THE INDIRECT FACTORS THAT INFLUENCE THE PRESCRIBING INTENTION OF PHYSICIANS IN LEBANON

Thesis submitted in accordance with the requirements of Haigazian University for the degree of Master in Business Administration by Sarine Hagop Aynedjian

June 2017

A Thesis

THE INDIRECT FACTORS THAT INFLUENCE THE PRESCRIBING INTENTION OF PHYSICIANS IN LEBANON

By

Sarine Hagop Aynedjian

is accepted by the Graduate Thesis Committee as satisfying the thesis requirements forthe degree Master of Arts/Business Administration.

Date_____ Signature of Thesis Committee Chairperson

_____

Date_____ Signature of Thesis Committee Member

_____

Date_____ Signature of Thesis Committee Member

_____

Haigazian University
June 2017

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ABSTRACT

Purpose: Physician-Industry relationship has so long existed. The purpose of this research is to find out whether the peripheral route (promotional offerings) to persuasion used by pharmaceutical companies has more influence on physician's prescribing intention than the central route (scientific offerings) to persuasion.

Design/Methodology: I used the Elaboration Likelihood Model of the persuasion theory to construct a theoretical model to explain the relationship between the indirect factors employed by pharmaceutical companies and prescribing intention of physicians. To empirically test the model, I collected survey data from 100 physicians in Beirut and Mount Lebanon. Data were analyzed using SPSS and PROCESS model.

Findings: All physicians had contact with pharmaceutical sales representatives (PSRs). 45% of physicians received visits from PSRs daily. The assessment of PSRs by the Lebanese doctors was not significantly associated with their prescribing intention. The medical article was an important source of information that affected the prescribing intention of physicians. All physicians received at least one small gift and the majority of physicians (92%) received at least one valuable gift from pharmaceutical companies. Receiving drug samples and attending sponsored continuing medical education events were positively associated with prescribing intention. Physicians' prescribing intention was also influenced by key opinion leaders. Findings supported the moderating role of physician's years of experience on the link between key opinion leaders and prescribing intention of physicians.

Implications: The results of this research indicate that relationships between physicians and pharmaceutical industry are common in Lebanon. Moreover, the gift extent of physician-industry interactions appeared to affect prescribing intentions of physicians. Further research needs to be done to determine whether the medical article is part of the peripheral route, using larger sample size.

Practical Implications: This research offers insights to pharmaceutical firms on where to focus their marketing efforts to influence the prescribing intention of physicians. I found that the peripheral route to persuasion has a significant effect on physicians' prescribing intention.

CHAPTER 1

Physician-Industry Relationship

Madhavan et al. (2007), Prosser and Walley (2003), Moynihan (2003) and many others have found out that reciprocal relationship exists between pharmaceutical companies and physicians all over the world. The pharmaceutical companies spend millions of dollars on marketing and product advertising. In addition, they invest huge amounts of money per individual physician each year and expect high number of prescriptions in return. The Physician-Industry gift relationship has so long existed. Madhavan et al. (2007) have noticed that the pharmaceutical industry allocates most of its marketing budget to sponsorship of scientific conferences and seminars, to tickets and accommodations to attend continual medical education (CME) programs in a luxurious resort, to free drug samples, and to other types of gifts.

Lexchin (1997) has noted that the majority of physicians believed in the existence of mutual relationship with drug companies in which both parties had common interests in the interactions. About half of the doctors confessed that they had altered their prescribing attitude after having so many discussions with pharmaceuticals sales representatives who are the detailers of the company.

Klemenc-Ketis and Kersnik (2012) showed that pharmaceutical sales representatives play a major role in changing the mind of physicians regarding their flow of prescription. These detailers are very well trained in terms of product knowledge, communication and interpersonal skills. Moynihan (2003) conducted a study, in the United States, in which the physicians agreed that the given information by company detailers is very essential because it helps the physician to learn the benefits, side effects and indications of the drug which are used for rational

prescribing. The pharmaceutical companies have the right and the authority to contact physicians in the interest of providing the exact information about the promoted product. For this reason 80 to 95% of physicians welcome regular drug company representatives' visits. It was estimated that 80 000 industry representatives with $19 billion united annual selling budget have meetings with physicians every day at the University of California in San Francisco (UCSF). Moynihan (2003) added that once the product itself is positioned in the mind of the physician, the number of prescriptions of the sponsor's drug will increase.

Madhavan et al. (1997) pointed out that the relationship between company sales representatives and doctors is more than just providing product information to physicians. Healthcare professionals, in general, value sponsorships by pharmaceutical companies, and welcome gifts from them which result in increasing the number of the promoted drug's prescriptions in return. Wazana (2000) has also observed that gift giving have an impact on physician's prescription decision making which leads to unnecessarily expensive drug use and may threaten patient care. As a result the United States enacted a healthcare law called the Sunshine Act in 2010; it was designed to disclose the financial ties between physicians and pharmaceutical companies. Moreover, training programs have been provided to doctors to limit the financial ties with pharmaceutical companies.

In addition, Madhavan et al. (1997) said that the acceptance of different types of gifts required physicians to return the favor by increasing the number of prescriptions of the promoted drug. Hence, this may damage the physician-patient relationship and endanger the sincerity and morality of the practice of medicine. Additionally, De Ferrari (2014) detected the influence of pharmaceutical companies on the attitude and prescribing behavior of physicians in Peru.

Attitude is defined by De Ferrari (2014) as the mind's inclination to certain values or ideas, while behavior is the actual action.

El- Jardali and Fadlallah (2015), researchers at American university of Beirut, mentioned, in Executive Magazine, the existence of inappropriate prescribing behavior in Lebanon which is leading to increased costs to patients. The researchers talked about the study that was conducted by the Ministry of Public Health (MoPH) and WHO, December 2015, in seven hospitals in Lebanon. It was found that 40% of all prescriptions in these hospitals contained medication error (unnecessary drug prescription, non indicated drugs, improper drug dosage, inadequate frequency or duration of treatment).

The National Health Accounts pushlished by MoPH in 2012 showed that 33% of total health expenditures, in Lebanon, is spent on pharmaceutical goods and Lebanon is considered one of the highest, by means of spending on pharmaceutical goods, in the Middle East Region.

Furthermore, "Paid per Prescription" (2010) mentioned that healthcare professionals and drug company detailers have long maintained a close relationship in Lebanon. The majority of doctors request sponsorship to attend a particular lecture or conference abroad. Because there is a certain amount of budget to spend on physicians, the company chooses to pick the ones who are influential and see higher number of patients per day. For instance, a doctor in urology at Trad Hospital in Beirut admitted that the registration fees of the last seminar he attended in Spain was sponsored by one pharmaceutical company and the ticket and hotel accommodation were sponsored by another drug company. However, a professor of medicine at Université St. Joseph in Beirut said that the promotional efforts are affecting the freedom of choice of the physicians.

Doctors will eventually prescribe the drug of the sponsored company without taking into consideration that the patient might benefit from a different medicine.

.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

The literature review discusses the nature of relationship between physicians and pharmaceutical companies and the promotional efforts done by medical sales representatives that influence the prescribing behavior of physicians. It also explains the psychological techniques and specific tactics used to manipulate the prescribing habits of healthcare professionals.

Madhavan (1997) has stated that, overall, pharmaceutical firms spend $ 3 billion on marketing and drug advertising, and spend $ 5000 per individual physician each year. Zipkin and Steinman (2005) have declared that drug companies spend their money on marketing more than they do on R&D. Moreover, Prosser and Walley (2003) have found that pharmaceutical companies' half of the marketing budget was spent on medical representatives who are the company detailers. The information they provide about the promoted drug was considered the most significant source used by physicians to make the choice of prescription. Moynihan (2003) has mentioned that, Robert Wachter, the leading academic physician and the director of the University of California in San Francisco (UCSF) hospital, said that the reciprocal relationship of pharmaceutical companies and doctors is considered suitable if it's clear and explicit.

Wazana (2000) has noticed that many studies manifested the existence of physician-industry interaction. The association with drug companies began during medical school residency, and continued after entering practice. Campbell et al. (2007) announced that gift relationship existed among U.S. physicians and varied according to specialty. For instance, Cardiologists were the most likely to accept payments and sponsorships to a scientific congress than any other specialty. Internal and family medicine doctors were more likely than anesthesiologists to have free drug

samples and refunding. Receiving gifts and increasing the rate of prescription was not a problem for physicians. Fug-Berman and Ahari (2007) explained that because pharmaceutical companies spend billions of dollars to increase their sales growth and maximize their profit, they should know and measure the return for their marketing budget. In order to measure the effectiveness of pharmaceutical promotional efforts and track drug prescription, the healthcare industry receives physician prescribing data from Intercontinental Marketing Services (IMS) health. IMS health is the largest information distribution company that collects and buys relevant and comprehensive information such as prescription records from pharmacies.

2.2 Direct and Indirect Sources of Influence on Physicians' Prescribing Behavior

Oshikoya et al. (2011) explained that Sources of Influence are the information needed by physicians to give guidance while prescribing medications for patients. Glen T Schumoch et al. (2004) discussed the direct and indirect factors that influence the prescribing behavior of primary care doctors in the United States. Direct factors include formulary (official list that gives details of medicines that are safe to prescribe) and prescribing guidelines that are recommended by clinical pharmacists of the hospital. Glen T Schumoch et al. (2004) also talked about the indirect factors that influence prescribing choices of physicians. The indirect factors include the pharmaceutical sales representative whose role is to provide medical article that contains information about the drug and offer drug samples, CME and symposium sponsorships to physicians in order to affect their choice of drug prescription. Raisch (1990) , in his model of methods for influencing prescribing, mentioned that promotional efforts involve sponsoring medical training and symposia, providing free drug samples, small gifts such as printed

materials, and valuable gifts such as cash payments to physicians. Raisch (1990) noted that significant colleagues are also part of the indirect methods that have impact on physicians' prescribing behavior.

Zipkin and Steinman (2005) have disclosed that pharmaceutical companies invite physicians and residents to attend scientific meetings and teaching conferences. The residents are fresh doctors who have newly finished med school and began on-the-job training. The purpose of presentations done by drug companies in such meetings is to position the brand-name, efficacy, and indication of the promoted product in the mind of specialized physicians and their trainees, so they would recall the name of the drug when prescribing. Zipkin and Steinman (2005) concluded that the scientific activities mentioned above were considered advantageous, appropriate, essential, and ethical by the faculty of medicine and they should be practiced. In addition, Sah and Fugh-Berman (2013) said that pharmaceutical companies give authority to a limited number of physicians who are qualified to talk about their product in front of their peers in a scientific conference or seminar. According to Cantonsville (2014), key opinion leaders are healthcare professionals who have been recognized for their expertise and knowledge in medicine and they influence the prescribing behavior of physicians who have less years of experience. Furthermore, Campbell et al (2007) mentioned that drug companies invest in specialists who will not only boost the rate of sponsor's drug prescriptions but also affect the prescribing preference of non-specialized physicians.

Orlowsky and Wateska (1992) investigated the impact of symposium attendance offered by drug companies on physicians' prescribing attitude. Symposium is a meeting in which expert speakers deliver short presentations about the company's new drug, explain the benefits and side effects, and talk about the indications for which the promoted drug can be used. The usage of two

specific drugs A and B, administered intravenously for hospitalized patients, was tracked before and after the symposium. The pharmacy inventory usage report showed that both drugs' rate of prescription rose significantly by 50% after the symposium.

In another study, McGettigan et al. (2001) conducted a survey in which the majority of the GPs rated the medical journal articles to be the most influential academic sources of information. However, the study concluded that the physicians overemphasized the significance of this factor either because they were unwilling to admit the importance of other sources of information or they were unconscious of their effect on prescribing behavior.

Wazana (2000) commented that participation in the CME (Continuing Medical Education) activities sponsored by the pharmaceutical companies, which are done to improve the knowledge and the skills of physicians, strongly influenced the rate of prescription and the physician's choice of sponsor's drug. Although physicians said that any type of payment didn't affect their prescription, 90% of studies revealed that physician-industry relationship existed and that pharmaceutical sales representatives, CME funding, and conference attendance were the sources that influenced most the physicians' prescribing behavior.

McGettigan et al (2001) have deduced from their researches that among all of the forms of communications including video conference, telephone, electronic mail, and formal documents, the richest medium of communication is face to face contact with physicians. It is the most important tool to convey the right message about the drug. In addition, in some countries such as Ireland and United Kingdom, the use of these diversified media technologies to reach quickly a large number of physicians in the intent of creating awareness about a new drug and influencing their prescription is forbidden, that is why pharmaceutical firms allocate 50% of their yearly

marketing budgets on sales representatives in order to educate, exchange information with, and transfer the benefits and side effects of new products to healthcare professionals.

Prosser and Walley (2003) have observed that pharmaceutical sales representatives personally visit physicians many times a month according to the number of patients they see per day. The medical representatives' role is to transfer accurate and up-to-date messages about the company's drug to the doctors. But sometimes, they talk only about the benefits of the product and intentionally forget to mention its side effects because the main purpose here is to increase the number of prescriptions and maximize sales. In one of the studies, General Practitioners (GPs) admitted that seeing drug company detailers is of great value and significance because they make the product information they were looking for accessible, valid, and convenient. Moreover, they communicate with doctors and find solutions to their problems. General Practitioners like to see representatives to take a break from patients, to build trust and friendly relationship, and to prescribe their products. Other GPs take into consideration the representative's hours of waiting and receive visits out of respect and kindness. However, they complained about pushy representatives who used aggressive sales techniques and focused on making sales instead of focusing on physician's needs and wants. This conflict may have negative effects on prescription because it is explained as being inconsiderate to doctor's needs.

