



ST. MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
MASTER'S THESIS PROPOSAL

TITLE OF THESIS:

**THE IMPACT OF PHARMACEUTICAL PROMOTION STRATEGIES ON
PRESCRIBING BEHAVIOR OF PHYSICIANS IN ADDIS ABABA CITY.**

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MBA 8TH BATCH

DEPARTMENT:

BUSINESS ADMINISTRATION

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**A THESIS SUBMITTED TO ST. MARY UNIVERSITY IN PARTIAL FULFILLMENT FOR
THE DEGREE OF MASTER IN BUSINESS ADMINISTRATION (MBA).**

**APRIL 2021
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BY: TEMESGEN HAILESLLASSIE WELDEGEBREAL

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Declaration

I, Temesgen Hailesilassie Weldegebreal, hereby declare that the work which is being presented in this thesis entitled “**The impact of pharmaceutical promotion strategies on prescribing behavior of physicians in Addis Ababa city**” is an original work of my own and prepared under guidance of my thesis supervisor Dr. Temesgen Belayneh (PHD). It has not been presented for any scholastic achievement and level of study (Bachelors of Masters or PhD programs) in any other Institute, College and University. All the sources of materials used in this dissertation paper have been duly acknowledged.

The Candidate

Date

This is to certify that the above declaration made by the candidate is correct to the best of my knowledge.

Supervisor of the Thesis

Date

Acknowledgement

I would like to express thanks to my advisor Dr. Temesgen Belayneh (PHD.), for his resourceful advice for the completion of this thesis. Besides to his fast response s for my questions during the study, his valuable comments and constructive critiques have been helpful in accomplishing the project. I am very grateful to my friend Mr Ashenf Adamu, for his guidance and encouragement throughout the period of my study, His inputs were instrumental.

My deepest thanks go to health institutions and physicians who participated in fill out my questionnaire for the study and my Data collector and statistician Mr. Degene Girma, Unless and otherwise it would not have been completed.

I want to express my sincere gratitude to my wife Hiwot Dessie and my kids Filimon Temesgen, Markon Temesgen and Ruth Temesgen for their patience, love and support during the course and study.

Last but not least, I would like to express my thanks to St.Mary University for enabling me acquire basic business knowledge which will help and guide my future business life.

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Abbreviations and Acronyms

ANOVA – Analysis of Variance

AHWO – African Health Workforce Observatory

FMHACA - Food, Medicine, Healthcare Administration and Control Authority

GPs - General practitioners

MRs - Medical Representatives

OTCS - Over the Counters

WHO – World Health Organization

Abstract

This study was conducted to explore the effect of pharmaceutical promotion strategies on prescribing behavior of physicians and determine promotional tools which are effective in influencing the prescribing behavior of physicians. Furthermore, the study also focused to examine the relationship between various kinds of promotional tools with demographic variables of physicians. A Cross-sectional survey strategy was used. And data was collected through self-administered questionnaire to selected physicians in Addis Ababa. Purposive or judgmental sampling method was followed. Data was analyzed on the basis of responses provided by 270 respondents. Factor analysis was used for data reduction and ANOVA and F-test and Independent-Sample t test for hypothesis testing. Analysis results show that the personal selling and sales promotion has been perceived to be the most influencing strategy whereas the personal selling itself has been revealed to be the second most important factor. The advertising, sales promotion and educational promotional tools strategies have also perceived to the third, fourth and fifth important influencing factors respectively. Finally, public relation strategy is perceived to be the least important factor by physicians. Findings of the present study can help pharmaceutical companies in designing their promotion strategies that are more effective in influencing the prescribing behavior of physicians. Moreover, the information offered by pharmaceutical companies to physicians may help to develop their professional competency.

Key words: *Pharmaceutical promotion strategies, Physician prescribing behavior, Promotional tools, Personal selling, Advertising, Sales promotion and Public relation.*

Chapter 1: INTRODUCTION

The aim of this chapter is to give an overview of the topic, demonstrate the problem or challenge, the research question, the purposes, significance of the study, scope of the study and finally, to clarify how the study is being organized.

1.1. Background

The impact of drug manufacturers' commercial activities on drug choice has been recognized by different researchers in this field, even by those who are not in favor of such an influence (Proenca and Gomez, 2000; Hemminki 1974; 1975a). For example, Hemminki (1975a) found that there are two major influences on a doctor's therapeutic approach: research and commercial activities developed by the pharmaceutical companies. Unsuspicious reports also considered that "one of the most potent influences on doctors' prescribing is the pharmaceutical industry, which provides information at all levels and in many forms - written, verbal, and audio-visual" (Proenca and Gomez, 2000). Furthermore, some members of the WHO expressed a growing concern about the influence of the pharmaceutical industry on doctors' prescribing behavior: "It is a sad reality, however, that in many countries, adequate information is not available even at the highest level of the health care system, and doctors are largely reliant upon promotional information from industry" (Proenca and Gomez, 2000).

Pharmaceutical marketing is unique as the decision making of buying the medicine lies in the hands of the intermediate customer (i.e., doctors) rather than final consumer (i.e., patients). Thus pharmaceutical companies attempt to influence the customer doctors rather than the patients. Thus doctors are the most important players in the pharmaceutical marketing system. Doctors write the prescriptions that determine which drugs (brands) will be used by the patient. Thus influencing the doctor is a key to boost pharmaceutical sales. Pharmaceutical companies endeavor to influence prescription pattern of doctors in favor of their brands by offering various kinds of promotional inputs.

such as samples, gifts and sponsorships etc. (Arora and Taneja, 2006). Usual marketing practices followed by most of the large and mid-sized companies include valuable gifts, arranging foreign trips with family and complimentary tickets and memberships for social activities to doctors (Jayakumar, 2008). It has been suggested that the doctor's prescribing behavior may vary from country to country and thus national studies are needed (Haaijer- Ruskamp and Hemminki, 1993) to understand physicians prescribing behaviors in different countries.

In Ethiopia the same drug molecules are sold under different brand names by different pharmaceuticals. To persuade the physicians to prescribe their brands pharmaceuticals engage in marketing techniques including giving samples, gifts, brochures, booklets, etc. To date, no empirical work has been presented to the academic community about the impact of pharmaceutical promotion strategies on prescribing behavior in Ethiopia as a whole. Therefore, the research in this thesis is mainly concerned with the influence of pharmaceutical promotion strategies on the prescription behavior of doctors in Addis Ababa.

1.2 Research problem

Pharmaceutical sector plays a crucial role in the country's economy and it also ensures the welfare of its citizens. The pharmaceutical industries are spending large sums of money on marketing than innovation, research and development (Puneet M and Elisabeth H., 2005). The marketing efforts of pharmaceutical companies are directed towards physicians (drug prescribers) who are important decision-makers about medicines and encompass personal selling through medical sales representatives, sampling, physician meetings and events; and advertisements in medical journals. According to revised document that contains list of human pharmaceutical suppliers issued by Food, Medicine, Healthcare Administration and Control Authority of Ethiopia (July, 2014), there are a total of 254 pharmaceutical supplier companies in Addis Ababa currently which comprise Manufacturers, Importers and Wholesalers. Most of these companies promote their products in different brand names with almost similar kind of promotional tools. Determining the most effective way of promotion is crucial to enable pharmaceutical companies to direct their promotional effort appropriately. Thus, pharmaceutical company managers/marketing managers are grappling with the following key questions: - which marketing communication strategies and tools are more effective in obtaining prescription from physicians? Does the perception of physicians to various kinds of promotional strategies and tools differ according to demographic variables?

Therefore, this study will answer the following research questions and hypotheses:-

1. What is the effect of the different kinds of promotional strategies on the prescribing behavior of physicians?
2. Which promotional tools are more effective to influence the prescribing behavior of physicians?

Null Hypothesis:

H₀ (1) Perception of physicians towards various kinds of promotional tools is independent of their age.

H₀ (2) Perception of physicians towards various kinds of promotional tools is independent of their practicing area.

H₀ (3) Perception of physicians towards various kinds of promotional tools is independent of ownership of the institution in which they are employed.

H₀ (4) Perception of physicians towards various kinds of promotional tools is independent of their gender.

H₀ (5) Perception of physicians towards various kinds of promotional tools is independent of their qualifications.

H₀ (6) Perception of physicians towards various kinds of promotional tools is independent of their marital status.

1.3 Research objectives

The pharmaceutical industry in Ethiopia needs communication strategy and tools founded on systematically studied empirical evidence. This thesis will concentrate on four promotional strategies namely, Advertising, personal selling, public relations and sales promotion. The paper analyses various kinds of promotional tools that companies use, which are the best suited, more effective and useful for the companies to do communication with prescribers. The survey will help the reader to understand the complexity of pharmaceutical promotions.

Therefore, this was conducted to achieve the following objectives:-

1. To explore the effect of the different kinds of promotional strategies on the prescribing behavior of physicians.
2. To determine which promotional tools are more effective in influencing the prescribing behavior of physicians.
3. To determine the relationship between various kinds of promotional tools with demographic variable of physicians.

1.4 Significance of the study

The way pharmaceutical companies promoting their drugs currently may not be appreciated by physicians. This makes the marketing communication effort unproductive for them. In fact, different companies may have their own promoting styles. Nonetheless, it is crucial to understand the effective way of pharmaceutical promotion in order to benefit from the activity. Indirectly physicians may benefit from the effective way of pharmaceutical promotion. If the way of communication is desirable / appreciable by physicians, they can be interested to hear the information given by the companies that helps to develop the former's professional competency. Consequently, patients may receive appropriate medication to their health problems. Therefore, determining the most effective way of promotion is vital to enable pharmaceutical companies to direct their promotional effort appropriately.

1.5 Scope of the study

This study was conducted on physicians, both general practitioners (GP's) and specialists, who prescribe pharmaceuticals to patients in Addis Ababa city administration. Other health professionals namely health officers, nurses, health assistances, laboratory technologists, laboratory technicians, pharmacists and druggists are out of the scope of this study. The findings of this study can only be generalized for understanding the impact of pharmaceutical promotion strategies on prescribing behavior of physicians in Addis Ababa administration.

1.6 Limitations of the study

'Limitations' refer to limiting conditions or 'restrictive weaknesses' (Locke et al., 1993: 18) which are unavoidably present in the study's design. Like any other study, this study has some limitations. Although a representative sample was taken carefully, the sample result may not reflect population characteristics. Replication studies should be conducted at different times to confirm generalizability of the results or refine the conclusions of the study. In addition, the high workload of physicians emanating from their limited number compared with population size of Addis Ababa may mean that the responses might not be given in a full attention. This unavoidable issue may affect data quality and the final results of the study.

