



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

**THE EFFECT OF MEDICAL PROMOTIONAL ACTIVITIES ON
DOCTORS PRESCRIPTION HABIT IN A PRIVATE SET UP: THE CASE
OF MCM HOSPITAL ADDIS ABABA, ETHIOPIA**

BY

RAHAEL GEBREMICHAEL

**A THESIS SUBMITTED TO ST. MARY'S UNIVERSITY,
SCHOOL OF GRADUATE STUDIES IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE
OF MASTER OF BUSINESS ADMINISTRATION.**

MAY, 2017

ADDIS ABABA, ETHIOPIA

ST.MARY'S UNIVERSITY
SCHOOL OF GRADUATE STUDIES
INSTITUTE OF BUSINESS STUDIES

THE EFFECT OF MEDICAL PROMOTIONAL ACTIVITIES ON DOCTORS
PRESCRIPTION HABIT IN A PRIVATE SET UP: THE CASE OF MCM
HOSPITAL ADDIS ABABA, ETHIOPIA

BY

RAHAEL G/MICHAEL

APPROVED BY BOARD OF EXAMINERS

Dean, Graduate Studies

Signature

Advisor

Signature

External Examiner

Signature

Internal Examiner

Signature

DECLARATION

I declare that this thesis is my own original work. And that this thesis is not submitted either to this or any other institution for any academic purpose. The thesis is prepared under the close supervision of **Dr. Temesgen Belayneh (PhD)**. The reference materials used in this thesis have been dully acknowledged.

Name: _____

Place: Addis Ababa

Signature: _____

Date of Submission: _____

ENDORSEMENT

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

Advisor

St. Mary's University, Addis Ababa

Signature

May, 2016

ACKNOWLEDGEMENTS

First of all, I would like to praise **The Almighty God** for helping me and enabling me to carry out this study

The successful completion of this research has become possible through the support of many individuals and institutions. Thus I would like to express my gratitude for the support I received from those individuals and institutions.

My heartfelt thanks go to my advisor **Dr. Temesgen Belayneh (PhD)** for his unreserved professional guidance and support he gave me during the course of the study.

I would like to thank the management and the physicians of **MCM hospital** for their kind cooperation during data collection.

Special thanks to my beloved family, especially, my dear husband **Binyam Solomon**, whose continuous support has played an invaluable role in this work.

Finally I would like to extend my appreciation to my friends for every support they gave me.

Table of Contents

Contents	Page
ACKNOWLEDGEMENTS	i
<i>Abstract</i>	v
CHAPTER ONE	1
INTRODUCTION.....	1
1.1 Background of the Study.....	1
1.2 Statement of the Problem	3
1.3 Research Questions	4
1.4 Objective of the Study.....	4
1.4.1 General objective.....	4
1.4.2 Specific Objectives.....	4
1.5 Significance of Study	5
1.6 Scope of the Study.....	5
1.7 Limitation of the Study	5
1.8 Organization of the Study	5
CHAPTER TWO	6
REVIEW OF RELATED LITERATURE	6
2.1. Introduction.....	6
2.1.1 Medical Promotional Activities.....	6
2.1.1.1 Activities Of Medical Representatives.....	6
2.1.1.2 Promotional Materials and Gifts	8
2.1.1.3 Free Medical Samples	10
2.1.1.4 Continuing Medical Education.....	10
2.1.2 Types of personality	10
2.1.3 Regulations and Codes of Conduct to Control Pharmaceutical Promotion.....	13
2.1.4 Drug promotion and Regulation in Ethiopia	13
2.1.5 Abuse of Marketing Techniques in Pharmaceuticals	14
2.1.6 Promotional Spending	15
2.1.7 Various ways of prescription drug abuse:	16
2.2 Empirical Evidence	16
2.3 Conceptual framework	19
CHAPTER THREE.....	21
RESEARCH METHODOLOGY	21
3.1. Research Design.....	21
3.2. Source of Data.....	21

3.3. Sampling Techniques	21
3.5. Instrument of Data Collection	22
3.6. Data Analysis Methods	22
3.7. Reliability and Validity Test of the Questionnaire.....	22
3.8. Model Specification	23
3.9. Study variables	23
3.10. Ethical Research Consideration	24
CHAPTER FOUR.....	25
DATA PRESENTATION, ANALYSIS AND INTERPRETATION.....	25
4.1 DESCRIPTIVE ANALYSIS.....	25
4.2 Surveys on medical promotional activities on doctor’s prescription habit	27
4.3. Correlation Between Selected Variables.....	28
4.4 Econometric Analysis	29
4.5 Interpretation of the Regression Coefficients.....	31
4.6 Interpretation of the Odds Ratios	31
CHAPTER FIVE.....	33
SUMMARY, CONCLUSION AND RECOMENDATION	33
5.1. Summary of major findings.....	33
5.2. Conclusion.....	34
5.2 Recommendations	34
REFERENCES.....	36
Appendix 1	vi
Appendix 2.....	vii

List of table

Table 2.1 peter Urs Bender's Characteristics of 4 personality Categories	12
Table 4.1: Gender Distribution	25
Table 4.2: Age distribution of the respondents	25
Table 4.3: Medical Title of the respondents	26
Table 4.4: Respondents year of Experience.....	26
Table 4.5: Monthly Income	27
Table: 4.6 Correlation table	28
Table 4.7: Ordered logit model (OLM) Estimation results of doctors prescription habit.....	30
Table 4.8: Odds ratios of the prescription habit	32

Abstract

This thesis presents the effect of medical promotional activities on doctor's prescription habit in a private set up in the case of MCM hospital in Addis Ababa Ethiopia. In this study qualitative research approach were used. The source of data used in this study was primary which was collected through the application of structured and semi structured questionnaire that were distributed to all 43 medical professionals currently working in the MCM hospital. Ordered logistic regression model or log likelihood and simple descriptive statistics were employed to analyze the data and investigate the effect of medical promotional activities such as medical representative's interaction (MR), promotional materials and medical gifts (PM), free drug samples (FD), and continuing medical educations (CM). According to the findings of the study MR and CM have got positive effect and PM has got negative effect on doctor's prescription habit of doctors working in MCM Hospital. It is important that pharmaceutical companies work hard and help the medical representatives interact with medical doctors at least once in a week, and share relevant information. They should also increase the provision of continuing medical education, reduce the amount of medical promotional materials and medical gifts to be provided, employ any medical representative of any gender and age group without discrimination.

Key words: medical representatives, prescription habit, promotional materials, doctors

CHAPTER ONE

INTRODUCTION

The aim of this section is to identify the research topic and to formulate research questions. Thus the chapter begins with an introductory background which includes statement of the problem, the research questions and objectives of the study. Then Limitation of the study follows and the chapter ends with highlighting how the paper is organized.

1.1 Background of the Study

According to World Health Organization (WHO) medical promotion is defined as “all informational and persuasive activities by manufacturers and distributors, the effect of which is to influence the prescription, supply, purchase or use of medicinal drugs.” (Smith, 1986) (Norris, 2007).

The term “promotional” means those informational and marketing activities, the purpose of which is to induce prescribing, supply or administration of medical products (Walker, 1993). It includes the activities of medical representatives and all other aspects of sales promotion such as journal and direct mail advertisement; participation in conference exhibitions; the use of audio-visual materials; the provision of drug sample, gifts (Charen, 1989) (American college of Physicians,1990) (Patel, 1992), and hospitality for medical profession and seminars (Kessler, 1991).

Pharmaceutical companies employ and train medical representative to promote and sell company products, using printed product literature, drug samples and gifts. The size of worldwide sales force of different companies ranges from 2,500 to 8,000 (Health and public policy committee of the American college of physicians, 1988) and the number has been increasing. Medical representatives (MRs) are the pivotal links between the doctor and the pharmaceutical company. They are the pharmaceutical drug company employee who routinely visit the doctor, and give particulars of company's drug to the doctor and also get feedback for prospective promotional activities. MR basically builds liaisons with doctors and advocates the company's drugs to doctors. Hence, the interaction between a medical representative and a doctor is regarded by pharmaceutical companies as an essential part of their marketing blueprint. There has been considerable discussion on these practices in western literature (Charen, 1989) (Smith, 1986) (American college of Physicians, 1990). There are a limited number of Ethiopian literatures available on this subject.

Currently, there are many generic and branded pharmaceutical companies that are operating in Ethiopia. The promotional activity is guided and controlled by a government body named Food, Medicine and Healthcare Administration and Control Authority (FMHACA) (The House of Representatives, 2010; Ethiopia. Ministry of Health, 1993). FMHACA has developed a guideline and according to this guideline, any promotional material needs to be approved before it is used; and the guideline also describes the professional requirement and conditions to be a medical representative. A Medical Representative should be a registered pharmacist with a minimum of five years' work experience and has to have a promotional license from FMHACA (Ethiopia. Drug Administration and Control Authority, 2008; Ethiopia. Ministry of Health, 2003). Medical representatives should make available to prescribers and dispensers complete and unbiased information for each product discussed, such as an approved scientific data sheet or other source of information with similar content (World Health Organization, 1988).

Pharmaceutical companies use different techniques to persuade physicians and make them favor their products. The influence can be expressed either by prescribing the drug or making an inclusion in hospital formularies or treatment guidelines. It is believed that the activity of pharmaceutical companies influence physicians' prescription pattern & behavior using different kind of promotional techniques and mix of techniques. Promotion of prescription drug in Ethiopia is still at its early stages though the practice has started long time ago. In the past couple of tens of years, only few generic and branded multinational companies were involved in promotion of prescription drug. In recent times, due to the rise of competition between the incoming and existing generic and branded multinational companies, the practice is getting an attention from both regulatory bodies, investors and manufacturers, and the number of medical representatives has been showing an increment.

Similar to other industries, the main objective of pharmaceutical marketing is to increase the profitability of the organization by accommodating the needs and wants of consumers. In different commercial industries other than pharm it is much easier for the customer to make the choice to which brand and item ought to be obtained consistent with their necessities and prerequisites. Whereas in the pharmaceutical marketing, Although people buy products for the curing of the disease they suffering from it depends on the condition, but which brand should a customer buy is the ultimate choice of the physician. With all these concentration the physician prescription behavior is the real thought for all pharmaceutical organizations. (James, Peabody, Solon, Quimbo and Hanson 2009)

Since government owned health sectors utilize medications that have been either donated from a number of world organizations or procurement is done through tender, the attention of existing pharmaceutical companies in Ethiopia focus on private health sectors. Investing on medical promotional activities in private hospital or clinics gives advantage for companies due to the presence of drug alternatives.

