email communication creates awareness about a drug?					
3	Email communication is interesting					

	communication?					
4	Email communication about a drug recalled to your mind?					
5	Email communication about a drug is significant?					
Gift Low value						
1	Are the Low value gifts received from company representative important?					
2	Low value gift create notice about a brand drug?					
3	Low value gifts are thoughtful of the drug companies?					
4	Low value gifts help in reminding of a drug name, company name or logos?					
5	Low value gift impact prescribing?					

Part III: Respondents Exposure to marketing communication tools Respondent's level of agreement on the issues below; this part is kindly requires you to express your view on the issue being asked appropriately, 1=Never,2=Rarely,3=sometimes,4= very often,5=Always

Sno	Items	Never (1)	Rarely (2)	Sometimes (3)	Very often (4)	Always(5)
Extent of exposure to the marketing communication tools						
1	Discussion with colleagues and senior physician					
2	Receive free drug samples					
3	Received Detailing aids					
4	Contacted by Medical sales representative					
5	Received Medical journals					
6	Received Brochures and leaflets					
7	Attending Seminars					
8	Attending Product launch					
9	Attending sponsored medical events					
10	Attending CMEs					
11	Email communication					
12	Receive Low value gift					

APPENDIX B: DESCRIPTIVE AND CORRELATION OUTPUTS

1. Reliability

Reliability Statistics

Cronbach's Alpha	N of Items
.829	12

Reliability Statistics

Cronbach's Alpha	N of Items
.945	60

2. Descriptive Statistics

Descriptive Statistics

	N	Mean	Std. Deviation	Variance
Perception Word of mouth	270	3.8889	.42183	.178
Perception Free drug sample	270	2.6356	1.05319	1.109
Perception Detailing aids	270	3.0926	.95995	.922
Perception MSRs	270	3.2852	.73833	.545
Perception Medical journal	270	3.0444	.76801	.590
Perception Brochures and leaflet	270	3.1037	.89587	.803
Perception Seminar	270	3.4593	.83031	.689
Product launch meeting	270	2.9704	1.03501	1.071
Perception Sponsoring medical event	270	2.6852	.97447	.950
Perception CEMs	270	3.2296	.89060	.793
Perception Mail communication	270	1.7630	.66799	.446
Perception Gift	270	2.5593	.96741	.936
Valid N (listwise)	270			

Descriptive Statistics

	N	Mean	Std. Deviation	Variance
Exposure to WOM	270	3.0926	.84635	.716
Exposure to free drug sample	270	2.1259	.88296	.780
Exposure to detailing aids	270	2.4815	1.01551	1.031
Exposure to Medical sales representatives	270	3.1852	1.14187	1.304
Exposure to medical journals	270	2.2963	.65752	.432
Exposure to brochures and leaflets	270	3.4074	.99288	.986
Exposure to Seminar	270	2.2407	.81654	.667
Exposure to Product launch	270	2.2222	.81040	.657
Exposure to sponsored medical events	270	2.0556	.82743	.685
Exposure to CMEs	270	1.5370	.87750	.770
Exposure to mail	270	1.6481	.61449	.378
Exposure to low value gift	270	2.5926	1.14908	1.320
Valid N (listwise)	270			

Group statistics

	Ownership of institute	N	Mean	Std. Deviation	Std. Error Mean
Perception Word of mouth	Private	165	3.8485	.48396	.03768
	Governmental	105	3.9524	.29026	.02833
Perception Free drug sample	Private	165	3.0424	.91566	.07128
	Governmental	105	1.9962	.93355	.09111
Perception Detailing aids	Private	165	3.3212	.86383	.06725
	Governmental	105	2.7333	.99679	.09728
Perception MSRs	Private	165	3.3697	.73935	.05756
	Governmental	105	3.1524	.72032	.07030
Perception Medical journal influence	Private	165	3.0970	.83829	.06526
	Governmental	105	2.9619	.63736	.06220
Perception Brochures	Private	165	3.2121	.67884	.05285