1.7 Organization of the study

The remainder of this thesis is organized as follows. The second chapter presents a review of the existing literature (theories and findings) on the area of pharmaceutical promotion strategies and summarizes key findings of prior studies to show the linking of the existing literature to the present study. The third chapter outlines the research methodology. This is followed by data analysis and

discussion of the results in chapter four. The last chapter summarizes the results, draws the conclusions, offers recommendations and closes the thesis by suggesting areas for future research.

Chapter 2: LITERATURE REVIEW

The objective of this chapter is to review the literature on the pharmaceutical promotion or pharmaceutical marketing communication strategies/ tools, namely advertising, public relations, sales promotion and personal selling. Several studies have been conducted to find out the influence of promotional tools on physicians prescribing behavior. The researcher has reviewed major studies conducted in this area.

2.1 Pharmaceutical marketing communication strategies

The World Health Organization (WHO) defines pharmaceutical promotion as “all information and persuasive activities by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/ or use of medicinal drugs” (Geneva, 1988). According to Food, Medicine and Health Care Administration and Control Authority of Ethiopia (FMHACA, 2013), ‘Pharmaceutical promotion includes any representation such as sound, word, sign, image, electronics or other means whatever, for the purpose of promoting directly or indirectly the prescription, sale or dispensing of any pharmaceuticals. The authority also defines “pharmaceuticals as any substance or mixture of substances used in the diagnosis, treatment, mitigation or prevention of a disease in human and includes narcotic drugs, psychotropic substances and precursor chemicals, traditional medicines, complementary or alternative medicine; poisons, blood and blood products, vaccine, radioactive pharmaceuticals, cosmetics and sanitary items and medical instruments.”

Communication strategy is the design, planning, implementation and controlling of integrated communication activities. The pharmaceutical marketing communications comprise Advertising, personal selling, public relations and sales promotion as well as web communications collectively constituting the *promotion mix*. This mix serves triple purpose: (1) to provide information, (2) to persuade, and (3) to remind (Dogramatzi, 2002). Marketing communication is a management concept that is designed to make all aspects of marketing communication such as advertising, sales promotion, public

relations, and direct marketing work together as a united force, rather than permitting each to work in isolation. It is the communication between the buyer and seller in order to let the buyer get known with your product with the main goal to sell the product (Vosmer, 2006). In the pharmaceutical industry more parties get involved in the marketing communication. The main actors in the market are the patients, pharmacists and doctors. The doctor and pharmacists can advise products as well, so the other parties are the sellers in this case. Furthermore, the government plays an important role by prescribing the rules in the law that limit the ways of communication for the pharmaceutical companies. The marketing communication strategies should be designed in consideration of all parties. It can be seen as indirect communication between buyer and seller if the communication goes through the other parties.

The main communication strategies are; advertising, public relations, sales promotion and personal selling. Each tool has its benefits and can be used in different ways to get in contact with the target audiences. The different tools can be used to reach the different goals (Floor & van Raaij, 2006). The study done by Shirazi (2007) concluded that pharmaceutical promotion and its influence on the medical profession will be demystified when we understand how its power is derived from the way it is implemented and perceived. Whether promotional influence is conceptualized as contribution, challenge, or threat, criticality is needed to prevent irrational consequences. As long as prescribing behavior is seen as really a ‘behavior’ and not merely an excretion of physicians’ knowledge and experience, it is open to constantly influence and being influenced.

2.1.1 Advertising

Advertising is defined as “a non-personal, paid communication about an organization, product, or idea by an identified sponsor” (Dogramatzi, 2002). According to Onkovisit and Shaw (2004), Advertising media includes television, radio, newspapers, and magazines, direct mail, outdoor, internet, screen (cinema), directories, rural media, stadiums and other media. Broadcast Advertising of prescription drugs directly to consumers is prohibited in Ethiopia except ORS, oral contraceptives, condoms, vaccines, vitamins, medicated and non medicated cosmetics, sanitary and beautifying agents like tooth paste, diapers and modes, and disinfectants (FMHACA, 2013). Pharmaceutical Advertising is directed to the prescriber, not the final consumer; the target audience is identifiable; the company image is important; scientific journal reputation is key and rational appeals dominate the prescription decision of physicians (Dogramatzi, 2002). Moreover, Sharma (2012) found that presenting good quality literature and journals are preferable

promotional tools in comparison to organization of free camps, personal gifts, medicine samples or any other incentive.

A study comparing the relationship between advertising and prescription patterns, by Walton (1980) shows that physician examined advertisements that were in at least one published medical journal. One-hundred physicians randomly selected and from a wide variety of specialties, examined each of the 354 advertisements. Data was collected by interview and physicians were asked if they recognized advertisements after all product and company details had been removed. Each interviewee was provided with the names of all the drugs for which they were shown the advertisements and asked if they had recommended or prescribed the drug in the past month. It was shown that those physicians who recognized advertisements were more likely to prescribe the products. Ninety five percent of the advertisements were shown to lead to positive prescribing behavior patterns. There was no difference between recently released products and older more established products.

Matalia (1994) examined the effectiveness of advertising on prescription habits. The first trial examined whether a doctor who previously had not prescribed a certain drug was more likely to prescribe it after seeing advertisements. It was found that once familiarity with a product increased the willingness to trial a drug increased. The second study looked at whether physicians were more likely to prescribe a particular drug if they were exposed to increased advertising. The doctors were sent journals with varying amount of marketing for the drug. It was found increased marketing led to increased prescription. This study further shows that, advertising of certain products was stopped then restarted after four months. It was found doctors who had seen the adverts were more likely to remember the product.

Siddiqi et al. (2011) have shown that physicians perceive that scientific promotional tools are more influencing in changing prescribing behaviors in comparison with other promotional tools, which is similar to the medical representative perception. But as far as other promotional tools are concerned, there exist a significant difference in perception of both medical representatives and doctors. No significant difference between government doctors and private doctors, and also no significant difference between medical representatives and area sales managers. It provides guideline for pharmaceutical companies, that companies should plan more of scientific promotional tools for consultants and more common promotional tools for physicians.

2.1.2 Personal Selling

According to Onkowitz and Shaw (2004), personal selling is an “oral presentation in a conversation with one or more prospective purchasers for the purpose of making sales.” Personal selling, also commonly known as salesmanship, is used at every distribution level. They explained that personal selling is similar to advertising in the sense that both aim to create sales and that both must be understandable, interesting, believable, and persuasive. However, advertising differs from personal selling in several aspects. Advertising relies on a non-personal means of contact and sales presentation whereas personal selling involves a two way communication. They also described that the quality of personal selling varies widely from product to product, from employer to employer and from one target group to another.

“Personal selling is one of the basic elements of integrated communications and the promotional mix. It refers to the direct communication between a seller and prospective customer to generate a response and/or a transaction” (Dogramatzi, 2002). He indicated that there are four major types of personal selling in health care, namely, *retail selling* of pharmaceuticals from a licensed retail pharmacy; field selling of pharmaceuticals by sales representative visiting potential prescribers; telemarketing, which is mostly used in consumer goods sector, but also used for health insurance and pharmacy purchasing of OTCs; and inside selling in which a medical sales representative permanently located within a medical center that caters the orders. Even though personal selling comprises the above types, in pharmaceuticals it focuses on field sales to prescribers via specialized medical sales forces.

According to Sharma (2012), a regular visit by a smart, dedicated, well groom having soft skills medical representatives is the best tool of promotion for a pharmaceutical company to influence the prescription behavior of physicians. Similarly, Shamim-ul-Haq 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. Data from Cegdim Company in California (2012) based on ongoing survey panel of 2,455 physicians and other healthcare practitioners to get promotional channels that influence physicians to prescribe drugs shows that face to face product detailing still has the highest influence on the intent to prescribe, with nearly 40 percent of respondents having an increased intent after a sales rep visit. Tele-detailing has the least influence, with intent decreasing to 12 percent in 2010 from 35 percent in 2009.

A cross-sectional, exploratory survey was performed among 152 GPs working in the primary health centers and hospitals in Erzurum province of Eastern Turkey by Vancelik et al. (2006). This study suggested that for the majority of the GPs, primary reference sources concerning prescribing was commercial information provided by sales representatives of pharmaceutical companies, which were reported to be highly influential on their decision-making process of prescribing by GPs. Since this study was based on self-report, the influence reported by the GPs may have been underestimated. Gonul et al (2001) found evidence that detailing positively affects the prescription probability of a drug up to a point, after which excessive detailing becomes ineffective. The effectiveness of dispensing free samples to physicians follows the same pattern.

Ingole et al. (2011) examined the attitudes of medical students towards relationship with pharmaceutical companies and drug promotion by them. Results indicated that overall 81% of the medical students were of the opinion that pharmaceutical companies should be allowed to interact with them at the college level. About 95% believe that the information given by MRs is reliable and confirmation of the claims is not required (75% students). Overall 68% students believe that drug promotional offers never compromise the decision making of the physicians. About 70% students think that physicians should be compensated with gifts by medical representatives whenever their drugs are prescribed.

A more recent study indicates that GPs rely heavily on pharmaceutical representatives for both awareness and evaluation of new drugs and that, in many cases, little evaluation of the drug occurs before prescribing. Prosser et al. (2003) collected data from 107 GPs in two health authorities, including high, medium and low prescribers of new drugs. A critical incident interview technique was used to obtain factual accounts of the decision process involved in prescribing new drugs. Six hundred and sixty six critical incidents were analyzed, where the prescribing event had been an internal decision by the GP rather than “proxy” prescribing for consultants. The first stage in the decision was awareness of the new drug; the pharmaceutical industry was the initial information source in 49% of events, most frequently in the form of a representative. This compared to professional contacts in just 13% of events and academic or professional literature in just 17% of events. Exposure to drug information was generally reactive and opportunistic; GPs rarely performed an active information search to support their decision. Evaluation of the drug, the next stage in the decision, involved multi-factorial influences from several sources. Professional colleagues, patient acceptability, literature, cost, and biomedical factors were all important.

However, the most frequently cited influence at this stage was, again, the pharmaceutical representative (39%). It is of concern that in 37% of cases, the initial informant, usually a representative, was the sole information source consulted in the prescription decision, without recourse to academic literature.

The reasons cited referred to a lack of time, information overload, and lack of skills for interpretation of scientific literature, as well as a preference for relying on personal clinical experience. The perceived credibility of the information source emerged as an important factor in its influence. Hospital consultants played a major role in leading GPs' opinions about new drugs, particularly when they were known and respected. Little interchange occurred within the primary care team itself. Long-standing and trusting relationships with pharmaceutical representatives also lent perceived credibility to this source. The critical incident technique for defined events used in this study reduces the limitations of subjective recall, though social desirability bias may have affected the responses.