This study is on Myunsung Christian Medical center (MCM) which is one of the biggest private hospitals in Ethiopia. Myunsung Christian Medical center (MCM) arose from an appeal by the Ethiopian government to provide advanced medical care in its capital city, Addis Ababa. Since 2004 hundreds of international health care professionals have served at MCM answering the needs of this nation that continues to suffer great shortages throughout all sectors of health care. MCM compound is consisted two wings; Shalom wing with the capacity of 161 bed facility and Grace Wing with 67 beds, as well as a separate medical college with 6 year curriculum including internship. (Company profile),

1.2 Statement of the Problem

Medical promotional activity as part of marketing is the activity of set of institutions, and processes for creating, communicating, delivering, and exchanging offers that have value for customers, clients, partners, and society at large. Pharmaceutical companies use different techniques to persuade physicians and make them favor their products. It is believed that the activity of pharmaceutical companies influence physicians' prescription pattern & behavior using different kind of promotional techniques.

As a result now days a number of pharmaceutical companies invest an enormous amount of capital on promotion to win doctors trust to prescribe one's own drugs over the competitors. (Geoffrey and Spurling, 2010).

As that is so some research findings indicate promotional activities have positive effect on doctor's prescription habit. On the other hand some research findings reveal that doctors are not influenced by pharmaceutical promotional activities (i.e. Klaus and Simone, 2010).

Many Researches' that have been made on the effects of medical promotional activities on doctor's prescription habit, especially those made in Ethiopia, used descriptive statistics to analyze the problem. What makes this study peculiar is that the researcher uses inferential statistics to analyze the data. As such this research, unlike others differs in its methodology. The ordered logistic regression model is employed to analyze the categorical responses of the

respondents. As a result findings of the study show the direction of the relationship and the exact effect of medical promotional activities on doctor's prescription habit.

1.3 Research Questions

Although Pharmaceutical companies are spending billions of dollars on promotion which is more than double as compared to the investment on research and development (R&D) (Gagnon and Lexchin, 2008), effects of different types of medical promotional activities on doctor's prescription habit have not been thoroughly investigated in Ethiopia. Thus this study answers the following questions:

- Does medical representatives interaction influence prescription habits of doctors of MCM hospital?
- Would using promotional materials and gifts affect prescription behavior of MCM doctors?
- Is prescription habits of MCM doctors influenced through providing free samples?
- Does participating in continuing medical education influence prescription behavior?
- What the correlation between prescription habit of a doctor in MCM hospital in relation to ones gender, age, medical specialization, experience and monthly income with medical promotional activities?

1.4 Objective of the Study

1.4.1 General objective

- The study aims to evaluate the effect of medical promotional activities on prescription habit of doctors in MCM hospital.

1.4.2 Specific Objectives

- To assess the effect of medical representatives interaction on doctor's prescription habits
- To assess the effect of promotional materials and medical gifts on doctor's prescription habit in MCM hospital
- To assess the correlation between prescription habit of a doctor in MCM hospital in relation to ones gender, age, medical specialization, experience and monthly income with medical promotional activities.
- To assess the effects of free drug samples on doctor's prescription habits in MCM hospital

- To assess the effects of continuing medical education on doctor's prescription habits of doctors in MCM hospitals,

1.5 Significance of Study

In a country level findings of the study provide an insight for regulatory bodies such as FMACA and MOH on preparing guidelines on medical promotional procedures and engaging personnel's. In addition findings of the study can be used as a stepping stone for pharmaceutical companies operating in Ethiopia in identifying productive promotional techniques and materials to be used during promotion in Ethiopia's context.

1.6 Scope of the Study

The study assesses influence of medical promotional activities on prescription habit of doctors in MCM hospital which is one of the biggest private hospitals in Addis Ababa, Ethiopia. The study employs an **ordinal logistic regression** model in order to meet the objectives of the study. The doctors that are going to participate in this study are those who are actively operating in the hospital and volunteers.

1.7 Limitation of the Study

Due to time and cost constraints the research was done only in one private hospital located in Addis Ababa. As a result findings of the study may not represent the generalized medical promotional activity and doctor's prescription behavior interaction in Ethiopia. Although the researcher had good access to the physicians operating in MCM hospital, the respondents overall response and honesty might have shortfalls on the study's findings.

1.8 Organization of the Study

The first chapter treats introduction, including background and basic concepts. Chapter two presents the review of related literatures. The third chapter is about data and methodology. Chapter four, deals with data analysis, discussion, and findings. The last chapter consists of conclusions and recommendations.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

The aim of this chapter is to present related literatures which are relevant to this research and to provide a theoretical framework. The chapter begins with a review of definitions and some characteristics of medical promotional activities.

2.1. Introduction

Marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offers that have value for customers, clients, partners, and society at large (Kotler, 2012). Marketers start by dividing the market into segments. They identify and profile distinct groups of buyers who might prefer or require varying product and service mixes by examining demographic, psychographic, and behavioral differences among buyers. After identifying market segments, the marketer decides which present the greatest opportunities which are its target markets. For each, the firm develops a market offering that it positions in the minds of the target buyers as delivering some central benefit(s). Total market potential is the maximum sales available to all firms in an industry during a given period, under a given level of industry marketing effort and environmental conditions. A common way to estimate total market potential is to multiply the potential number of buyers by the average quantity each purchases, times the price (Kotler, 2012).

2.1.1 Medical Promotional Activities

The World Health Organization defines drug promotion as all informational and persuasive activities by manufacturers and distributors, the effect of which is to influence the prescription, supply, purchase or use of medicinal drugs. (Norris, Herxheimer, Lexchin and Mansfield, 2007)

Drug promotion includes the activities of medical representatives and all other aspects of sales promotion such as journal and direct mail advertising participation in conference exhibitions; the use of audiovisual materials; the provision of drug samples, gifts and hospitality for medical profession and seminars. (Walker, 1993)

2.1.1.1 Activities Of Medical Representatives

Medical representatives are the key point of contact between pharmaceutical and medical companies and healthcare professionals. Excellent sales skills are a key requirement for medical representatives. Every pharmaceutical company employs and trains medical representatives to promote and sell drugs, using printed product literatures, drug samples and gifts. The size of

worldwide sales force of different companies ranges from 2,500 to 8,000 and the number has been increasing. (Waud, 1992)

Key responsibilities of medical representatives include:

- Organizing appointments and meetings.
- Identifying and establishing new business.
- Negotiating contracts.
- Product demonstration to health care professionals.
- Undertaking relevant research.
- Respond to feedbacks.
- Maintaining detailed records.
- Attending and organizing different events.
- Managing budgets.
- Reviewing sales performance.
- Writing reports and other documents.

Key skills for medical representatives:

- Commercial awareness
- Sales skills
- Maturity
- Confidence
- Patience
- Strong interpersonal and communication skills
- Organisational skills

In India, an estimated 80,000 representatives are employed by the industry. Besides the salaries, they also receive incentives, increment in salaries, abroad tour, promotions for achievement of sales targets, which might tilt the balance in favor of aggressive drug promotion. While doctors uniformly deny that their understanding of drug is influenced by the activities of industry, there is considerable evidence to support the efficacy of the personal encounter with a medical representative in shaping doctors' attitude towards drugs (Intern Med 1988).

In a UK survey of general practitioners, 58% mentioned a sales representative as the source of new products they prescribed. The doctors surveyed also felt that sometimes the information on

side-effects was not enough and more indications were promoted than registered. (Anonymous Effectiveness of UK pharm reps Script No. 1596. 1991).

In UK, the ABPI Code insists on adequate training and a high standard of ethical conduct in discharge of their duties. The product information must be accurate, fair and balanced. The number of calls (including attendance at a medical meeting or a visit to follow up a report of an adverse reaction) made by a medical representative each year should not exceed, on an average three visits to each doctor. Drug samples can only be provided to a doctor in response to a signed request and should not exceed four days' treatment for a single patient (Walker, 1993).

In Sweden, the representatives must meet a group of doctors after obtaining an appointment from the head of the department. On an average only two such meetings per year are permitted. The promotional material is screened by the head of the department and the presentation by representative allowed, only if the product information is new and scientific. The representatives are not allowed to hand out free gifts or pads. There is an urgent need, in India, to discuss the above activities and to develop guidelines to improve the ethical and scientific quality of information imparted through medical representatives (Smith, 1985).

It is known that different promotional strategies used by MRs in detailing their product and the quality of information provided in developing countries is poor compared to developed nations (Al Zahrani, 2014). Even though there are WHO specifications in promotion of pharmaceuticals, most MRs fail to provide the necessary information for physician during their promotional activities. A study showed that 75.2% of physician agreed that MRs frequently used the word "safe" and only 19.7%, 20.4% and 23.6% of MRs explained regarding drug interaction, adverse drug reactions and cost of the drugs respectively. (Alosaimi, Al Kaabba, Qadi, Albahlal, Alabdulkarim and Alabduljabbar, 2014)

2.1.1.2 Promotional Materials and Gifts

One of the tools used by pharmaceutical industry is to give gifts to the doctor. The variety of gifts include stationery, time related, bags, books, folders, office-desk, medical, household, personal and innovative items . The list includes small and big - alarm clocks to air conditioners, calendars to cars, rubber bands to refrigerators, telephone index to television and office items to overseas trips (Patel, 1992)

Although this apparently innocuous practice is generally accepted as a norm many doctors feel uneasy about its ethical repercussions. Chren and associates feel that whenever a physician accepts a gift, an implicit relationship is established between the doctor and the company or its

representatives and there is an obligation to respond to the gift. The gift usually reminds the doctor about the brand-name of the drug and results in a prescription. However, gifts cost money which is ultimately passed on to the patients without their explicit knowledge (JAMA 1989), (Waud, 1992).

The physician patient relationship may be threatened if prescribing practices are affected, in a hard hitting article, Waud decries the gifts and comments- «From the press, one can get an idea of what it costs to buy a judge or a senator - generally, thousands of dollars. But you can buy a physician for a pen or some pizza and beer for a departmental meeting." American College of Physicians advises that a gift should not be accepted by the doctor, if acceptance might influence the objectivity of clinical judgment (Waud, 1992).

