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Effect of Pharmaceutical Marketing Practice on Physicians' Prescribing Behavior in the Gaza Strip

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Dedication

Dedicate to my father and mother for their love, efforts since childhood, prayers, and unlimited support,

To my wife for her patience, love, motivation, encouragement, and unlimited support,

To my lovely sons and daughter: Mohammed, Abd-AlRahman, Jana, and Hassan,

To my brother Abd- Alfatah who has been around me since childhood to this day, and he has been supportive of me everywhere,

To my lovely sisters, Asmaa, Shimaa, Alaa, Eman, and Rawan whose have always been provided me with love and support,

To all my friends, as well as my colleagues, who I've worked with in all my workplaces,

To Dr. Areej Muslim and my college in the Directorate of Pharmacy for their extraordinary efforts and support during my master work.

To all who supported me to make this study a reality

Rafat Subhi Abd Elftah Aburedwan

Declaration

I certify that this thesis submitted for the degree of Master, is the result of my own research, except where otherwise acknowledged, and that this thesis (or any part of the same) has not been submitted for higher degree to any other university or institution.

Signed:

Rafat Subhi Abd Elftah Aburedwan

Date: 10/6/2021

Acknowledgment

In the name of God, the Most Merciful, the Most Merciful, and the Prayers and Peace be upon all the best creations, and the end of prophets and messengers, our Master Muhammad peace be upon him

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Abstract

Pharmaceutical Companies (PCs) are using different marketing activities to influence physicians' prescribing behavior. However, the interaction between physicians and PCs is a real leading factor for conflicts of interest that negatively impact physician prescribing behaviors worldwide. The aim of this study is to identify the effect of pharmaceutical marketing practice on physicians' prescribing behavior in the Gaza Strip (GS). To fulfill the aim of the study, the researcher followed a mixed approach that utilizes quantitative and qualitative data. For quantitative data, a cross-sectional, descriptive-analytical survey was utilized among specialist physicians working in the governmental hospitals as well as the private hospitals and clinics in the GS in 2020. A self-administered well-structured questionnaire was used. For the qualitative part, focus groups and in-depth interviews were used for data collection from physicians, pharmacists, and pharmaceutical medical representatives (PMRs). Data were analyzed using SPSS. The questionnaire response rate is 91.3% (347 returned questionnaires) was achieved. This study revealed that many physicians prefer the internet (82.4%) the medical, textbooks (80.2%), and academic journals (74%) as sources of drug information rather than commercial sources of medical information However, nearly (64.2%) of physicians depend on detailing as a source of drug information. Also, 70.8%, 68.6% of physicians agreed on the importance and credibility of information provided through PMRs about the new and old drugs respectively. Results highlighted the complex correlated factors that impact physicians' prescription behavior. These factors were categorized into drug characteristics (80.1%), organizational factors (79.1%), physician factors (75.8%), patient contexts (69.3%), and the least influential factor was pharmaceutical company factors (59.9%). However, results showed that there is an active interaction between physicians and the PCs. Findings revealed that 96% of the study sample had been visited by PMRs at least once a month. Almost all of the physicians (98.3%) received at least one of the marketing tools offered by (PCs). PMRs detailing has become prevalent in health facilities in the GS with 96.2% of physicians received skillful detailing. The provision of promotional printed material (95.7%), free medical samples (93.9%), and inexpensive gifts (74.6%) were the major prescribing inducement tools used by PMRs. The study results revealed that the current marketing tools have a considerable effect on drug choice decisions (64.2%), motivating physicians to prescribe promoted drugs (65.2%) and new drugs (66.8%). However, the influence of these tools was not similar in their effect. The most effective tools used were detailing and discussions with PMRs (73.4%). The following characteristics were significantly associated with the effect of pharmaceutical marketing on physicians' prescription behavior: age, years of practice, average monthly income, income satisfaction, graduation country of bachelor. Also, results confirm that physicians (61.73%) are prepared to implement regulations and ethical codes that govern physicians – PMRs interactions. In conclusion, there is an active interaction between physicians and the pharmaceutical industry in the GS in both private and public sectors. These interactions had a considerable role in affecting physicians' prescription behavior. An agreed drug prescribing policy, as well as a comprehensive guideline for physicians' interactions with pharmaceutical companies along with follow-up mechanisms for its enforcement, should be created. Also, should promote the concept of essential drug list of medicines and developing clear protocols and guidelines and applying them. Also establish comprehensive formal training courses for physicians on their prescribing behavior. Promoting the concept of rational use of medicines and developing protocols and guidelines and enforcing them.

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List of Abbreviations

BNF	British National Formulary
BPC	Birzeit Pharmaceuticals
CME	Continuing Medical Education
EDL	Essential Drug List
GAP	General Administration of Pharmacy
GDP	Gross Domestic Product
GPs	General Practitioners
GS	Gaza Strip
HCS	Health Care System
IFPMA	The International Federation of Pharmaceutical Manufacturers & Associations
Jepharm	Quds Pharmaceuticals
MoH	Ministry of Health
NGO's	Non - Governmental Organizations
NIS	New Israeli Shekel
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
PC	Pharmaceutical Companies
PCBS	Palestinian Central Bureau of Statistics
PHC	Primary Health Care
PMoH	Pharmaceutical Sector in The Ministry of Health
PMR	Pharmaceutical Medical Representative
R&D	Research and Development
SPSS	Statistical Package for Social Sciences
UNRWA	The United Nations Relief and Works Agency for Palestine Refugees
US	United States
US$	United States Dollar
WB	West Bank
WHO	World Health Organization

Chapter One

Introduction

The pharmaceutical industry in Palestine is one of the most important industries where it is besides financial gain it contributes to maintaining the health of society in terms of the treatment of diseases and pain relief. As well as reducing the spread of diseases and epidemics are also contributing to the enhancing of the economy as it provides job opportunities for many people and limits the import from abroad. Recent years have a remarkable development in the Palestinian pharmaceutical industries, which ensured the availability of a large number of medicines which contribute to relief the suffering of people and treating many diseases, especially chronic ones as hypertension and diabetes mellitus that reduce the costs of treatment for the Palestinian citizen (World Health Organization, 2020). The global pharmaceutical market is large, growing and competitive (Sharifnia et al., 2018).

Marketing is the process of knowing the needs, and if the product or the service that it provided meet the needs of people and then to choose the appropriate way to market this product. Determining the best way to deliver it to people with the determination of its value and deliver it to those who need it that makes people feel good about the product (Mim et al., 2014).

Pharmaceutical marketing efforts are getting more and more attention over the years. Pharmaceutical companies spend a lot of money on marketing in an attempt to maintain and maximize their market share and profitability (Alowi & Kani, 2018). In pharmaceutical marketing, pharmaceutical medical representatives (PMRs) are the key players (Al-Areefi et al., 2013).

The marketing process for industries is becoming increasingly important and developing every day and has become one of the most important pillars on which all organizations depend for the success of the work. It also becomes an essential element in determining the failure of the institution from its success. The pharmaceutical industry also needs advertising and marketing for its products, but it differs from the rest of the industries that it does not target the final customer, but it targets the middle circle between the manufacturers and the patient who is the physician. The companies are marketing through their representatives who visit doctors and promote these medicines and through informing

the physicians of these medicines. They provide them with many means of advertising and promotion like medical sample, gifts, conferences, meals, etc. It is necessary to clarify the nature of the relationship between physicians and pharmaceutical companies which interrelated and strong, companies can't sell the medicines to the patients directly and also the physicians can't treat the patients without the medicines produced by the pharmaceutical companies (Ghaith et al., 2013).

Physicians are the most influential persons in the process of selling and marketing medicines as they are the ones who write the drug by its brand name that the patient buys. Physicians are the key to the drugs sales, so pharmaceutical companies are trying to influence physicians and their prescription of the drug to write their own medicine through various means of promotion (Blackstone et al., 2014).