A survey was conducted in Libya by Alsasageer and Kowalski (2012); the researchers came to a conclusion that pharmaceutical sales representatives are the most considerable assets of the company and they are regarded as the most expensive promotional tools.

Fugh-Berman and Ahari (2007) have found that pharmaceutical companies train their representatives to be passionate about their job. They should be friendly, socially assertive, and

comfortable meeting physicians, because creating rapport with doctors is essential in building and maintaining successful business relationship and altering their prescribing habits. Fugh-Berman and Ahari (2007) stated that sales representatives, during training sessions, were told "When you're out to dinner with a doctor, the physician is eating with a friend; you are eating with a client". In addition, Lieb and Scheiurich (2014), Lexchin (1997), and Klementic-Ketis and Kersnik (2012) conducted research studies in Germany, U.S and Australia, and Slovenia respectively. It was pointed out that the majority of physicians in these countries believed in the existence of mutual relationship with drug companies in which both parties had common interests in the interactions. About 50% of the doctors confessed that having contact and discussions with detailers strongly influenced their prescription choice.

Fugh-Berman and Ahari (2007) have remarked that an essential marketing tool commonly used by pharmaceutical companies is the distribution of free drug samples. Drug samples are provided to the physicians through pharmaceutical sales representatives. The main purpose is to become accustomed to the use of that particular drug and start prescribing it. Doctors value free samples because they can be used to start patient therapy instantly, undergo a new drug tolerance test to assess the effectiveness and side effects, and generate low prescribing costs. Another reason why doctors accept free drug samples is to assist and support poor patients who don't have medical insurance and therefore are not able to pay the total amount of fees required to buy medicine. Chew et al (2000) conducted a research study at the University Of Washington School Of Medicine in which family medicine doctors strongly agreed that the availability of free drug samples changed their prescribing behavior.

Madhavan et al. (1997) and Macneill et al. (2010) both analyzed the physicians' perception of receiving small gifts such as free lunches, dinners, pens, notepads, and other office gadgets in West Virginia and Australia respectively. Although some of the physicians disagreed that small gifts manipulated their mind and affected their prescription, it was pointed out that they welcomed gifts that range from $50 to $500 per year. Other physicians said that the gift relationship with the industry was appropriate, but they were unwilling to make it public. Moreover, fewer physicians agreed that they receive other sorts of gifts of greater value such as all-expenses-paid trips including airfare and accommodation, tickets to recreational events such as tickets to theater or sport events, and cash payments. Moreover, Alsageer and Kowalski (2012) indicated that the majority of physicians in Libya received small gadgets with the names of products from pharmaceutical firms. This is a way to make the physician remember the brand name of a specific product while prescribing.

Because the declaration for payments by drug companies in Vermont and Minnesota is accessible, Ross et al. (2007) attempted to obtain data about the amount of money healthcare professionals received from pharmaceutical firms, and report the frequency and enormity of disclosed payments. It was revealed that Pfizer, one of the leading biopharmaceutical companies, made 244 payments that equaled to $1.25 million in 2002, while the company reported zero payment in 2003 and 2004. GlaxoSmithKline, the world's sixth largest pharmaceutical company based in London, kept the sum of payments made top secret.

2.3 Social Psychological Matters in Physician-Industry Relationship: Training in Psychology and Developing Selling Skills of Medical Representatives

Sah and Fugh-Berman (2013) have concluded, according to almost all studies, that pharmaceutical companies' marketing strategies were successful in increasing the prescription rate of targeted products. Moreover, it was clear that the majority of physicians were convinced that their prescribing decision was not influenced by the industry's promotional efforts, although they said that other doctors were vulnerable to similar effect. So the tendency of physicians to accept gifts from drug companies produce inconsistency between their thoughts and actions, that is to say, cognitive dissonance. Physicians usually ignore the fact that industry gifts have an impact on their behavior, deny that they will profit personally from the decision, and assume that interactions with drug companies is in the purpose of education that results in better patient outcome. Therefore, physicians were unaware that pharmaceutical companies use psychological approaches to persuade them and influence their choices of prescription. Pharmaceutical companies use the persuasion theory and train their representatives how to apply their medical knowledge and selling skills to convince healthcare professionals that their products will be of great benefit to them.

Robert Cialdini (1993), a former professor of psychology and marketing at Arizona State University, created the following six principles of persuasion:

The first principle is reciprocation. Traditionally, when someone offers a gift to a party, the latter responds by returning the favor. This concept also applies in physician-industry gift relationship; doctors receive educational or promotional offerings from drug companies and increase the sponsor's drug prescriptions in return. The second principle is commitment. Drug company detailers understand the needs of physicians, offer a solution that fulfill their wants and receive a

commitment. Physicians who give their commitment to use a company's drug feel compelled to keep their promise. Social Proof is the third principle of influence. It is same as informational social influence where some doctors consider the action of expert physicians when they want to make a prescribing decision. The fourth principle is Liking. Medical representatives try hard to establish a true friendship with physicians and create long-lasting relationship with them. Moreover they lean on their friendship to persuade the doctor to prescribe more of the company's drug. The last two principles are the authority and scarcity. Pharmaceutical companies give authority to a limited number of physicians who are key opinion leaders and qualified to talk about the benefits of their product and influence their peers in a scientific conference or seminar.

These six weapons of influence are employed by pharmaceutical companies in order to influence the prescribing behavior of physicians.

2.4 The Lebanese Scope

Mikhael (2016) announced that according to BMI (Business Research International), pharmaceutical market sales in Lebanon amounted to $ 1.63 billion in 2015 and are expected to reach $ 1.75 billion in 2016. BMI is a market research firm which covers over 20 industries including pharmaceutical industry and reports on countries worldwide. The total market sales include the sales of prescribing drugs and Over-the-Counter (OTC) drugs. OTC drugs are medicines sold to consumers without prescription. The following table shows sales in dollar and percentage of the market in Lebanon in 2015.

Prescription Drug Sales(Patented Drugs)	$800 million	61.8% of prescribing drug sales 49% of the total market
Prescription Drug Sales (Generic Drugs)	$494 million	38.2% of prescribing drug sales 30.3% of the total market
OTC Drug Sales	$339 million	20.7% of the total market
Total Market Sales	$1.63 billion	100%

Table 1.Source: World Health Organisation (WHO), BMI, 2015

People in Lebanon spend a lot of money on pharmaceuticals. First, sales of brand name drugs amounted to $800 million in 2015; moreover, it constituted 61.8% of total prescription drug sales and 49% of the total market. Second, sales of generic drugs reached $494 million in 2015; it made 38.2% of total prescription drug sales and 30.3% of total market sales. Finally, OTC drug sales in 2015 represented $339 million and accounted for 20.7% of the total market sales.

BMI reported that the pharmaceutical sales in the Lebanese market will keep growing and estimated to reach $2.20 billion in 2020. However, data about the number of pharmaceutical sales representatives in Lebanon, the persuasive techniques that drug companies use to train their sales force, the amount of money pharmaceutical companies spend on physicians to influence their prescribing choices, and number of prescriptions were not reachable. Besides, The Ministry of Health, the order of pharmacists, and pharmaceutical companies in Lebanon did not want to disclose such information.

Chapter 3

THEORETICAL FRAMEWORK

According to the literature, researches conducted worldwide showed that there is a relationship between drug companies and physicians. Pharmaceutical sales is growing all over the world, including Lebanon, and in order to boost sales, pharmaceutical companies train their sales people to persuade physicians in order to influence their prescribing behavior.

3.1 Introduction to Persuasion

Ziglar (1982), known for his research on persuasion, explained that persuasion is the process of changing attitudes and behavior in order to gain influence. Moreover, Ziglar (1982) mentioned that effective salespeople use persuasive tactics to get customers from where they are to where they want them to be. Cialdini (1984) wrote about the 6 principles of persuasion that were used by salespeople to influence customers. Raisch (1990) declared that the persuasion is also used by pharmaceutical sales representatives in order to change physicians' prescribing behavior; therefore, persuasion theory will be used as the framework for this study.

3.2 Theories of Persuasion

Porter (2014) said that persuasion began with Greeks, more than 2000 years ago, when Aristotle, the Greek philosopher and scientist wrote the art of effective speaking or writing. Moreover, Aristotle proposed three modes of persuasion: Character (Ethos), Emotion (Pathos), and logic (Logos). Porter (2014) said that using the three modes of persuasion while speaking is a successful way to convince others to abandon their previous position and embrace yours.

Jacobs (1995) and Dillard and Peck (2000) expressed that we are all exposed to persuasive attempts in our daily lives. Every time we are exposed to television or radio ads, negotiate business deal with a customer, or try to convince a friend to stop smoking, we are engaging in persuasion.

O'Keefe (2002) and Raisch (1990) stated that persuasion theories are applied to change the attitude of people and their way of thinking. In addition, (Shrigley et al., 1988) defined attitude as a person's mental preparation for action. So change in the attitude is expected to cause a change in the behavior.

Shrum et al. (2014) declared that persuasion theories have been used widely in marketing communications. And Raisch (1990) declared that, in the medical field, pharmaceutical sales representatives persuade physicians through effective communication and try to convince them that their product will be more beneficial for their patients than similar drug on the market. Prosser and Walley (2003) found out that general practitioners (GPs), in general, are liable to be influenced by pharmaceutical sales representatives (PSRs). They are the most likely to welcome visits from PSRs because PSRs are active, like to exchange ideas, communicate, and build positive business relationships. The researchers conducted a study in which 107 GPs were directly interviewed and were asked to state the reasons for seeing representatives, the number of visits they receive per month, and their point of view concerning the quality of information they provide. Some of the GPs preferred to schedule special appointments for representatives in order to control the rate of visit occurrence. The majority of GPs received visits with no appointment. While very few GPs asked to see representatives only when they needed specific information about a drug.

Moreover, Raisch (1990) said that the medical article, free drug samples for distribution to patients, and gifts to healthcare professionals are all intended to influence the prescribing choices of physicians.

Four major attitude-behavior theories were developed and used in persuasion context. Cognitive dissonance theory (Festinger, 1957), heuristic-systematic model (Chaiken, 1980), social judgment theory (Sherif and Hovland, 1961), and elaboration likelihood model (ELM) (Petty and Cacioppo, 1986).Petty and Cacioppo (1986) declared that ELM explains how persuasive messages used by salespeople work in changing people's attitude, and ELM has the most potential to predict customer behavioral intentions. This thesis will concentrate on ELM because it will illustrate how persuasive techniques used by pharmaceutical sales representatives will influence physicians' attitude and prescribing intentions.

3.2.1 Elaboration Likelihood Model

ELM was first developed by Petty and Cacioppo in 1986 and it was applied in advertisement research (printed media, television etc.). Furthermore, O'Keefe (2002) clarified that when a persuasive message is presented to people, a level of elaboration is created. Elaboration is the amount of effort people use to evaluate the information and remember it. People react to the persuasive message by showing either high or low elaboration which will determine whether they use central or peripheral route to persuasion.

3.2.1.1 The central route (Rational Persuasion)

The central route involves high level of elaboration and motivation. People carefully listen to the persuasive message provided because they are interested in the topic and actively participate in the process of persuasion.

Petty and Cacioppo (1983) announced that the more individuals are interested in the message presented, the more attention they paid to the topic and higher involvement they showed in the persuasion process. For example, when a consumer is buying a new Smartphone, he/she will do research to obtain all the information needed in order to make the right decision.

Biegler (2014) discovered that rational persuasion also occurs in healthcare system. For instance, physicians who are interested in the topic presented by PSRs listen actively and make their prescribing choices based on the scientific data provided.

3.2.1.2 The peripheral route (Emotional Persuasion)

The peripheral route involves low level of elaboration and motivation. People evaluate the message based on peripheral cues rather than the actual content of the message because they are not interested in the topic.

Petty and Cacioppo (1983) declared that the less individuals are interested in the message presented, the less attention they paid to the topic and lower involvement they showed in the persuasion process. For instance, in advertising, a consumer buys a brand of clothes because the model is looking good in the Ad, rather than if the product is of good quality or not.

Biegler (2014) disclosed, in his article, that physicians are persuaded emotionally by pharmaceutical companies in order to change their prescribing behavior. For example, pharmaceutical sales representatives offer CME (Continuing Medical Education) and symposium sponsorship, small gifts, or valuable gifts to doctors to increase the prescribing rate of the promoted drug.

3.3 Social Influence

Deusch and Gerard (1955) stated that social influence happens when people's behavior is affected by others. Additionally Social influence can be seen in socialization, peer pressure, obedience, leadership, sales, marketing etc. This thesis will focus on social influence in peer pressure because the literature review clarifies that physicians can be also influenced by their peers. Deusch and Gerard (1955) distinguished between normative social influence and informative social influence.

3.4.1 Normative Social Influence

Homans (1958) explained that normative social influence occurs when an individual conforms to the expectations of others to achieve rewards. Cooley (1962) stated that normative social influence is present in family members and friends because both have expectations and reward or punish for compliance/non compliance with its norms and values.

3.4.2 Informational Social Influence

Burnkrant and Cousineau (1975) have clarified that informational social influence is also a conformity and exists when an individual accept information from others because of the desire to be correct. Mascarenhas and Higby (1993) declared that informational social influence appears in the area of apparel shopping. For example, the consumer feels the need to ask the seller's opinion because he/she is seen as very knowledgeable of the product's quality and characteristics.