Certain educational gifts e.g. books, journals or case record forms and trivial gifts such as pens and calendars may be considered acceptable (JAMA 1989).

The ABPI code had advised companies to distribute gifts which are inexpensive and relevant to practice of medicine. The American Medical Association and US Pharmaceutical Manufacturers Association guidelines suggest that the gifts should involve a benefit for the patients and should not be of a substantial value and should not be accepted if there are "strings" attached for prescriptions. There is a need for a discussion between the professional medical associations and the industry to define acceptable norms for gifts (Walker, 1993).

Promotional materials and their influence in Ethiopia

As stated by (EFMHCACA, 2013), health professionals are targeted by companies mainly via medical representatives and advertisements placed in medical journals or brochures that are sent directly to them. The cost implication of promotional works can be of particular concern to developing countries where health budgets are smaller and resources have to stretch much further. In developing countries, drug companies need to regulate their promotion activities effectively, while ensuring high standards of consumer protection.

As indicated in EFMHCACA (2013), while making a choice in drug promotional material gifts for drug prescribers, promoters need to take into account, among others, the following important points:

- The influence of materials in drug prescription and introductions of drug promotion,
- Definitions of promotional materials and particularly materials used in drug promotions
- Promotional tools and gifts used for drug promotion
- Definition of drug prescriptions and definition of prescribers

2.1.1.3 Free Medical Samples

Free drug sample a usually small and packaged portion of merchandise distributed free especially as an introduction to potential customers. Free samples have been shown to affect physician prescribing behavior. Physicians with access to free samples are more likely to prescribe brand name medication over equivalent generic medications. (Sufirin and Ross, 2008).

2.1.1.4 Continuing Medical Education

Continuing medical education consists of educational activities which serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession.

Conventional methods of drug promotion have increasingly been supplemented by nontraditional approaches such as symposia that rely heavily on the involvement of medical researchers and other experts. Over the past two decades, the number and cost of such event have increased dramatically. In 1988, 16 US companies sponsored 34,688 symposia, at a cost exceeding \$85, 9 million. The comparable figures for 1974 were 7519 symposia and a spending of \$6.5 million. In India there are hardly any meetings, seminars or conferences held without funding from the pharmaceutical companies. The pharmaceutical industry may well be considered a primary source of continuing medical education; but, these activities are often promotional and they can undermine the unbiased exchange of scientific information and raise questions of professional ethics. (Kessler, 1991)

According to Ethiopia's Food, Medicine and Healthcare Administration and Control Authority (FMHACA) physicians are required to participate in CME programs and collect a number of hours in order to renew their professional license. (Directive on Continuing Professional Development for Health Professionals No.12./2013)

Based on their cost, three categories of drug promotional material gifts can be identified that are commonly offered to drug prescribers in Ethiopia (EFMHCACA, 2013). These are: 1) low cost such as pens, writing pads, diaries and calendars; 2) medium cost such as stethoscope, books and briefcases; and 3) high cost such as air conditioners, and laptop and desktop computers.

2.1.2 Types of personality

Having mentioned the above medical promotional activities medical representatives in a promotion session or a call deal with health professionals with different type of personality.

According to Peter Urs Bender's categories there are 4 types of personality:

- Driver
- Expressive
- Amiable
- Analytical.

These styles are defined by two behavioral variables or dimensions: assertiveness (the degree to which a person's behaviors are seen by others as forceful or directive) and responsiveness (the degree to which a person's behaviors are seen by others as emotionally controlled. More responsive people react noticeably to their own emotions or to the emotions of others. Less responsive people are more guarded in their emotional expression) (peter, 2000).

The above four types of personalities have their unique set of strength, weakness and basic needs. And due to these unique sets of characters sales man/women can easily sell a product just by focusing on their specific basic need, pampering their weakness and tactfully managing their strength.

<p>Analytical:</p> <ul style="list-style-type: none"> o Highly detail oriented people o Can have a difficult time making decisions without ALL the facts o Make great accounts and engineers o Tend to be highly critical people o Can tend to be pessimistic in nature o Very perceptive 	<p>Driver:</p> <ul style="list-style-type: none"> o Objective-focused o Know what they want and how to get there! o Communicates quickly, gets to the point o Sometimes tactless and brusque o Can be an "ends justify the means" type of person o Hardworking, high energy ?Does not shy away from conflict
<p>Amiable:</p> <ul style="list-style-type: none"> o Kind-hearted people who avoid conflict o Can blend into any situation well o Can appear wishy-washy Has difficulty with firm decisions o Often loves art, music and poetry Highly sensitive o Can be quiet and soft-spoken 	<p>Expressive:</p> <ul style="list-style-type: none"> o Natural salesmen or story-tellers o Warm and enthusiastic o Good motivators, communicators o Can be competitive o Can tend to exaggerate, leave out facts and details

Responsiveness

Table 2.1 Peter Urs Bender's Characteristics of 4 Personality Categories

2.1.3 Regulations and Codes of Conduct to Control Pharmaceutical Promotion

The issue in pharmaceutical marketing is not only the misuse or abuse of the drug promotional techniques. The absence and weak enforcement of the regulations and self-regulatory codes could also be responsible for uncontrolled drug marketing.

Malaysia has a comprehensive (Malaysian Laws on Poison and Sales of Drugs) law to control pharmaceutical promotion and a well-defined self-regulatory code developed by the Pharmaceutical Association of Malaysia (PhAMA) which is an extension of IFPMA (International Federation of Pharmaceutical Manufacturers Association) Code. However, the effectiveness of the Pharmaceutical Association of Malaysia's (PhAMA) code of conducts for prescription (ethical) products in controlling pharmaceutical promotion is questionable as no research has been done to examine if it is implemented in practice (Othman, 2006). Many developing countries have no appropriate law to control the pharmaceutical promotion. In Pakistan, the drug act of 1976 governs the Pharm industry, but there is no appropriate control on promotion. In the chapter 4 of Drugs (Licensing, Registering And Advertising) Rules, Drug Act 1976 rule number 31 to 35 addresses the "advertisement" not promotion and this, is even not enough to control advertisement (DCOMoH, 2009).

Advertisement of drugs direct to consumers and control on sampling is very ambiguous. It states that "no person shall distribute or cause to be distributed any drug as a sample except in accordance with such conditions as may be prescribed" (DCOMoH, 2009) and no details of "may be prescribed" are available. Schedule "G" is added by an SRO (Solicitor's Remuneration Order) 1362(1)/96, dated 28-11-1996, specifically to control pharmaceutical promotion (DCOMoH, 2009) but it is in the same ambiguous statement form and actually is only an addition of few more papers in the Drug Act. These legal provisions are much ambiguous and can easily be violated.

2.1.4 Drug promotion and Regulation in Ethiopia

As stipulated in the guideline of EFMHCAC (2013), in Ethiopia, drug promotion is regulated by EFMHACA and various media are entitled to promote specific pharmaceutical products. However, the same product can also be promoted through different media. Products that are allowed to be promoted via electronic and Print Media, TV, Radio, and Newspapers include: oral contraceptives; Oral Rehydration Salt (ORS); condoms; vitamins; food additives; analgesics; anthelmintic; medical equipment; medical supplies including self-test for pregnancy and

hypertension but not self-test for HIV; medicated & non medicated cosmetics; sanitary and beautifying agents such as tooth paste, diapers, modes; industrial & household insecticides, pesticides; and disinfectants. Products allowed to be promoted by the Billboards, on the other hand, include: condoms; oral contraceptives (one month); sanitary and beautifying agents such as tooth paste, diapers, Modes; vitamins; cosmetics; and sanitary and beautifying agents such as tooth paste, diapers, modes.

The information contained in a promoted drug shall be strictly evaluated by the concerned authority and the information content of promotion in media for Analgesics, Anthelmintic shall include their specific sources and shall also state that the advice of health professional is required. The information content of promotion in media for Cosmetics, on the other hand, shall include the necessary precaution to be taken during application. For industrial & household insecticide and pesticides the information that shall be contained should include: foods and liquids are covered before spraying; the person should cover his mouth and nose during spray, and they are not to be sprayed on fire. Other guideline information include that all medicines shall be kept away from the reach of children at all times; insecticide sprayed rooms should immediately be closed for 30 - 40 minutes; skin contact with the insecticide and pesticide should be avoided; all other drugs except the aforementioned ones shall not be advertised via radio, television, press as well as films; and on or in the various means of transportation such as aircrafts, ships, boats and vehicles.

2.1.5 Abuse of Marketing Techniques in Pharmaceuticals

The pharmaceutical industry has contributed more to the well-being of humanity than any other. Arguably among other achievements, it has helped to remove tuberculosis, gastroenteritis, and diphtheria from among the 10 leading causes of death in the western world and also achieved a mile stone by playing basic roles in the removal of small pox, plague and polio, which were the main causes of death and disability especially in the developing countries a few decades back. Despite these achievements, the avoidable suffering caused by the pharmaceutical industry, particularly to the poor of the world, seems at times beyond comprehension (Braithwaite, 1986). Alliances between the medical profession and the pharmaceutical industry have become increasingly widespread in recent years. While there are clearly benefits for doctors and their patients derived from the medical profession working with the industry, concerns have been raised that commercial imperative of industry may conflict with physicians' independence and professional integrity (Doran, 2006) it is a fact that marketing and promotional activities may influence the physicians' decision regarding prescribing medication. Little information is available about means of the promotion of pharmaceuticals all over the world especially in the

developing countries where there is no documentation of the promotional practices, means and tools influencing doctors prescribing behaviors. Even globally we can find few studies that addressed the issue but in a very narrow and specific area of the scene.

2.1.6 Promotional Spending

Gifts given by the pharmaceutical industry to physicians are common and controversial (Gibbons, 1996). Their expenditure on marketing is increasing day by day. In the USA, the pharmaceutical industry spends nearly twice as much on marketing as on R&D (Applbaum, 2008). In 1998, the pharmaceutical industry spent US\$12724 million in United States only on promoting its products. In 1998, the expenditure was dominated by free drug samples provided to physicians (equivalent retail cost of US\$ 6602 million) and office promotion (US\$ 3537 million), followed by (DTCA) Direct to consumers advertisement (US\$ 1337 million) hospital.