There are several and common tactics adopted by pharmaceutical companies to promote their products to the physicians and so increase prescribing (Lublóy, 2014).

Such as free medical samples, promotional materials, giving them valuable gifts or cash commissions for prescribing specific drug, moreover offering them fund for Continuing Medical Education (CME) and honoraria for teaching or speaking in that events (Goyal & Pareek, 2013; Wazana, 2015).

Pharmaceutical companies spend a lot of money on advertising and drug promotion. In 2012, the pharmaceutical industry spent $89.5 billion on physician–PMRs interactions that accounted for 60% of the global sales and marketing spending. Physicians as a result of targeted medical advertising and building relationships between them become unable to distinguish between scientifically based information and promotional pharmaceutical companies (Fickweiler et al., 2017).

1.1 Research problem

The current budget of MoH amounted to 1,767,295,225 NIS, distributed over the main budget items, where medicines and medical consumables amounted to 18% of all budget which a remarkable percentage (MoH, 2018). Approximately, 41.8% of health financing comes from out-of-pocket payments, the majority of which is the result of expenditure on pharmaceuticals (WHO, 2019).

The rise in the number of pharmaceutical companies as well as the number of their registered drugs is a significant contributing factor to increased competition between drug companies and the need for intensive marketing and promotional activities. However, in the context of the Gaza Strip (GS), the pharmaceutical legislative framework lacks the presence of comprehensive regulations controlling drug marketing. In addition there is no clear mechanism to monitor the promotional activities of the pharmaceutical industry (Abu Mhadi, 2013).

Previous studies revealed that pharmaceutical marketing might have a negative impact on the prescribing practice of physicians, as it was associated with higher prescription volume and cost (Mintzes et al., 2013). This may result from targeted medical advertising, building relationships, and conflicts of interests. Ultimately, such interactions may lead to bad influence on patients' health and economy (Fickweiler et al., 2017).

In the GS, irrational prescribing practice for certain prescription drugs is a common problem (Abu Mhadi, 2013). Goyal & Pareek, (2013) said that Physician-targeted marketing implemented by pharmaceutical companies to increase the acceptability of their drugs might be one of the causes for the irrational drug prescribing and utilization.

Due to our limited information and the gap in information so the study of this topic was excited and important to examine the interactions between physicians and pharmaceutical companies practice in the GS, and the impact of the pharmaceutical marketing practices of the pharmaceutical companies on the physicians' behavior in drug prescribing to patients.

Therefore, this study will fill the gaps about this interaction in the GS, and to develop beneficial relationships that direct the interaction between physicians and pharmaceutical companies in favor of patients.

1.2 Justification of the Study

To the best of our kowledge, few published studies addressed the situation in the GS regarding pharmaceutical marketing activities and their effect on the physicians presribing behavior, a little detailed information about the reasons physicians interact with medical representatives; few studies explain how they justify these visits and the causes for these interactions. The findings of this study will give the monitoring and inspection teams an opportunity to find out the imbalance in the behavior of physicians, pharmaceutical companies as well as pharmacists, allowing us to develop deterrent policies.

Also the findings of this study will offer insight for policymakers in the public (MoH) and private health sector in the GS to develop a suitable policy and regulations in terms of pharmaceutical marketing practice and drug promotion.

The physicians should also look from a different perspective to work on avoiding these effects by pharmaceutical companies practises and they should follow these laws and regulations organized to work and apply them effectively. These laws and regulations which ensure that the physicians does his work without any external effects on them, which in turn will have a positive impact on the health of the patient and society.

Moreover, such a finding will provide the basis for possible target areas for educational interventions in pharmaceutical marketing.

1.3 General Objective

To investigate the effect of pharmaceutical marketing practices on physicians' prescribing behavior in the GS.

1.4 Specific Objectives

1. To determine the main sources of information for physicians about drugs
2. To identify factors that affect physicians' drug selection decisions
3. To explore the extent to which physicians are exposed to pharmaceutical marketing practices
4. To investigate the effect of marketing practices on the physicians' prescribing behavior.
5. To evaluate the most effective "marketing methods" used by pharmaceutical sales representatives to affect physicians' prescribing behaviors.
6. To identify the differences among physicians in the effect of pharmaceutical marketing practices on their prescribing behavior due to socio-demographic and professional characteristics.

1.5 Context of the study:

1.5.1 Gaza Strip Demographic Characteristics

The estimated number of populations in the GS in 2019 was 1,989, 970, which 39.8% from all Palestinian population. Population distribution by sex shows that 50.8% of the

population is male and 49.2% is female (Palestinian Central Bureau of Statistics -PCBS-, 2019).

The GS forms of land area about 365 square kilometers, the GS formed from five governorates, North Gaza, Gaza, Dier-Albalah, Khan-yunis and Rafah, from North to south respectively. The GS consider one of the most highly density area around the world, that for each one square kilometer area there are about 5204 individual Palestinian living. There is a remarkable differences between the GS and the West Bank (WB) in the population density, and other indicators according to the last national census due to the deterioration in the living condition and the blockade imposed on the GS by Israeli occupation blockade since June 2007 (PCBS, 2019). According to the census (the average number of persons in one room) in the GS is more than in the WB by about 23 %. Rafah Governorate was the most average housing density that 1,7. The life expectancy among Palestinian population is 73.8 years, which is higher among female (75.4) than males (72.3) according to Health reports (PCBS, 2017).

That chronic extended siege by the Israeli occupation since 2007 making the Palestinian economy completely under Israeli control that controls the entry and exit of goods and individuals. That siege made the dependence mainly on Foreign aid and lead to economic and social deterioration of the citizens, which make a situation that called a complex chronic disaster of catastrophic proportions, which direct negative effect not only on the population health but also on the determinants of the health (WHO, 2019).

Restrictions on the movement of people and goods, including prevent access to the Israeli labor market (the Gaza population was heavily dependent on access to the Israeli labor market prior the blockade), has led to de-development in the GS since the beginning of the blockade in 2007. Unemployment in 2018 was 54% in the second quarter, higher for young people (70%) and women (78%). The poverty rate increased from 39% in 2011 to 53% in 2018. People suffered moderate or severe food insecurity reached 68%, 11% of children under 5 years are stunted (WHO, 2019).

1.5.2 Health care system

The health care system (HCS) in the GS is fragmented and services delivered by four providers without complete coordination, Ministry of Health (MoH), United Nations Relief and Work Agency for Palestine Refugees (UNRWA), Non-Governmental Organizations (NGOs) and private sector. The MoH is the main provider and the responsible for the

services coordination between all providers. There are 160 primary health care (PHC) centers and 30 hospitals in the GS (MoH, 2018).

The total current expenditure on health reached in United States dollars (US$) 1.466 trillion in 2017 compared to US$1.33 trillion in 2016. The percentage of total health expenditure to Gross Domestic Product (GDP) is 10.7% in 2017, which covered by the government insurance (around 37%), private insurance companies (around 3%), households/out-of-pocket (around 41%), non-profit organizations (around 18%), and others around 1% (PCBS, 2017).

One of the most important components of HCS is human resources who served people; the number of employees in health sector in the MoH was the biggest in Palestine. In 2018, the MoH employees were 14,430 at rate of 29.7 per 10,000 population in a percentage of 56.7% in the WB and 43.3% in the GS. The number of physician work in MoH was 2525 with 5.2 doctors per 10,000 populations, in the WB was 5.2 while in the GS was 6.1. Pharmacist number was 480 employer in the MoH , 58.1% in the WB and 41,9% in the GS (MoH, 2018).

In the GS, there are 6097 physicians, 1362 dentist and 3091 pharmacists. There are 521 clinics, 697 pharmacies and all pharmacy Foundation (pharmacies, companies, Pharmaceutical warehouses and drug factories) was 802 in private sector (MoH, 2018).