McGettigan (2001) asked UK doctors to recall their first exposure to information about a "new" drug that they had most recently prescribed. Among GPs, 42% cited pharmaceutical representatives as the first source of information, while a large proportion also cited recommendations by hospital consultants. Among hospital doctors, 18% cited pharmaceutical representatives while a large proportion had relied on information from senior colleagues and clinical meetings. Both groups relied substantially on pharmaceutical representatives for information to prescribe "new" drugs, but GPs were significantly more likely to do so. Pharmaceutical representatives were more influential in prescribing a new drug than other commercial sources such as sponsored meetings or journal advertisements. Hospital doctors were significantly more likely than GPs to cite colleagues as the source of information for the last prescribed "new" drug, and consulted a wider range of resources, which may reflect the different social structure of the hospital working environment. Although academic references were rated highly as theoretically important sources of information, only a small proportion had used medical journals. The more recently qualified GPs were more likely to have used a medical journal or a primary care colleague to inform their prescribing.

In a rare qualitative study by Jones et al. (2001) conducted semi-structured interviews with 38 consultants and 56 GPs in Birmingham to investigate their perceptions of the factors that influence their decisions to start prescribing new drugs, including attitudes to drug information sources. They

were asked to comment on drugs they had prescribed from a predetermined list of eight new drugs, as well as any other new drugs they had recently introduced into their clinical practice. Commercial sources of information, in particular pharmaceutical representatives, were an important information source for both consultants and GPs. Consultants reported good personal relationships with pharmaceutical representatives; one describing a representative as “an old friend”. Consultants often responded that representatives were useful for gaining sponsorship. Consultants frequently cited other information sources including academic literature, colleagues, and clinical meetings, while many GPs relied solely on information from representatives.

A survey conducted by Taneja (2008) to develop a simple framework for finding out the impact of the different kinds of promotional tools offered by pharmaceutical industry on the prescribing behavior of doctors. Findings of the study revealed that respondents have perceived personal selling to be the most important factor with the highest explained variance of 14.636 %. The study includes regular visits of medical representative / manager, rapport of doctors with medical representative, detailing story by medical representative and inputs presented by medical representative during their visits like doctors samples, product literature / updates and coupons for free samples. Hence it can be concluded that personal selling influences the doctors most while prescribing products of a particular company.

Despite evidence that PR (Pharmaceutical representative) detailing influences prescribing, providers from several health professions continue to believe that PR interactions improve patient care, and that they can adequately evaluate and filter information presented to them PRs. Focus group comments suggest that cultural change is necessary to break the norms that exist in interactions (Fischer et al., 2009). To support this, detailers provide a vast array of services to the physician, together with free samples for testing the medicine. Among the alternative tools of a pharmaceutical firm’s communication mix, personal selling seems to be the most powerful in many marketing studies (Narayanan et al., 2004; Pitt & Nel, 1988).

On the contrary, Al Zahrani (2014) used self-administered questionnaire to assess drug representatives’ influence on physician’s prescription, to assess physician’s attitudes towards drug representatives and to study other factors that may affect the prescription behavior of physicians. The result revealed that the visit of 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. Mikhael et al. (2013) used a survey in questionnaire format to evaluate the quality

of promotional information that given by medical representatives (MRs) to physicians in Iraq and obtained Medical representatives provide physicians with good information about drug indication and weak information about drug contraindications and side effects. On the other hand, academic physicians have a significantly more negative opinion than physicians who work in hospitals regarding the reliability of promotional information. Furthermore only hospital physicians found that MRs Information are useful for them. There is a non significant difference among physicians who directly trust the information from drug companies and MRs from those who don't trust unless check the data by themselves using suitable reference books or journals.

2.1.3 Public Relations (PR)

Public relations are the evaluation of public attitudes and the execution of plans to gain public understanding and acceptance (Dogramatzi, 2002). Onkovisit and Shaw (2004) defined publicity as the non-personal stimulation of demand that is not paid for by a sponsor which has released news to the media. Furthermore, the two scholars explained that advertising and publicity are quite similar in the sense that both require media for a non-personal presentation of the promotional message. One difference between the two is that, with publicity, a company has less control over how the message will be used by the media. Another difference is that publicity is presumed to be free in the sense that the

Public relations are used for long-term strategic image building, developing credibility and raising the organization's profile, to enhance other marketing activities. It is a planned element of the wider promotional mix, working in synergy with the others. For instance, a new product launch, or the introduction of a big new innovative advertising campaign, might benefit from planned public relations aimed at specific audiences through specific media to generate interest and awareness (Brassington & Pettitt, 2000).

Khajuria and Khajuria (2013), used a questionnaire to evaluate the impact of these pharmaceutical promotional strategies on prescribing of drugs by physicians. Results revealed that publicity like seminars, publications, and reputation of company and Advertising like brochures and booklets were the most important factors considered by the physicians while prescribing of drugs. While advertisements like mailing information about products, Print and Broadcast ads and sales promotion like gifts were least important factors. Physicians assess the quality of a product on the basis of the image of the producing pharmaceutical company and respectively considering the results which a media are not paid for presentation of the message to the public. Public relations

materials include press releases, publicity, product placement, and sponsorships available at Saylor website.

Public relations are a management activity that attempts to shape his attitudes and opinions held by an organization's stakeholder. Therefore, public relations should be a planned activity. Public relations do not require the purchase of airtime or space in media. It is not sponsored like advertising, the management of the media decides about this kind of promotion. This makes these messages more trustful and better accepted by the audience (Fill, 2002). The absolute costs of public relations are minimal, and the relative costs are also very low while public relations have a high degree of credibility. The costs of public relations are mostly made by the time and opportunity costs associated with the preparation of press releases and associated literature (Floor & van Raaij, 2006). However, the degree of control that management is able to exert over the transmission of messages can be limited (Fill, 2002). certain product has in the remission of the illness for which it is used. The image of the producing pharmaceutical company is another important factor in terms of priority in what regards the intention of the physicians to prescribe a certain product (Ion, 2013).

According to Narendran and Narendranathan (2013) pharmaceutical marketing influences the choice of brands by a physician. Public relation, especially the rapport with the doctor, was the most effective strategy while advertisements in journals and direct mailers were the least effective strategies. Personal selling by sales persons and giving letter pads and even samples were rated less effective strategies.

Taneja et al. (2007) performed a quantitative survey study to determine the set of promotional tools offered by pharmaceutical industry considered more influencing by physicians while prescribing drugs. The rotated matrix has revealed that respondents have perceived this factor to be the most important factor (set of promotional tools) with the highest explained variance of 19.548%. Five out of sixteen promotional tools load on significantly to this factor. Researcher has named this factor as sponsorships as it includes sponsorship for travel, stay and sponsoring high value personal and professional gifts. Hence it can be concluded that Sponsorships influences the physicians most while prescribing products of a particular company. Orlowski et al. (1992) in this study found the similar results that the drug company sponsorship of travel expenses influence the prescribing behavior of physicians. Wazana (2000) further confirmed that attending sponsored

events and accepting funding for travel or lodging for educational symposia by physicians was associated with increased prescription rates of the sponsor's medication.

Williams and Hensel (1991) reported that the source of information about pharmaceuticals considered to be important by physicians, has changed in rank order, from direct mail, journal advertising and detailing, to colleagues, conventions, meetings, and conferences. Especially in the pharmaceutical market of Prescribing Only Medicines (POMs), that advertising to the media is legally forbidden, publicity in the form of corporate and scientific conferences seems to be an effective outlet of pursuing promotion goals (brand awareness, favorable attitudes, brand loyalty, etc.). Information published on the Web, scientific announcements on clinical studies and on-line, real-time information support are complementary publicity outlets of a firm's communication effort (Smith et al., 2002). Especially in this study, publicity reflects the physician's interest for self-education through retrieving information from press and on-line means (i.e., customer-to-company communication enquiry). Thus, it may associate with the physician's interest on the core and real components of the medicine (i.e., the actual efficacy of the brand).

2.1.4 Sales Promotion

According to Dogramatzi (2002), sales promotion is providing extra value or incentive to customers to purchase a product. Onkovisit and Shaw (2004), sales promotion consists of those promotional activities other than advertising, personal selling, and publicity. They also indicated that in addition to its temporary in nature, the techniques of sales promotion are varied and numerous. The common ones used are coupons, sweepstakes, games, contests, price-offs, demonstrations, premiums, samples, money refund offers, and trading stamps.

Barfett et al. (2004) designed a questionnaire to assess the attitudes of medical students about pharmaceutical promotion including the acceptability of receiving various gifts and incentives. Some 81% of students are not opposed to interacting with drug companies. Medical students felt comfortable in accepting gifts of low monetary value such as lunches (75%) and penlights (74%), but were willing to accept gifts of higher monetary value if the gifts served an educational purpose, such as text books (65%) and Drug Company sponsored educational seminars (66%).

Sandberg et al. (1997) interviewed 166 residency applicants to one department in the USA to investigate the impact of gifts to medical students on their recall of company names and products. The study found that although 90% of students had received one or more free textbooks from pharmaceutical companies, only 25% of those who named a book could accurately recall the name

of the company. Students were also asked about their attitudes towards pharmaceutical representatives. They reported that those representatives who conversed with students and supplied gifts were considered helpful, while those who ignored them because they were students were criticized. The inability of most students to recall company names does not necessarily indicate that gifts to students do not influence future prescribing. The key issue is that medical students were being „groomed“ by the industry, instilling a culture of accepting gifts and hospitality, and encouraging them to perceive the industry as an accessible and useful source of information. The goal of the industry at this stage may be name recognition, rather than recall.

Chew et al. (2000) used three hypothetical case studies and asked their respondents (131 general medicine and family physicians) which medicine they would prescribe. They were then given a list of samples available and asked whether they would prescribe their drug of choice, or give a sample of another drug.

For a patient with hypertension (and no health insurance) almost all respondents (92%) ideally chose a diuretic or beta-blocker (consistent with practice guidelines). However when samples were available, 27% (35 doctors) said they would dispense a sample. In almost all of these cases the sample was a different class of drug (e.g. ACE inhibitor or calcium channel blocker). Almost all of those who would give a sample (97%) said avoiding cost to the patient was an important or very important reason for their choice. A follow-up scenario, in which the patient returns, with their hypertension well controlled on the sample drug, and now with health insurance, was presented. Of the 35 doctors who had said they would dispense a sample, 24 would now write a prescription for the sample drug, to avoid switching the patient. If this reflects real behavior, it suggests that in some circumstances drug samples may strongly influence prescribing. A similar study by the same authors in (2000), concluded that the availability of drug samples led physicians to dispense and subsequently prescribe drugs that differ from their prefer drug choice. Physicians most often report using drug samples to avoid cost to the patient.