Lee et al. (2015) discovered that social influence also occurs in the healthcare system, especially when the physician makes prescribing choices. The author proposed in his study that social influence is both informational and normative at the same time. Lee et al., (2015) assumed that the physician, who will prescribe the product for the first time, observes the behavior of his/her peers to learn about the product effectiveness and ease of use. However, informational social influence disappears when the physician goes from first time use to repeated use of the product. In this case, normative social influence occurs because the doctor behaves the way his/her peers expect him to behave.
Dutta (2015) conducted a study to identify key opinion leaders and the researcher explained that pharmaceutical companies should select physicians who hold very senior positions in the hospital they work and have an average work experience of 26 years in order to influence the prescribing behavior of physicians who have less years of experience in the healthcare profession.

3.4 Model of the research

Based on Raisch (1990)'s model of methods for influencing prescription, the model of this research is displayed in the following figure:

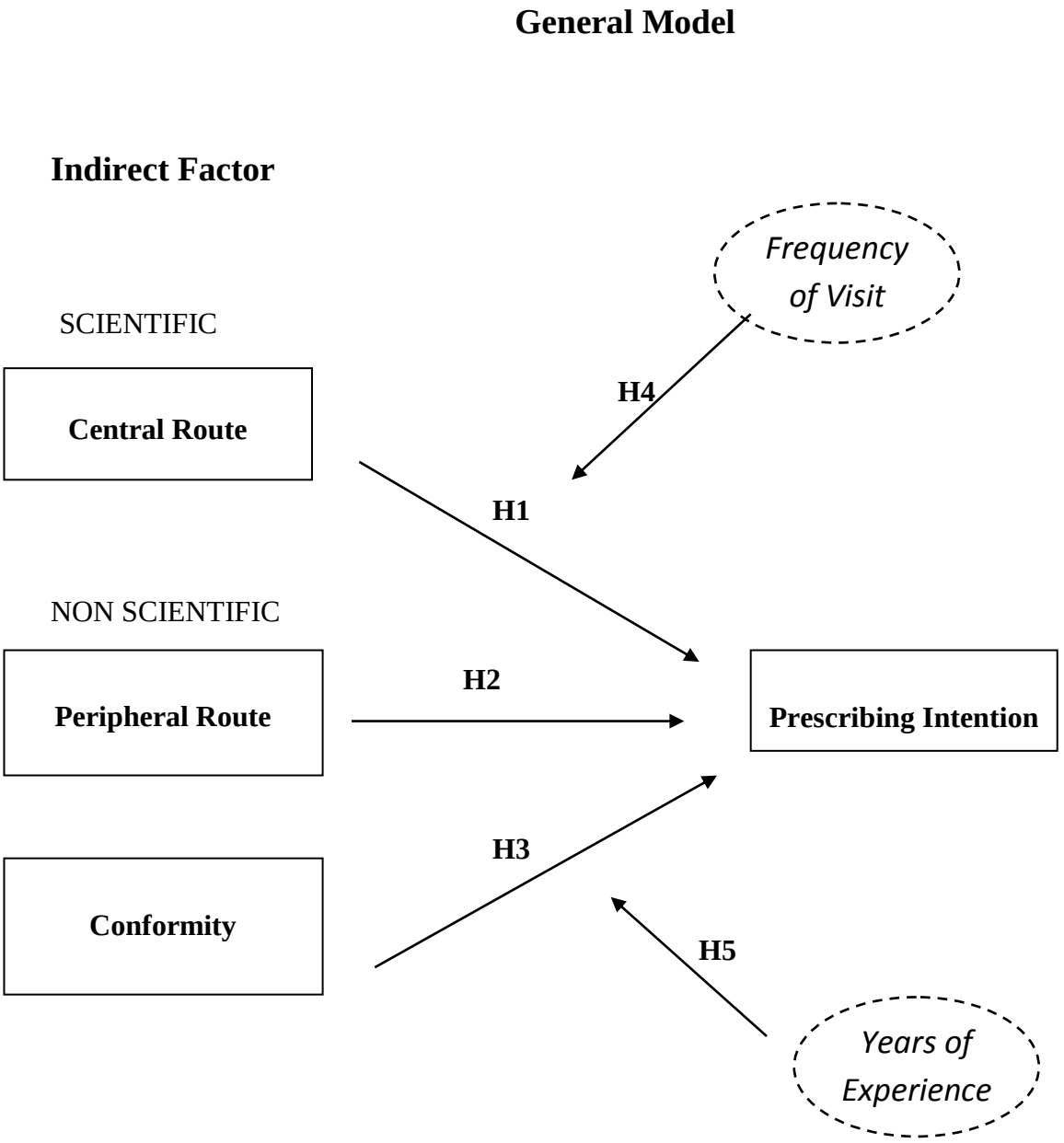


Figure 1: A general model of methods for influencing prescribing intentions

Detailed Model

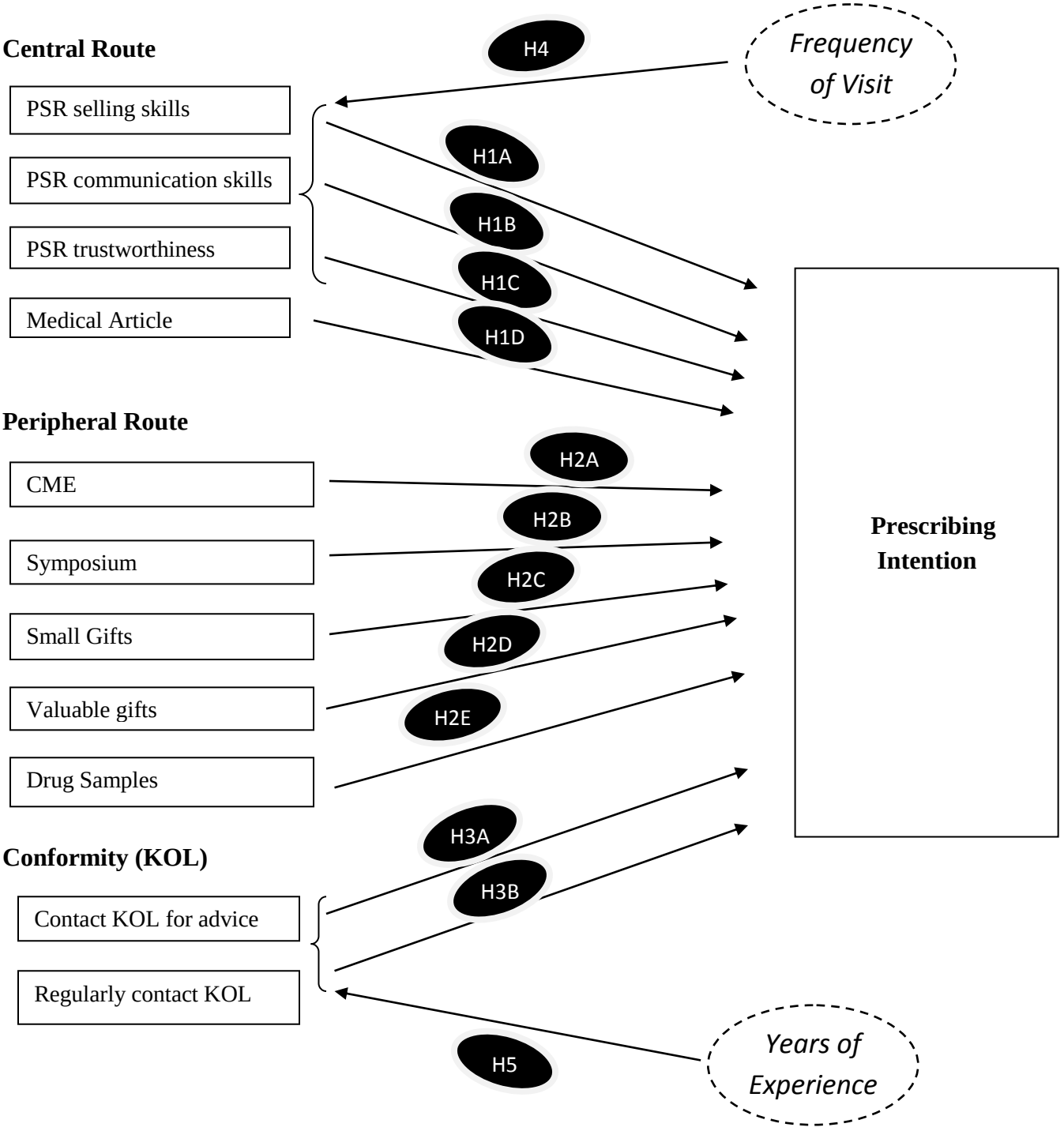


Figure 2: A detailed model of methods for influencing prescribing intentions

The factors that affect prescribing intention are shown as indirect in figure 1. The indirect factors are divided into two groups: Scientific and non scientific. Scientific indirect factors include pharmaceutical sales representative characteristics, and medical article. Non scientific indirect factors include Symposium attendance, CME, free drug samples, small gifts, and valuable gifts (See figure 2). Moreover, Key opinion leader is also an indirect factor that have influence on prescribing intention and it can be either scientific or non scientific.

3.5.1 Scientific Indirect Factors

Scientific indirect factors cause changes in prescribing intention through changing the attitude of physicians toward prescription via the central route.

3.5.2 Non Scientific Indirect Factors

Non scientific indirect factors cause changes in prescribing intention through changing the attitude of physicians toward prescription via the peripheral route.

3.5.3 Key Opinion Leader

Key opinion leader is considered scientific when it affects prescribing intention through informational conformity; whereas, key opinion leader is assumed non scientific when it affects prescribing intention through normative conformity.

3.5.4 Items that Form the Central Route

Central route includes PSR characteristics (selling skills, communication skills and trustworthiness) and the medical article provided which contains information about company's promoted drug. The central route affects prescribing intention.

3.5.5 Items that Form the Peripheral Route

Peripheral route includes the promotional materials (CME, symposium attendance, drug samples, small gift, and valuable gifts) provided by the PSRs. The Peripheral route affects prescribing intention.

3.5.6 Informational Conformity

Informational conformity is formed when physicians observes the prescribing behavior of their peers to learn about product effectiveness and ease of use. Information conformity affects prescribing intention.

3.5.7 Normative Conformity

Normative conformity is formed when physicians make prescribing choices based on the expectations of their peers. Normative conformity affects prescribing intention.

3.5.8 The Moderating Role of the Frequency of Visits

Frequency of visits is a moderator variable that moderates the relationship between the PSR and prescribing intention. According to Lieb and Scheurich (2014), the higher the number of PSR visits, the higher is the physician's intention to prescribe the promoted drug.

3.5.9 The Moderating Role of the Years of Experience

Physician's years of experience is a moderator variable that moderates the relationship between the key opinion leader and prescribing intention. According to Lieb and

Scheurich (2014), the less the years of experience the physician has, the stronger is the relationship between the conformity factors and the physician's intention to prescribe the promoted drug. That is, the less are the years of experience of the physician, the more is the physician prone to take advice from peers before prescribing a medication.

3.5.10 Prescribing Intention

The term "prescribing intention" indicates the difference between an intention and the actual prescribing decision. Prescribing intention is the only dependant variable in the model and it is affected by indirect factors and their corresponding moderating variables.

3.5 Research Questions and Hypotheses

Research Question:

Is the prescribing intention of physicians influenced more by the peripheral route or the central route to persuasion?

Sets of Hypotheses:

Physicians show high elaboration to the persuasive message by using the central route and make their prescribing choices based on the scientific data provided. (Biegler, 2014)

- **H1: The central route affects positively prescribing intention toward the promoted drug.**

Selling skills, communication skills, and trustworthiness were the three most important characteristics in pharmaceutical sales representatives that affected the physician's attitude toward prescription. (Kersnik et al., 2010)

When the message argument is strong and relevant to the needs and wants, people are highly motivated and involved in the communication process and their central attitude is positively influenced. (Petty and Cacioppo, 1986)

- **H1A: The more the physician perceives the importance of PSR selling skills, the more likely is the intention of the physician to prescribe the promoted drug.**

- **H1B: The more the physician perceives the importance of PSR communication skills the more likely is the intention of the physician to prescribe the promoted drug.**

- **H1C: The more the physician perceives the importance of PSR trustworthiness, the more likely is the intention of the physician to prescribe the promoted drug.**

- **H1D: The higher the importance of the drug information present in the medical article provided by PSRs, the more likely is the intention of the physician to prescribe the promoted drug.**

Physicians show low elaboration to the persuasive message by using the peripheral route and make their prescribing choices based on the non scientific factors provided. (Biegler, 2014)

- **H2: The peripheral route affects positively prescribing intention toward the promoted drug.**

When the message argument is weak and irrelevant to the needs and wants of the customer, involvement in the communication process is low and people's peripheral attitude is positively influenced. (Petty and Cacioppo, 1986)

- **H2A: The more the physician is willing to accept CME (Continuing Medical Education) sponsorship from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.**

- **H2B: The more the physicians is willing to accept sponsorship for symposium attendance from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.**

- **H2C: The more the physician is willing to accept small gifts from PSRs, the more likely the physician is the intention of the physician to prescribe the promoted drug.**

- **H2D: The more the physician is willing to accept valuable gifts from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.**

- **H2E: The more the physician is willing to accept free drug samples from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.**

Informational and normative conformity also occurs in the healthcare system and they affect prescribing choices of physicians. (Lee et al., 2015)

- **H3: Conformity affects positively prescribing behavior toward the promoted drug.**

Informational conformity occurs when the physician, who will prescribe the product for the first time, observes the behavior of his/her peers to learn about the product effectiveness and ease of use. While the normative conformity occurs when the physician is already prescribing the medicine that other doctors expect him/her to prescribe. (Lee et al., 2015)

- **H3A: The first time the physician is to use a medication, the more likely is the intention of the physician to prescribe based on KOL's prescribing behavior.**

- **H3B: The more regularly the physician seeks the opinion of a KOL, the more likely is the intention of the physician to prescribe based on KOL'S prescribing behavior.**

Every year, about 15,000 pharmaceutical sales representatives (PSRs) make about 20 million visits to hospitals. Physicians who received daily or two to three times per week visits from PSRs had a significantly higher number of prescriptions. (Lieb and Scheurich, 2014)

- **H4: The frequency of visits moderates the relationship between PSR characteristics and prescribing intention.**

  The more frequent the visits, the stronger the relationship between the PSR and prescribing intention.