As mentioned before, the most important and the main health care provider is the MoH that provides primary, secondary and tertiary health services and purchase the unavailable tertiary health services. The UNRWA provides primary care services, only for refugee and purchase secondary care services for all cases. The NGOs provide primary, secondary and some tertiary services. Private for-profit sector provides all levels of care through different specialized hospitals and centers. There is limited coordination between these four systems, which lead to overlapping of services in some places while some areas are under-covered, some kind of variation in care quality, lack of standards and regulatory mechanisms, and unclear division of responsibility between the public and private providers. The NGOs provide their services all over Palestine focus more primary care activities in the poor and remote areas (MoH, 2018).

The pharmaceutical sector in the Ministry of Health (PMoH) represents a very important part as it consumes a large percentage of the expenses of the PMoH. Medicine constitutes

18% of the PMOH budget, besides so many medicines are prescribed from outside the Essential Drug List (EDL), which an important point because of irrational use of drugs as well as the over prescription of medicines especially antibiotics, which constitutes a great burden both on the ministry and the citizens. Ammar, (2015) have shown that it is necessary to train medical staff on the EDL and evidence base prescription.

One of the major challenges facing the health sector in the GS is drug due to the Israeli blockade, the financial crisis, as well as the political division that leads to a lack of coordination between the WB and the GS. In 2019, Gaza central drug stores showed that 247 of the EDL are at zero stock to reach the deficit ratio to 48% in drugs. This is how the ministry becomes unable to provide basic medicines in primary care like maternal and child Health service as well as oncology drugs, what puts the burden on patients to buy these drugs from private pharmacies despite their high prices (MoH, 2018).

There is a general trend towards pharmaceutical care and patient focused roles for pharmacists that have stimulate reforms in pharmacy education and practice. Modification in Pharmacist function leads to an increase in pharmacy workforce demand. The ability to provide pharmaceutical services depends on a qualified competent workforce along with an academic force to be able to train sufficient numbers of new pharmacists.

The total number of pharmacists whose are allowed practicing the pharmacy profession by the end of 2019 in the GS is 3091; the density of pharmacists (total) per 10,000 populations was 15.5, where it was lower than that Egypt (16.8), and fall within the international limit (0.4-18.88).

1.5.3 Pharmaceutical Companies

Because of 1967 war and the isolation of Palestine and discontinuation of the drug trade with Arab countries, there was a shortage of certain drugs in the Palestinian market. Some Palestinian pharmacists try to establish a small pharmaceutical industry businesses, which lead nowadays to a group of companies have their important contribution in the Palestinian economy (Qawasmeh, 2015).

Drugs are sold and/or distributed to different types of pharmacies: Public pharmacies administrated by the PMoH, the NGO pharmacies, the UNRWA and the private pharmacies. For public pharmacies, drugs are sold for co-payment of 3 Israeli new shekel (NIS). The EDL recommended by the World Health Organization (WHO) are the base for drug availability and PMoH updates that list according to need. The NGO pharmacies deal

with drugs according to the organization policy, some of them sold drugs to patients by low price or by cost price and others sold it with free charge. The UNRWA dispenses drugs without any charge, while private pharmacies sold drugs with profit. Due to the chronic shortage of drugs in the public pharmacies, the private sector becomes a main source for the drugs in the GS. The estimated size of the Palestinian pharmaceutical market is US$105 million. The PMoH registered 1,200 local products that cover approximately 160 of the 450 EDL products. Local private market exhaust about 68- 75% of the drugs manufactured in Palestine. Palestinian pharmaceutical market consists of 50% Palestinian companies' manufacturers, 35% Israeli companies and approximately 15% comprises of imported products (Pharmaceutical & Occupation, 2012). According to the General Directorate of Pharmacy-GAP- in the GS there are recently 3365 pharmaceutical products allowed to be traded (MoH, 2018).

In the GS market, there are different sources of drugs due to different pharmaceutical companies' types: foreign, national, Egyptian and Israeli companies. The Palestinian pharmaceutical industry in Palestine is composed of seven manufacturers due to available data: Quds Pharmaceuticals (Jepharm), Birzeit Pharmaceuticals (BPC), Beit Jala Pharmaceuticals, Pharmacare Pharmaceuticals, Gama Pharmaceuticals, Megapharm Pharmaceuticals and Arab-German Pharmaceuticals. All previous companies have the capability to produce the medicine from the raw material to the finish product with high quality (MoH, 2018).

1.6 Operational Definitions

1. Promotion of Pharmaceuticals: "all informational and persuasive activities by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/ or use of medicinal drugs (WHO,1988). Also its any activity undertaken, established by a member company, which is focused on healthcare professionals to promote the medicine, recommendation, supply, administration, or consumption of its pharmaceutical products through all media (International Federation of Pharmaceutical Manufacturers & Associations -IFPMA-, 2012).

2. Marketing: Marketing is the most usually used tool to increase market share, it is a form of communication between the company and the clients to sell its products or services to them (Kireev et al., 2016).

It is a process of planning and creating a perception, pricing, promotion and distribution of ideas, goods and services to make exchanges that meet individual and organizational goals (Baker, 2016).

3. Pharmaceutical Marketing Practices: A management process that identifies and meets the needs of patients in a profitable way. Also, can defined as activities focused on making physicians as well as the general public to getting more and more attention of new and existing pharmaceutical brands and can include gives samples, detailed product literature, disease management programs, internet initiatives, and events/meetings for physician (Sismondo & Chloubova, 2016).

4. The Pharmaceutical Industry: The pharmaceutical industry has many unusual characteristics, either in its structure or in the nature of its business operations, which materially affect the process of bringing new pharmaceuticals to the patient. The manufacture of a new pharmaceutical product is a risky one very time consuming, low chance of profitability. The research and development (R&D) processes were combined together with all its challenges. The major pharmaceutical spent more money on research, but most people believe that they spend more on marketing than on research (Taylor, 2016).

Chapter Two

Literature Review

2.1 Conceptual Frame Work

The conceptual framework includes many studies on the relationship between pharmaceutical marketing practice and health care professionals. Though most researchers agree that pharmaceutical companies marketing practice affect physicians'' habits, behavior, and lead to influence drug prescription (Ibrahim & Bélanger, 2015).

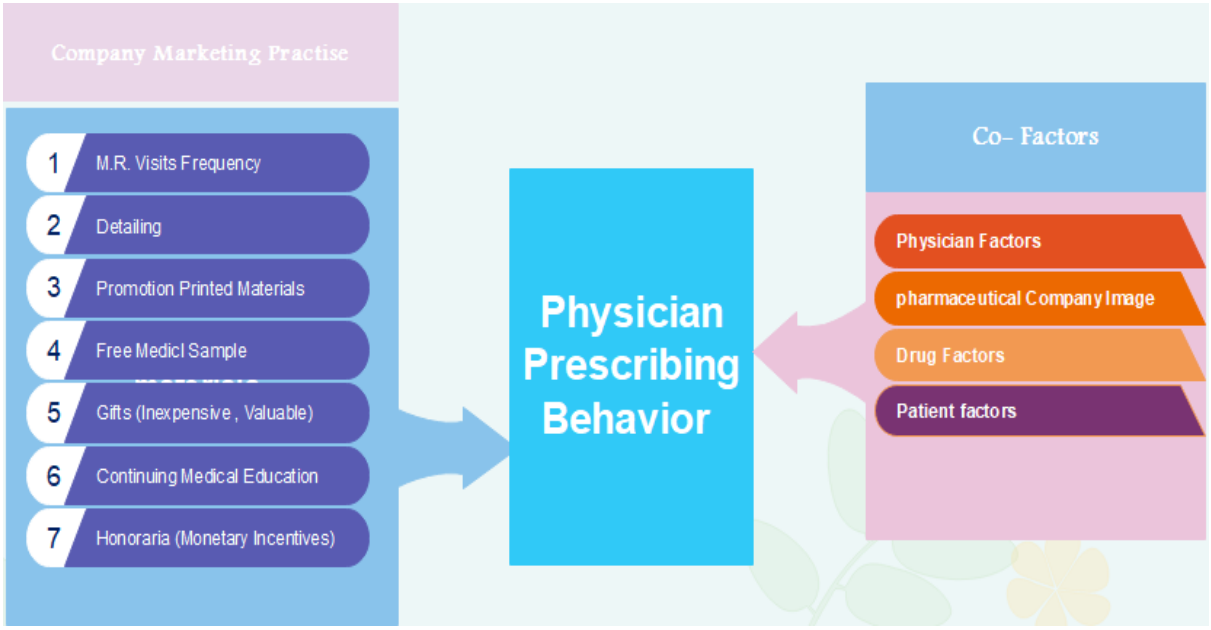


Figure 2.1: Conceptual Frame Work

2.1.1 Co-Factors

2.1.1.1 Drug Facors

Drug-related factors, such as active ingredients, its safety, efficacy, bioavailability, and dosing, range of dosage forms available of the drug, presence of side effects, drug abuse potential, availability of the drug in community pharmacies, cost of the drug for the patient and confidence in manufacturer have a significant and positive effect on physicians' prescription behavior (Sharifnia et al., 2018).