Conlan (1991) reported that pharmaceutical companies in the USA spent more than US\$165 million on gifts, trips and cash awards to physicians when promoting brand name medicines. For private practitioners, Baker (1992) suggested that more selective office-practice items, such as prescription pads and patient record forms, would be more effective not only because they provided a service to physicians and their staff, but also offered an added benefit of being perceived as less promotional.

2.2 Demographic variables and perception of physicians

A survey study was conducted by Taneja et al. (2007) to test whether the perception of physicians towards various promotional tools is different with respect to demographic variables. The researcher used ANOVA and F-test for hypothesis testing and it was found that perception of physicians towards various kinds of promotional tools offered by pharmaceutical companies is independent of age, gender and qualification of physicians. But marital status, ownership of the institution that the physician practicing and region partially influences perception of doctors towards various kinds of promotional tools offered by pharmaceutical companies.

A similar investigation was done by Taneja (2008) found that perception of physicians towards various kinds of promotional tools offered by pharmaceutical companies is independent of age, region, gender and marital status. But ownership of the institution (government institution and private institution) that physicians practicing and their qualification partially influences the perception of doctors towards various kinds of promotional tools offered by pharmaceutical companies.

2.3 Summary of literature review

The foregoing literature review illustrates that the pharmaceutical promotion strategies namely, advertising, personal selling, public relations and sales promotion influence physicians prescription behavior. It also shows that various researchers reported different findings. Some scholars found advertising strategy is more influential; some others concluded that personal selling is the most effective in influencing physicians prescribing behavior; the other researchers suggested that public relations are more effective

Overall, while the effect pharmaceutical promotion strategies on prescribing behavior of physicians is a well-established concept, determining the most effective strategy in time and space merits further investigation. To date, no empirical work has been done on the effect of pharmaceutical promotion strategies on prescribing behavior of physicians in Ethiopia. Against this background, this study is hoped to contribute to a better understanding of pharmaceutical marketing communication strategies in the city of Addis Ababa.

promotion strategy and the rest agreed that sales promotion is quite important in influencing prescribing behavior of physicians.

Moreover, the findings of the researches in the literature review revealed that different countries exhibit different results in examining effective strategies to influence prescribing behavior of

physicians. Results also tend to exhibit spatial and temporal variations. For example, an Indian study by Taneja et al. (2007) concluded that sponsorship that is publicity such as sponsorship for travel, stay and sponsoring high value personal and professional gifts influence physicians the most while prescribing products of a particular company. By contrast, a survey conducted by Taneja (2008) revealed that personal selling like regular visits of medical sales representative, rapport of doctors with medical sales representative, detailing ability of medical sales representative, etc are the most important factor in influencing physicians prescribing behavior.

Chapter 3: RESEARCH METHODOLOGY

This chapter aims to describe the methodology - research design and methods followed by identification of the population, sampling design and an outline of data collection methods and procedures. Finally, it discusses validity and reliability issues of this research, and considers ethical issues and data analysis techniques.

3.1 Research design and methods

As pharmaceutical products are manufactured to maintain good health and contribute to societal wellbeing, the marketing approaches consistent with this mission would differ from conventional approaches applied in other industries. In all countries except USA and New Zealand, pharmaceutical promotion is conducted directly to physicians by different kinds of promotional strategies (Greene, 2004). In Ethiopia like most other countries, pharmaceutical promotion is carried out directly to physicians. Therefore, physicians in Addis Ababa constituted the study population for the proposed study. Promotion influences the physicians' drug choice decisions and prescription behaviors. Hence, understanding the extent of influence of promotion strategies and tools on physicians' decisions and percepts is necessary to implement promotion approaches associated with desirable physician prescribing behavior. According to Kliner (2007), data for actual prescribing before and after a known exposure to drug promotion is difficult to obtain in practice. Many studies are limited by reliance on self-assessed prescribing habits or self-reported exposure. Therefore, self-administered questionnaire was used to collect data for this research.

The research design is cross-sectional survey strategy, which was conducted through self-administered questionnaire to some selected physicians in Addis Ababa. The rationale for using survey design is as the population size is known; it was economical in collecting data from samples of the sizeable population. In addition, it allowed the researcher to collect quantitative data to analyze it quantitatively by using different statistical techniques enabling the researcher to determine possible reasons for particular relationships between variables and to produce models of these relationships. Purposive or judgmental sampling method was used for sampling of respondent population. According to African Health Workforce Observatory (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. A selected sample of 270 physicians was taken from all types of physicians working in different health institutions of Addis Ababa. Primary source of information was collected by using a questionnaire

administered to a selected sample. Secondary sources of information were used for questionnaire preparation and for other relevant references.

3.2 Population and Sample design

There are about a total of 934 physicians in Addis Ababa. From this total population size a sample of 270 physicians was selected by using purposive or judgmental sampling method. The basis for using the purposive or judgmental sampling method is as it involves the choice of subjects. The researcher targets a particular group prescriber's i.e. GPs and specialists from all possible prescribers. The findings of the study represent the judgment of the experts (physicians). According to Saunders et al. (2009) procedure which provides a rough guide to the different minimum sample sizes required from different sizes of population given a 95 percent confidence level for different margins of error. It assumes that data are collected from all cases in the sample. It explains that with the margin error 5%, a sample size of 278 is adequate for a population size of 1,000. Therefore, the 270 sample taken from 934 physician population is sufficient to provide reliable and valid results.

3.3 Data collection methods and procedure

Data was obtained by using a self-administered questionnaire to a sample, which was prepared from literature and previous studies. A well-structured schedule was developed for conducting this study. First part was designed to have demographic information about physician's age, practicing area (sub city), gender, educational qualification, marital status and ownership of the institution. Second part had a list of 20(twenty) promotional tools/approaches used by most of pharmaceutical companies. Respondents just tick one parameter of each promotional tool depending on its influencing power to prescribe products of a company always (1) or mostly (2) or sometimes (3) or rarely (4) or never (5).

The effect of pharmaceutical promotion on physician prescribing behavior can be measured by studying the extent of influence of different kinds of promotional tools on physician drug choices to their patients. Some promotional tools may influence them much better than some others. The perception of physicians towards various kinds of pharmaceutical promotional tools may vary according to the importance given by them to shift prescribing from one brand to another brand. Therefore, the researcher has attempted to determine the physician's perception on various kinds of promotional tools by administering self-responded questionnaire to them.

3.4 Validity and reliability issues

There is a close relation between generalization and concept of validity. As it has been mentioned previously, the concepts of validity and reliability, although highly important for any research, are a concern for this particular study. *Validity* demonstrates the extent to which we were able to study and get the results we intended to achieve. Equally important, *reliability*, demonstrates level of consistency of the measurement employed in the study (Bryman and Bell, 2007:163).

A Cronbach's Alpha value 0.767 suggests consistency of data. Thus, it shows reliability of the data. According to Taneja and Kaushik (2007), Cronbach's Alpha values higher than 0.6 show data reliability. This threshold is, also applied by many researchers such as Zachry et al. (2003). Concerning validity, the contents of the questionnaire was appropriate and relevant to the study purpose since the researcher used experts to review the draft and literature reviews to develop it.

3.5 Ethical issues

The study was conducted with due consideration of ethical issues that could arise in this type of study. There are no any physical, emotional and social risks to conducting or participating in this study. The researcher has got a written and stamped consent from health institutions that participated in the study before the physicians were requested to fill out the questionnaire. Every participant is also kindly requested to complete the questionnaire, but a clear option was given to them to decline the request. The researcher also assured the respondents that their identities will remain confidential and not disclosed in any part of the report that has been produced from the project.

3.6 Data analysis methods

The collected data was coded and tabulated keeping the objective of the study in a context. Factor analysis method has been applied for data reduction and results of total variance explained and rotated component matrix have been analyzed. ANOVA and F-test and Independent-Samples t test was used for hypothesis testing to see the relationship between factors and demographic variables. Factor analysis is a set of techniques, which, by analyzing correlations between variables, reduces the number of variables in to fewer factors which explain much of the original data more economically (Nargundkar, 2005). In the case of the present study, the factors are the main elements of promotional strategies and the variables are list of the promotional tools/approaches. The data have been statistically analyzed on the basis of responses provided by respondents by using SPSS software program for data recording, calculating percentages, frequencies and factor

analysis method. The data was analyzed using SPSS version 16.0 for windows throughout the study.

Chapter 4: DATA ANALYSIS AND DISCUSSION

This chapter consists of three sections. The first section presents descriptive statistics about the respondents by their demographic variables and discusses the results. The second section reports the results of factor analysis in tables and in graph and discusses the findings of the data analysis in detail in order to address the research questions. The third section presents data analysis and hypothesis testing to test the relationship between various types of promotional tools/factors with demographic variables of physicians.

4.1 Descriptive statistics

This section reports descriptive statistics on respondent's demographic characteristics, i.e., distribution by age, gender, marital status, educational qualification, ownership of the institution and practicing area/region. The following six tables show the demographic characteristics of the respondents followed by brief discussions about its results.

Table 1. Distribution of respondents by age in Addis Ababa, Dec. 2016.

Age Group	Frequency	Percent	Valid Percent	Cumulative Percent
Up to 35	199	74.3	74.3	74.3
36-45	68	25.4	25.4	99.6
56 or above	1	0.4	0.4	100
Total	268	100	100	

Physicians from all age groups participated in the questionnaire survey. It is apparent from Table 1 that majority of physicians belong to the age group of up to 35 (74.3%) Years, this indicates that majority of the physicians currently practicing in Addis Ababa are young.

Table 2. Distribution of respondents by highest qualification in Addis Ababa, Dec 2016.

Highest qualification	Frequency	Percent	Valid Percent	Cumulative Percent
GP	213	79.5	79.5	79.5
Specialist	55	20.5	20.5	100
Total	268	100	100	

Table 2 confirms that majority of physicians (79.5%) who participated in this study were GPs (General Practitioners). It can be said that a majority of physicians in Addis Ababa are general practitioners.

Table 3. Distribution of respondents by gender/sex in Addis Ababa, Dec. 2016.

Gender/sex	Frequency	Percent	Valid Percent	Cumulative Percent
Male	190	70.9	70.9	70.9
Female	78	29.1	29.1	100
Total	268	100	100	

Table 3 describes that majority of respondents (70.9%) who participated in the questionnaire survey were male. Though significant number (29.1%) was female.

Table 4. Distribution of respondents by marital status in Addis Ababa, Dec. 2016.

Marital status	Frequency	Percent	Valid Percent	Cumulative Percent
Single	153	57.1	57.1	57.1
Married	113	42.2	42.2	99.3
Missing	2	0.7	0.7	100
Total	268	100	100	

As shown in Table 4 most of the respondents (57.10%) were single however two of the respondents were not fill their status.

Table 5. Distribution of respondents by ownership of institution in Addis Ababa, Dec. 2016.