and leaflet	Governmental	105	2.9333	1.14074	.11132
Perception Seminar	Private	165	3.3636	.74483	.05798
influence	Governmental	105	3.6095	.93331	.09108
Perception Product	Private	165	3.0061	1.00788	.07846
launch	Governmental	105	2.9143	1.07877	.10528
Perception Sponsoring	Private	165	2.8303	.88912	.06922
medical event	Governmental	105	2.4571	1.06001	.10345
Perception CEMs	Private	165	3.2121	.91324	.07110
	Governmental	105	3.2571	.85742	.08368
Perception Mail	Private	165	1.7636	.66709	.05193
communication	Governmental	105	1.7619	.67259	.06564
	Private	165	2.8727	.77588	.06040
Perception Gift	Governmental	105	2.0667	1.03466	.10097

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Perception Word of mouth	Equal variances assumed	31.910	.000	-1.984	268	.048	-.10390	.05238	-.20702	-.00078
	Equal variances not assumed			-2.204	267.184	.028	-.10390	.04714	-.19670	-.01109
Perception Free drug sample	Equal variances assumed	.350	.555	9.083	268	.000	1.04623	.11518	.81946	1.27301
	Equal variances not assumed			9.044	218.407	.000	1.04623	.11568	.81824	1.27422

Perception	Equal variances assumed	7.086	.008	5.131	268	.000	.58788	.11457	.36232	.81344
Detailing aids influence	Equal variances not assumed			4.971	198.421	.000	.58788	.11826	.35467	.82108
	Equal variances assumed	.254	.614	2.378	268	.018	.21732	.09138	.03739	.39724
MSRs	Equal variances not assumed			2.392	225.826	.018	.21732	.09085	.03829	.39635
	Equal variances assumed	35.225	.000	1.411	268	.159	.13506	.09570	-.05335	.32348
Medical journal influence	Equal variances not assumed			1.498	259.548	.135	.13506	.09015	-.04246	.31259
	Equal variances assumed	53.088	.000	2.517	268	.012	.27879	.11075	.06075	.49683
Brochures and leaflet	Equal variances not assumed			2.262	151.284	.025	.27879	.12323	.03531	.52227
	Equal variances assumed	.213	.645	-2.393	268	.017	-.24589	.10275	-.44820	-.04358
Seminar	Equal variances not assumed			-2.277	186.008	.024	-.24589	.10797	-.45890	-.03288
	Equal variances assumed	1.096	.296	.710	268	.479	.09177	.12933	-.16285	.34640
Product launch meeting	Equal variances not assumed			.699	210.450	.485	.09177	.13130	-.16706	.35061
	Equal variances assumed	18.184	.000	3.117	268	.002	.37316	.11973	.13744	.60888
Sponsoring medical event	Equal variances not assumed			2.998	193.390	.003	.37316	.12447	.12767	.61865
	Equal variances assumed	.330	.566	-.404	268	.686	-.04502	.11135	-.26426	.17422

	Equal variances not assumed			-.410	231.763	.682	-.04502	.10980	-.26136	.17131
Perception Mail communication	Equal variances assumed	.496	.482	.021	268	.983	.00173	.08355	-.16276	.16622
	Equal variances not assumed			.021	220.233	.984	.00173	.08370	-.16322	.16668
Perception Gift	Equal variances assumed	14.500	.000	7.293	268	.000	.80606	.11052	.58846	1.02366
	Equal variances not assumed			6.851	177.350	.000	.80606	.11766	.57387	1.03825