2.1.1.2 Patient Factors

A side from marketing factors, physicians select the medicine based on different patient related factors including: inherent characteristics such as age, gender, and race, the

patients' clinical condition, treatment history, comorbidity and financial situation and ability to purchase, and patient's compliance (Davari et al., 2018); (Al-areefi et al., 2013).

2.1.1.3 Physician Factors

The physicians' characteristics which include the clinical experience, specialty, and continuous professional education was the most frequently mentioned physician related factor that affect physician prescribing behavior (Davari et al., 2018).

2.1.1.4 Pharmaceutical Industry Factors (as corporate image)

Building a positive corporate image is considered an effective mean that provides a unique competitive advantage from rival organizations. The success of a promising corporate image is based on effective marketing communication strategies that attract existing and new customers. Both corporate image and pharmaceutical marketing practices has significant impact on physicians drug selection decision (Ahmed et al., 2018).

2.1.2 Company Marketing Practice

1. **PMR Visits Frequency:** Frequent visits from pharmaceutical sales representatives have a positive correlation with the Physicians' Prescribing Behavior that due to literature it constitute (34%) from other marketing (Lotfi et al., 2016) . Muijrers et al., (2005) found a negative relationship between evidence-based general practice guidelines and the frequency of visits by pharmaceutical industry representatives, more contact with pharmaceutical industry representatives is connected with less prescribing due to professional guidelines.
2. **Detailing:** One of the most widely used marketing methods is detailing by PMRs (Hoffman, 2012). During their visits, PMRs provides physicians with information about their company drugs, use, effects and side effects (Abdi et al., 2018).

   Green et al., (2012) says that it is a marketing method used by pharmaceutical companies to educate physicians about the pharmaceutical products of this company, which contributes to the impact on physician prescribing to the patient.
3. **Promotional Printed Materials:** Is one of the most common promotional item distributed by PMRs particularly in developing countries (Alssageer & Kowalski, 2013). Many physicians rely on them as an important source of drug information. Therefore, printed materials have a great impact on their prescribing behavior (Parmata& Chetla, 2021).

4. **Free Medical Sample:** A package of medicine containing a reduced amount of medicine that is sufficient to evaluate the therapeutic effect of the drug and is distributed to health service providers free of charge for the purpose of treating patients also it reduces the medical cost of patients Schrier et al.,(2020) says that drug samples are commonly used strategies to influence doctors to prescribe those drugs. Many studies have shown extensively that the use of drug samples by pharmaceutical companies lead to higher prescription for those drugs.
5. **Gifts:** One of the methods of advertising used by pharmaceutical companies and their advertising representatives where they give physicians various gifts, including inexpensive gifts (pens, notepads, and mugs) bearing the trade names of particular drug products and distributed widely in hospitals or doctors' clinics, also there's valuable gifts such as travel tickets, and trips (Agarwal&Kaur, 2017).

   Gifts provided to physicians are one of the most powerful tools that could lead to the conflict of interest. If a physician accepts gifts from the pharmaceutical companies, it means that there will be grateful behavior, which may negatively influence the physician decision making thus ultimately affect the patients' health (Murshid& Mohaidin, 2017).
6. **Continuing Medical Education (Scientific Promotional Tool):** Scientific activities done by pharmaceutical companies involving physician like cooperation for conducting clinical trials of medicines, organization of free disease detection camps inviting physician as speakers in education activities (Blackstone et al., 2014).
7. **Honoraria (Monetary Incentives):** Payments to physicians from pharmaceutical companies for marketing-related activities can be a significant addition to their overall income and that have a significant effect on physicians' prescribing behavior.

2.2 Literatures Review

2.2.1 Introduction

This chapter presents the review of existing literatures in the area of the effect of pharmaceutical marketing on physician prescribing behavior in order to acquaint readers with better understanding of the subject matter.

2.2.2 Marketing

Marketing is the most commonly used tool to increase market share, it is a form of communication between the company and the customers to sell its products or services to them (Kireev et al., 2016). According to the (American Marketing Association, 2021), "marketing is the activity, set of institutions, and processes for creating, communicating, delivering, and exchanging offerings that have value for customers, clients, partners, and society at large". Kotler, (2009) defines marketing as "the science and art of exploring, creating and delivering value to satisfy the needs of a target market at a profit. Marketing identifies unfulfilled needs and desires. It defines; measures and quantifies the size of the identified market and the profit potential. It pinpoints which segments the company is capable of serving best and it designs and promotes the appropriate products and services". Therefore marketing is a process by which you can identify the needs and requirements of the public, then make a product/service to meet their needs, create a method to bring product/service to the market place (Appiah-kubi et al., 2011).

2.2.3 Pharmaceutical Marketing

2.2.3.1 The Concept of Pharmaceutical Marketing

Pharmaceutical marketing is a management process that identifies and meets the needs of patients in a profitable way (Sismondo & Chloubova, 2016) It includes advertising, personal selling, public relations and, sales promotion as well as web communications. This mix will help to ensure three aims: (1) to provide information, (2) to motivate, and (3) to remind (Sherlock, 2010). According to (Pokharel, 2017) it can be defined as the business of promoting or otherwise supporting the sale of pharmaceuticals or medicines. Pharmaceutical marketing business depends on sales and promotion that are branches of marketing (Appiah-kubi et al., 2011). WHO, (1988) defines the promotion of pharmaceuticals as, "all informational and persuasive activities by manufacturers and distributors, the effect of which is to induce the prescription, supply, purchase and/ or use of medicinal drugs. IFPMA, (2012) defines promotion as "any activity undertaken, organized or sponsored by a member company (pharmaceutical company member of IFPMA which is directed at healthcare professionals to promote the prescription, recommendation, supply, administration or consumption of its pharmaceutical products through all media, including the internet". The pharmaceutical marketing mix was first introduced by Borden in 1964. Traditionally, marketing strategies have been built on the

basic four Ps; product, price, place, and promotion (Ding& Eliashberg, 2016). The 4Ps are linked to each other to create a prescription order by physicians and make the medicine reaches the patient (Ahmed et al., 2014). This allow the pharmaceutical company to reach the required level of sales in the target market (Armstrong et al., 2017). Pharmaceutical marketing is unique, given the fact that marketing strategies employed in the pharmaceutical industry differ from those used in other types of industries (Kim & King, 2009). The physician is the decision-maker, who writes the prescription that determines the drug (brands) that will be purchased by the patient, so the marketing strategies are mainly directed toward physicians (Biswas & Ferdousy, 2016; Ghaith et al., 2013). It was estimated that 84% of pharmaceutical marketing efforts are mainly designed to influence the decisions of physicians (Al-areefi et al., 2013). Thus affecting the physician is a key to increase pharmaceutical sales and profit. Pharmaceutical companies attempt to change the prescription behavior of physicians in preference of their brands (Negash & Adamu, 2010). By employing an exceptional mix of marketing tools such as visits by PMRs, gifts, free medical samples, sponsorships, and other promotion tools, which clearly impact physicians prescribing behavior (Muktak & Ashwani, 2019).