Ownership of the institution	Frequency	Percent	Valid Percent	Cumulative Percent
Private	67	25	25	25
Governmental	195	72.8	72.8	97.8
Missing	6	2.2	2.2	100
Total	268	100	100	

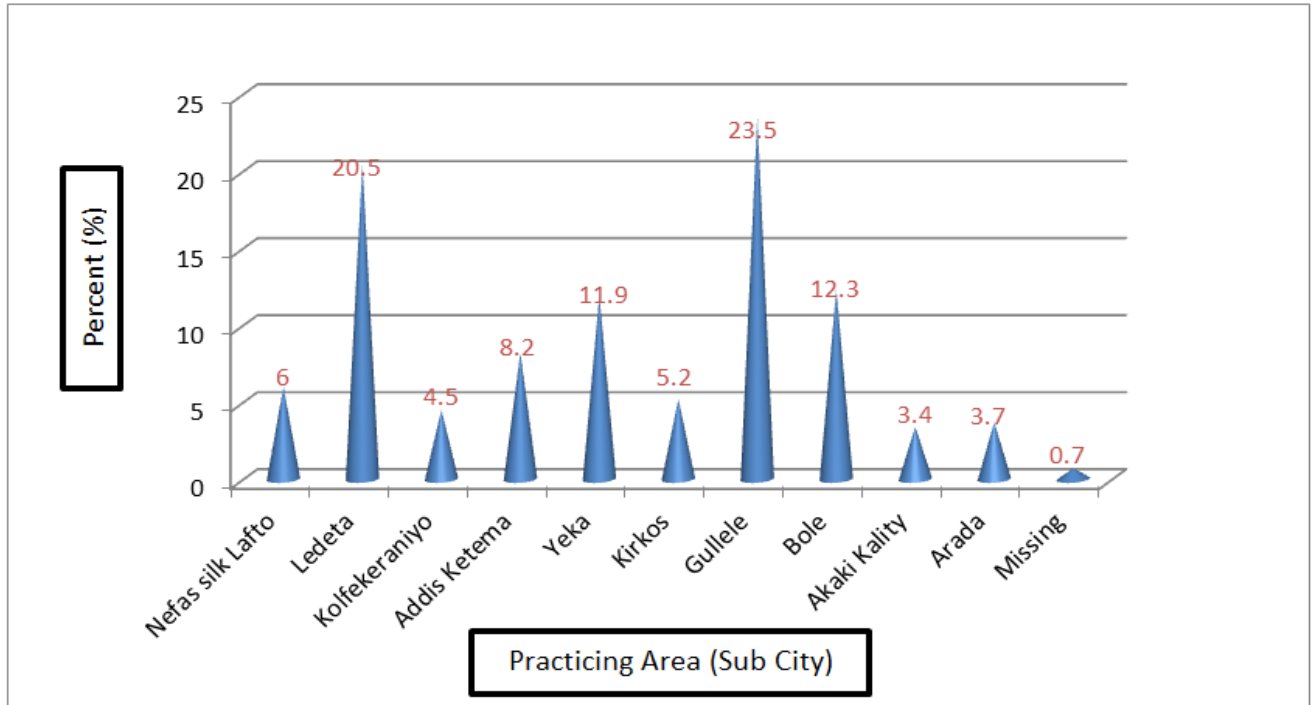
Most of the respondents were practicing in government institution (72.8%) as depicted in Table 5.

Table 6. Distribution of respondents by practicing area (Sub City) in Addis Ababa, Dec. 2016.

Practice area	Frequency	Percent	Valid Percent	Cumulative Percent
Nefas silk Lafto	16	6	6	6
Ledeta	55	20.5	20.5	26.5
Kolfekeraniyo	12	4.5	4.5	31
Addis Ketema	22	8.2	8.2	39.2
Yeka	32	11.9	11.9	51.1
Kirkos	14	5.2	5.2	56.3
Gullele	63	23.5	23.5	79.9
Bole	33	12.3	12.3	92.2
Akaki Kality	9	3.4	3.4	95.5
Arada	10	3.7	3.7	99.3
Missing	2	0.7	0.7	100
Total	268	100	100	

Table 6 clarifies that majority of respondents were from Lideta sub city (26.67%) followed by Arada sub city (24.07%) and Yeka sub city (17.04%).

Figure 1. Chart Showing Distribution of Respondents by practicing area (Sub City) in Addis Ababa, Dec. 2016.



4.2 Factor Analysis

As outlined in preceding chapters, the first key research question that guided this research is; which promotional strategies and promotional tools are most effective in obtaining prescription from physicians? This part of the analysis attempts to answer this research question. To this end, factor analysis has been conducted on the responses provided by respondents. As an assessment of suitability of the data for factor analysis, the reliability of data and the sample adequacy for factor analysis should be tested. Cronbach's Alpha was used to test the consistency of data; Bartlett's test of sphericity and KMO was used to check the Sample Adequacy for factor analysis.

Table 7. Reliability Statistics

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.849	0.900	20

As shown in the Table 7 above the Cronbach's Alpha value is 0.849. According to Taneja and Kaushik (2007), Cronbach's Alpha values greater than 0.6 show data reliability. Therefore, our result suggests the consistency of the data.

Table 8. KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.878
Bartlett's Test of Sphericity	Approx. Chi-Square	2594.310
	df	190
	Sig.	0.000

Measure of sample adequacy such as Bartlett's Test of Sphericity (approx. Chi-Square is 2594.31, degree of freedom is 190, and significance is 0.000) and KMO value (0.878) as can be seen in Table 8. It shows that the data was based on a sample adequate for factor analysis.

4.2.1 Extraction of factors

Principal component analysis was used for extracting factors and six factors were retained depending on eigenvalues and variance explained. Eigenvalue represents the total variance explained by each factor. The standard practice normally used is that factors with an Eigenvalue of one or more should be extracted.

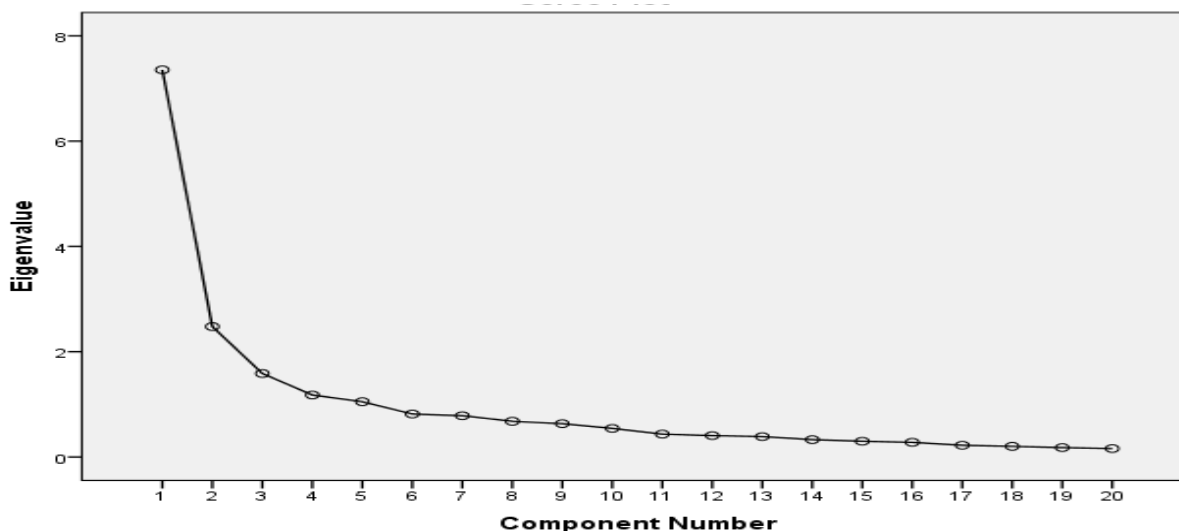
Table 9. Total Variance Explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.354	36.770	36.770	7.354	36.770	36.770	4.320	21.600	21.600
2	2.478	12.388	49.158	2.478	12.388	49.158	2.931	14.657	36.256
3	1.586	7.930	57.087	1.586	7.930	57.087	2.658	13.292	49.548
4	1.178	5.888	62.975	1.178	5.888	62.975	2.635	13.177	62.725
5	1.050	5.251	68.226	1.050	5.251	68.226	1.100	5.500	68.226
6	.817	4.084	72.310	.817	4.084	72.310	0.958	4.084	72.310

Extraction Method: Principal Component Analysis.

Table 9 and figure 1 – screen plot below clearly shows that there are six factors having eigenvalues more than one (a factor must explain at least as much of the variance if not more, than a single original variable). Thus, six factors have been extracted. The total variance explained by extracted six factors was 72.310%. The results were obtained through rotations with Varimax and the factor loadings greater than 0.40 were retained.

Figure 2. Screen plot to show extraction of factors



4.2.2 Naming of factors

After factors have been extracted, the next task of the researcher was to interpret and label of factors. This is done by the process of identifying the factors that are associated with which of the original variables. The rotated component matrix is used for this analysis. The rotated component matrix gives the researcher the loadings of each variable on each of the extracted factors with loadings having values between 0 and 1. Values close to 1 represent high loadings and those values close to 0, represent low loadings. The objective of this activity is to find out high loading of each pharmaceutical promotional tool or approach (variable) on each extracted factor.

As a result, Table 10 depicts that Factor 1 is a linear combination of variable 2 (accuracy and reliability of sales representative); 3 (detailing ability of sales representative); 4 (directories having medicine details); 5 (exhibits in conference); 6 (free physician sample); 11 (product brochures and booklets) and 12 (product knowledge of sales representative) with (Alpha=0.799).

Factor 2 is a linear combination of variable number 10 (personality of sales representative; 16 (regular visit of sales representative) and 17 (relationship with sales representative) with (Alpha=0.771).

Factor 3 is a linear combination of variable number 8 (medical textbook as gift); 9 (publications in journals and magazines); 14 (promotion by Mail/Web/SMS/Telephone) and 15 (product poster posted in front of you) with (Alpha=0.722). Factor 4 is a linear combination of variable number 7 (low value gifts with brand name); 18 (reputation of a pharmaceutical company) and 19 (sponsorship of medical conference) with (Alpha=0.639).

Factor 5 is a linear combination of variable number 1 (academic product literature/updates) and 20 (training program given by the company) with (Alpha=0.559) and Factor 6 is linear combination with variable number 13 which is new product launch parties. (Alpha denotes the degree of internal consistency).