Group Statistics

	Educational level of respondents	N	Mean	Std. Deviation	Std. Error Mean
Perception Word of mouth	General practioner	90	4.1000	.38657	.04075
	Specialist	180	3.7833	.39937	.02977
Perception Free drug sample	General practioner	90	2.6689	.89952	.09482
	Specialist	180	2.6189	1.12418	.08379
Perception Detailing aids	General practioner	90	3.7556	.80044	.08437
	Specialist	180	2.7611	.85720	.06389
Perception MSRs	General practioner	90	3.8667	.67040	.07067
	Specialist	180	2.9944	.58374	.04351
Perception Medical journal	General practioner	90	2.5889	.89561	.09441
	Specialist	180	3.2722	.57538	.04289
Perception Brochures and leaflet	General practioner	90	3.7000	.58923	.06211
	Specialist	180	2.8056	.87483	.06521
Perception Seminar	General practioner	90	3.6111	.77741	.08195
	Specialist	180	3.3833	.84744	.06316
Perception Product launch meeting	General practioner	90	3.4111	.74191	.07820
	Specialist	180	2.7500	1.09072	.08130

Perception Sponsoring medical event	General practioner	90	3.2444	.72066	.07596
	Specialist	180	2.4056	.96588	.07199
Perception CEMs	General practioner	90	3.6778	.70993	.07483
	Specialist	180	3.0056	.88877	.06625
Perception Mail communication	General practioner	90	1.9222	.23357	.02462
	Specialist	180	1.6833	.79013	.05889
Gift	General practioner	90	3.1889	.72970	.07692
	Specialist	180	2.2444	.91799	.06842

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2- tailed)	Mean Differenc e	Std. Error Differenc e	95% Confidence Interval of the Difference	
									Lower	Upper
Perception Word of mouth	Equal variances assumed	1.142	.286	6.207	268	.000	.31667	.05102	.21622	.41711
	Equal variances not assumed			6.275	183.37 2	.000	.31667	.05046	.21710	.41623
Perception Free drug sample	Equal variances assumed	17.896	.000	.367	268	.714	.05000	.13619	-.21813	.31813
	Equal variances not assumed			.395	216.60 5	.693	.05000	.12654	-.19940	.29940
Perception Detailing aids	Equal variances assumed	2.000	.158	9.184	268	.000	.99444	.10829	.78125	1.2076 4
	Equal variances not assumed			9.396	189.37 4	.000	.99444	.10584	.78568	1.2032 1

Perception	Equal variances assumed	.556	.457	11.006	268	.000	.87222	.07925	.71619	1.02826
MSRs	Equal variances not assumed			10.510	157.979	.000	.87222	.08299	.70832	1.03613
Perception	Equal variances assumed	24.596	.000	-7.581	268	.000	-.68333	.09014	-.86080	-.50586
Medical journal	Equal variances not assumed			-6.590	126.838	.000	-.68333	.10369	-.88852	-.47815
Perception	Equal variances assumed	43.929	.000	8.753	268	.000	.89444	.10218	.69326	1.09563
Brochures and leaflet	Equal variances not assumed			9.932	245.202	.000	.89444	.09005	.71707	1.07182
Perception	Equal variances assumed	1.038	.309	2.139	268	.033	.22778	.10649	.01812	.43744
Seminar	Equal variances not assumed			2.201	192.404	.029	.22778	.10346	.02371	.43185
Perception	Equal variances assumed	59.904	.000	5.180	268	.000	.66111	.12763	.40982	.91240
Product launch	Equal variances not assumed			5.861	243.756	.000	.66111	.11281	.43891	.88331
Perception	Equal variances assumed	12.410	.001	7.285	268	.000	.83889	.11515	.61217	1.06560
Sponsorin g medical event	Equal variances not assumed			8.015	228.871	.000	.83889	.10466	.63267	1.04511
Perception	Equal variances assumed	12.329	.001	6.246	268	.000	.67222	.10762	.46033	.88412
CEMs	Equal variances not assumed			6.726	216.914	.000	.67222	.09994	.47524	.86920
Perception	Equal variances assumed	199.244	.000	2.805	268	.005	.23889	.08516	.07123	.40655
Mail communication	Equal variances not assumed			3.742	232.739	.000	.23889	.06383	.11313	.36465