2.2.3.2 Goals of Pharmaceutical Marketing

The main goal of pharmaceutical marketing is pharmaceutical care that is required for patients as well as safe and rational drug usage. The pharmaceutical marketing act to provide the latest and accurate information available regarding prescription medicines to health care professionals. The content of the information notifies health care professionals about the benefits and risks of these products. Timely access to this information helps support effective patient care, appropriate care decisions and can lead to better health outcomes (Katsanis, 2017). Furthermore, pharmaceutical marketing aims at increasing brand awareness, expanding the market and influencing market share (Bala, 2010), increasing sales and profits for manufacturers and wholesalers (Rubin, 2004). Lack of medicine marketing translates to the loss of sales and fewer profits which leads to a decrease in funds for (R&D) and eventually retard drug discovery and development (Jacob, 2018).

2.2.3.3 Stages of Pharmaceutical Marketing

According to marketing planning for the pharmaceutical products by (Lidstone & MacLennan, 2017), the goal of pharmaceutical marketing is to change a pharmaceutical product from a non-usage to usage or repeated usage. There are diverse buying stages of

healthcare professionals in which the pharmaceutical firms have to make their product well-known, so-called drug adoption ladder, as illustrated in Figure 2.2 below:

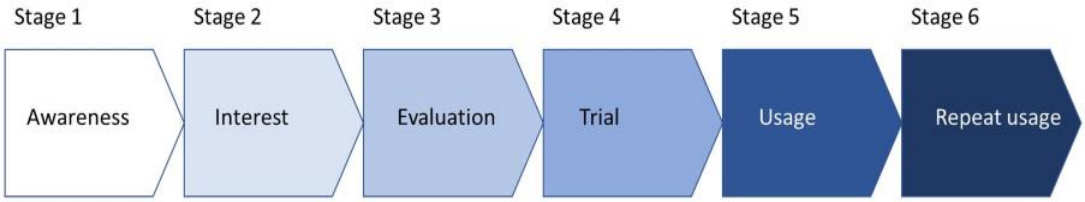


Figure 2.2: Drug Adoption Ladder Diagram

Stage one: Unawareness to awareness

During this stage, the medicinal drug moves from no knowledge towards a situation where the healthcare professional the new product.

Stage two: Awareness to interest:

Here the healthcare professional will have his curiosity motivated by the products' novelty, appearance, or concept. The marketing goals in this stage are to gain their attention and to create interest towards the drug through promotion and provide summary information of the new drug.

Stage three: Interest to evaluation

At this stage, the healthcare professional will analyze, rationalize, and look for advantages with the new product depending on what he needs, such as improved efficacy, more economy, the uniqueness of the drug and safety.

Stage four: Evaluation to trial

At this stage, the healthcare professional is still considering the product to actually use it.

Stage five: Trial to usage

Under this stage, the professional will move to usage in prescribing the new drug to patients.

Stage six: Usage to Repeat Usage

This is the final objective for marketing, when a healthcare professional moves from the occasional use to constant use, they move into a stage of automatically selecting the particular prescription drug.

2.2.3.4 Spending on Pharmaceutical Marketing

The pharmaceutical industry invests heavily and applies a great proportion of its resources in marketing and advertising activities (Petryna et al., 2006). On average, they spent 20%-

40% of their sales on marketing (DeLaat et al., 2002). In 2018, a report introduced by the National Academy of Medicine estimated spending for the 12 largest pharmaceutical companies about 75 billion US$ for research and development, while above 120 billion US$ for marketing (The National academies press, 2018). Pharmaceutical companies spend on marketing more than on drug research and development as they employ strategies to maximize sales and so profit (Murshid et al., 2016). Physicians are the target for most of this money through PMRs (Joyce et al., 2011). More than 85% of pharmaceutical marketing expenditures are directed at affecting physicians as the key prescribing decision-maker (PEW, 2013).

The three major categories of marketing to physicians are face-to-face promotional activities paying for CME events for physicians such as conferences, and free medical samples for physicians to distribute to patients (Carey et al., 2020). According to the US Sunshine Act, in 2014 and 2015, companies provided US$2 billion in payments to individual US doctors per year and another $600 million to teaching hospitals (Tigas & Ornstein, 2016).

2.2.3.5 Techniques and Tools for Pharmaceutical Marketing and Promotion

The advertisement and marketing of new medicines by pharmaceutical companies have become a frequent and expected part of most of the physician's life (Brown, 2017). The pharmaceutical company employs numerous methods for marketing its medicines. Different promotional methods satisfy different needs and different target populations. The task of drug promotion is a well-funded and essential objective for the pharmaceutical company (Jacob, 2018). To understand this basic component of the pharmaceutical industry, it is essential we look at each of the promotional techniques in detail.

2.2.3.5.1 Pharmaceutical Medical Representatives and Detailing

Instead of using traditional sales strategies, pharmaceutical companies follow relationship-based selling, this technique emphasizes building lasting relationships with physicians. Face-to-face contact between physicians and the pharmaceutical medical representative (PMR) is one of the most effective techniques used for developing relationships that influence prescribing behavior, this method is commonly referred to in the pharmaceutical industry as 'detailing'(Shankar, 2017). PMR -previously known as detail man and lately as detail person or drug sales representative is a pharmaceutical company employee responsible for providing information on the use of the company–sponsored medicines to physicians (Abdi et al., 2018). PMR could considered as a drug expert, whom physicians

could depend on as a source of drug information (O'Connor, 2014). In fact, PMRs are well trained to assess physicians' personality needs and preferences, using this information to influence opinions about both the PMRs and the medicines they promote (Fugh-Berman & Homedes, ,2018). They have highly trained in persuasion and influencing skills and their interactions with physicians take place in both formal and informal settings (Shankar, 2017). PMRs use friendship, gifts, and services to establish relationships with physicians that lead to increase prescription of targeted medicines (Fugh-Berman & Homedes, ,2018). Direct marketing of drugs by employing PMRs and physician detailing remains the major tool of pharmaceutical marketing communication (Katsanis, 2017). The US pharmaceutical industry spent in 2015 an estimated 20.4 billion US$ dollars for direct marketing and detailing (Jacob, 2018). PMRs interactions are a regular event in the daily lives of physicians across the world (Fickweiler, Fickweiler &Urbach, 2017). Pharmaceutical companies maintain regular communication with physicians using regular visits from PMR. Reports have revealed that majority of physicians (about 90%) received, at least, one visit from PMRs per week (Lotfi et al., 2016). In Yemen, the the majority of physicians are visited by PMRs 2–3 times per week (Al-areefi et al., 2013). A previous study in Germany that sampled different groups of physicians in 2010 showed that 19% of physicians were visited daily, 77% of them see PMR at least once a week and accept gifts provided by them (Lieb & Brandtönies, 2010). However, these interactions are pervasive, exposure begins during the academic period, continues during residency training, and persists throughout physicians' careers. This can be attributed in part to the massive investment by the pharmaceutical industry in marketing (Gereffi, 2017).

The PMR- physicians meeting typically takes place wherever the PMR can find the physician and have the time to discuss the medication, this may occur in a physician's office, in an office corridor, parking lot, or hospital cafeteria (Katsanis, 2017).

Pharmaceutical companies employ many PMR as one of the most effective methods of informing physicians about their products and increasing profits. In developing countries, it was estimated that there is one PMR per five physicians (Oshikoya et al., 2011) and they are considered as a source of information regarding new prescription drugs (Al-areefi et al., 2013). The PMR is responsible for updating the physicians' knowledge about the latest drug promoted by the company (Jacob, 2018). Personal selling activities and detailing allow PMR to provide "details" of approved scientific information, to discuss benefits, side effects, or adverse events and clinical studies of the drugs (Pharma Marketing Network,

2021; Ching & Ishihara, 2015). Also, they act as a support team in answering physicians' queries (Alowi & Kani, 2018).