Most pharmaceutical companies look at the prescription volume to identify Key Opinion Leaders who can influence the behavior of others. (Lieb and Scheurich, 2014).

Key Opinion Leaders are healthcare professionals who have been recognized for their expertise and knowledge in medicine and they influence the prescribing behavior of physicians who have less years of experience. (Catonsville, 2014)

- **H5: The years of experience of the physician moderates the relationship between key opinion leaders' prescribing behavior and prescribing intention.**

  The greater the years of experience, the less are the physicians affected by key opinion leaders' prescribing behavior, the less is the physicians' intention to prescribe.

CHAPTER 4

METHODOLOGY

4.1 Sampling Unit

The Lebanese physicians will be participating in this survey.

4.2 Sample size

Physicians are busy people and hardly reachable; they have little time to make discussions with strangers or friends. They have a lot of appointments and their time is mainly allocated to seeing patients. Therefore, I will use my personal contacts to meet with physicians face to face. In order to decrease the degree of error of the data being studied, the minimum number of observations to each independent variable should be 5. The number of independent variables I am using in the survey is 16; therefore the sample size will be [(16*5) +20] = 100.

4.3 Sampling technique

Reference the Directory of the Lebanese Order of physicians, the total number of doctors of greater than 25 specialties, in Lebanon, is 8,729 (See figure 3). The second column in Figure 3 represents the number of physicians in Lebanon per territory. The number of doctors in total is 11,697. The second column represents the number of physicians whose specialty is deleted from the list and shown as blank. These numbers are subtracted from the total number and will be excluded from the survey. Therefore the total number of physicians in Lebanon will be 8,729 (11,697-2,968). As we can see that Mount Lebanon and Beirut have the highest number of

physicians and they constitute 64% of the total number of doctors in Lebanon. For this reason, the survey will be conducted in these two areas.

I will employ judgmental sampling because of time limitation physicians have and lack of availability.

Territoy	Number of Physicians in Lebanon (> 25 Specialties)	No Specialty Indicated	The difference of number of Physicians per terrirory and blank	Total Number of physicians per territory (%)
Nabatieh	485	121	364	4
Bekaa	961	296	665	8
South	1054	247	807	9
North	1322	1	1321	15
Beirut	2546	691	1855	21
Mount Lebanon	5329	1612	3717	43
Total	**11,697**	**2,968**	**8,729**	**100**

Table2.Source: Directory of the Lebanese Order of Physicians

4.4Approach

This quantitative study will be conducted using CAPI (Computer-assisted Personal Interviewing) survey type questionnaire designed to discover the self-reported prescribing attitudes, and behavioral intention of physicians after encountering pharmaceutical company sponsored educational programs, sales visits, promotional products, or gifts (see questionnaire in appendix F). Instead of collecting data on paper questionnaire, I will be using an IPad to conduct in person survey at the hospitals and doctors' clinics. CAPI is time saving and cost effective. Besides, once the questionnaire is completed, participants will submit their answers directly.

The questionnaire will be divided into two sections. The first section consists of 28 statements; it is designed to measure the assessment of PSRs by physicians, the constructs of persuasion theory (Central route and Peripheral route of physicians), conformity, and prescribing intention of physicians. The second section of the questionnaire consists of 4 statements about the physicians' practice factors (Years of Experience and Frequency of PSR visits), gender, and specialty.

4.4.1 Scale Measurement for Central Route

Physicians will be asked to rate the importance of PSR characteristics in their point of view. 9 items will be used to measure the selling skills, communication skills and trustworthiness of pharmaceutical sales representatives. . Likert-Like scale from 1(Extremely Important) to 7(Not Important at All) will be used. (Ketis and Kersnik, 2012)

Physicians will also be asked to assign the level of agreement on the importance of the drug information present in the medical article provided by PSRs. Likert- Like scale from 1(Strongly Agree) to 7(Strongly Disagree) will be used. (McGettigan et al., 2000)

4.4.2 Scale Measurement for Peripheral Route

To measure the peripheral attitude toward prescription, physicians will be asked to rate the level of their agreement on the receipt of pharmaceutical company promotional products or gifts. Likert-Like scale from 1(Strongly Agree) to 7(Strongly Disagree) will be used. (Macneill et al., 2010)

Physicians will also be asked to indicate the types of gifts they have been offered by pharmaceutical companies in the past one year. (Macneill et al., 2010)

4.4.3 Measurement Scale for Conformity

Informational and Normative conformity will be measured by asking physicians questions about whether they refer to other doctors for consultancy or conformity to their behavior. Likert-Like scale from 1(Strongly Agree) to 7 (Strongly Disagree) will be used. (Iyengar et al., 2011)

4.4.4 Measurement Scale for Prescribing Intention

Physicians will be asked about their prescribing intention after having encountered with pharmaceutical sales representatives. Likert-Like scale from 1(Strongly Agree) to 7 (Strongly Disagree) will be used. (Rashidian and Russel, 2012)

Tourangeau et al., (1989) announced that answers to attitude questions depend on previous assessment of the issue stored in the respondent's memory. For this reason, there will be change in the order of independent and dependent variables to control the carry over effect.

4.5 Statistical Analysis

The hypotheses are tested using Factor Analysis, ANOVA, Regression Analysis, and t-test. Answers are analyzed by using the Statistical Package for the Social Sciences (SPSS) to identify the significance between the dependent variable and independent variables. Model 1 in Process is

used to test for the moderation effect. Regression Analysis is used to find out the relationship between the dependent variable and independent variables and to highlight the physicians prescribing intention on different factors. Descriptive Statistics is used to profile the respondents.

CHAPTER 5

RESULTS

5.1 Demographic Characteristics of the Respondents

Characteristics	Percentage (%)
Gender	
Male	98
Female	2
Specialty	
Plastic Surgeon	16
Anesthesiologist	8
Orthopedic Surgeon	15
Ophthalmologist	7
Urologist	5
General Surgeon	20
Gynecologist	10
Primary Care	19
Years of Experience	
>20	18
16-20	7
11-15	27
6-10	35
0-5	13
Frequency of Visits	
Daily	45
2-3/week	44
1/week	11
PSR Last Visit	
Today	50
Yesterday	30
Last Week	20

Table3.Demographic Characteristics

The data received were analyzed with the SPSS 20.0 package. A descriptive analysis was carried out. One hundred physicians of different specialties were interviewed. All the questionnaires were completed giving an overall response rate of 100%. Most of the physicians were male (98%); of which 20% were general surgeons.

Physicians were asked about the frequency of pharmaceutical sales representatives (PSRs)'s visit during the last 12 months. The majority of physicians stated that PSRs visit them daily (45%). Physicians were also asked when the last time they received a visit from a PSR; most were visited on the same day (50%).

5.2 *ANALYSIS OF VARIANCE (ANOVA)*

One-way ANOVA test was conducted in order to find out if there is a statistically significant difference between different specialties of physicians and prescribing intention. The following table shows the output of the ANOVA analysis and whether there is a statistically significant difference between our group means.

PRESCRIBING INTENTION MEAN					
	Sum of Squares	**df**	**Mean Squares**	**F**	**Sig.**
Between Groups	27.175	7	3.882	8.277	**0.000**
Within Groups	43.148	92	0.469		
Total	70.322	99			

Table 4.Analysis of Variance

Table 5.2 showed that the significance value is 0.000 (p=0.000) which is below 0.05. And, therefore, there is a statistically significant difference in the intention to prescribe between

different specialties. In order to know which of the specific groups differed, we checked the multiple comparisons table that contains the results of the post hoc test (See Appendix A).

The multiple comparisons table showed which groups differed from each other. There was a statistically significant difference in the prescribing intention between orthopedic surgeons and each of primary care doctors (p = 0.00), gynecologists (p= 0.011), general surgeons (p=0.00), anesthesiologists (p=0.00), and plastic surgeons (p=0.021). There was also a statistically significant difference in the prescribing intention between anesthesiologists and each of ophthalmologists (p=0.016) and plastic surgeons (p=0.003).

However, all the remaining specialty- prescribing intention combinations were not statistically different.

5.3 Factor Analysis

Factor analysis of all independent variables (Pharmaceutical sales representatives (PSR)'s characteristics, medical article, continuing medical education (CME), symposium, free drug samples, and key opinion leaders) were performed first to verify scale construction and make sure that the items of each scale go together. KMO results are shown in below table.

	KMO and Bartlett's Test	
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		**0.66**
Bartlett's Test of Sphercity	Approx.Chi-Square	1112.03
	df	136
	Sig.	**0.000**

Table 5.Kaiser-Meyer-Olkin

Kaiser-Meyer-Olkin (KMO) test is an important measure of how suited our data is for factor analysis. The test measures sampling adequacy for each variable in the model and for the complete model.

As we can see in the table 5.3, the KMO measure is 0.660 which is greater than 0.5. This indicates that the sampling is adequate. Moreover, we can see that the Bartlett's test of sphercity is significant at p-value= 0.000 which is below 0.05.

(Appendix B) explains the extraction method and shows the scree plot. Six components were extracted and the cumulative percentage of explained variance was 75.514%. The 6 extracted factors are "PSR trustworthiness and selling skills", "Key Opinion Leaders", "Medical article and conferences", "Drug samples", "PSR communication skills" and " PSR does not mislead" which explained 75.514% of the variance. In the data, the scree plot showed that the 6 extracted components were above an Eigenvalue 1 and all the other potential factors were below 1 and were not extracted.

In addition, the factor loadings are represented in table 5.4 and the 6 components had loadings as follows:

Component 1: PSR trustworthiness and selling skills

- Objective product information
- Good knowledge
- Have knowledge on healthcare system
- Acts professionally
- PSR regards physicians' problems and complaints

Component 2: Key opinion leaders

- Refers to others for consultancy
- Contact key opinion leader (KOL) for advice
- Contact KOL regularly

Component 3: Medical article and conferences

- Medical article
- Continuing medical education(CME) provides useful information
- Symposium improves efficiency of practice

Component 4: Dug Samples

- Drug samples are a source of medication
- Drug samples help for quicker treatment initiation

Component 5: PSR communication skills

- PSR not pushy
- PSR adapts to time limitation
- PSR is friendly

Component 6: PSR does not mislead

- PSR does not mislead

Rotated Component Matrix

	Component					
	1	2	3	4	5	6
Objective product Information	**0.826**	-0.107	-0.303	0.213	0.053	-0.074
Good knowledge	**0.816**	-0.103	-0.322	0.209	0.06	-0.059
PSR does not mislead	0.085	0.095	-0.072	0.003	0.256	**0.835**
PSR not pushy	0.199	-0.125	-0.096	-0.072	**0.401**	-0.696
PSR adapts to time limitation	0.109	-0.063	-0.294	0.01	**0.773**	-0.027
Friendly	0.065	0.147	0.099	-0.03	**0.857**	0.062
Have knowledge on healthcare system	**0.857**	-0.073	0.146	-0.225	0.087	-0.022
acts professionally	**0.82**	-0.042	0.17	-0.239	0.083	-0.006
Regards physicians' problems, complaints	**0.774**	-0.006	-0.041	-0.086	0.047	0.063
Medical article	0.018	-0.101	**0.815**	0.192	0.083	0.063
CME provides useful Info	-0.071	-0.179	**0.706**	0.221	-0.186	0.001
Symposium improves efficiency of practice	-0.159	0.142	**0.447**	0.247	-0.257	-0.216
Drug Samples are a source of medication	-0.006	-0.028	0.235	**0.83**	0.066	0.063
Drug Samples help for quicker treatment initiation	-0.124	0.042	0.234	**0.829**	-0.101	-0.01
Refer to others for consultancy	-0.132	**0.947**	-0.081	0.095	0.036	0.039
Contact KOL for advise	-0.115	**0.954**	-0.124	0.03	0.034	0.046
Regularly contact KOL	0.009	**0.899**	0.012	-0.099	0.003	0.107

Table 6.Rotation Method: Varimax with Kaiser Normalization

5.4 Reliability Test (Cronbach's alpha)

CHARACTERISTICS	MEAN	SD	Cronbach's Alpha
PSR TRUSTHWORTHINESS			**0.99**
Objective product info	6.58	0.496	
Good knowledge	6.59	0.494	
PSR COMMUNICATION SKILLS			**0.577**
PSR not pushy	6.17	0.473	
PSR adapts to time limitation	6.27	0.633	
Friendly	5.99	0.460	
PSR SELLING SKILLS			**0.865**
Have knowledge on healthcare system	6.57	0.498	
Acts professionally	6.61	0.490	
Regards physicians' problems and complaints	6.75	0.435	
ALL ITEMS TAKEN TOGETHER			**0.796**

Table 7.PSR characteristics

The reliability Cronbach's alpha coefficient for the composite score of the PSR's characteristics scale was 0.655. However, when we omitted "PSR does not mislead" as the item had a separate factor loading, the reliability of PSR characteristics scale became higher (**Cronbach's alpha =0.796**) (See Appendix C). Table 5.5 shows the reliability coefficient for the subscales: trustworthiness (Cronbach's alpha = 0.990), communication skills (Cronbach's alpha = 0.577), and selling skills (Cronbach's alpha = 0.865). Moreover, the most highly rated characteristics of

PSRs are those associated with selling skills: The PSR acts professionally (Mean=6.61) and regards physicians' problems and complaints (Mean=6.75).