Promotion (US\$ 705 million) and advertising in medical journals (US\$ 540 million). It has been estimated that on the average, more than US\$8000 is spent per physician annually and this budget is increasing every year. (Gibbons, 1996)

According to IMS (International Medical Statistics) and CAM, spending for the promotion of prescription drugs in US during the year of 2004 was more than 57.5 Billion out of which 15.9 (27.7%) was spent on free samples, 20.4 (35.5%) on detailing 4 (7%) on Direct to Consumers Advertisement (DTCA), 2 (3.5%) on meetings, 0.3 (0.5%) on e-promotion, mailing etc., 0.5(0.9%) on journal advertisement and 14.4 (25%) were the unmonitored promotional expenditures. (Gagnon and Lexchin, 2008)

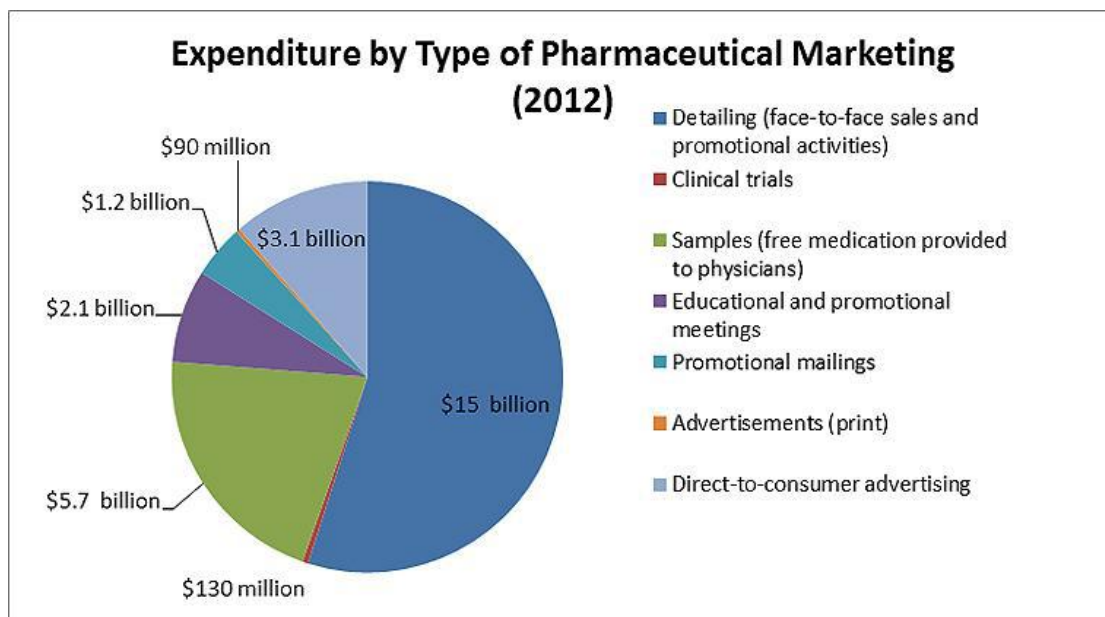


Fig 2.1 Expenditure by Type of Pharmaceutical Marketing

However, the impact of promotional effort on prescription generation depends on the kind of brands (Pedan and Wu, 2011), disease categories, specialty of the physician, work settings and economic status of a patient (Joyce, 2011; Lobo, 2012; Spurling, 2010; Tan, 2009). Though the effect of promotion on prescription is positive, a study proved that the efforts of pharmaceutical promotion have a positive effect on prescription up to a point after which excessive expenditure on pharmaceutical promotion has a counterproductive effect. (Gönül, 2001)

2.1.7 Various ways of prescription drug abuse:

As stated by (Jeremy, 2011), prescription drugs may be abused in one or more of the following ways:

- **Taking a medication that has been prescribed for somebody else:** Unaware of the dangers of sharing medications; people often unknowingly contribute to this form of abuse by sharing their unused pain relievers with their family members or other people.
- **Taking drugs in a higher quantity or in another manner than prescribed:** Most prescription drugs are dispensed to be taken orally in the form of tablets. However, abusers sometimes crush the tablets and either snorts the powder or dissolves it in a liquid and injects the solution into their body. Such practice proved to hasten the direct entry of the drug into the bloodstream thus amplifying its effect on the brain as the drug by-passes the normal rout.
- **Taking drugs for another purpose than prescribed:** All the aforementioned drug types can produce pleasurable effects at sufficient quantities, so taking them for the purpose of getting high is one of the main reasons people abuse them. ADHD drugs like Adderall are also often abused by students seeking to improve their academic performance. However, although they may boost alertness, there is little evidence they improve cognitive functioning for those without a medical condition (Hutchens S. 1997)

2.2 Empirical Evidence

Workneh, Gebrehiwot, Bayo, Gidey, Belay and Tesfaye (2016) studied Influence of Medical Representatives on Prescribing Practices in Mekelle, Northern Ethiopia. The result of the study showed that 48.2% of the physicians believed that their prescribing behaviors were influenced by visits of MRs although 65% of the physicians were not satisfied in the current way of drug promotion. 84.3% of information provided by medical representatives to physicians is about the brand name of a product followed by approved drug indication 30.1%. On the contrary, the physician received scarce information on drug contraindications, interaction and precautions from MRs with 4.8%, 4.8% and 6% respectively. The most frequent resources used in case of

any problem in prescribing process were medical text books 56.6% and academic journals 14.5%. Acceptance of gifts remains most significant factor influencing physicians drug prescribing practice that is physicians accepting gifts from MRs were influenced six times more compared to physicians who did not accept any gifts. Another factor influencing physician's drug prescribing practice was working in private health facilities, which means those working in the private health facilities were almost thirteen times more likely to be influenced into changing their prescription practices by MRs than those in public ones.

According to a research entitled assessment of prescription drug promotion effect on physician prescribing behavior practicing in Addis Ababa, by Adiam Bezuayehu 2016; 47.4% of the respondents reported that free medical samples have brand reminder effect and influence prescription choice. Stationeries, pocket treatment guides, brochures and journal article reprints were also mentioned by 33.6%, 27.8%, 19.1%, and 14.8% of the respondents to have brand reminder effect. 48.3% physicians confirmed that attending CMEs can influence prescription choice. Being invited to product launch dinner, receiving sponsorship for international conference, invitation to lunch or dinner and invitation to recreational outings were mentioned to have brand reminder effect and influence prescription choice by 36.0%, 29.8%, 10.7% and 7.1% of the respondents respectively. The majority of respondents 60.7% agreed that the information from medical representatives is helpful in their practice. For instance, 72.3% of them were either agreed or strongly agreed on the influence of information they received on their medication choice. Similarly, 46.3% were agreed that information they received influenced their prescription choice.

A study on the promotion of prescription medicine by pharmaceuticals sales representatives and its effect on health professionals in Kumasi Metropolis (ADU APPIAH-KUBI 2011) 57% of respondents said that the interactions they had with Pharmaceutical Representatives might have influenced their prescription of a branded drug. However, forty-three percent of prescribers said they could not have been influenced. And only 50% of respondents said that they were obliged to prescribe Medical Rep's drugs because of the gifts they had received from them. The other 50% of respondents said they did not feel obliged to prescribe drugs in a certain way because of the gifts offered them.

A series of studies document that physician attitudes toward detailing and pharmaceutical sales representatives are mostly negative. First, Poirier surveyed physicians on their attitudes toward pharmaceutical marketing practices. They found that only 24% of the physicians were satisfied with detailing and 48% were dissatisfied. These skeptical attitudes were confirmed by the

finding that only 20% of the physicians believed in the accuracy and objectivity of presented information, while 44% did not. Nevertheless, 56% admitted that representatives could influence formulary decisions if efficacy, toxicity, and cost were the same, while 28% disagreed with this statement.

Taylor and Bond studied the association between new prescriptions and factors of influence. They collected prescription behavior of 189 British practitioners and asked them to indicate up to two influences. Pharmaceutical representatives were listed as the second most important source (20% of total number of times mentioned) Sixty-four per cent of the patients surveyed by Blake and Early⁸ believed that gifts would increase the costs of medicines. They approved more of doctors accepting some gifts, like drug samples, medical books, ballpoint pens and conference expenses, than others, such as dinners, baby formula and golf tournaments. Men, older people and those with tertiary education were more likely to disapprove of gifts. They were more likely to disapprove of gifts (except free samples) if they felt that these influenced prescribing and increased cost.

According to the national survey on the attitudes of Canadian physicians towards drug-detailing by pharmaceutical representatives among the surveyed 262 practitioners, of whom 70% agreed that detailing affected their prescribing habits. From the discussion above, it seems that physicians are beginning to acknowledge that detailing has an impact on physician prescription behavior. However, the general perception that detailing has no effect on prescription behavior still persists. This perception may exist because physicians are unwilling to admit their reliance on detailing or their lack of awareness of such influence. (Strang, 1996)

Roughead provided some insights into how and why physicians were affected by detailing. He used sixteen taped visits where sixty-four medicines were detailed. He found that the most common method, which was seen in all sixteen visits, was reciprocation where detailers gave gifts such as samples and printed material to physicians.(Roughead, 1998)

According to a study on Commercial Detailing Techniques Used by Pharmaceutical Representatives to Influence Prescribing by E.E. Roughead gift-giving made the physicians feel bound to make a repayment and encouraged an automatic response. Social validation claims were used in 41% of the cases. The peer groups to whose established practices sales representatives referred when using social validation were mostly vaguely defined as "other doctors." Commitment acts appealed to the need and desire to be consistent in order to influence physicians' behavior. These acts were applied in **39%** of details either in the form of a direct

request to prescribe the product or in a series of questions or statements that gradually moved to agreement to prescribe the drug.

The relationship between medical specialists and sales representatives appears to be important since information from sales representatives is used and trusted by doctors. Research by (Andaleeb and Tallman 1996) also suggested that doctors see pharmaceutical sales representatives as an important source of information, even though they could have acquired this information without the representative's assistance.