2.2.3.5.2 Promotional Printed Material

Promotional printed materials is one of the most common promotional item distributed by PMRs particularly in developing countries (Alssageer & Kowalski, 2013). These including brochures, journals advertisement, flayers, pamphlets, leaflets, posters, booklets, manuals (Ammar, 2015). The PMRs commonly depend on printed materials to increase awareness and knowledge about their drugs and to affect physicians' attitudes and behavior. Printed materials are important tools that offer written support of any verbal message provided by PMRs during their promotional visits. They are quite low-cost compared with other promotional tools and are an enduring product that allows health care providers to review the content at a suitable time (Alssageer & Kowalski, 2013).

2.2.3.5.3 Free Medical Sample

Another responsibility of the PMRs is gifting free samples of medicines to the physicians. Traditionally, the majority of these samples are physically delivered either during detailing visits or on sample- only visits (Ding&Eliashberg, 2016). The Free medical sample is a package containing a limited quantity of a pharmaceutical product that should be suitable to evaluate the clinical response, given physicians free of charge, for patient treatment (Albarq & Suleiman, 2021). According to the Prescription Drug Marketing Act of 1987, the term "drug sample" means a unit of a drug, which is not intended to be sold and is intended to promote the sale of the drug (Pharma marketing network, 2021). Many physicians believe that free samples can help uninsured and poor patients, and they prescribe the sampled drug commonly to get the goodwill of their patients “happy to go home with free samples” (Joseph & Mantrala, 2009).

According to Kotler&Armstrong (2009) “Sampling is the most effective but most expensive way to introduce a new product or to create new excitement for an existing one”. The pharmaceutical companies give the free medical samples for several reasons: to compete with other branded drugs, to give information about a new product, to establish the efficacy of a new drug, to inform new physicians with the drug, to enhance the image of a drug, and to make the drug more familiar (Ahmed et al., 2018). Samples act as "starter" medications an incentive to prescribe new, heavily promoted, and usually more expensive medications. Once treatment has been initiated, patients continue to pay for the new, costly drugs (Pharma Marketing Network, 2021). Furthermore, these drug samples

act as reminders to the physicians for prescribing more and more of the company's product (Jacob, 2018).

Because physicians receive visits from many PMR of many competing pharmaceutical companies, so physicians retrieve drug alternatives from memory before prescribing. Free samples offered by PMR after the physician visits might act as long-term reminders of the existence of the drug. Besides, after leaving the PMR the physician's office samples can be the only tangible reminder of the product; thus, samples can have a more lasting influence on the physician (Jacob, 2018). Samples are almost always used only for the most expensive, chronically used drugs (Fugh-Berman & Homedes, ,2018). Therefore, it has a great impact on new physicians and the less experienced to prescribe more expensive drugs even the cheaper is available (Joseph & Mantrala, 2009).

2.2.3.5.4 Gifts

The pharmaceutical industry spends a lot of money annually on gifts, during visits, besides the information provided orally by the PMRs, they usually introduce gifts. These gifts ranging from small , limited value as buying dinners or lunches when they visit, stationery or office-related gifts, or moderately priced gifts such as textbooks or meal invite, and more exclusive valuable personal gifts, such as household related gifts, event tickets, sponsored travel, electronic devices, air-conditions and vacations for families are also common incentives offered by PMRs (Alowi & Kani, 2018; Murshid et al., 2016). It should be mentioned that in pharmaceutical marketing practice high monetary value such as travel tickets and vacation trips are less common than inexpensive ones as pens, notepads and, coffee mugs. Also, materials for patient care and gifts unrelated to medical practice are of the most common pharmaceutical promotional gifts (Khazzaka, 2019). The goal of pharmaceutical companies by providing gifts to physicians is to improve the brand name of drugs, such regular gifts act as a powerful tool affecting physicians prescribing behavior (Handa et al., 2013).

2.2.3.5.5 Continuing Medical Education

In the fast-changing world of medicine, continuing medical education (CME) is critical for physicians. Generally, conducting a full-scale CME program regularly is expensive. Therefore, organizers seek to get assistance from pharmaceutical companies either by partial or complete sponsorship (Singh et al., 2011). There are common interests between unions, which are usually responsible for coordinating conferences, and the pharmaceutical companies: that unions need to gain valuable funding from the pharmaceutical companies

for their meetings and other activities, while, for companies, unique opportunities are provided to display its goods. Furthermore, choices of speakers and topics at meetings may have important implications for pharmaceutical companies, that people impressions significantly altered by it (Alosaimi, et al. 2014). More than half of all professional conferences and CME courses receive financial support from pharmaceutical companies (Nissen, 2015).

Various events could be sponsored by the pharmaceutical industry. These including scientific meetings such as CME, congress, patient case presentations conferences, seminars, or lunches with talks within medical schools, hospitals, clinics, and other practice settings (Alosaimi, et al. 2014). This support can occur in numerous ways, including grants for programs on specific topics, meals and, speaker payments (Singh et al., 2011). Moreover, scientific activities done by pharmaceutical companies involving physicians' cooperation for conducting clinical trials of medicines, organization of free disease detection camps, and inviting physicians as speakers in education activities (Blackstone et al., 2014). In these events, the content of the CME presentation positively highlights the sponsor company marketing messages, sponsors have a major opinion in the choice of topics to be discussed and speakers to be invited. Organizers choose a qualified speaker who has a positive attitude towards the sponsoring company offerings (Steinman et al., 2007). Companies may suggest only 1 or 2 participants as speakers, despite the money paid for speakers in these events is considered unrestricted, it is agreed that the sponsoring company selects some speakers. Physicians who are paid for speaking may not feel compromised because they are saying what they believe. However, speakers are chosen and supported as long as they are saying what aligns with a product's marketing messages. A physician with views that doubts about a product's efficacy or express concerns about its risks, or fervor for a competing drug will not be invited for further speaking opportunities (Fugh-Berman & Homedes, ,2018). In such scenarios, financial dependency can influence even the best-intentioned CME providers, and biased knowledge cannot be excluded (Steinman et al., 2007).

2.2.3.5.6 Honoraria (Monetary Incentives)

The PMR may bear moneymaking opportunities to influence physicians. These include, for example, inviting a physician to give a dinner talk to a small group at an excellent restaurant. For the PMR, this is a good chance to pay the speaker, who then responds by prescribing more of the company drugs. Another example is to invite physicians to

evaluate a marketing operation or evaluate the sales skills of PMR. The physician's opinions are not really important to the company, but this strategy is to pay the physician (Fugh-berman & Homedes, 2018). In all of these cases, PMR have found a justification to pay a physician without it appearing like a bribe, as Michael Oldani, an anthropologist and former PMR, states, "The essence of pharmaceutical gifting is 'bribes that aren't considered bribes' (Erwin et al., 2018).

A new method done by the pharmaceutical companies in their promotional activities is offering physician cash commissions for prescribing a specific drug, particularly while new discovered drugs are introduced to the market in which clinical studies need to approve effectiveness, advantages and safety are usually funded by pharmaceutical companies (Khazzaka, 2019).

2.2.4 Abuse of Marketing Techniques in Pharmaceuticals

The pharmaceutical industry has great achievements in treating diseases, avoiding suffering, and participating in the well-being of people. Despite these achievements as well as the clear benefits for physicians and their patients derived from the PMRs, the role of pharmaceutical marketing is one of the most debated ethical issues which has been surrounded by great controversy (Kremer et al., 2008; Gasparini et al., 2020). The appropriateness of marketing relationships between physicians and the pharmaceutical industry has been debated since the 1960s (Alowi & Kani, 2018). It has recently been the focus of attention from an ethical point of view (Zaki, 2014). Agreements between physicians and the pharmaceutical industry have become progressively widespread in the last years, alarms have been increased that marketing activities of the pharmaceutical industry may conflict with physicians' independency and professional integrity (Gasparini et al., 2020).