Table 10. Rotated Component Matrix

	Promotional tools and approaches	Component/Factor					
		1	2	3	4	5	6
1	Academic product literature/updates	.152	.027	.176	.059	.821	-.019
2	Accuracy & reliability of sales representative	.500	.492	-.026	-.113	.414	.024
3	Detailing ability of sales representative	.761	.195	.124	-.061	.208	.139
4	Directories having medicine details	.786	.007	-.037	-.012	.176	-.030
5	Exhibits in conference	.745	.013	.022	.216	.034	.217
6	Free Physician Sample	.494	.442	.318	.207	-.162	-.329
7	Low value gifts with brand name (Pen, enan)	-.055	.499	.055	.552	-.024	-.293
8	Medical textbook as gift	.113	.054	.706	.201	.298	-.235
9	Publications in journals and magazines	.021	-.214	.591	.329	.371	.006
10	Personality of medical sales representative	.175	.752	.015	.045	-.060	.091
11	Product brochures and booklets	.434	.102	.287	.399	-.115	.097
12	Product knowledge of sales representative	.481	.430	.240	-.013	-.127	.168
13	New product launch parties	.238	.237	.072	-.022	.054	.774
14	Promotion by Mail/Web/SMS/Telephone	.071	.077	.823	-.051	.085	.095
15	Product poster posted in front of you	.042	.303	.670	.126	-.267	.285
16	Regular visit of medical sales representative	.132	.584	.071	.216	-.166	.579
17	Relationship with medical sales representative	.029	.772	.109	.164	.088	.301
18	Reputation of a pharmaceutical company	-.163	.199	-.003	.705	.265	.013
19	Sponsorship of medical conferences	.252	.041	.217	.781	-.036	.088
20	Training program given by the company	.233	-.249	.075	.446	.513	.071
Extraction Method: Principal Component Analysis.							
Rotation Method: Varimax with Kaiser Normalization.							
a. Rotation converged in 6 iterations.							

All the factors have been given appropriate names in Table 11 next page according to the variables that have been loaded on each factor. In addition, the researcher used the type of variables which are dominantly loaded under the factors on deciding naming of the factors. The name of the factors, variable labels and factor loadings are summarized in Table 11. The six factors portrayed in Table 11 are discussed after the table below.

Table 11. Naming of Factors

Factor Name	Item No.	Promotional tools and approaches	Factor Loading
Personal Selling and Sales Promotion (F1)	4	Directories having medicine details	0.786
	3	Detailing ability of sales representative	0.762
	5	Exhibits in conference	0.745
	2	Accuracy & reliability of sales representative	0.500
	6	Free Physician Sample	0.494
	12	Product knowledge of sales representative	0.481
	11	Product brochures and booklets	0.434
Personal Selling (F2)	17	Relationship with medical sales representative	0.772
	10	Personality of medical sales representative	0.752
	16	Regular visit of medical sales representative	0.584
Advertising (F3)	14	Promotion by Mail/Web/SMS/Telephone	0.823
	8	Medical textbook as gift	0.706
	15	Product poster posted in front of you	0.670
	9	Publications in journals and magazines	0.591
Sales Promotion (F4)	19	Sponsorship of medical conferences	0.781
	18	Reputation of a pharmaceutical company	0.705
	7	Low value gifts with brand name (Pen, guan)	0.552
Educational Promotional Tools (F5)	1	Academic product literature/updates	0.821
	20	Training program given by the company	0.513
Public Relations (F6)	13	New product launch parties	0.774

Factor-1: Personal Selling and Sales Promotion

In this factor, the variables or promotional tools loaded are mixed in their category. Some of them are under personal selling category and some others are in sales promotion category. Therefore, the researcher decided to give mixed name that is personal selling and sales promotion. The rotated matrix has disclosed that respondents have perceived this factor to be the most important factor (set of promotional tools which fall under the factor) with the highest explained variance of (14.811%) as shown in Table 9. Seven out of twenty promotional tools were loaded on to this factor significantly.

This factor includes accuracy and reliability of medical sales representative, detailing ability and product knowledge of the representative and inputs presented by medical sales representatives during their visits like directories having medicine details, free physician sample and product brochures and booklets. Hence, it can be concluded that personal selling backed by sales promotion strategy influences physicians most while prescribing products of a particular company. Recent study by Shamim-ul-Haq 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.

Factor-2: Personal Selling

The rotated matrix has revealed that personal selling to be the second most important communication strategy in pharmaceutical sales with explained variance (13.645%). Three out of twenty types of promotional tools were loaded on to this factor. Personality, regular visit and relationship of medical sales representative load high on this factor. The researcher has named this factor as personal selling because all the promotional tools loaded in this factor are personal selling types. According to Sharma (2012), a regular visit by a smart, dedicated, well groom having soft skills medical representatives is the best tool of promotion for a pharmaceutical company to influence the prescription behavior of physicians. Hence, it can be concluded that personal selling itself is the second most important influencing promotional strategy.

Factor -3: Advertising

The results revealed that respondents have perceived this factor to be the third most important factor, which accounts for (11.707%) of explained variance. Four types of promotional tools were loaded on to this factor. Publications in journals and magazines, promotion by using Mail/Web/SMS/Telephone, posting product poster in front of physicians and giving medical

text book having company name and stamp load high on this factor. Thus, the researcher has named this factor as Advertising. Hence, it can be concluded that Advertising is the third most influencing pharmaceutical marketing communication strategy.

Factor-4: Sales Promotion

Three types of promotional tools were loaded on to this factor and collectively accounts for (10.617) explained variance. This factor constitutes low value gifts, sponsorship in medical conferences and using the advantage of the reputation of a pharmaceutical company during pharmaceutical marketing communication. Thus, the researcher has named this factor as sales promotion. Hence, it can be concluded that sales promotion is the fourth important factor that influences physicians prescribing behavior.

Factor-5: Educational Promotional Tools

The analysis showed that this factor is the next important factor with explained variance of (8.289). Two types of promotional tools were loaded on to this factor. Educational promotional tools targeted towards physicians i.e. presenting academic product literature/updates and giving training to physicians by the pharmaceutical company were loaded high on this factor. The researcher has named this factor as Educational promotional tools. Hence, it can be concluded that educational promotional tools are the fifth influencing factor of physicians during drug prescription to their patients.

Factor-6: Public Relations (PR)

Results showed that this is the least important factor of pharmaceutical promotion strategy which accounts for (7.460%) of explained variance. Only one type of promotional tool namely new product launch parties is loaded high to this factor. The researcher has named this factor as public relations or publicity. Therefore, public relation strategy in pharmaceutical promotion is the least important that influences physicians while prescribing drug brands of a company.

4.3. Demographic Analysis and Hypothesis Testing

One of the aims of this research is to determine the relationship between various kinds of promotional tools with demographic variable of physicians. As stated in chapter one, the second key research question pursued was: Does the perception of physicians to various kinds of promotional strategies and tools differ according to demographic variables? This part of the analysis addresses this research question.

The researcher has formulated six null hypotheses to be tested. ANOVA and F-test was used for hypothesis testing. The one-way ANOVA and F-test was used to compare the means of three or more groups' scores in the same variable. And the Independent Samples t test is used to compare two groups' mean scores in the same variable. One-way ANOVA is a generalization of the independent-sample t test.

After ANOVA and F-test has been conducted, post hoc analysis of multiple comparisons of dependent variables cannot be performed to compare the mean scores of two groups in the same variable. To perform post hoc analysis, the groups in the same variable should be three or more. Hence, the researcher has used ANOVA and F-test followed by post hoc analysis to compare the mean scores of three or more groups in the same variable and the Independent-Samples t test to compare the mean score of two groups in the same variable.

4.3.1 Relationship between Age and Factors

As shown in Table 12 below the significance value under the factor sales promotion is less than (0.05). This indicates that null hypothesis H_0 (1) is partially rejected. Thus, it can be said that the perception of physicians towards sets of promotional tools under sales promotion namely sponsorship of medical conferences; reputation of a pharmaceutical company; and low value gifts with brand names is dependent on their age.

The perception of physicians towards various kinds of promotional tools listed under other factors such as personal selling and sales promotion, personal selling, Advertising, educational promotional tools and public relations are independent on their age. Taneja et al. (2007) and Taneja (2008) found that the perception of physicians towards various kinds of promotional tools is independent of age

Table 12. ANOVA and F-Test Between Age and Factors

	Sum of Squares	df	Mean Square	F	Sig.
Personal Selling and Sales pro motion Between Groups	2.127	3	0.709	0.705	0.55
Personal Selling Between Groups	6.198	3	2.066	2.107	0.101
Advertising Between Groups	1.618	3	0.539	0.535	0.659
Sales promotion Between Groups	9.148	3	3.049	3.167	0.026
Educational promotional Between Groups tools	3.053	3	1.018	1.018	0.386
Public relations Between Groups	3.93	3	1.31	1.317	0.27

For in-depth analysis of sales promotion, post hoc analysis is used. The post hoc analysis for sales promotion in Table 13 shows that there is a significance difference between the perception of physicians having age group up to 35 years and 36 to 45 years; up to 35 years and 56 or above years with respect to sales promotion. A higher mean score or the positive value of mean difference (I-J) indicates that physicians having age group up to 35 years gave lower importance to sales promotion as compared to 36 to 45 years and 56 or above year age group physician. Thus, Sales promotion is less influencing promotional strategy to the age groups up to 35 years than the other age groups.

The lower mean score or the negative value of the mean difference (I-J) for both 36 to 45 years and 56 or above year age group physician has assigned greater importance to sales promotions as compared to other age groups. Hence, it can be said that physicians having age groups 56 or above years and 36 to 45 years are more influencing by sales promotion respectively than other age group of physicians.

Table 13. Multiple Comparison Dependent Variable: Sales Promotion

(I) Age	(J) Age	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
up to 35 years	36 to 45 years	.41888026*	.19771782	.036	.0285146	.8092460
	56 or above	.64402795*	.29874198	.033	.0542044	1.2338515
36 to 45 years	up to 35 years	-.41888026*	.19771782	.036	-.8092460	-.0285146
	56 or above	.22514769	.33217429	.499	-.4306832	.8809786
46 to 55 years	up to 35 years	-.43939679	.24429910	.074	-.9217306	.0429370
	36 to 45 years	-.02051653	.28420949	.943	-.5816477	.5406147
	56 or above	.20463116	.36184178	.572	-.5097740	.9190363
56 or above	up to 35 years	-.64402795*	.29874198	.033	-1.2338515	-.0542044
	46 to 55 years	-.20463116	.36184178	.572	-.9190363	.5097740

*. The mean difference is significant at the 0.05 level

4.3.2 Relationship between Qualification and Factors

To compare two groups', mean scores on the same variable, independent-sample t test was used. The variable qualification consists of two groups such as general practitioners and specialists. Table 14 shows that H_0 (2) is rejected in the case of sales promotions and educational promotional tools as significance value under t-test for Equality of means is (0.002) which is less than (0.05) on the two promotional strategies. Therefore, it can be said that the perception of physicians towards various kinds of promotional tools under sales promotion and educational promotional tools is dependent of their qualification. And at the same time the perception of physicians towards various kinds of promotional tools listed under the rest of marketing communication strategies is independent of their qualification.