In the U.S. between 1996 and 2007, pharmaceutical advertising expenses aimed at physicians doubled in value from \$3.5 billion to \$6.7 billion.³⁰ with the number of pharmaceutical detailers reaching 90,000 and the advertising costs reaching \$7 billion, the pharmaceutical industry spends approximately \$15,000 per U.S. physician per year. (Niebyl, 2008)

According to Kaiser Family Foundation, Concerns have arisen that the large amount of pharmaceutical advertising money spent on physicians is unduly influencing their prescribing habits and creating bias in their medical decision making. Pharmaceutical reps provide free food to doctors and staff; distribute free drug samples; compensate doctors for their travel and lodging expenses; hire doctors as consultants and speakers; and finance clinical trials. These types of physician-industry relationships have the potential to make doctors feel the need to reciprocate by prescribing the companies' products. As Jennifer Niebyl puts it, "Gifts create an obligation, a need to reciprocate, which is what creates a conflict of interest. Gifts create a sense of entitlement, unlike advertising, and may erode professional values, unlike advertising."

2.3 Conceptual framework

The study is on the effect of medical promotional activities on prescription habits of doctors working in MCM hospital.

Medical promotional activity is a set of informational and persuasive activities by manufacturers and distributors, the effect of which is to influence the prescription, supply, purchase or use of medicinal drugs. (WHO/HAI, 2005).

As shown from the above related literature reviews this set of activities include medical representative interaction with health professionals, provision of free drug samples, advertisement on media, provision of promotional materials and gifts, provision of drug coupons, CME events and etc...

For the specific purpose of meeting the study's objective four types of promotional activities were taken as independent variables. These are: medical representative interaction, promotional materials and gifts, free drug samples and continuing medical educations (CMEs). And impacts of these variables on prescription habits were investigated. The data gathered from the respondents is a qualitative one because it represents respondent's opinion and perception towards medical promotional activities. As a result ordered logistic regression was used to analyze the data.

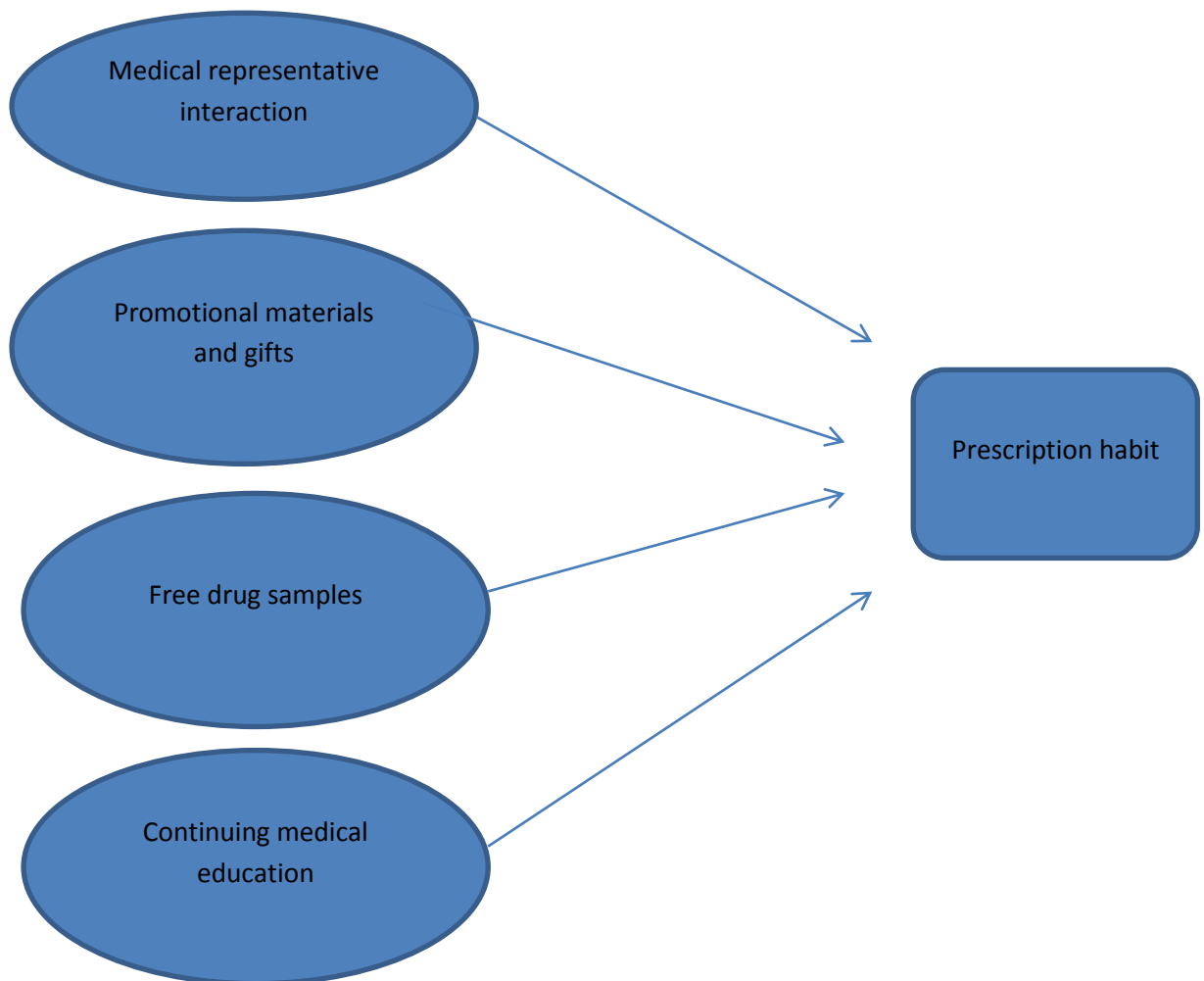


Fig. 2.2. Conceptual frame work

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Research Design

Research design provides a framework for the collection and analysis of data. Considering the stated research questions, the research design for this study is qualitative in nature. In fact, research design is the conceptual structure within which research is conducted; it constitutes the blueprint for the collection, measurement and analysis of data. The measurement scale of this research comprises of nominal and ordinal unit of measurement.

3.2. Source of Data

Structured questionnaires were developed to collect data for the study. Primary data was collected from sampled respondents; these include all the doctors working in mcm hospital and secondary data was collected from the hospital's documents.

This study used self-administered questionnaires that were distributed to all physicians who were actively working in MCM hospital at the time of data collection to collect qualitative data. And this primary data was employed to answer basic research questions.

3.3. Sampling Techniques

The study was done in one private hospital (MCM) which is located in Addis Ababa, and medical doctors working in this hospital are 43. Due to the limited size of the population a census survey was conducted.

Census method refers to the complete enumeration of the universe. A universe may be a place a group of people or a specific locality through which we collect the data. The census method is suitable only in the following cases:-

- Where the universe is not vast
- Where there is enough time to collect data
- Where higher degree of accuracy is required
- Where there is enough availability of finance

Data collection through census method gives opportunity to the investigator to have an intensive study about a problem. The investigator gathers a lot of knowledge through this method and higher degree of accuracy in data.

3.4. Sample size

As the researcher explained above since a census method is employed all the 43 doctors were included in the study.

Accordingly questionnaires were distributed to all physicians working in MCM hospital. Thus all the 43 doctors in the hospital were given the questionnaire among which 40 of the questionnaires were filled and returned while 3 of the doctors were used as a pretest sample.

3.5. Instrument of Data Collection

Questionnaires were used to collect the primary data. The questionnaires comprise of a dichotomous, a structured question with written question, and 5 point Likert scale questions (ranging from 1 strongly disagrees to 5 strongly agree).

3.6. Data Analysis Methods

The method of estimation is ordered logistic regression models or the method of maximum likelihood. The researcher estimates using the ordinal logistic regression model and descriptive statistics to analyze data gathered from respondents.

3.7. Reliability and Validity Test of the Questionnaire

Reliability is the ability of a measure to produce the same or highly similar results on repeated administrations. If, on testing and retesting, your questionnaire produces highly similar results, you have a reliable instrument. In contrast, if the responses vary widely, your instrument is not reliable. In this study a test-retest method of reliability assessment is applied. In this method we simply administer the questionnaire, allow some time to elapse, and then administer the questionnaire again to the same group of participants. An inter-test interval that is too short may result in participants remembering your questions and the answers they gave. If, however, you wait too long, test–retest reliability may be artificially low. The inter-test interval should depend on the nature of the variables being measured, with an interval of a few weeks being sufficient for most applications. Accordingly three weeks of inter-test interval were elapsed and the questionnaires were administered again. The results showed highly similar responses from the test-retest responses, showing the reliability of the questionnaire. (Kenneth and Bruce, 2014)

In addition to this test the reliability has been increased by:-

- Increasing the number of items on our questionnaire, 32 items were prepared to encompass all topics related to the research problem. Generally, higher reliability is associated with increasing numbers of items.

- Standardized administration procedures were applied. It was made sure that instructions to participants and instructions to administrators are kept constant.
- Appropriate language editing's were made by experts regarding its simplicity, coherence, and whether the items were clearly understandable

3.8. Model Specification

The effects of medical promotion activities on Doctors prescriptions habit is analyzed below using the Ordered Logistic Regression Model or Log likelihood model. Accordingly the model is specified as follow.

$$\log PH_i = B_1 \log MR + B_2 \log PM + B_3 \log FD + B_4 \log CM + \mu$$

Where, PH = Doctor's prescription habit,

MR = medical representatives interaction

PM= Promotional Materials and medical Gifts

FD = Free drug Samples

CM = Continuing Medical Educations (CMEs)

μ = the error term

3.9. Study variables

There are two basic kinds of variables that we most often talked about in a research. These are independent and dependent variables. Independent variable is a variable that can be controlled and manipulated by the researcher. In this study the independent variables are:-

- Medical representatives interaction
- Provision of free medical samples
- Promotional materials and gifts
- Continuing medical education

Dependent variable is a variable that can be measured as an outcome by the researcher and the dependent variable in this study is prescription habit of doctors in MCM hospital.

3.10. Ethical Research Consideration

Ethical Consideration

There are many guidelines when dealing with ethical consideration in research especially involving human subject, such as the Nirenberg Code, The declaration of Helsinki, The Belmont Report etc. Accordingly the following Ethical principles were applied to conduct the research:-

- The research proposal was approved by Academic Board of the Saint Mary's university, before the research was conducted
- The informed consent of the participants have been asked, informed consent included: the purpose of the research, expected duration, and procedures; their right to decline to participate and to withdraw from the research once participation, any prospective research benefits; confidentiality; and whom to contact for questions about the research.
- The confidentiality of the respondents was maintained during data collection, there were no questions that required personal information and the data from there turned questionnaire were assessed confidentially. The data were not made available to third party without permission from study participants.