Companies try to make direct payments to the physicians by using numerous indirect ways i.e., national and international conferences, symposia sponsorships, free medical samples, and foreign trips (Ammar, 2015). In all of these cases, PMR has found a justification to pay a physician without it appearing like a bribe (Erwin et al., 2018). Pharmaceutical companies also invite opinion leaders as speakers in sponsored lectures among the health care professionals (Sismondo & Chloubova, 2016).

In these lectures, they use presentations provided by the sponsoring company, graphs are treated by changing the scales to show significant improvements where none exist, figures are manipulated to give a misleading message about the drug effect. Companies offer

everything from free lunches, golf games, tickets for theatre festivals, or dinner cruises. The most a guest has to do in such cases is to sit through a half-hour presentation of a company's drugs (Adibe et al., 2015).

2.2.5 Regulations and Codes of Conduct to Control Pharmaceutical Marketing

Physicians as health care providers have to be committed to higher standards of ethics and professionalism. Therefore, the highest priority of a physician's job has to be what is best for his patients, but not to maximize his profit. On the other hand, pharmaceutical companies also have to participate professionally in the healthcare provided to patients. This can be achieved by introducing new drugs of high quality in accordance with high internationally defined standards, as well as following high ethical standards in their marketing practice (IFPMA, 2012). The WHO Ethical Criteria for Medicinal Drug Promotion, issued in 1988, remain the global standard for drug promotion with an obvious aim to support the rational use of drugs, according to (WHO, 1988). Ethical criteria for medicinal drug promotion drug marketing practices have to be reliable, correct, truthful, and not misleading. Unfortunately, both physicians and pharmaceutical companies are involved in illegal and unethical practices (Al-Hamdi et al., 2012).

Because of the fears that pharmaceutical promotion might encourage physicians to prescribe inappropriate or unnecessarily expensive medicine, many professional organizations have called for strict control on promotional activities includes guidelines for physicians, on the relationship between the medical profession and the pharmaceutical industry (Spurling et al., 2010). In fact, the World Health Organization (WHO) raised serious concerns regarding the possibility that pharmaceutical companies might have an unwarranted influence on the physician prescribing behavior using unethical promotion activities (Adibe et al., 2015; Al Zahrani, 2014).

2.2.5.1 Pharmaceutical Marketing in the GS

Data related to the situation of pharmaceutical marketing as well as spending of pharmaceutical companies on marketing practices in the GS are very limited. According to Ammar, (2015), there is an active interaction between PMRs and physicians particularly those working at MoH hospitals. This was clear from physician’s positive attitude toward these practices as well as their dependence on PMRs as a trustful source of drug information. These active interactions can be attributed to different factors including a large number of registered products as well as the competing companies who share a small market, the poor financial situation, and the low physician’s income that encourages

physicians to participate in such interactions. Also, the lack of effective regulation covering physicians – PMRs interactions contributes to the free and unrestricted access of PMRs to MoH facilities and abuse of some of these marketing tools.

2.2.5.2 Palestinian Regulations and Codes of Conduct to Control Pharmaceutical Marketing

In many developing countries there is no appropriate law nor codes of conduct to control pharmaceutical promotion (Alssageer & Kowalski, 2013), or on the other hand, there is a poor or no power to implement the existing regulation and to monitor the interaction between physicians and pharmaceutical companies (Al-Hamdi et al., 2012).

Palestine case is similar to that of many developing countries. The drug regulatory system in the GS is partially developed and thus operate weakly, facing many difficult problems including the lack of clear and comprehensive regulations and procedures to control the promotion and advertising. Second, weak rule of law and inefficient management system that fails to undertake enforcement action to implement regulations in an efficient way (Musallam, 2015). Therefore, in the GS, there are no full legal provisions to control the promotion and advertising of neither prescription nor non-prescription medicines (Abu Mhadi, 2013).

2.2.6 Physician Prescribing Behavior

2.2.6.1 Pharmaceuticals as an Instrument of Public Health

Medicines are specialized consumers' products that can save lives, relieve symptoms, improve health, reduce suffering and enhance the quality of life (Alves et al., 2018). They constitute a significant and increasing share of health expenditures globally (Fidler& Msisha, 2008). However, they are substances with safety consequences, and any decision to use a drug involves weighing possible benefits against potential risks (Alves et al., 2018; Shankar, 2017). According to WHO estimates; ten million lives could be saved every year by the improvement in access to essential medicines and vaccines(WHO, 2004). Therefore, drugs have a vital role in the provision of many health services and must be available to the peoples of every country(WHO, 2010). Furthermore, access to essential medicines is increasingly being considered an essential human right (Hogerzeil, 2006). However, for drugs to do so, it has to be safe, effective, available, affordable and rationally used (Chauhan et al., 2018).

2.2.6.2 The Concept of Physician Prescribing Behavior

Prescribing the right drug for the right patient is the most significant role of a physician (Hossain et al., 2013). Prescribing drugs is very a complex process of most physicians' practices (Al-areefi et al., 2013). It is an important area of practice that needs appropriate knowledge regarding medicines, and understanding of the principles of clinical pharmacology, diagnostic skills, and professional judgment of risk and uncertainty as well as communication skills (Lakhawat et al., 2016; Maxwell, 2016). Prescribers are usually faced with more than one choice of therapy, including non-pharmacological treatment. Rational prescribers have a consistent sequence from diagnosis to follow-up that aims to: maximize clinical effectiveness, minimize harms, avoid wasting limited healthcare resources, and respect patient choice (Maxwell, 2016).

2.2.6.3 Factors That Influence Physicians' Prescribing Decisions

Prescribing decision-making is a complicated phenomenon influenced by many interacting pharmacological and non-pharmacological variables that influence a physician's ultimate selection of a drug. These factors include disease type, severity, medicine characteristics, availability, the patient's context, prescriber characteristics, drug information availability, health facilities context, payment type, and pharmaceutical promotion (Sharifnia et al., 2018).

2.2.6.3.1 Drug Factors

Drug-related factors, such as active ingredients, it's safety, efficacy, bioavailability, dosing, range of dosage forms, available of the drug, presence of side effects, drug abuse potential, availability of the drug in community pharmacies, cost of the drug for the patient, and confidence in manufacturer which have a significant and positive effect on physicians' prescription behavior (Sharifnia et al., 2018).

Drug Clinical Effectiveness and Safety

Drug safety and clinical effectiveness are important factors usually considered when prescribing to achieve the goal of therapy and enhance patient compliance. Previous physician experience with drugs and its past clinical success has a great influence in altering prescribing decisions (Al-areefi et al., 2013; Davari et al., 2018). (Abolfazli et al., (2017) from their survey confirmed that the clinical effectiveness of a drug one of the most significant factors affecting physicians' prescribing behavior.

Moreover, drugs with low efficacy, bioavailability, and pharmacokinetic characteristics will lose the chance of being known and prescribed and excluded from the competitive market (Sharifnia et al., 2018).

Drug Price

While physicians are intensely provided with promotional information about the medicines' availability and efficacy, the price of the drug is not covered by the information provided by PMRs (Magno-Gatmaytan, 2013). Therefore, physicians receive little information about drug prices and may not have any incentive to prescribe cheaper medicines (Carey et al., 2020). A study done by Yuniarti et al., (2019) shows that physicians' priority in drug selection is efficacy and the patient conditions but not price.

However, physicians' awareness of drug price has been shown to play a significant role in their drug-selection decisions (Tušek-Bunc et al., 2010). Physicians may use price as a sign of quality as specialists believe that a more expensive drug is better than a cheaper one, then they prescribe the more expensive drug on the belief of higher efficacy (Niteesh et al., 2015).