The mean for PSR characteristics was calculated using the items forming the scale.

CENTRAL ROUTE	MEAN	SD	Cronbach's Alpha
Objective product info	6.58	0.496	
Good knowledge	6.59	0.494	
PSR not pushy	6.17	0.473	
PSR adapts to time limitation	6.27	0.633	
Friendly	5.99	0.460	
Have knowledge on healthcare system	6.57	0.498	
Acts professionally	6.61	0.490	
Regards physicians' problems and complaints	6.75	0.435	
Medical Article	6.68	0.496	
ALL ITEMS TAKEN TOGETHER			**0.745**

Table 8.Central Route

PERIPHERAL ROUTE	MEAN	SD	Cronbach's Alpha
CME provides useful Info	6.55	0.557	
Symposium improves efficiency of practice	6.26	0.774	
Drug Samples are a source of medication	6.50	0.732	
Drug Samples help for quicker treatment initiation	6.38	0.85	
ALL ITEMS TAKEN TOGETHER			**0.670**

Table 9.Peripheral Route

Reference our model (Raisch, 1990), the Pharmaceutical sales representative (PSR)'s characteristics and the medical article make up the central route; whereas, Continuing medical education (CME), Symposium attendance, and drug samples compose the peripheral route. The reliability Cronbach's alpha coefficient for the composite score of the central route was 0.745 and it was 0.67 for the composite score of the peripheral route.

Based on the results, doctors rated most highly for the "PSR regards physicians' problems and complaints" (Mean=6.75) as an important characteristic of a pharmaceutical sales representative and the medical article (Mean=6.68) as an important source of information about the promoted drug (see table 5.6). Moreover, continuing medical education (CME) that provides the physician useful information about the pharmaceutical company's drug was the most highly rated feature (Mean=6.55) of the peripheral route (see table 5.7).

CONFORMITY	MEAN	SD	Cronbach's Alpha
Refer to others for consultancy	4.81	2.029	
Contact KOL for advice	4.82	2.007	
Regularly contact KOL	3.83	1.758	
ALL ITEMS TAKEN TOGETHER			**0.941**

Table10.Conformity

Furthermore, referring to other doctors for consultancy or for advice and regularly contacting key opinion leaders combine to create conformity. Additionally, "Referring to other physicians for consultancy" (Mean=4.81) and "contacting KOLs for advice" (Mean=4.82) were the most highly rated by the respondents. Nevertheless, the coefficient Cronbach's alpha for the composite score of the Key Opinion Leader was 0.941.

PRESCRIBING INTENTION(PI)	MEAN	SD	Cronbach's Alpha
PI-Medical article	6.56	0.656	
PI-CME	6.26	0.733	
PI-Drug Samples	5.86	1.333	
PI-Small gifts	4.66	1.854	
PI-Valuable gifts	5.36	1.618	
PI-KOL	4.69	2.043	
ALL ITEMS TAKEN TOGETHER			**0.755**

Table 11.Prescribing Intention

The items forming the prescribing intention are the medical article, continuing medical education, drug samples, small gifts, valuable gifts, and key opinion leaders. The reliability Cronbach's alpha coefficient for the composite score of the prescribing intention was 0.755. Besides, the physicians rated most highly their prescribing intention after receiving medical article that contains important information about the promoted drug (Mean= 6.56).

The mean of prescribing intention (PI) was calculated using the items forming the scale (see table 5.9). However, PI for each route was considered separately to preserve the direct relationship between prescribing intention and the specific routes used.

5.5 Regression to Test Hypotheses

H1: The central route affects positively prescribing intention toward the promoted drug.

Simple linear regression analysis was conducted between the mean of central route and the mean of prescribing intention to test H1.

Coefficients

Model R Square= 0.044	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	10.236	2.211		4.629	.000
CAMEAN	-.722	.342	-.209	-2.114	.037

Table 12.Dependent Variable: PIIMEAN

Only 4.4% of the variation in the prescribing intention is explained by the variation in the central route.

Expected PI = 10.236 – 0.722(CAMEAN)

The regression equation was significant at p-value= 0.037, showing a negative relationship between the mean of the central route and prescribing intention. As the physician perceives central route to be more important, this physician has less intention to prescribe the drug. This shows that the hypothesis was not supported.

H1A: The more the physician perceives the importance of PSR selling skills, the more likely is the intention of the physician to prescribe the promoted drug.

The mean of pharmaceutical sales representative (PSR) selling skills was used to conduct a simple regression analysis where the dependant variable was the average of prescribing intention to test H1A.

Coefficients

Model R Sqaure=0.011	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	7.205	1.564		4.608	.000
PSRSELLING	-.247	.235	-.106	-1.051	.296

Table 13. Dependent Variable: PIIMEAN

Only 1.1% of the variation in the prescribing intention is explained by the variation in the PSR selling skills.

Expected PI = 7.205 – 0.247(PSR selling skills)

The regression equation was not significant and we got a negative coefficient. Therefore, H1A was not supported.

H1B: The more the physician perceives the importance of PSR communication skills the more likely is the intention of the physician to prescribe the promoted drug.

The mean of pharmaceutical sales representative (PSR) communication skills was used to conduct a simple regression analysis where the dependant variable was the average of prescribing intention to test H1B.

Coefficients

Model R Square=0.089	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	10.218	1.507		6.782	.000
PSRCOMM	-.757	.245	-.298	-3.095	.003

Table 14. Dependent Variable: PIIMEAN

8.9% of the variation in the prescribing intention is explained by the variation in the PSR communication skills.

Expected PI= 10.218 – 0.757(PSR communication skills)

The regression equation was significant at p-value = 0.003 showing a negative relationship between PSR communication skills and prescribing intention. H1B was supported; the more the physician perceives the PSR communication skills as important, the less this physician intends to prescribe a medication using other techniques than PSR.

H1C: The more the physician perceives the importance of PSR trustworthiness, the more likely is the intention of the physician to prescribe the promoted drug.

The mean of pharmaceutical sales representative (PSR) trustworthiness was used to conduct a simple regression analysis where the dependant variable was the average of prescribing intention to test H1C.

Coefficients

Model R Square=0.010	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.881	1.329		5.178	.000
PSRTRUSTH	-.200	.201	-.100	-.993	.323

Table 15. Dependent Variable: PIIMEAN

Only 1.0% of the variation in the prescribing intention is explained by the variation in the PSR sense of trustworthiness.

Expected PI = 6.881 – 0.200(PSR trustworthiness)

The regression equation was not significant and we got a negative coefficient. Therefore, H1C was not supported.

H1D: The higher the importance of the drug information present in the medical article provided by PSRs, the more likely is the intention of the physician to prescribe the promoted drug.

Simple linear regression analysis was conducted between the medical article and prescribing intention using medical article scale (PI-MA).

Coefficients

Model R Square= 0.129	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.208	.884		3.629	.000
Medical article	.502	.132	.358	3.802	.000

Table 16. Dependent Variable: Intention to prescribe-MA

12.9% of the variation in the prescribing intention is explained by the variation in the medical article.

Expected PI = 3.208 + 0.502 (Medical article)

The regression equation was significant showing a positive relationship between the medical article and PI-MA. Therefore, H1D was supported; whenever the physician perceives the medical article importance higher by one point on a 7-point Likert scale, the intention to prescribe the drug read about in the medical article increases by 0.502 points on a 7-point Likert scale.

H2: The peripheral route affects positively prescribing intention toward the promoted drug.

Simple regression was carried out between the mean of the peripheral route and the mean of prescribing intention to test H2.

Coefficients

Model R Square= 0.189	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.284	1.108		.256	.798
PAMEAN	.822	.172	.435	4.783	.000

Table 17.Dependent Variable: PIIMEAN

18.9% of the variation in the prescribing intention is explained by the variation in the peripheral route.

Expected PI = 0.284 + 0.822 (PIMEAN)

The regression equation was significant showing a positive relationship between the mean of the peripheral route and the mean of prescribing intention. Therefore H2 was supported.

H2A: The more the physician is willing to accept CME (Continuing Medical Education) sponsorship from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.

Simple linear regression analysis was conducted between continuing medical education (CME) and prescribing intention using CME scale (PI-CME).

Coefficients

Model R Square=0.151	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.916	.805		3.621	.000
CME provides useful Info	.511	.123	.388	4.168	.000

Table 18. Dependent Variable: Intention to prescribe-CME

15.1% of the variation in the prescribing intention is explained by the variation in CME.

Expected PI = 2.916 + 0.511 (CME)

The regression equation was significant showing a positive relationship between CME and PI-CME. Therefore, H2A was supported; whenever the physician perceives the importance of attending CME higher by one point on a 7-point Likert scale, the intention to prescribe the drug after attending CME course increases by 0.511 points on a 7-point Likert scale.

H2B: The more the physicians is willing to accept sponsorship for symposium attendance from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.

Simple linear regression analysis was conducted between symposium and prescribing intention using conference scale (PI-Conference).

Coefficients[a]

Model R Square=0.007		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	4.236	1.327		3.191	.002
	Symposium improves efficiency of practice	.180	.210	.086	.853	.395

Table 19.Dependent Variable: Intention to prescribe-valuable gifts

Only 0.7% of the variation in the prescribing intention is explained by the variation in symposium.

Expected PI = 4.236 + 0.180 (Symposium)

The regression equation showed a positive relationship between symposium and PI-Conference, but it was not significant. Therefore, H2B was not supported.

H2C: The more the physician is willing to accept small gifts from PSRs, the more likely the physician is the intention of the physician to prescribe the promoted drug.

H2C was not tested as all physicians received small gifts.

H2D: The more the physician is willing to accept valuable gifts from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.

An independent t-test was run and we found that the means of physicians who received valuable gifts and the means of physicians who did not receive at all were statistically different as p-values for both groups were less than 0.05. Group statistics table showed that physicians who received valuable gifts had significantly lower prescribing intention compared to physicians who did not receive valuable gifts at all (see Appendix D).

H2E: The more the physician is willing to accept free drug samples from PSRs, the more likely is the intention of the physician to prescribe the promoted drug.

The mean of drug samples was used to conduct a simple regression analysis where the dependant variable was prescribing intention using drug sample scale (PI-Drug sample).

Coefficients[a]

Model R Square= 0.382	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-1.527	.955		-1.600	.113
SAMPLEMEAN	1.147	.147	.618	7.787	.000

Table 20. Dependent Variable: Intention to prescribe-drug samples

38.2% of the variation in the prescribing intention is explained by the variation in drug samples.

Expected PI = -1.527 + 1.147 (Drug Sample)

The regression equation was significant showing a positive relationship between the mean of drug samples and PI-Drug sample. Therefore, H2E was supported; whenever the physician perceives drug sample importance higher by one point on a 7-point Likert scale, the intention to prescribe the drug after receiving samples increases by 1.147 points on a 7-point Likert scale.

H3: Conformity affects positively prescribing behavior toward the promoted drug.

Simple regression was carried out between the mean of key opinion leader and the mean of prescribing intention to test H3.

Coefficients[a]

Model R Square= 0.209	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	4.459	.235		19.014	.000
KOLMEAN	.246	.048	.457	5.087	.000

Table 21.Dependent Variable: PIIMEAN

20.9% of the variation in the prescribing intention is explained by the variation in the key opinion leader.

Expected PI = 4.459 + 0.246 (KOLMEAN)

The regression equation was significant showing a positive relationship between the mean of the key opinion leader and the mean of prescribing intention. Therefore, H3 was supported.

H3A: The first time the physician is to use a medication, the more likely is the intention of the physician to prescribe based on KOL's prescribing behavior.

The mean of the items that measured physician's referral to their peers in the first time use of a medication (KOL1) was employed to conduct a simple regression analysis where the dependant variable was the prescribing intention using key opinion leader scale (PI-KOL).

Coefficients[a]

Model R Square= 0.838	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.186	.217		.859	.393
KOL1MEAN	.935	.042	.915	22.502	.000

Table 22. Dependent Variable: Intention to prescribe- KOL

83.8% of the variation in the prescribing intention is explained by the variation in KOL1

Expected PI = 0.186+ 0.935 (KOL1MEAN)

The regression equation was significant showing a positive relationship between the mean of KOL1and PI-KOL. Therefore, H3A was supported; whenever the physician perceives the importance of referring to other doctors for the first time use of a medication higher by one point on a 7-point Likert scale, the intention to prescribe the drug after being advised by a key opinion leader increases by 0.935 points on a 7-point Likert scale.

H3B: The more regularly the physician seeks the opinion of a KOL, the more likely is the intention of the physician to prescribe based on KOL'S prescribing behavior.

Simple linear regression analysis was conducted between the item that measured physician's regular contact to a key opinion leader for advice (KOL2) and prescribing intention using key opinion leader scale (PI-KOL).

Coefficients

Model R Square=0.601	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.240	.312		3.971	.000
Regularly contact KOL(KOL2)	.901	.074	.775	12.145	.000

Table 23. Dependent Variable: Intention to prescribe- KOL

60.1% of the variation in the prescribing intention is explained by the variation in KOL2

Expected PI = 1.240 + 0.901 (KOL2)

The regression equation was significant showing a positive relationship between KOL2 and PI-KOL. Therefore, H3B was supported; whenever the physician perceives the importance of referring regularly to a key opinion leader higher by one point on a 7-point Likert scale, the

intention to prescribe the drug after being advised by a key opinion leader increases by 0.901 points on a 7-point Likert scale.

H4: The frequency of visits moderates the relationship between PSR characteristics and prescribing intention.
The more frequent the visits, the stronger the relationship between the PSR and prescribing intention.

H4 was tested using Mdel 1 in PROCESS (Hayes, A.F., 2012), a simple moderation model, with the effect of PSR characteristics on physician's prescribing intention moderated by frequency of visits. This model is depicted in appendix E, where X= Mean of PSR characteristics, M= Frequency of visits, and Y= Mean of prescribing intention.