Table 14. Independent Sample Test between Qualification and Factors

		Levene's Testt for Equality of Variances		t-testfor Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Personal Selling and Sales promotion	Equal variances assumed	.027	.870	-.676	168	.500	-.11146261	.16500545
Personal Selling	Equal variances assumed	.149	.700	1.138	168	.257	.18727771	.16459643
Advertising	Equal variances assumed.	2.654	.105	-.215	168	.830	-.03545528	.16520674
Sales promotion	Equal var. Assu.			3.116	168	.002	.50065558	
	Equal Var. not assumed	19.916	.000	3.983	167.957	.000	.50065558	.16065102
Educational promotional tools	Equal var. assu.			3.440	168	.001	.54929697	
	Equal Variance not assumed	3.512	.063	3.797	133.173	.000	.54929697	.15970209
Public relations	Equal variances assumed	.022	.883	-1.075	168	.284	-.17694474	.16466446

It is also shown that the perception of general practitioners (GPs) and specialists for both sales promotion and educational promotional tools is significantly different. That means the significance level (p-value, 0.000) for both promotional strategies signifies that the probability that there is equal perception between general practitioners (GPs) and specialists is very small. Hence, it can be said that qualification of physicians influences the importance assigned especially to sales promotions and educational promotional tools. But the perception is different for both promotional strategies between general practitioners and specialists.

4.3.3 Relationship between Gender and Factors

Table 15 below indicates that H_0 (3) is rejected in the case of sales promotion as the significance value is (0.032). Thus, it can be supposed that Gender of physicians influence their perception to different kinds of promotional tools mentioned under sales promotion. It is also clear that there is no significant difference between the perceptions of male and female physicians with respect to promotional factors other than sales promotions.

Table 15. Independent Sample Test between Gender and Factors

	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
P.S. and SP (F1). Equal var assumed	.132	.717	.928	168	.355	.15726990	.16939915
Personal Selling Equal variances as.	1.099	.296	1.538	168	.126	.25932092	.16865057
Advertising Equal variances as.	8.951	.003	-.502	168	.616	-.08520373	.16970588
Sales promotion Equal variances as. Equal var. not as.	4.860	.029	-2.161	168	.032	-.36204583	.16752037
			-1.886	69.055	.063	-.36204583	.19193304
Educational P. T. Equal variances as.	.166	.684	-.829	168	.408	-.14053667	.16948668
Public relations Equal variances as.	.857	.356	.380	168	.704	.06451307	.16976019

The t statistic under the assumption of unequal variances has a value of (-1.886) with an associated p-value of (0.063), which is greater than (0.05). Even though the perception of physicians towards sales promotion is influenced by their Gender, the significance level (p-value) apparently shows that there is no difference in perception with in groups of physicians.

4.3.4 Relationship between Marital status and Factors

At 5% significance level Table 16 shows that H_0 (4) is rejected in the case of factor-1 and factor-5. Results obtained confirm that marital status of physicians influence their perception towards the combination of personal selling and sales promotion (factor-1) and educational promotional tools (factor-5) offered by pharmaceutical companies.

Table 16. Independent Samples Test between Marital Status and Factors.

		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
Personal Selling and Sales promotion	Equal variances assumed	.617	.433	2.145	168	.033	.32554924	.15179558
	Equal var. not as.			2.148	166.481	.033	.32554924	.15158191
Personal Selling	Equal variances as	10.779	.001	.004	168	.997	.00057979	.15385949
	Equal var. not ass.			.004	151.616	.997	.00057979	.15441802
Advertising	Equal variances as.	1.244	.266	.560	168	.576	.08613780	.15371590
	Equal var. not ass.			.559	161.967	.577	.08613780	.15402489
Sales promotion	Equal variances as.	3.885	.050	-1.728	168	.086	-.26347315	.15251079
	Equal var. not ass.			-1.731	163.612	.085	-.26347315	.15217357
Educational promotional tools	Equal variances as.	4.250	.041	-2.358	168	.020	-.35697930	.15137439
	Equal var. not as s .			-2.365	160.290	.019	-.35697930	.15094092
Public relations	Equal variances as.	.967	.327	-1.279	168	.203	-.19589214	.15311541

The statistical evidence on the column of significance level (2-tailed) with the associated (p-values < 0.05) also indicates that the perception of physicians within groups (between single and married physicians) is significantly different with respect to both personal selling and sales promotion and educational promotional tools.

4.3.5 Relationship between Ownership of the institution and Factors

Table 17 below clearly indicates that H_0 (5) is rejected in the case of personal selling and educational promotional tools, as significance value is less than (0.05). Thus, ownership of the institution in which physicians are employed influence the importance attached especially to personal selling and educational promotional tools. For further analysis, it is important to look the t-test for equality of means. Consequently, it is understandable that there is a significance difference between the perception of government serving and private serving physicians with respect to personal selling and educational promotional tools since the p-values are (0.007) and (0.006) respectively.

Table 17. Independent Sample Test between Ownership of institution and Factors.

		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
Personal Selling and Sales pro.	Equal variances assumed	3.348	.069	-1.242	168	.216	-.19023780	.15318995
Personal Selling	Equal variance as	.001	.977	-2.750	168	.007	-.41397933	.15054058
	Equal var. not as.			-2.752	167.929	.007	-.41397933	.15044531
Advertising	Equal variances as.	.208	.649	-.619	168	.537	-.09517284	.15371618
Sales promotion	Equal variances as.	9.447	.002	1.739	168	.084	.26524621	.15252474
Educational promotional tools	Equal var. assum.	.584	.446	2.790	168	.006	.41975641	.15044533
	Equal var. not ass.			2.798	167.209	.006	.41975641	.15003343
Public relations	Equal variances as.	.002	.961	-.631	168	.529	-.09704142	.15370922

4.3.6 Relationship between Practicing area/sub city and Factors.

Table 18 below shows that the final null hypothesis H_0 (6) is rejected with respect to personal selling, Sales promotion and educational promotional tools. Thus, the perception of physicians towards personal selling, sales promotion and educational promotional tools is dependent on their practicing sub city. To respond which sub city of doctors are more influencing by personal selling, sales promotions and educational promotional tools; post hoc analysis is used for the three promotional strategies.

Table 18. ANOVA and F-Test between Practicing area and Factors.

		Sum of Squares	df	Mean Square	F	Sig.
Personal Selling and Sales promotion	Between Groups	2.757	9	.306	.295	.975
	Within Groups	166.243	160	1.039		
Personal Selling	Between Groups	23.815	9	2.646	2.916	.003
	Within Groups	145.185	160	.907		
Advertising	Between Groups	4.856	9	.540	.526	.854
	Within Groups	164.144	160	1.026		
Sales promotion	Between Groups	36.146	9	4.016	4.837	.000
	Within Groups	132.854	160	.830		
Educational promotional tools	Between Groups	20.894	9	2.322	2.508	.010
	Within Groups	148.106	160	.926		
Public relations	Between Groups	13.782	9	1.531	1.579	.126
	Within Groups	155.218	160	.970		

The post hoc analysis shown in Table 19 indicates that the Gullele, Akaki Kality and Kirkos sub cities differ significantly than all other sub cities. The lower mean scores of the three sub cities respectively indicates that physicians in these sub cities are more influencing by personal selling than other sub cities having higher mean scores.

Table 19 also indicates that physicians in Bole area are less influencing by personal selling, as the mean difference (I-J) is positive than others. The negative values of mean difference (I-J) specify that physicians in Gullele, Akaki Kality and Kirkos sub cities have assigned greater importance to personal selling as compared to others.

Table 19. Multiple Comparison dependent variable : Personal Selling.

(I) Practicing area (Sub City)	(J) Practicing area (Sub City)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Arada	Bole	-.83996700*	.28079340	.003	-1.3945063	-.2854277
	Gullele	.74099884*	.33596540	.029	.0775002	1.4044974
Bole	Arada	.83996700*	.28079340	.003	.2854277	1.3945063
	Gullele	1.58096583*	.38399722	.000	.8226091	2.3393225
	Kirkos	1.27148594*	.45601289	.006	.3709054	2.1720665
	Yeka	1.21039904*	.29665294	.000	.6245387	1.7962594
	Lideta	.87769850*	.27726820	.002	.3301211	1.4252759
	Akaki Kality	1.51741443*	.71443489	.035	.1064758	2.9283530
Gullele	Arada	-.74099884*	.33596540	.029	-1.4044974	-.0775002
	Bole	-1.58096583*	.38399722	.000	-2.3393225	-.8226091
	Kolfe Keraniyo	-.93788885*	.41621210	.026	-1.7598668	-.1159109
	Lideta	-.70326733*	.33302473	.036	-1.3609584	-.0455763
	Nefas Silk	-1.25002651*	.62706483	.048	-2.4884178	-.0116352
Kirkos	Bole	-1.27148594*	.45601289	.006	-2.1720665	-.3709054
Yeka	Bole	-1.21039904*	.29665294	.000	-1.7962594	-.6245387
Kolfe Keraniyo	Gullele	.93788885*	.41621210	.026	.1159109	1.7598668
Lideta	Bole	-.87769850*	.27726820	.002	-1.4252759	-.3301211
	Gullele	.70326733*	.33302473	.036	.0455763	1.3609584
Nefas Silk	Gullele	1.25002651*	.62706483	.048	.0116352	2.4884178
Akaki Kality	Bole	-1.51741443*	.71443489	.035	-2.9283530	-.1064758

*. The mean difference is significant at the 0.05 level

The post hoc analysis done, to compare the perception of physicians working in different sub cities with respect to sales promotion, in Table 20 below shows that the Akaki Kality, Lideta, Addis Ketema and Bole sub cities score negative values or lower mean difference (I-J). This indicates that physicians in these sub cities have allocated greater importance to sales promotion as compared to physicians in other sub cities.

In the contrary, the mean difference (I-J) of Gullele,, Nefas Silk Lafto and Kirkos sub cities score positive values or higher than other parts of the city. Thus, physicians working in these

sub cities have assigned lower importance to sales promotions strategies than the rest sub cities.

Table 20. Multiple Comparison dependent variables: Sales Promotion.