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 DESCRIPTIVE ANALYSIS

In this part a descriptive statistics is used to show the population's frequency distribution and percentages in a tabular form.

Table 4.1: Gender Distribution

	Frequency	Percent	Cumulative Percent
Male	30	75.0	75.0
Female	10	25.0	100.0
Total	40	100.0	

Source: survey data analysis

As table 1 above shows, the 75% of the respondents are male and the remaining 25% are Female. This shows the majority of the MCM hospital medical professionals are male.

Table 4.2: Age distribution of the respondents

	Frequency	Percent	Cumulative Percent
18-29	6	15.0	15.0
30-39	5	12.5	27.5
40-49	19	47.5	75.0
>50	10	25.0	100.0
Total	40	100.0	

Source: survey data analysis

The above table shows that 6 (15%) of the respondents are of age 18 to 29, 12.5% of them are in the age range of 30-39, similarly 19 or 47.5% of them are in the age range of 40-49 and the remaining 25% are above age 50. This shows the majority of the respondents are in the range of age 40-49.

Table 4.3: Medical Title of the respondents

	Frequency	Percent	Cumulative Percent
GP	11	27.5	27.5
Specialist	22	55.0	82.5
Sub-specialist	7	17.5	100.0
Total	40	100.0	

Source: survey data analysis

Table 3 shows that 27.5%, 55%, 17.5% of the respondents are General practitioner, specialist and sub-specialists respectively. The majority of the medical staff in MCM hospital is specialists having a 55% share.

Table 4.4: Respondents year of Experience

	Frequency	Percent	Cumulative Percent
<1 year	1	2.5	2.5
1-5 years	9	22.5	25.0
5-10 years	9	22.5	47.5
>10 years	21	52.5	100.0
Total	40	100.0	

Source: survey data analysis

Among the respondents the majority or 50% have the work experience greater than 10 years and only 2.5% of them have a work experience less than a year, showing the high level of experience among the medical staff in MCM. And the respondents with the experience of 1-5 years and 5-10 years have an equal distribution of 22.5% each.

Table 4.5: Monthly Income

	Frequency	Percent	Cumulative Percent
15,000-20,000 Birr	7	17.5	17.5
>20,000 Birr	33	82.5	100.0
Total	40	100.0	

Source: survey data analysis

Respondent's answers show that 82% of them have a monthly income greater than 20,000 birr and only 17.5% of them earn a monthly income between 15,000 and 20,000 Birr.

4.2 Surveys on medical promotional activities on doctor's prescription habit

According to **Appendix1** among those who are asked the question how often they interact with the medical representatives, 50% answered they interact with them once a week. This shows pharmaceutical companies weak effort on advertising their products through medical representatives. However 35% of the respondents replied that they interact with medical representatives 1-3 times a week showing a moderate efforts of pharmaceutical firm's advertisement practices through their representatives. On the other question asking the gender preferences among medical representatives, the response shows that 75% of them are gender indifferent. This means gender has little effect on medical professionals during medical representative's advertisement session. Likewise medical representatives' age does not significantly affect the respondents' preference as 75% of them answered No to the question whether the age of the representatives affect their prescription behavior.

In most cases the medical professionals choose standard treatment guidelines as a source for their clinical information. Accordingly 35% replied standard treatment guidelines as their main source of information. Unfortunately only 15% of the respondents answered they get their clinical information from medical representatives. This shows little impact of medical representatives on providing medical information. Brochure is the most frequently received promotional materials from medical representatives, with the proportion of 60%.The next most received promotional material are stationary accessories with 20% proportion.

Concerning the gifts and invitations from medical Companies 42.5% responded they received invitation to a product launch dinner. And 20% of the respondents replied that they received invitation to meals at departmental conferences. This shows that Pharmaceutical companies

mostly advertise their product by inviting to product launch dinner and meals at department conferences. In a similar way 37% of the respondents replied that they receive free medical samples up on their requests,30% and 25% of them replied they receive once to twice per month and once every 2 to 3 months, respectively.

4.3. Correlation Between Selected Variables

The correlation coefficient examines the strength and direction of the linear relationship between two variables. The correlation coefficient can range between -1 and +1, the larger the absolute value of the coefficient, the stronger the relationship between the variables. The sign of the coefficient indicates the direction of the relationship. As such the following table shows the correlation between prescription habits (PH), Gender, Age, Medical title, Experience, and monthly income. All of the correlation coefficients between these variables show a weak negative relationship between the variables.

Table: 4.6 Correlation table

```
. correlate PH Gender Age Medicaltitle Experience Monthlyincome
(obs=40)
```

	PH	Gender	Age	Medicaltitle	Experience	Monthlyincome
PH	1.0000					
Gender	-0.0285	1.0000				
Age	-0.2906	-0.2525	1.0000			
Medicaltitle	-0.0521	-0.0870	0.5546	1.0000		
Experience	-0.0973	-0.2928	0.8335	0.5096	1.0000	
Monthlyincome	-0.0941	-0.1899	0.6618	0.6249	0.6487	1.0000

For example correlation coefficient between prescription habit and Age is -0.029, which indicates that there is a negative relationship between the variables age and doctor's prescription habit based on medical promotional activities. This means that when age increases doctor's prescription habits based on medical promotional activities tend to decrease. There is also an astounding finding of the correlation between gender and prescription habit. There is a negative correlation coefficient of -0.0285 between gender and prescription habit. As gender switches from 1(male) to 2(female) there tend to be a decrease in doctor's prescription habits based on medical promotional activities. This shows that the effects of medical promotional activities are more effective on male than females. Likewise medical specialization, experience, and monthly income of the doctors are found to have a negative correlation coefficients of -0.0521, -0.0973, -

0.0941 respectively, with the doctor's prescription habit (PH) based on the medical promotional activities. These findings indicate that as all medical specialization, Experience, and Monthly income tends to rise or increase the effects of medical promotional activities on doctor's prescription habit is found to be decreasing.

4.4 Econometric Analysis

The MCM Hospital medical professional's survey asked respondents to evaluate the following statement: the effect of medical promotional activities on doctor's prescription habit. Responses were recorded as: 1 = strongly disagree, 2 = disagree, 3 = agree, 4=Neutral and 5 = strongly agree. For each respondent we have the mean value averaged from their respective covariates for the following factors: medical representative interaction and quality of information, promotional materials and medical gifts, free drug samples and continuing medical educations (CMEs) as an independent variables each of them having multiples of covariates. The model is estimated using the Maximum Likelihood (ML) estimation method.

Using the *ologit* command of *Stata 13*, we obtained the ML estimation results in Table 7 below. Before we interpret the results, let us look at the overall results. Under the null hypothesis that none of slope coefficients are statistically significant, the computed likelihood ratios (LR) follow the chi-square (χ^2) distribution with degrees of freedom (df) equal to the total number of slope coefficients estimated, 4 in this case. The estimated LR of 19 is highly statistically significant, its *p* value being practically zero. This suggests that the model we have chosen gives a good fit, although not every slope coefficient is statistically significant. So collectively all the regressors have strong influence on the choice probability. The model also gives the Pseudo R^2 of 0.18. This is not the same as the usual R^2 in OLS regression – that is, it is not a measure of the proportion of the variance in the regressand explained by the regressors included in the model. Therefore, the Pseudo R^2 value should not be taken seriously.

Table 4.7: Ordered logit model (OLM) Estimation results of doctors prescription habit

```
. ologit PH MR PM FD CM
```

```
Iteration 0: log likelihood = -54.932808
Iteration 1: log likelihood = -46.470739
Iteration 2: log likelihood = -45.278271
Iteration 3: log likelihood = -45.228163
Iteration 4: log likelihood = -45.227918
Iteration 5: log likelihood = -45.227918
```

```
Ordered logistic regression           Number of obs   =           40
                                      LR chi2(4)       =           19.41
                                      Prob > chi2      =           0.0007
Log likelihood = -45.227918          Pseudo R2       =           0.1767
```

PH	Coef.	Std. Err.	z	P> z	[95% Conf. Interval]	
MR	.2748099	.1298087	2.12	0.034	.0203896	.5292303
PM	-.2595222	.1305509	-1.99	0.047	-.5153973	-.003647
FD	.1160695	.1713544	0.68	0.498	-.2197788	.4519179
CM	.5132619	.1771404	2.90	0.004	.166073	.8604507
/cut1	6.042796	2.693543			.7635493	11.32204
/cut2	9.218578	3.054106			3.232639	15.20452
/cut3	10.97865	3.214806			4.677745	17.27955
/cut4	13.33522	3.357809			6.754032	19.9164

Note: cut1, cut2 and cut3 and cut4 are respectively, the intercepts for the second, third and the fourth category, the intercept for the lowest category being normalized to zero.

The statistical significance of the individual regression coefficients is measured by the Z value. All the regression coefficients, except the free drug samples (FD), are individually statistically significant, their *p* values being slightly close to zero.

4.5 Interpretation of the Regression Coefficients

The regression coefficients given in the preceding table are ordered log-odds (i.e. logit) coefficients. The coefficient of the medical representative's interaction and quality of information ≈ 0.275 . This suggests that if we increase the level of medical representative's interaction and quality of information by a unit the ordered log-odds of being in a higher prescription habit category increases by about ≈ 0.275 , holding all other regressors constant. This is true of prescription habit category 5 over habit category 4 or of habit category 4 over 3 or habit category 3 over category 2 etc. To the contrary the coefficient of promotional materials and medial gifts (PM) ≈ -0.256 , this signify that if we increase promotional materials and medical gifts by a unit the ordered log odds of being in a higher habit decrease by ≈ -0.256 , holding all other regressors constant. Likewise an increase of continuing medical education by a unit or a year will increase the ordered log odds of being in a higher category of prescription habit by ≈ 0.18 , again holding all other variables constant.