Perception	Equal variances assumed	1.667	.198	8.506	268	.000	.94444	.11103	.72584	1.16305
Gift	Equal variances not assumed			9.174	217.782	.000	.94444	.10295	.74155	1.14734

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Perception Word of mouth	Between Groups	1.800	3	.600	3.464	.017
	Within Groups	46.067	266	.173		
	Total	47.867	269			
Perception Free drug sample	Between Groups	10.384	3	3.461	3.197	.024
	Within Groups	287.994	266	1.083		
	Total	298.379	269			
Perception Detailing aids	Between Groups	28.660	3	9.553	11.592	.000
	Within Groups	219.225	266	.824		
	Total	247.885	269			
Perception MSRs	Between Groups	25.101	3	8.367	18.312	.000
	Within Groups	121.539	266	.457		
	Total	146.641	269			
Perception Medical journal	Between Groups	15.586	3	5.195	9.659	.000
	Within Groups	143.081	266	.538		
	Total	158.667	269			
Perception Brochures and leaflet	Between Groups	22.505	3	7.502	10.318	.000
	Within Groups	193.391	266	.727		
	Total	215.896	269			
Perception Seminar	Between Groups	23.434	3	7.811	12.824	.000
	Within Groups	162.018	266	.609		
	Total	185.452	269			
Perception Product launch meeting	Between Groups	31.616	3	10.539	10.927	.000
	Within Groups	256.547	266	.964		
	Total	288.163	269			

Perception Sponsoring medical event	Between Groups	16.199	3	5.400	6.004	.001
	Within Groups	239.242	266	.899		
	Total	255.441	269			
Perception CEMs	Between Groups	2.732	3	.911	1.150	.329
	Within Groups	210.631	266	.792		
	Total	213.363	269			
Perception Mail communication	Between Groups	25.191	3	8.397	23.551	.000
	Within Groups	94.839	266	.357		
	Total	120.030	269			
Perception Gift	Between Groups	17.115	3	5.705	6.468	.000
	Within Groups	234.637	266	.882		
	Total	251.752	269			

Source: Own Survey Result, 2018

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Word of mouth	Between Groups	11.842	4	2.961	21.778	.000
	Within Groups	36.024	265	.136		
	Total	47.867	269			
Free drug sample	Between Groups	3.749	4	.937	.843	.499
	Within Groups	294.630	265	1.112		
	Total	298.379	269			
Detailing aids	Between Groups	40.677	4	10.169	13.006	.000
	Within Groups	207.208	265	.782		
	Total	247.885	269			
MSRs	Between Groups	33.597	4	8.399	19.690	.000
	Within Groups	113.044	265	.427		
	Total	146.641	269			
Medical journal	Between Groups	53.570	4	13.393	33.769	.000
	Within Groups	105.096	265	.397		
	Total	158.667	269			

Brochures and leaflet	Between Groups	56.450	4	14.112	23.455	.000
	Within Groups	159.446	265	.602		
	Total	215.896	269			
Seminar	Between Groups	28.678	4	7.170	12.119	.000
	Within Groups	156.773	265	.592		
	Total	185.452	269			
Product launch meeting	Between Groups	39.039	4	9.760	10.382	.000
	Within Groups	249.124	265	.940		
	Total	288.163	269			
Sponsoring medical event	Between Groups	33.422	4	8.355	9.973	.000
	Within Groups	222.019	265	.838		
	Total	255.441	269			
CEMs	Between Groups	53.740	4	13.435	22.304	.000
	Within Groups	159.623	265	.602		
	Total	213.363	269			
Mail communication influence on prescribing behavior of physican	Between Groups	9.399	4	2.350	5.628	.000
	Within Groups	110.631	265	.417		
	Total	120.030	269			
Gift influence on prescribing behavior of physican	Between Groups	35.643	4	8.911	10.927	.000
	Within Groups	216.109	265	.816		
	Total	251.752	269			