(I) Practicing area (Sub City)	(J) Practicing area (Sub City)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Arada	Gullele	-1.33762006*	.32138161	.000	-1.9723171	-.7029230
Bole	Gullele	-1.50479603*	.36732843	.000	-2.2302335	-.7793585
Gullele	Arada	1.33762006*	.32138161	.000	.7029230	1.9723171
	Bole	1.50479603*	.36732843	.000	.7793585	2.2302335
	Yeka	1.28541782*	.33416515	.000	.6254745	1.9453611
	Addis Ketema	1.64147532*	.44905889	.000	.7546282	2.5283224
	Kolfe Keraniyo	1.32591352*	.39814490	.001	.5396165	2.1122105
	Lideta	1.90547385*	.31856858	.000	1.2763323	2.5346154
	Akaki Kality	2.02122460*	.70583548	.005	.6272690	3.4151802
Kirkos	Lideta	.99310981*	.39603271	.013	.2109842	1.7752354
Yeka	Gullele	-1.28541782*	.33416515	.000	-1.9453611	-.6254745
	Lideta	.62005603*	.21698937	.005	.1915234	1.0485887
Addis Ketema	Gullele	-1.64147532*	.44905889	.000	-2.5283224	-.7546282
Kolfe Keraniyo	Gullele	-1.32591352*	.39814490	.001	-2.1122105	-.5396165
Lideta	Arada	-.56785379*	.19673376	.004	-.9563836	-.1793240
	Gullele	-1.90547385*	.31856858	.000	-2.5346154	-1.2763323
	Kirkos	-.99310981*	.39603271	.013	-1.7752354	-.2109842
	Yeka	-.62005603*	.21698937	.005	-1.0485887	-.1915234
	Nefas	-1.25335037*	.54335240	.022	-2.3264179	-.1802829
Nefas Silk	Lideta	1.25335037*	.54335240	.022	.1802829	2.3264179
Akaki Kality	Gullele	-2.02122460*	.70583548	.005	-3.4151802	-.6272690

*. The mean difference is significant at the 0.05 level

As shown in the post hoc analysis in Table 21 below, the mean difference (I-J) for Bole and Arada sub cities score negative values or lower than other regions of the city. Hence, it can be said that physicians practicing in these areas have exhibited greater importance to educational promotional tools as compared to physicians in other parts of the city. In other words, physicians in Bole and Arada areas are more influencing by educational promotional tools than physicians in other sub cities.

Table 21. Multiple Comparison dependent variable : Educational promotional tools.

(I) Practicing area (Sub City)	(J) Practicing area (Sub City)	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Arada	Gullele	-1.03502821*	.33932786	.003	-1.7051673	-.3648891
	Lideta	-.54159152*	.20771956	.010	-.9518172	-.1313658
Bole	Gullele	-1.45662392*	.38784040	.000	-2.2225705	-.6906773
	Yeka	-.71014229*	.29962195	.019	-1.3018661	-.1184184
	Kolfe Keraniyo	-.82726105*	.37683559	.030	-1.5714742	-.0830479
	Lideta	-.96318723*	.28004320	.001	-1.5162450	-.4101295
Gullele	Arada	1.03502821*	.33932786	.003	.3648891	1.7051673
	Bole	1.45662392*	.38784040	.000	.6906773	2.2225705
	Yeka	.74648164*	.35282526	.036	.0496865	1.4432768
Yeka	Bole	.71014229*	.29962195	.019	.1184184	1.3018661
	Gullele	-.74648164*	.35282526	.036	-1.4432768	-.0496865
Kolfe Ker.	Bole	.82726105*	.37683559	.030	.0830479	1.5714742
Lideta	Arada	.54159152*	.20771956	.010	.1313658	.9518172
	Bole	.96318723*	.28004320	.001	.4101295	1.5162450

*. The mean difference is Significant at the 0.05 level

The multiple comparisons in the same table also indicates that the mean difference(I-J) of Gullele, Lideta and Kolfe Keranyo sub cities score positive values or higher than other sub cities. Thus, it suggests that physicians working in three respective areas have given lower importance to educational promotional tools. To be more precise, physicians practicing in Gullele, Lideta and Kolfe Keranyo sub cities are less influencing by educational promotional tools strategy than the rest sub cities of the city.

Chapter 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This chapter presents a summary of major findings and draws conclusions by way of addressing the research questions and hypothesis based on quantitative data analysis reported in the preceding chapter. It also presents recommendations and suggestions for future research areas.

5.1 Summary and Conclusions

The main purposes of this study were to explore the effect of pharmaceutical promotion strategies on prescribing behavior of physicians and determine promotional tools which are effective in influencing the prescribing behavior of physicians. Furthermore, the study also focused to examine the relationship between various kinds of promotional tools with demographic variables of physicians.

Factor analysis results show that physicians perceive different kinds of promotional tools under six factors i.e. personal selling and sales promotion, personal selling, Advertising, sales promotion, educational tools and public relations.

The personal selling and sales promotion strategy has been perceived to be the most important factor that influences physicians most while prescribing products of a particular company. It was found that perception of physicians towards this factor is independent of age, qualification, gender, ownership of the institution and practicing area. However, marital status of physicians influences their perception towards personal selling and sales promotion in combination offered by pharmaceutical companies.

Different scholars at different places and times have found either personal selling or sales promotion is the most important strategy to influence prescription behavior of physicians. The result of this study clearly revealed that a combination of personal selling and sales promotion strategy is the best way to influence physicians. This is a key contribution of this study, which will inform sales promotion practice.

The personal selling strategy has been perceived to be the second most important factor. It was found that 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. Differences in life style of

patients in the two demographic variables may provide a potential explanation for the greater importance accorded to personal selling.

The Advertising strategy has been perceived to be the third important influencing factor. The hypothesis testing conducted in section 4.2.1 to 4.2.6 reveals that the perception of physicians towards this factor is independent of age, qualification, gender, marital status, ownership of the institution and practicing area. Moreover, it indicates that perception of physicians on Advertising do not differ by demographic category. This suggested that pharmaceutical companies should design a single more effective way of Advertising targeting all physicians.

The sales promotion strategy has been perceived the fourth important factor in pharmaceutical promotion. The present study confirmed that physicians having age groups 56 years or above and 36 to 45 years are more influenced by sales promotion compared to other age groups. The perception of physicians towards sales promotion is also dependent of their qualification, gender and practicing sub city. Akaki Kality, Lideta, Addis Ketema and Bole sub city physicians have assigned greater importance to sales promotion as compared to other sub cities. Ownership of the institution in which physicians are employed and marital status of physicians did not show significance difference with respect to sales promotion.

Offering educational promotional tools has been the next important factor of pharmaceutical communication strategy. Results of hypothesis testing conducted in section 4.2.1 to 4.2.6 shows that the perception of physicians towards educational promotional tools is dependent of their qualification, marital status, ownership of the institution in which they are working and practicing area. For instance, physicians in Bole and Arada sub cities tended to attach greater importance to educational promotional tools.

Public relation is perceived to be the least important factor by physicians. It was also found that perception of physicians towards this factor is independent of age, qualification, gender, marital status, ownership of the institution and practicing area. Thus, it can be concluded that this factor is considered least important by majority of respondents.

5.2 Recommendations

As concluding remark, the researcher has suggested the following recommendations which may help the stakeholders to take action for their development.

- The pharmaceutical companies should focus on using the promotional tools and approaches that are more effective in influencing physicians prescribing behavior. In this regard, various kinds of promotional tools and approaches listed under personal selling and sales promotion (factor-1) are more effective in influencing the prescribing behavior of physicians.
- Pharmaceutical companies may use most/all kinds of promotion strategies as their main marketing communication strategy. However, they can allocate budgets in view of the results obtained from this study. Thus, larger should be allocated to the more influential and vice versa.
- The pharmaceutical companies should also understand the relationship between promotion strategies with demographic variables of physicians to act accordingly while they are promoting brand of a particular product.
- As medical sales representatives of pharmaceutical companies are involving in the process of influencing the behavior of prescribing habits of physicians; the companies should give appropriate training to them to act in such a way that the communication is desirable and appreciable by physicians.
- If the information presented by the medical sales representative offers an opportunity for learning and problem solving processes, physicians should give due attention to hear them that may help to develop their professional competency.

5.3 Further research areas

The findings of this study can only be sweeping for understanding the effect of pharmaceutical promotional strategies and promotional tools on physicians prescribing behavior. Further study may be conducted on different medical professions. This study can be carried out in the case of different regional states of Ethiopia to draw generalizations on the effect of pharmaceutical promotion strategies and to determine which promotional strategy/tools is/are the most effective way to implement as a pharmaceutical communication strategy/strategies in Ethiopia.

Moreover, this is a cross-sectional study and we should not generalize too far. Further research is needed considering a larger sample frame from all over Ethiopia. This is an important consideration because inter-cultural differences may influence physician behavior.

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APPENDICES

Appendix-1: QUESTIONNAIRE FOR PHYSICIANS

Dear respected physicians,

I am MBA student at St.Mary University and conducting my thesis project on *the effect of pharmaceutical promotion strategies on prescribing behavior of physicians in Addis Ababa city*. In this marketing research, I want to find out the physicians' expectations from pharmaceutical industry. Therefore, your kind responses to the questions indicated below are expected to benefit both physicians and the industry. The researcher is highly grateful for your generous assistance in this regard and assures that your identity will remain confidential and not disclosed in any of the reports that will be produced from the project.

Part I. Demographic Variables (Please circle your category on the alphabet)

1. Age Group
A) Up to 35 yrs B) 36 – 45 yrs
C) 46 – 55 yrs D) 56 or above
2. Highest Qualification:
A) GP B) Specialist
3. Gender/ Sex: A) Male B) Female
4. Marital Status: A) Married B) Single
5. Ownership of the institution A) Government service B) Private Service
6. Practicing Area :
A) Arada Sub city B) Bole subcity
C) Gullele Sub city D) Kirkos subcity
E) Yeka Sub city F) Addis Ketema subcity
G) Kolfe keraniyo subcity H) Lideta subcity
I) Nefas Silk Lafto S/city J) Akaki Kality S/city.

Part II. Below are the promotional tools used by pharmaceutical companies. Please tick always or mostly or sometimes or rarely or never for each promotional tool depending on that tool influences you to prescribe drug brands of a company.

SN	Promotional tools and approaches	Always (1)	Mostly (2)	Sometimes (3)	Rarely (4)	Never (5)
1	Academic product literature / updates					
2	Accuracy & reliability of sales representative					
3	Detailing ability of medical sales representative					
4	Directories having medicine details					
5	Exhibits in conference					
6	Free Physician Sample					
7	Low value gifts with brand name (Pen, guan)					
8	Medical textbook as gift					
9	Publications in journals and magazines					
10	Personality of medical sales representative					
11	Product brochures and booklets					
12	Product knowledge of sales representative					
13	New product launch parties					
14	Promotion by Mail/Web/SMS/Telephone					
15	Product poster posted in front of you					
16	Regular visit of medical sales representative					
17	Relationship with medical sales representative					
18	Reputation of a pharmaceutical company					
19	Sponsorship of medical conferences					
20	Training program given by the company					

THANK YOU FOR FILLING THE QUESTIONNAIR