4.6 Interpretation of the Odds Ratios

It is often useful to compute the odds-ratios to interpret the coefficients. This can be done easily by exponentiating (i.e. raising e to a given power) the estimated regression coefficients. Take the coefficient of the medical representative's interaction and quality of information variable of ≈ 0.275 . Exponentiating this we obtain $e^{0.275} = 1.316$. This means if we increase

Table 4.8: Odds ratios of the prescription habit

```
. ologit PH MR PM FD CM, or
```

```
Iteration 0: log likelihood = -54.932808
Iteration 1: log likelihood = -46.470739
Iteration 2: log likelihood = -45.278271
Iteration 3: log likelihood = -45.228163
Iteration 4: log likelihood = -45.227918
Iteration 5: log likelihood = -45.227918
```

```
Ordered logistic regression          Number of obs   =          40
                                   LR chi2(4)        =          19.41
                                   Prob > chi2       =          0.0007
Log likelihood = -45.227918         Pseudo R2      =          0.1767
```

PH	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
MR	1.31628	.1708646	2.12	0.034	1.020599	1.697625
PM	.7714201	.1007096	-1.99	0.047	.5972632	.9963596
FD	1.123074	.1924436	0.68	0.498	.8026963	1.571323
CM	1.670732	.2959542	2.90	0.004	1.180659	2.364226
/cut1	6.042796	2.693543			.7635493	11.32204
/cut2	9.218578	3.054106			3.232639	15.20452
/cut3	10.97865	3.214806			4.677745	17.27955
/cut4	13.33522	3.357809			6.754032	19.9164

the medical representative's interaction and quality of information by a unit, the odds in favour of higher prescription category over a lower category of prescription greater than 1, again holding all other variables constant. However, promotional materials and medical gifts has a negative effect on doctor's prescription habit, that means increasing promotional materials and medical gifts by a unit, the odds in favor of lower prescription category over a higher categories is less than 1, holding all other variables constant. The increase in continuing medical education by a unit or a year, the odds in favor of the higher prescription category over the lower category is greater than 1, which equals 1.7, again holding all other variables constant.

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMENDATION

5.1. Summary of major findings

- Interaction between pharmaceutical company medical representatives and doctors working in MCM hospital had a positive effect on doctor's prescription habit.
- Promotional materials and medical gifts negatively affect the doctor's prescription habit of MCM doctors.
- Continuing medical education had positive effect on doctor's prescription habit.
- Respondents' ages are found to be negatively correlated with prescription habit which is based on medical promotional activities.
- As gender switches from 1(male) to 2(female) there tends to be a decrease on doctor prescription habit depending on medical promotional activities. This shows that medical promotional activities are more effective on male doctors than female ones.
- The correlation coefficient show that as doctors' specialization level increases prescription habit based on medical promotional activities decreases.
- The correlation coefficient of experience and monthly income also shows a negative correlation on doctor's prescription habit. This means the higher the medical experience and the monthly income is the lower their prescription behavior be influenced by promotional activities.
- Among all the doctors in MCM hospital 50% of the respondents interact with medical representatives once a week.
- 75% of the respondents are gender indifferent or have no preference concerning the gender of medical representatives.
- Among the respondents 75% of the doctors' prescription behaviors were not affected by the age of medical representatives.
- 35% of respondents use standard treatment guidelines as source of clinical information for their practice. While only 15% of the doctors use information from medical representatives.
- Brochure is the most frequently received promotional material from medical representatives according to the analysis, comprising 60% of the promotional materials provided.

- Among the respondents 42.5% of doctors working in MCM hospital received invitation to product launch dinners.
- 37% of the respondents received free medical samples up on their requests, 30% and 25% of them received once to twice per month and once every 2 to 3 months, respectively.

5.2. Conclusion

The study tries to investigate the effect of medical promotional activities on doctor's prescription habit in the context of Ethiopia, the case of private set up. It is the effect of which is to influence the prescription, supply, purchase, or use of medical drugs. Most pharmaceutical companies employ and train medical representative to promote and sale drug using printed literature, drug sample and gifts. Food, medicine, healthcare administration and control authority which is a governmental body that controls promotional activities done by pharmaceutical companies in Ethiopia. In the Ethiopian context though it is at the early stage a number generic and brand multinational companies are operating to bring the global impact of the medical promotional activities to the country.

Basically, this study aimed at assessing the effect of medical promotional activities on doctor's prescription habit. The main promotional activities considered in this study are MR interaction, promotional materials and gifts, free drug samples and continuing medical education.

The study employed the ordinal logistics regression model along with simple descriptive statistics to analyze the primary data collected through the structured questionnaires to show the real effect of medical promotional activities on doctor's prescription habit. Applying the ologit command of stata 13 software the output were obtained and interpreted in terms of the sign of the regressors and odds ratio. Based on the findings of the study, interaction with pharmaceutical company medical representatives places positive influence on prescription behavior of doctors currently working in MCM hospital. In addition having access to participate in CME programs has also contributed in influencing their prescription habit. On the other hand, when it comes to prescribing drugs, doctors working in MCM hospital are not influenced by the free drug samples from pharmaceutical companies. However, promotional materials and gifts seem to negatively affect prescription habit of doctors working in MCM hospital

5.2 Recommendations

- Pharmaceutical companies should focus on the medical representative's interaction with the medical professionals and provide quality medical information since these have a strong positive effect on doctor's prescription habit. As a result pharmaceutical

companies must invest on cultivating medical representatives through properly training them and making them competent.

- Pharmaceutical companies should reduce providing promotional materials and medical gifts. Here diversifying promotional materials other than brochures may turn doctors' prospect on the matter to a promising direction.
- Pharmaceutical companies must increase the provision of continuing medical educations or CMEs.
- Pharmaceutical companies must schedule frequent medical representatives interaction with medical doctors at least once a week.
- Pharmaceutical companies can employ any gender and age group of medical representatives.
- It is important for pharmaceutical companies to focus on relatively younger, general practicing and male doctors to be productive in influencing ones prescription behavior. Furthermore researches should be than on identifying effective promotional techniques to be applied on female doctors, more experienced and doctors with higher specialization level.

REFERENCES

- Adiam B. (2016) Assessment of the Effect of Prescription drug promotion on the physician prescribing behavior practicing in Addis Ababa.
- Al Zahrani H (2014) The impact of pharmaceutical promotions on primary health care physicians 'prescribing behavior in KAMC in Central Region. *Int J Med Sci Public Health* 3: 358–364.
- Alosaimi DF, Al Kaabba A, Qadi M, Albahlal A, Alabdulkarim Y, Alabduljabbar M, et al. (2014) Physicians' attitudes towards interaction with the pharmaceutical industry. *EMHJ* 20: 812–819.
- Ann Int Med* (1990) American college of Physician. Physicians and Pharmaceutical industry; 112: 624- 626
- Ann intern med* (1988) Health and public policy committee of the American college of Physician: improving medical education in Therapeutics. 108; 145-147
- Applbaum, K. (2008) Adjunct-to-marketing' R&D Expenses: comments on The Cost of Pushing Pills: A New Estimate of Pharmaceutical Promotion Expenditures in the United States. *PLOS Medicine*.
- Bhatt AD. (1992) Drugs for misuse or use, *J Gen med* 1992; 4:31-36
- Blake, Robert L. Jr. Early, Elizabeth K. Patients' attitudes about gifts to physicians from pharmaceutical companies. *Journal of the American Board of Family Practice* 1995;8:457-464
- Braithwaite, D. (1986) The corrupt industry new internationalist. November 1986; 165
- Charen MM, Lenderfeld S, Muray TH. (1989) Doctors Drug companies and gifts. *JAMA*; 262; 3448-3451.
- Chren MM, Landefeld S, Murray TH. (1998) Doctors, drug companies and gifts. *JAMA* 1998; 262:3448-3451
- DCOMoH (2009) Drugs (Licensing, Registering And Advertising) Rules, Drug Act 1976. Islamabad: Government of Pakistan; 1976 [updated 1976; Drug Act]. Available from: <http://www.dcomoh.gov.pk/regulations/drugrules2.php>

Doran, E. et al., (2006) Empirical uncertainty and moral contest: A qualitative analysis of the relationship between medical specialists and the pharmaceutical industry in Australia. *Social Science & Medicine*. Pg. 1510-9

E.E. Roughead (1998) Commercial Detailing Techniques Used by Pharmaceutical Representatives To Influence Prescribing, *28 AUSTRALIAN & NEW ZEALAND JOURNAL OF MEDICINE*. 306 (1998).

EFMHCACA (2013). Guidelines for health institution promotion. First Edition Ethiopian Food, Medicines, Health Care, Administrations and Control Authority (EFMHCACA), Addis Ababa Ethiopia.

Ethiopia. (2008), Guidelines for the Regulation of Promotion and Advertisement of Drugs, Drug Administration and Control Authority (DACA). 2nd ed. Addis Ababa.

Ethiopia. (2010) The House of Representatives.. Food, Medicine and Health Care Administration and Control Proclamation. Addis Ababa: The House of Representatives. (Proclamation No. 661/2009).

Gagnon, M-A. and Lexchin J. (2008) The Cost of Pushing Pills: A New Estimate of Pharmaceutical Promotion Expenditures in the United States. *PLoS Medicine*.

Geoffrey K. Spurling, Peter R. Mansfield, Brett D. Montgomery, Joel Lexchin, Jenny Doust, Noordin Othman, Agnes I. Vitry (2010). Information from Pharmaceutical Companies and the Quality, Quantity, and Cost of Physicians' Prescribing: A Systematic Review

Gibbons, R. et al., (1998) A Comparison of Physicians' and Patients' Attitudes toward Pharmaceutical Industry Gifts. *Journal of General Internal Medicine*. (3):151-4.

Hutchens S. (1997). National Park Service requirements of a US West Technology. Creighton University, USA.

IFPMA (1989) International Federation of Pharmaceutical Manufacturers Associations. WPMA Code of Pharmaceutical Marketing Practices. Geneva: IFPMA; 1989.

James C, Peabody J, Solon O, Quimbo S, Hanson K. (2009) An Unhealthy Public-Private Tension: Pharmacy Ownership, Prescribing, and spending in the Philippines. *Health Affairs* 2009; 28:1022-1033.

Jeremy A.G. (2011). Partial bibliography on pharmaceutical promotion and prescribing habits. John G. Connolly Division of Pharmacoepidemiology and Pharmacoeconomics. Brigham & Women's Hospital Harvard Medical School. Boston, USA.