Overall model: $F(3, 96) = 2.2547$, $P>0.001$, $R^2=0.0658$

The model was not found to be significant.

The coefficient for the product of PSR characteristics and frequency of visits was 0.6059 and this interaction was not significant as we got a p-value of 0.2196 (See appendix E).

Analyzing the conditional effect of X on Y at different values of the moderator, we found out that when the frequency of visits is low or medium, the effect of PSR characteristics on prescribing intention was negative and significant. When the frequency of visits is high, the effect of PSR characteristics on prescribing intention was negative and not significant (p-value=0.50). Therefore, H4 was not supported.

H5: The years of experience of the physician moderates the relationship between key opinion leaders' prescribing behavior and prescribing intention.
The greater the years of experience, the less are the physicians affected by key opinion leaders' prescribing behavior, the less is the physicians' intention to prescribe.

H5 was tested using Mdel 1 in PROCESS (Hayes, A.F., 2012),a simple moderation model, with the effect of key opinion leaders on physician's prescribing intention moderated by physician's years of experience. This model is depicted in appendix F, where X= Mean of key opinion leader, M= Years of experience, and Y= Mean of prescribing intention.

Overall model: $F(3, 96) = 12.164$, $P<0.001$, $R^2=0.2754$

The model was found to be significant.

The coefficient for the product of key opinion leader and years of experience was _ 0.1197 and this interaction was significant as we got a p-value of 0.0091 (See appendix F).

Analyzing the conditional effect of X on Y at values of the moderator, we found out that when the physician's years of experience is low, the effect of key opinion leader on prescribing intention was positive and had a significant value of $p =0.0006$. When the physician's years of experience is medium, the effect of key opinion leader on prescribing intention was positive and had a significant value of $p = 0.0009$. When the physician's years of experience is high, the effect of key opinion leader on prescribing intention was positive and not significant (p-value=0.058). Therefore, H5 was supported.

Research Question: Is the prescribing intention of physicians influenced more by the peripheral route or the central route to persuasion?

Multiple regression analysis was carried out in order to answer our research question. We used the mean of the central route and the mean of the peripheral route to examine their effect on prescribing intention of physicians. The following table was derived.

Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.534	2.523		1.401	.164
CAMEAN	-.456	.318	-.132	-1.432	.155
PAMEAN	.776	.174	.410	4.455	.000

Table 24. Dependent Variable: PIIMEAN

We can see, in table 5.22, that only the peripheral route was statistically significant and had a positive coefficient. Therefore, we can say that the prescribing intention of physicians is influenced only by the peripheral route to persuasion, whereas, the central route was found to have no relationship with the intention of physicians to prescribe.

CHAPTER 6

DISCUSSION AND LIMITATIONS

Klemenc-Ketis and Kersnic (2013) discovered that the assessment of pharmaceutical sales representatives (PSRs) by family physicians does not have any clear association with their prescribing index. Our findings were similar to these data. Despite the fact PSR characteristics do not predict Physician's intention to prescribe, yet physicians perceive the PSR characteristics as an important variable in PSR-Physician interaction. A better prescribing intention scale should be developed: The prescribing intention of physicians after PSR visit is needed to be measured in future studies to better confirm the associations between assessment of PSRs by physicians and prescribing intention.

In the study conducted by McGettigan et al (2001), the medical article was most frequently rated important for having information on both old and new drugs, but physicians relied on other sources when prescribing. However our findings showed clearly the positive correlation between the medical article and prescribing intention of physicians. Pharmaceutical companies should provide medical articles to physicians in order to influence their prescribing intention. And further studies are needed to confirm whether the medical article is part of the peripheral route as this item loaded with the items of the peripheral route in the factor analysis.

Wazana (2000) commented that participation in the continuing medical education (CME) events sponsored by the pharmaceutical companies, which are done to improve the knowledge and the skills of physicians, strongly influenced physicians' prescribing behavior. Our findings were similar to Wazana's; physicians most frequently agreed that CME attendance improves their knowledge as they gain useful information. For this reason, Pharmaceutical companies should offer more regularly CME sponsorship to physicians.

Moreover, one of the anesthesiologists stated “I only receive drug samples from pharmaceutical companies and I feel upset when they focus their marketing efforts on other specialties. I also need sponsorship for symposium attendance and CME courses to improve my practice”.

Orlowsky and Wateska (1992) found out that prescribing attitude of physicians was significantly influenced after symposium attendance. In our findings, 71% of doctors received symposium sponsorhsip from pharmaceutical companies and they agreed that symposium improved the efficiency of their existing practice but their prescribing intention was not influenced. Perhaps physicians perceived symposium as a non scientific factor and they did not want to admit that their prescribing intention is affected by a non educational event. Further studies should be conducted to clearly measure the physician’s perception of symposium.

Chew et al (2000) conducted a research study at the University Of Washington School Of Medicine in which family medicine doctors strongly agreed that the availability of free drug samples changed their prescribing behavior. These finding were similar to our data. All physicians, in our study received drug samples from pharmaceutical companies and believed that drug samples permit quicker initiation of patient therapy. Therefore, pharmaceutical companies should keep on providing physicians with free drug samples.

Lieb and Sceurich (2014) found out that the higher the number of PSR visits, the higher is the physician’s intention to prescribe the promoted drug. However in our study, the frequency of PSR visit did not have any association with the prescribing intention of physicians.

De Ferrari et al. (2014) explained that physicians always prefer the quality of the product for his patients. With quality products, PSRs get extra confident to detail the brand in front of the physicians and affect the prescribing behavior of physicians. Therefore, further studies are

needed to find if the product quality has an effect between PSR characteristics and physician's intention to prescribe.

Informational and normative social conformity existed in the Lebanese medical field and had a positive relationship with physician's prescribing intention. More than the half of the physicians (67%) agreed that they refer to other doctors for consultancy for the first time use of a medication. Furthermore, 20% of the physicians agreed that they regularly seek advice about a drug from a key opinion leader; out of which, (93%) had less than 15 years of experience in the healthcare system and none of them had more than 20 years of experience in the healthcare profession.

The greater the years of experience, the less are the physicians influenced by the key opinion leaders' prescribing behavior and the less is the physician's intention to prescribe. The moderating effect of the years of experience in the relationship of KOL and prescribing intention was significant.

Cantonsville (2014) said that pharmaceutical companies invest in key opinion leaders who expertise in medicine, and influence the prescribing behavior of physicians who have less years of experience. Our finding was similar to these data; key opinion leaders had influence on prescribing intention of physicians. Physicians who have more than 20 years of experience did not seek the advice of a key opinion leader, whereas, physicians who have less than 15 years of experience sought the advice of a more experienced physicians.

Pharmaceutical companies should focus on identifying key opinion leaders, who in turn will influence the prescribing intention of physicians. They have to use years of experience as a segmentation strategy and focus on physicians who are expertise to influence physicians who have less years of experience.

The study had several limitations that must be taken into consideration when interpreting the data. Van de Mortel (2008) defined social desirability bias as the likelihood of the participants in self-reported research to present a good image of themselves to avoid criticism. The respondents in our research may have underreported their associations with the pharmaceutical industry in order to present themselves in the best possible light.

Oppong (2013) stated that adequate sample size gives less variation in the sample mean and more precision in the statistical results. In our research, the sample size might be small, inadequate and could have profound effects on the outcome and worth of the study. Moreover, this research was carried out in some parts of Beirut and Mount Lebanon districts which limited the generalisability of the findings.

Another limitation is that we haven't measured the physicians' intention to prescribe with regard to the importance of PSR characteristics perceived by the Lebanese physicians. This could be the reason why the relationship between PSR characteristics and intention to prescribe was not significant. Fourth, the frequency of PSR visits had no significant effect on the prescribing intention. In this study, we asked physicians to rate the importance of pharmaceutical sales representative (PSR)'s characteristics, but we did not ask them about the quality of the product the PSR is promoting and its effect on prescribing intention. According to De Ferrari et al. (2014), this could be a limitation because physicians prefer always the quality of the product for his patients. With quality products, sales personnel get extra confident to detail the brand in front of the physicians and physicians also can prescribe it freely.

Finally despite Biegler (2014) discovered, in his research, that continuing medical education (CME) and symposium are both considered promotional tools and have influence on prescribing behavior of physicians, it was found in our study that only CME had impact on prescribing

intention, while symposium was not associated with prescribing intention of physicians. Probably, physicians considered CME as a scientific source and symposium as a promotional tool. The two statements that include CME and symposium in the questionnaire were not defined clearly.

CHAPTER 7

CONCLUSION

The purpose of this study was to find out whether physicians are influenced by the central route or the peripheral route to persuasion in Lebanon. And if they are influenced by both routes to persuasion, does the peripheral route have more impact on the prescribing intention of physicians than the central route does.

Biegler (2014) mentioned that the central route is formed when physicians make their choice of prescription based on the scientific data provided by pharmaceutical sales representatives and the peripheral route is formed when physicians make their choice of prescription based on the non scientific factors such as the receipt of symposium and CME sponsorship from pharmaceutical sales representatives. Our findings indicated clearly that prescribing intention of physicians is influenced significantly by the peripheral route to persuasion. Therefore, pharmaceutical companies should use the peripheral route to persuasion to approach physicians and influence their prescribing intention.

What if pharmaceutical companies eliminate or reduce their sales force and approach physicians directly? Prosser and Walley (2003) have found that pharmaceutical companies spend half of their marketing budget on hiring and training medical representatives. Physicians' prescribing intention, in our study, was not associated with pharmaceutical sales representatives' (PSRs) characteristics. The prescribing intention of physicians was associated only by the promotional materials that were offered to them. If pharmaceutical firms reduce the amount of money they spend on PSRs and use them to invest in physicians by offering more regularly CME sponsorship or conference attendance, would they make more profit and get better sales results?

Further experiments should be conducted to discover the effect of not having pharmaceutical sales representatives on company performance and physicians' prescribing behavior.

LIST OF REFERNCES

Al-Aqqad, H., Al-Zweiri, M., & Alabbadi, I. (2015). An Investigation of Physicians' Perception of Pharmaceutical Trade Names in Jordan's Private Sector Using Real-World and Simulated Approaches. *Pharmaceutical Medicine*, *29*(3), 169–178. http://doi.org/10.1007/s40290-015-0098-2.

Alssageer, M. a., & Kowalski, S. R. (2012). A survey of pharmaceutical company representative interactions with doctors in Libya. *Libyan Journal of Medicine*, *7*(1). http://doi.org/10.3402/ljm.v7i0.18556

Biegler, P. (2014). Placebogenic potential is no reason to favour pharmaceutical advertising. Journal of Business Ethics, 123(1), 145–155. doi:10.1007/s10551- 013-1805-0

Burnkrant, R. E. & Cousineau, A. (1975). Informational and Normative Social Influence in Buyer Behavior, *The Journal of Consumer Research*. 2, 3, 206-215.

Campbell, E. G., Gruen, R. L., Mountford, J., Miller, L. G., Clearly, P. D., & Blumenthal, D., & Blumenthal, D. (2007). A national survey of physician-industry relationships. *The New England Journal of Medicine*, 356(17), 1742-1750. http://doi.org/10.1056/NEJMsa064508

Carpenter, C. R., & Sherbino, J. (2010). How does an "opinion leader" influence my practice? *CJEM*, *12*(5), 431–434.

Chaiken, S. (1980). Heuristic Versus Systematic Information Processing and the Use of Source Versus Message Cues in Persuasion. *Journal of Personality and Social Psychology*, *39*(5), 752–766. http://doi.org/10.1037/0022-3514.39.5.752

Chew, L. D., O'Young, T. S., Hazlet, T. K., Bradley, K. A., Maynard, C., & Lessler, D. S. (2000). A Physician Survey of the Effect of Drug Sample Availability on Physicians' Behavior. *Journal of General Internal Medicine*,*15*(7), 478–483. doi:10.1046/j.1525-1497.2000.08014.x

Cialdini, Robert B. (1993). Influence. New York:Harper Collins College Publishers. Eagly and Chaiken, "McGuire's Information Processing Paradigm," in Eagly and Chaiken, The Psychology of Attitudes, 1993, pp. 259-279.

Cooley, C. H. (1962). Social organization. New York: Schocken.

Davis, F. D., & Warshaw, P. R. (1992). What Do Intention Scales Measure? The Journal of General Psychology, 119(4), 391–407. http://doi.org/10.1080/00221309.1992.9921181

De Ferrari A, Gentille C, Davalos L, Huayanay L, Malaga G (2014) Attitudes and Relationship between Physicians and the Pharmaceutical Industry in a Public General Hospital in Lima, Peru. PLoS ONE 9(6): e100114. doi: 10.1371/journal.pone.0100114

De Ferrari, A., Gentille, C., Davalos, L., Huayanay, L., & Malaga, G. (2014). Attitudes and relationship between physicians and the pharmaceutical industry in a public general hospital in Lima, Peru. *PLoS ONE*, *9*(6), 1–7. http://doi.org/10.1371/journal.pone.0100114

Deutsch, M., & Gerard, H. B. (1955). A study of normative and informational social influences upon individual judgement. *The Journal of Abnormal and Social Psychology*, *51*(3), 629–636. http://doi.org/10.1037/h0046408

Dillard, J. P., & Peck, E. (2000). Affect and persuasion: Emotional responses to public service announcements. Communication Research, 27, 461–495.