Correlations

			Exposure to WOM	Perception Word of mouth
Spearman's rho	Exposure to WOM	Correlation	1.000	.333**
		Coefficient		
	Sig. (2-tailed)		.000	
	N	270	270	
Perception Word of mouth	Correlation	.333**	1.000	
	Coefficient			

Sig. (2-tailed)	.000	
N	270	270

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

Correlations

			Exposure to detailing aids	Detailing aids
Spearman's rho	Exposure to detailing aids	Correlation	1.000	.265**
		Coefficient		
		Sig. (2-tailed)		.000
	Perception Detailing aids	Correlation	.265**	1.000
		Coefficient		
		Sig. (2-tailed)	.000	
		N	270	270

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

Correlations

			Exposure to Medical sales representatives	Perception MSRs
Spearman's rho	Exposure to Medical sales representatives	Correlation	1.000	.347**
		Coefficient		
		Sig. (2-tailed)		.000
	Perception MSRs	Correlation	.347**	1.000
		Coefficient		
		Sig. (2-tailed)	.000	
		N	270	270

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

Correlations

			Exposure to medical journals	Perception Medical journal
Spearman's rho	Exposure to medical journals	Correlation	1.000	.246**
		Coefficient		
		Sig. (2-tailed)		.000
		N	270	270
	Perception Medical journal	Correlation	.246**	1.000
		Coefficient		
Sig. (2-tailed)		.000		
	N	270	270	

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

Correlations

			Exposure to brochures and leaflets	Perception Brochures and leaflet
Spearman's rho	Exposure to brochures and leaflets	Correlation	1.000	.455**
		Coefficient		
		Sig. (2-tailed)		.000
		N	270	270
	Perception Brochures and leaflet	Correlation	.455**	1.000
		Coefficient		
Sig. (2-tailed)		.000		
	N	270	270	

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

Correlations

			Exposure to Seminar	Perception Seminar
Spearman's rho	Exposure to Seminar	Correlation	1.000	.326**
		Coefficient		
		Sig. (2-tailed)		.000
	Perception Seminar	N	270	270
		Correlation	.326**	1.000
		Coefficient		
	Sig. (2-tailed)	.000		
	N	270	270	

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

Correlations

			Exposure to Product launch	Perception Product launch meeting
Spearman's rho	Exposure to Product launch	Correlation	1.000	.553**
		Coefficient		
		Sig. (2-tailed)		.000
	Perception Product launch meeting	N	270	270
		Correlation	.553**	1.000
		Coefficient		
	Sig. (2-tailed)	.000		
	N	270	270	

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

Correlations

			Exposure to sponsored medical events	Perception Sponsoring medical event
Spearman's rho	Exposure to sponsored medical events	Correlation	1.000	.205**
		Coefficient		
		Sig. (2-tailed)		.001
		N	270	270
	Perception Sponsoring medical event	Correlation	.205**	1.000
		Coefficient		
Sig. (2-tailed)		.001		
	N	270	270	

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

Correlations

			Exposure to CMEs	Perception CEMs
Spearman's rho	Exposure to CMEs	Correlation	1.000	.199**
		Coefficient		
		Sig. (2-tailed)		.001
		N	270	270
	Perception CEMs	Correlation	.199**	1.000
		Coefficient		
Sig. (2-tailed)		.001		
	N	270	270	

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

Correlations

			Exposure to mail	Perception Mail communication
Spearman's rho	Exposure to mail	Correlation	1.000	.795**
		Coefficient		
		Sig. (2-tailed)		.000
		N	270	270
	Perception Mail communication	Correlation	.795**	1.000
		Coefficient		
		Sig. (2-tailed)	.000	
		N	270	270

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

Correlations

			Exposure to low value gift	Gift
Spearman's rho	Exposure to low value gift	Correlation	1.000	.503**
		Coefficient		
		Sig. (2-tailed)		.000
		N	270	270
	Perception Gift	Correlation	.503**	1.000
		Coefficient		
		Sig. (2-tailed)	.000	
		N	270	270

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