Jerry A.(1982), Scientific Versus Commercial Sources of Influence on the Prescribing Behavior of Physicians, 73 AM. J. MED. 4 (1982)

Joyce, G.F., Carrera, M.P., Goldman, D.P. & Sood, N.(2011) 'Physician Prescribing Behavior and Its Impact on Patient-Level Outcomes', American Journal of Managed Care, 17(12): e462-e471

Kaiser Family Foundation. Prescription Drug Trends: September 2008. Accessed 5/21/09. http://www.kff.org/rxdrugs/upload/3057_07.pdf

Klaus L., Simone B. (2010) A Survey of German Physicians in Private Practice About Contacts With Pharmaceutical Sales Representatives

Kotler Philip, Kevin Keller, (2012), Marketing Management, 14th ed. Amos Tuck school of Business

Lancet (1993) Editorial – drug promotion. – Stealth, wealth and safety; 341; 1507-1508

Marketing Practices, 51 AM. J. HOSP. PHARMACY 378 (1994).

Niebyl J. (2008) the pharmaceutical industry: friend or foe? American Journal of Obstetrics & Gynecology. 2008 April; 199(2): 435-439.

Norris P, Herxheimer A, Lexchin J, Mansfield P. (2007) Drug promotion: what we know, what we have yet to learn (Reviews of materials in the WHO/HAI database on drug promotion) [cited 2007March4].Available from:http://www.who.int/medicines/areas/rational_use/drugPromodhai.pdf

Othman, N. (2007) Self-regulation open to abuse. The New Straits Times May 8, 2007

Patel JC. (1992) The gifts and trinkets to doctors: current practice in India and global trends in pharmaceutical industry. Bombay Hosp. J 1992; 34:1177-1184

Peter Urs Bender, (2008,) Secrets of Power Presentations, 6th Ed., Macmillan India limited.

Smith R. (1986) Doctors and drug industry; too close for comfort. *Br Med J*; 1986; 193: 905-906.

Strang, David. Gagnon, Micheline. Molloy, William. Bédard, Michel. Darzins, Peteris. Etchells, Edward. Davidson, Warren. (1996) National survey on the attitudes of Canadian physicians towards drug-detailing by pharmaceutical representatives. *Annals of the Royal College of Physicians and Surgeons of Canada* 1996;29:474-478.

Sufrin CB, Ross JS (2008). "Pharmaceutical industry marketing: understanding its impact on women's health". *Obstet Gynecol Survey*. **63** (9): 585–96.

Therese I. Poirier (1994) Pharmacists' and Physicians' Attitudes toward Pharmaceutical

Walker G. (1993) Code of practice for the pharmaceutical Industry. In: *ABPI Data Sheet Compendium*. Association of British Pharmaceutical Industry. London: Data pharm Publications; 1993, VI-XIII.

Waud GR. (1992) Pharmaceutical promotion. free lunch: *New England journal of Medicine*; 1992: 327; 351-353

Waud GR. (1992) Pharmaceutical promotions - a free lunch? *New Engl J Med* 1992; 327:351-353

Workneh BD, Gebrehiwot MG, Bayo TA, Gidey MT, Belay YB, Tesfaye DM, (2016) Influence of Medical Representatives on Prescribing Practices in Mekelle, Northern Ethiopia. *PLoS ONE* 11(6): e0156795. doi:10.1371/journal.pone.0156795

Appendix 1

. proportion Q8 Q9 Q10 Q11 Q12 Q13 Q14

```

Proportion estimation          Number of obs      =          40

  _prop_2: Q8 = 1-3 times a day
  _prop_3: Q8 = <once a day
  _prop_4: Q8 = Do not interact at all
  _prop_10: Q11 = Standard treatment guidelines
  _prop_11: Q11 = Academic journals and text books
  _prop_12: Q11 = Consulting colleagues
  _prop_13: Q11 = Personal experience
  _prop_14: Q11 = information from medical represe
  _prop_16: Q12 = Free medical Gifts
  _prop_17: Q12 = Stationaries and accessories
  _prop_18: Q12 = Medical Equipments
  _prop_19: Q13 = Invitation to lunch or Dinner
  _prop_20: Q13 = Product Launch dinner
  _prop_21: Q13 = Meals at departmental Conference
  _prop_22: Q13 = Sponsoring to attend CMEs
  _prop_23: Q13 = Never Recieved
  _prop_24: Q14 = Once or twice a week
  _prop_25: Q14 = On every detailing or Promotion
  _prop_26: Q14 = Once every 2 to 3 months
  _prop_27: Q14 = When Irequest for samples
  
```

	Proportion	Std. Err.	[95% Conf. Interval]	
Q8				
Everyday	.075	.0421764	.0231577	.2171054
_prop_2	.35	.0763763	.2144855	.5150001
_prop_3	.5	.0800641	.3434901	.6565099
_prop_4	.075	.0421764	.0231577	.2171054
Q9				
Male	.075	.0421764	.0231577	.2171054
Female	.225	.0668667	.1179078	.3867174
Indifferent	.7	.0733799	.5350704	.8255027
Q10				
yes	.25	.0693375	.1362722	.4132319
No	.75	.0693375	.5867681	.8637278
Q11				
_prop_10	.35	.0763763	.2144855	.5150001
_prop_11	.175	.0608434	.0829433	.3322154
_prop_12	.175	.0608434	.0829433	.3322154
_prop_13	.15	.0571772	.066504	.304168
_prop_14	.15	.0571772	.066504	.304168
Q12				
Brochures	.6	.0784465	.4364279	.7439502
_prop_16	.175	.0608434	.0829433	.3322154
_prop_17	.2	.0640513	.1001086	.3597222
_prop_18	.025	.025	.0032105	.1695237
Q13				
_prop_19	.1	.0480384	.0363737	.2464582
_prop_20	.425	.0791582	.2773844	.5873234
_prop_21	.2	.0640513	.1001086	.3597222
_prop_22	.15	.0571772	.066504	.304168
_prop_23	.125	.0529574	.0509189	.2755668
Q14				
_prop_24	.3	.0733799	.1744973	.4649296
_prop_25	.075	.0421764	.0231577	.2171054
_prop_26	.25	.0693375	.1362722	.4132319
_prop_27	.375	.0775217	.2350793	.5394673

. total Q8 Q9 Q10 Q11 Q12 Q13 Q14

Appendix 2

Questionnaire

Part I: General information

Direction: Please put a check mark (X) on the appropriate box

1. Gender

Male

Female

2. Age

18-29

30-39

40-49

50 and above

3. Institution from which you have been awarded your medical degree

Governmental university in Ethiopia

Abroad universities

Private university in Ethiopia

Other institutions

4. Your current medical title

General practitioner (Gp)

Sub-specialist

Specialist

Other, please specify.....

5. If your answer for question 4 is specialist or subspecialist, please specify the field of specialty/sub-specialty

6. Year of experience

< 1 year

5-10years

1-5 years

> 10 years

7. Your monthly income

<10,000 birr

15,000-20,000birr

10,000-15000birr

> 20,000birr

Part II: Survey on medical promotional activities on doctor's prescription habit.

Direction: This part of the questionnaire intends to find your perception and practical understanding towards medical promotional activities (i.e. interaction with medical representatives, promotional materials and samples, quality of information provided, continuing medical education (CME))

8. How often do you interact with medical representatives?

- Every day < once a week
1-3 times a week Do not interact at all

9. Gender preference among medical representatives

- Male Female Indifferent

10. Does the age of a medical representative influence your prescription behavior?

- Yes No

11. What sources of clinical information do you use in your current practice?

- Standard treatment guidelines Personal experience
Academic journals and text books Information from medical representatives'
Consulting colleagues'
Other, please
specify.....

12. What promotional materials you usually receive from medical representatives?

- Brochures Stationeries accessories (i.e. pens, note pads.)
Free medical samples Medical equipment (i.e. stethoscope, spatula, gowns etc....)
Others, please specify

13. Have you ever got one of the gifts below from pharmaceutical companies?

- Invitation to lunch or dinner Invitation to social or recreational outings
Product launches dinner Sponsoring to attend CMEs
Meals at departmental conferences Never received
Others, please Specify.....

14. How often do you get free medical samples?

- Once to twice per month Once every 2 to 3 months
On every detailing or promotion visit Up on my request

No.	Statement of survey	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
Medical Representative Interaction						
15.	The personality of medical representative can affect my prescription behavior.	1	2	3	4	5
16.	Medical representatives provide accurate and up-to-date drug information.	1	2	3	4	5
17.	My prescription behavior can be affected by the quality of information provided by medical representatives	1	2	3	4	5
18.	The specific promotional technique and approach interests me and tend to affect my prescription behavior.	1	2	3	4	5
19.	Continuous follow up and promotional reminders intend to affect my prescription habit.	1	2	3	4	5
20.	The pharmaceutical company profile and image influence my prescription behavior	1	2	3	4	5
Promotional Materials and medical Gifts						
21.	I prefer receiving promotional materials during promotional session or a call	1	2	3	4	5
22.	The type of promotional materials I receive affect my prescription behavior	1	2	3	4	5
23.	I value pharmaceutical companies who send me gifts on national or special events	1	2	3	4	5
24.	The type of gift I receive affects my prescription behavior.	1	2	3	4	5
Free drug samples						
25.	I prefer receiving of free drug samples during promotional session or a call	1	2	3	4	5
26.	The availability of free medical samples influence my drug choice for prescription	1	2	3	4	5
27.	The quality of free medical sample influence my drug choice for prescription	1	2	3	4	5
Continuing Medical Educations (CMEs)						
28.	I have high interest to attend CMEs	1	2	3	4	5
29.	The content of the CME program can influence my attitude towards medical drugs	1	2	3	4	5
30.	Just being invited to attend CMEs by drug companies can affect my prescription behavior	1	2	3	4	5

31	I believe attending pharmaceutical company organized CMEs can broaden my exposure towards scientific updates	1	2	3	4	5
----	--------------------------------------------------------------------------------------------------------------	---	---	---	---	---

No.	Statements of survey	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
32.	Medical promotional activities have positive effect on my prescription habit	1	2	3	4	5

Please write your overall Comment & Remark on the issue under investigation?

.....

.....

.....