DT Jacobs.1995. The Red Flags of Persuasion. [ONLINE]Available at: https://www.questia.com/library/journal/1G1-17838017/the-red-flags-of-persuasion

El-Jardali and Fadlallah (2015, December). Irrational Drug Prescription in Lebanon. Executive. Retrieved from http://www.executive-magazine.com/opinion/irrational-drug-prescription-in-lebanon

Festinger, L. (1957). A theory of cognitive dissonance, Evanston, IL: Row & Peterson

Fugh-Berman A, Ahari S (2007) Following the Script: How Drug Reps Make Friends and Influence Doctors. PLoS Med 4(4): e150. doi:10.1371/journal.pmed.0040150

Holden, R. J. (2012). Social and personal normative influences on healthcare professionals to use information technology: Towards a more robust social ergonomics. *Theoretical Issues in Ergonomics Science*, *13*(5), 546–569. http://doi.org/10.1080/1463922X.2010.549249

Homans, G. (1958). Social Behavior as Exchange. *American Journal of Sociology*, *63*(6), 597–606. http://doi.org/10.1086/222355

Information, C. (2016). Pharmaceuticals and Healthcare in Lebanon : Numerous Opportunities to Explore Pharmaceuticals and Healthcare in Lebanon : Numerous Opportunities to Explore, 1–7.

Iyengar, R., Bulte, C. Van Den, Eichert, J., West, B., & Valente, T. W. (2011). How Social Networks and Opinion Leaders Affect the Adoption of New Products. *GfK Marketing Intelligence Review*, *3*(1), 16–26. http://doi.org/10.2478/gfkmir-2014-0052

Iyengar, R., Bulte, C. Van Den, Lee, J. Y., Iyengar, R., Bulte, C. Van Den, & Lee, J. Y.(2015).Social Contagion in New Product Trial and Repeat Social Contagion in New Product Trial and Repeat, (May 2016).

Jeremy Porter.2014. Why You Need Emotion to Persuade. [ONLINE]Available at: http://www.jrmyprtr.com/using-emotion-to-persuade/

Kersnik, J., Klemenc-Ketis, Z., Petek-Ster, M., Tusek-Bunc, K., Poplas-Susic, T., & Kolsek, M. (2011). Family doctors' views of pharmaceutical sales representatives: Assessment scale development. *Family Practice*, *28*(4), 456–460. http://doi.org/10.1093/fampra/cmq105

Klemenc-Ketis, Z., & Kersnik, J. (2013). The assessment of pharmaceutical sales representatives by family physicians-does it affect the prescribing index? *Family Practice*, 30(3), 320-324. http:doi.org/10.1093/fampra/cms078

Lexchin J. Interactions between physicians and the pharmaceutical industry: what does the literature say? *CMAJ: Canadian Medical Association Journal*. 1993;149(10):1401-1407.

Lexchin, J. (1997). What information do physicians receive from pharmaceutical representatives? *Canadian Family Physician*, *43*(MAY), 941-945.

Lieb K, Scheurich A (2014) Contact between Doctors and the Pharmaceutical Industry, Their Perceptions, and the Effects on Prescribing Habits. PLoS ONE 9(10): e110130. doi:10.1371/journal.pone.0110130

Macneill, P. U., Kerridge, I. H., Newby, D., Stokes, B. J., Doran, E. and Henry, D. A. (2010), Attitudes of physicians and public to pharmaceutical industry 'gifts'. Internal Medicine Journal, 40: 335–341. doi: 10.1111/j.1445-5994.2010.02233.x

Madhavan, S., Amonkar, M. M., Elliott, D., Burke, K., & Gore, P. (1997). The gift relationship between pharmaceutical companies and physicians: an exploratory survey of physicians. *Journal of Clinical Pharmacy and Therapeutics*, 22(3), 207-215. http//:doi.ord/10.1046/j.1365-2710.1997.94975949.x

Mascarenhas, O. A. J., Higby, M. A., 1993. Peer, parent and media influences in teen apparel shopping. In: Journal of the Academy of Marketing Science 20, pp. 53-58.

McGettigan, P., Golden, J., Fryer, J., Chan, R. and Feely, J. (2001), Prescribers prefer people: The sources of information used by doctors for prescribing suggest that the medium is more

important than the message. British Journal of Clinical Pharmacology, 51: 184–189. doi: 10.1111/j.1365-2125.2001.01332.x

McNeill, P. M., Kerridge, I. H., Henry, D. A., Stokes, B., Hill, S. R., Newby, D., Macdonald, G. J., Day, R. O., Maguire, J. and Henderson, K. M. (2006), Giving and receiving of gifts between pharmaceutical companies and medical specialists in Australia. Internal Medicine Journal, 36: 571–578. doi: 10.1111/j.1445-5994.2006.01151.x

Moynihan, R. (2003). Who pays for the pizza? Redefining the relationships between doctors and drug companies. 1: Entanglement. *BMJ : British Medical Journal*, *326*(7400), 1189–1192.

Now (2010, May). Paid per Prescription. Now. Retrieved from https://now.mmedia.me/lb/en/reportsfeatures/paid_per_prescription

O'Keefe, D. J. (2002). Persuasion: Theory and research, 2nd edn. Thousand Oaks, CA: Sage.

Oppong, S. H. (2013). The problem of sampling in qualitative research. *Asian Journal of Management Sciences and Education*, *2*(2), 202–210. Retrieved from http://www.ajmse.leena-luna.co.jp

Orlowski, J. P., & Wateska, L. (1992). The effects of pharmaceutical firm enticement on physician prescribing patterns; There's no such thing as a free lunch. *Chest*, 102(1), 270-273. http://doi.org/10.1378/chest.102.1.270

Petty and Cacioppo, "Central and Peripheral Routes of Persuasion: Application to Advertising," in Percy and Woodside (eds.), Advertising and Consumer Psychology, 1983, pp. 3-23.

Petty, R. E., & Cacioppo, J. T. (1986). The Elaboration Likelihood Model of Persuasion. Advances in Experimental Social Psychology. http://doi.org/10.1016/S0065-2601(08)60214-2

Prosser, H., & Walley, T. (2003). Understanding why GPs see pharmaceutical representatives: a qualitative interview study. *The British Journal of General Practice*, *53*(489), 305–311.

Raisch, D. W. (1990). A model of methods for influencing prescribing: Part I. *Annals of Pharmacotherapy*, *24*(March), 417–421.

Rashidian, A., & Russell, I. (2012). General Practitioners' Intentions and Prescribing for Asthma: Using the Theory of Planned Behavior to Explain Guideline Implementation. *International Journal of Preventive Medicine*, *3*(1), 17–28.

Ross JS, Lackner JE, Lurie P, Gross CP, Wolfe S, Krumholz HM. Pharmaceutical Company Payments to Physicians: Early Experiences With Disclosure Laws in Vermont and Minnesota. *JAMA*.2007;297(11):1216-1223. doi:10.1001/jama.297.11.1216.

Sah, S. and Fugh-Berman, A. (2013), Physicians under the Influence: Social Psychology and Industry Marketing Strategies. The Journal of Law, Medicine & Ethics, 41: 665–672. doi: 10.1111/jlme.12076

Shamimulhaq, S., Raheem, A. R., Nawaz, A., Khoso, I., & Vishnu, P. (2014). Factors Influencing Prescription Behavior of Physicians. *The Pharma Innovation Journal*, *3*(5), 30–35. Retrieved from http://papers.ssrn.com/abstract=2463088

Sherif, Muzafer; Hovland, Carl I. http://psycnet.apa.org/psycinfo/1963-06591-000
Shrigley, R. L., Koballa, T. R. & Simpson, R. D. (1988). Defining attitude for science educators. Journal of Research in Science Teaching, 25, 659-678.

Shrum, L. J. (2014). The SAGE Handbook of Persuasion : Developments in Theory and Practice Persuasion in the Marketplace : How Theories of Persuasion Apply to Marketing and Advertising. http://doi.org/10.4135/9781452218410.n19
Social judgment: Assimilation and contrast effects in communication and attitude change.

Summary, E., Key, W., Leaders, O., & Critical, A. (2015). Identifying Key Opinion Leaders Using Social Network Analysis, (june). Retrieved from https://www.cognizant.com/whitepapers/identifying-key-opinion-leaders-using-social-network-analysis-codex1234.pdf

Tourangeau, R., Rasinski, K. a, Bradburn, N., & D'Andrade, R. (1989). Carryover Effects inAttitude Surveys. *Public Opinion Quarterly*, *53*(4), 495–524. http://doi.org/10.1086/269169

Van de Mortel, T. F. (2008). Faking it : social desirability response bias in self- report research report research. *Australian Journal of Advanced Nursing*, *25*(4), 40–48. Retrieved from http://epubs.scu.edu.au/cgi/viewcontent.cgi?article=1001&context=hahs_pubs

Wazana A. Physicians and the Pharmaceutical Industry: Is a Gift Ever Just a Gift?. *JAMA.* 2000;283(3):373-380. doi:10.1001/jama.283.3.373.

Ziglar, Z. (1982). See you at the top. Gretna, LA: Pelican Publishing.

Zipkin, D. A., & Steinman, M. A. (2005). Interactions Between Pharmaceutical Representatives and Doctors in Training: A Thematic Review. *Journal of General Internal Medicine*, *20*(8), 777–786. doi:10.1111/j.1525-1497.2005.0134.x

APPENDIX A

Multiple Comparisons

Dependent Variable: PIMEAN

(I) Specialty	(J) Specialty	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Primary care	Gynecologist	.36241	.26755	.875	-.4675	1.1923
	General Surgeon	.21955	.21939	.973	-.4610	.9001
	Urologist	.27669	.34421	.993	-.7910	1.3444
	Ophtalmologist	.59506	.30279	.511	-.3441	1.5343
	Orthopedic Surgeon	1.37193*	.23654	**.000**	.6382	2.1056
	Anesthesiologist	-.64474	.28863	.342	-1.5400	.2505
	Plastic Surgeon	.53383	.23237	.306	-.1869	1.2546
Gynecologist	Primary care	-.36241	.26755	.875	-1.1923	.4675
	General Surgeon	-.14286	.26523	.999	-.9656	.6799
	Urologist	-.08571	.37510	1.000	-1.2492	1.0778
	Ophtalmologist	.23265	.33749	.997	-.8142	1.2795
	Orthopedic Surgeon	1.00952*	.27958	**.011**	.1423	1.8767
	Anesthesiologist	-1.00714	.32484	.050	-2.0148	.0005
	Plastic Surgeon	.17143	.27606	.999	-.6849	1.0277
General Surgeon	Primary care	-.21955	.21939	.973	-.9001	.4610
	Gynecologist	.14286	.26523	.999	-.6799	.9656
	Urologist	.05714	.34242	1.000	-1.0050	1.1193
	Ophtalmologist	.37551	.30075	.915	-.5574	1.3084
	Orthopedic Surgeon	1.15238*	.23391	**.000**	.4268	1.8779
	Anesthesiologist	-.86429	.28649	.063	-1.7529	.0243
	Plastic Surgeon	.31429	.22970	.869	-.3982	1.0268
Urologist	Primary care	-.27669	.34421	.993	-1.3444	.7910
	Gynecologist	.08571	.37510	1.000	-1.0778	1.2492
	General Surgeon	-.05714	.34242	1.000	-1.1193	1.0050
	Ophtalmologist	.31837	.40100	.993	-.9255	1.5622
	Orthopedic Surgeon	1.09524	.35365	**.051**	-.0017	2.1922
	Anesthesiologist	-.92143	.39041	.274	-2.1324	.2896
	Plastic Surgeon	.25714	.35087	.996	-.8312	1.3455

	Primary care	-.59506	.30279	.511	-1.5343	.3441
	Gynecologist	-.23265	.33749	.997	-1.2795	.8142
	General Surgeon	-.37551	.30075	.915	-1.3084	.5574
	Urologist	-.31837	.40100	.993	-1.5622	.9255
	Orthopedic Surgeon	.77687	.31347	.218	-.1955	1.7492
	Anesthesiologist	-1.23980*	.35443	**.016**	-2.3392	-.1404
Ophtalmologist	Plastic Surgeon	-.06122	.31034	1.000	-1.0238	.9014
	Primary care	-1.37193*	.23654	**.000**	-2.1056	-.6382
	Gynecologist	-1.00952*	.27958	**.011**	-1.8767	-.1423
Orthopedic Surgeon	**General Surgeon**	-1.15238*	.23391	**.000**	-1.8779	-.4268
	Urologist	-1.09524	.35365	.051	-2.1922	.0017
	Ophtalmologist	-.77687	.31347	.218	-1.7492	.1955
	Anesthesiologist	-2.01667*	.29982	**.000**	-2.9466	-1.0867
	Plastic Surgeon	-.83810*	.24613	**.021**	-1.6015	-.0747
	Primary care	.64474	.28863	.342	-.2505	1.5400
	Gynecologist	1.00714	.32484	.050	-.0005	2.0148
	General Surgeon	.86429	.28649	.063	-.0243	1.7529
	Urologist	.92143	.39041	.274	-.2896	2.1324
Anesthesiologist	**Ophtalmologist**	1.23980*	.35443	**.016**	.1404	2.3392
	Orthopedic Surgeon	2.01667*	.29982	**.000**	1.0867	2.9466
	Plastic Surgeon	1.17857*	.29654	**.003**	.2588	2.0984
	Primary care	-.53383	.23237	.306	-1.2546	.1869
	Gynecologist	-.17143	.27606	.999	-1.0277	.6849
	General Surgeon	-.31429	.22970	.869	-1.0268	.3982
	Urologist	-.25714	.35087	.996	-1.3455	.8312
	Ophtalmologist	.06122	.31034	1.000	-.9014	1.0238
Plastic Surgeon	**Orthopedic Surgeon**	.83810*	.24613	**.021**	.0747	1.6015
	Anesthesiologist	-1.17857*	.29654	**.003**	-2.0984	-.2588

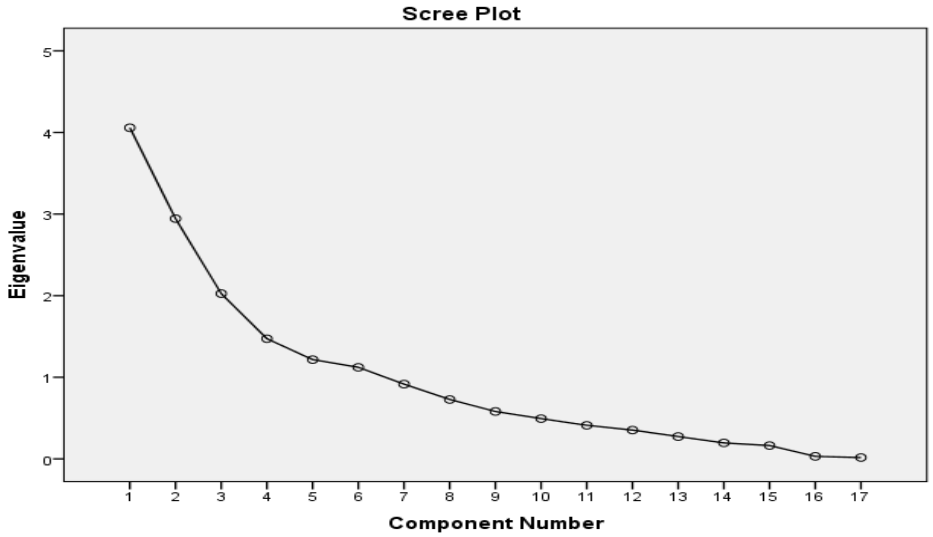
. The mean difference is significant at the 0.05 level.

Appendix B

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.057	23.866	23.866	4.057	23.866	23.866
2	2.944	17.318	41.183	2.944	17.318	41.183
3	2.025	11.914	53.097	2.025	11.914	53.097
4	1.472	8.661	61.758	1.472	8.661	61.758
5	1.216	7.156	68.914	1.216	7.156	68.914
6	1.122	6.600	75.514	1.122	6.600	75.514
7	.916	5.388	80.902			
8	.728	4.279	85.182			
9	.581	3.418	88.599			
10	.494	2.903	91.503			
11	.411	2.421	93.923			
12	.353	2.075	95.998			
13	.273	1.608	97.606			
14	.196	1.152	98.758			
15	.164	.963	99.721			
16	.031	.182	99.904			
17	.016	.096	100.000			

Extraction Method: Principal Component Analysis.



APPENDIX C

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Objective product Info	50.87	7.044	.587	.583
Good knowledge	50.86	7.031	.595	.582
PSR does not mislead	51.53	6.595	.082	.796
PSR not pushy	51.28	8.224	.143	.660
PSR adapts to time limitation	51.18	7.260	.344	.624
Friendly	51.46	7.746	.343	.629
Have knowledge on healthcare system	50.88	7.097	.563	.588
acts professionally	50.84	7.206	.528	.595
Regards physicians' problems,complaints	50.70	7.343	.552	.597

APPENDIX D

Group Statistics

	Valuable Gift	N	Mean	Std. Deviation	Std. Error Mean
Intention to prescribe-valuable gifts	No	8	7.00	.000	.000
	Yes	92	5.22	1.609	.168

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Intention to prescribe-valuable gifts	Equal variances assumed	15.987	.000	3.119	98	.002	1.783	.572	.648	2.917
	Equal variances not assumed			10.625	91.000	.000	1.783	.168	1.449	2.116

APPENDIX E

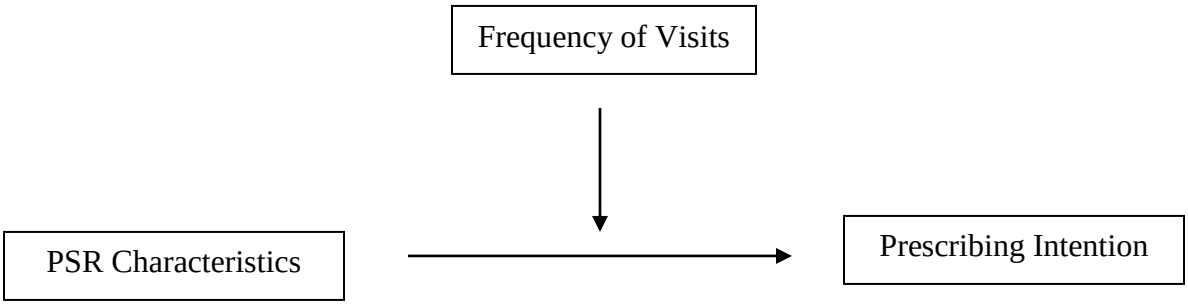


Figure3: Proposed Moderation Effects Corresponding to Model 1 in PROCESS

OUTPUT

```
Model = 1
    Y = PIIMEAN
    X = PSRMEAN
    M = Frequency of visits


Outcome: PIIMEAN



Model Summary
          R       R-sq          F        df1        df2          p
      .2566      .0658     2.2547     3.0000    96.0000      .0869


Model
              coeff         se          t          p
constant    23.3115    10.9317     2.1325      .0355
Frequency    -3.9305     3.1811    -1.2356      .2196
PSRMEAN      -2.7380     1.6817    -1.6281      .1068
int_1          .6059      .4904     1.2356      .2196


Interactions:

 int_1    PSRMEAN     X     Frequenc



R-square increase due to interaction(s):
         R2-chng          F        df1        df2          p
int_1      .0149     1.5267     1.0000    96.0000      .2196
```

```
Conditional effect of X on Y at values of the moderator(s)
   Frequency     Effect          se          t          p
      2.6329    -1.1427      .4743    -2.4092      .0179
      3.3300     -.7204      .3065    -2.3502      .0208
      4.0271     -.2980      .4434     -.6720      .5032
```

APPENDIX F

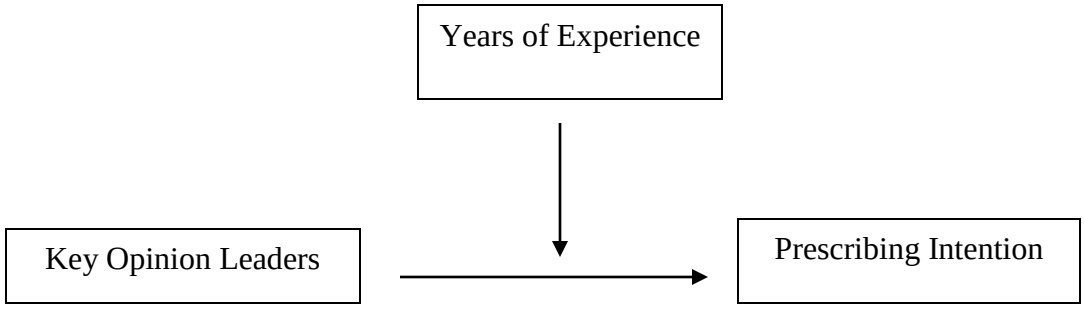


Figure4: Proposed Moderation Effects Corresponding to Model 1 in PROCESS

Output

```
Model = 1
    Y = PIIMEAN
    X = KOLMEAN
    M = Years of Experience


Outcome: PIIMEAN


Model Summary
          R       R-sq          F        df1        df2          p
      .5248      .2754    12.1643     3.0000    96.0000      .0000


Model
                    coeff         se      t          p
constant            2.8629    1.0477   2.7325       .0075
Years of Experience .4130      .2309     1.7890      .0768
KOLMEAN             .6329      .1872     3.3799      .0010
int_1               -.1197     .0449    -2.6641      .0091


Interactions:

 int_1    KOLMEAN     X     Q37

R-square increase due to interaction(s):
         R2-chng          F        df1        df2          p
int_1      .0536     7.0973     1.0000    96.0000      .0091
```

Conditional effect of X on Y at values of the moderator(s)

Years of Experience	Effect	se	t	p
1.5378	.4487	.1265	3.5482	.0006
2.8200	.2952	.0860	3.4314	.0009
4.1022	.1416	.0738	1.9186	.0580

APPENDIX G

QUESTIONNAIRE

As part of my MBA thesis research at Haigazian University, you are invited to participate in a study entitled **The Indirect Factors that Influence the Prescribing Intention of Physicians in Lebanon.** The purpose of this research study is to better understand prescription decisions made by physicians.

In this study, you will be asked to complete an electronic survey. Your participation is voluntary and anonymous; out of respect for your privacy, your personal information (name and identification) are not included in the questionnaire. The data collected will be kept confidential and will be only used for academic purpose. The survey should take only 10 minutes to complete.

I appreciate your time and cooperation to fill in the following questionnaire.

	How important to you are the following characteristics of pharmaceutical sales representatives (PSR) in the healthcare system? (Importance Scale)	Source	Variable	H
1	The PSR provides objective product information	Kersnik et al., 2011	PSR trustworthiness	H1C
2	The PSR shows good knowledge on the subject promoted	Kersnik et al., 2011	PSR trustworthiness	H1C
3	The PSR does not mislead	Kersnik et al., 2010	PSR trustworthiness	H1C
4	The PSR does not act too pushy	Kersnik et al., 2011	PSR communication skills	H1B
5	The PSR acts friendly	Kersnik et al., 2011	PSR communication skills	H1B
6	The PSR adapts to time limitations of physicians	Kersnik et al., 2011	PSR communication skills	H1B
7	The PSR possesses knowledge on healthcare system	Kersnik et al., 2011	PSR selling skills	H1A
8	The PSR acts professionally (on time, organized…)	Kersnik et al., 2011	PSR selling skills	H1A
9	The PSR takes into consideration physicians' problems, complaints, and suggestions	Kersnik et al., 2011	PSR selling skills	H1A
	Please indicate the extent to which you agree or disagree with each of the following statements:			
10	The knowledge I gain in CME (Continuing Medical Education) program sponsored by pharmaceutical companies is useful information	Wazana, 2000	CME	H3A
11	I attend CME program sponsored by pharmaceutical companies to improve healthcare	Wazana, 2000	CME	H3A
12	Attending educational symposium helps improve the efficiency of my existing practice	Orlowsky and Wateska, 1992	Symposium	H3B
13	The Medical article provided by PSRs is an important source of information about the promoted drug	McGettigan et al., 2001	Medical aricle	H2

		Source	Variable	Hypothesis
14	Drug samples that I receive from PSRs are a source of medication for those patients who cannot afford them	Fugh-Berman and Ahari, 2007	Drug Sample	H3E
15	Drug samples that I receive from PSRs permit quicker initiation of therapy	Fugh-Berman and Ahari, 2007	Drug Sample	H3E
16	I refer to other doctors for consultancy for the first time use of a medication	Iyengar et al., 2011	Peer Pressure	H4A
17	I contact a key opinion leader (KOL) as a source of advice for the first time use of a medication	Iyengar et al., 2011	Peer Pressure	H4A
18	I regularly seek advice about a drug from a key opinion leader	Iyengar et al., 2011	Peer Pressure	H4B
19	**Please indicate the types of offerings you have been received by pharmaceutical companies. Tick all that apply to you:** Drug samples Pens with the company logo printed on them Notepads Laptop CME sponsorship Conference attendance (registration fees only) Office gadgets with the name of the drug printed on them Symposium attendance (registration fees, accommodation, airfares)	Madhavan et al., 2007	Small gifts/Valuable Gifts	H3C/H3D

	Vacation Lunch with the pharmaceutical company owner Dinner for doctors with a presentation about a new drug Other			
		Source	**Variable**	**Hypothesis**
	Please indicate the extent to which you agree or disagree with the following statements:			
20	I intend to prescribe the company's promoted drug based on the highlighted product information in the medical article that is provided by the PSR.	Biegler, 2014	Prescribing Intention	H5
21	I intend to prescribe the pharmaceutical company's promoted drug after having attended CME program.	Biegler, 2014	Prescribing Intention	H6
22	I intend to prescribe the pharmaceutical company's promoted drug after having attended educational symposium.	Biegler, 2014	Prescribing Intention	H6
23	I intend to prescribe the pharmaceutical company's promoted drug after being provided free drug samples.	Biegler, 2014	Prescribing Intention	H6
24	I intend to prescribe the pharmaceutical company's promoted drug after having received small gifts such as pens, notepads, office gadgets, or free lunches.	Biegler, 2014	Prescribing Intention	H6
25	I intend to prescribe the pharmaceutical company's promoted drug after having received valuable gifts such as conference attendance (registration fees, airfares, and accommodation).	Biegler, 2014	Prescribing Intention	H6
26	I intend to prescribe the pharmaceutical company's promoted drug after being advised by a key opinion leader (KOL).	Lieb and Scheurich, 2014	Prescribing Intention	H7
27	I intend to prescribe the pharmaceutical company's promoted drug after being provided by free drug samples	Biegler, 2014	Prescribing Intention	H6

Which of the following best describes you?

□ Male
□ Female

How often have you been visited by pharmaceutical sales representatives during the last 12 months? (Lieb and Scheurich, 2014), Variable (Frequency of Visits), Hypothesis (H8)

□ Daily
□ 2-3/week
□ 1/week
□ Occasionally
□ Never

Please indicate the years of experience you have in the healthcare professional (Lieb and Scheurich, 2014), Variable (Years of Experience), Hypothesis (H9)

□0-5
□6-10
□11-15
□16-20
□More than 20 years

Please specify your specialty

□Primary Care (Family medicine, general practitioner, internal medicine)
□Gynecologist
□General Surgeon
□Urologist
□Cardiologist
□Orthopedic surgeon
□Ophthalmologist
□Other