However, the drug price must be taken into account when prescribing to make therapy affordable. The high price of prescriptions may go unfilled or may be used less frequently than directed, resulting in compromised patient health. Therefore, cost-effective prescribing fosters better medication compliance and ultimately improves health outcomes (Niteesh et al., 2015). In general, physicians predisposed to follow cost-effective drugs felt that the drug cost was important, and most were willing to sacrifice some degree of drug efficacy to make treatment more affordable (Yuniarti et al., 2019). Moreover, physicians' drug selection is also affected by the availability of insurance. Therefore, physicians prescribe cheaper drugs when they treat patients without insurance coverage, but when these physicians treat patients with insurance coverage, they prescribe expensive and branded drugs (López-Valcárcel et al., 2011).

2.2.6.3.2 Patient Factors

Aside from marketing factors, physicians select the medicine based on different patient-related factors including inherent characteristics such as age, gender, race, the patients' clinical condition, treatment history, comorbidity, financial situation, ability to purchase, and patient's compliance (Davari et al., 2018; Al-areefi et al., 2013). Patients have an important influence on physician prescribing behavior (Davari et al., 2018; Maxwell, 2016). Their opinions and expectations affect the objectives of treatment and aid in judging

the acceptable benefit-risk balance when selecting therapy. They play an important role in monitoring treatment, giving early warning of adverse events. Patients are in contact with prescribers for many reasons as drug selection, goals, duration of treatment, compliance, and potential adverse effects (Maxwell, 2016).

According to literature, several factors associated with patients were identified to affect physician prescribing behavior including patients' need for the drug, the socio-demographic characters, knowledge of patient about drugs, their likely adherence to treatment, their ability to pay, their expectation and request to a particular drug (Mohammadzadeh et al., 2018).

The patients knowledge regarding drugs make them requesting for a specific drug and alters their expectations (Choi et al., 2012; Hoffman et al., 2003). Evidence suggested that patients who expect prescription are more likely to have it (Dohnhammar et al., 2016). Patient's pressure on physicians may lead to prescribing new drugs, unnecessary prescribing, and referral (Little et al., 2004). Mintzes et al., (2002) conclude that in 40% of cases a drug was prescribed at a patient's request, physicians were hesitant about the choice of drug. Medications may also be prescribed based on physicians' perceptions of patient expectation without patient request, and physicians prescribe not to risk their relationship with patients (Dohnhammar et al., 2016).

2.2.6.3.3 Physician Factors

The physicians' characteristics which include the clinical experience, specialty, and continuous professional education was the most frequently mentioned physician -related factor that affects physician prescribing behavior (Davari et al., 2018).

Physician Experience

According to the literature, physician clinical experience and familiarity with the condition being treated is an important factor that can influence prescribing decisions (Al-areefi et al., 2013; Niteesh et al., 2015). Physician experience can be divided into two classes; the first is primary training and education, including medical school, residency, and achievable fellowship. Second, include ongoing, things he experienced and gained through his job, including outcomes and adverse effects, and patient feedback (Niwandinda et al, 2020). Therefore, with increased clinical experience and years of service, the physician is exposed to a larger number of drugs with diverse patient outcomes (Davari et al., 2018). This may lead to a personal, informal drug list, which may conflict with treatment guidelines (Muijrers et al., 2005). Specialist physicians are expected to have a higher influence on

prescribing decisions, particularly, in new medicine prescribing, as most of the general practitioners (GPs) are reliant on what was prescribed by specialists (Pohontsch et al., 2017).

The Use of Technology

Just as the Internet has opened up medical knowledge for consumers, technological innovations have the power to improve the way physicians may research and prescribe drugs. The roles of new technologies in affecting the prescribing patterns of physicians can be great, that a significant study explained that the technology decreased the number of irrational prescriptions (Niwandinda et al, 2020).

Influence of Colleagues

Prescribing is not always guided by therapeutic causes (Freeman & Sweeney, 2001). In general practice, physicians' prescribing behavior is also affected by colleagues and hospital consultants (Donohue et al., 2018). Peers and hospital specialists participate in GPs awareness of new drugs. The physicians meet their peers and interact with them about their experiences (Nair et al., 2010). However, the influence of specialists on drug selection is expected to be higher than that of GPs colleagues because most of the GPs are dependent on what was said by specialists (Pohontsch et al., 2017).

According to Nair, Manchanda, & Bhatia, (2006) non-specialist physicians may depend on prominent physicians, the "opinion leaders," help to reduce the uncertainty around their prescription decision. Sorensen, (2019) reported that in treating difficult illness in which the effects of drug therapy is not well identified, physicians depend on more professional sources, particularly colleagues. In general practice, physicians sharing an office will depend on a colleague as a source of information for drugs they do not presently use, moreover attending hospital staff meetings seems to affect the adoption of new drugs positively.

2.2.6.3.4 Pharmaceutical Industry Factors

Corporate Image

Building a positive corporate image is considered an effective means that provides a unique competitive advantage from rival organizations. The success of a promising corporate image is based on effective marketing communication strategies that attract existing and new customers (Ahmed et al., 2018). The advantages of a powerful corporate

image include trust, loyalty, and scientific credibility for its R&D, as well as the making of a positive environment for introducing new products (Iglesias et al., 2020).

A significant phenomenon in prescribing is known as prescription loyalty, in which a physician continues in prescribing the same company's products. This loyalty could result from the positive experiences gained by a physician after repeated prescriptions of the company drugs (Sutiono & Purwanto, 2019). If physicians assume that the corporate image and reputation are worthy, they usually tend to prescribe its medicines based on the company's history of effective drugs (Iglesias et al., 2020).

2.2.7 Pharmaceutial Marketing

Although physicians deny the influence of promotion on their prescribing behavior, claiming that it influences other physicians (Edwards et al., 2011). In developed and developing countries, many studies have been conducted to investigate the influence of promotional tools on physician prescribing decisions (Alowi & Kani, 2018). The finding of these studies proves that promotion of medicines increases physicians' prescription of targeted medicines, and increases prescription costs (Wood et al., 2017; Perlis & Perlis, 2016; Yeh et al., 2016).

The main reason pharmaceutical companies invest in promotion is that they are proven to increase sales (Sah & Fugh- Berman, 2013). Therefore, pharmaceutical companies realize the importance of influencing physician prescription behavior by utilizing diverse promotional tools and consequently, spending more money on marketing in an attempt to maintain and maximize their market share (Alowi & Kani, 2018).

insufficient knowledge and poor education of physicians could be the main gap in the Physician -PMR relationship. Having well-trained and educated physicians could minimize changes in physicians' knowledge and practice (Almasri et al., 2020). On the other hand, the change in knowledge could be attributed to the fact that the physician has limited information about new drugs, while the information provided by drug companies was not easily available for them elsewhere. Furthermore, the inability of physicians to differentiate between promotional and scientific evidence information (Othman et al., 2010). According to Makowska, (2017) a physician who is primarily dependent on information provided by the PMR might prescribe drugs in a biased manner.

The change in physician knowledge based on the information provided by the PMR is thought to cause changes in their practice and behavior (Almasri et al., 2020). Previous studies have shown that pharmaceutical marketing influences drug prescription, more

specifically, eleven studies of different designs were reviewed by (Fadlallah et al., 2017), 15 studies by (Brax et al., 2017) and 29 studies by (Green et al., 2012), most of these studies showed negative effects of pharmaceutical marketing on physician behavior, including increased prescribing frequency, irrational prescribing of expensive drugs, lower prescribing quality and lack of accurate drug information. On the other hand, few studies showed positive effects of pharmaceutical marketing as providing suitable drug choices for treating complicated cases.

2.2.7.1 Effect of Pharmaeutial Marketing on Physicians Prescribing Behavior

2.2.7.1.1 Effect of PMR /Detailing on Physicians Prescribing Behavior

Generally, physicians' priority is their patients' health as well as the safety and quality of their drugs. However, PMR is equally important in fetching their drug prescriptions. Physicians are also human beings, they notice the visit regularity, character, and company of the PMR. As result, physicians are influenced by finely titrated doses of friendship presented from the PMR (Bhatt, 2018). Therefore, although PMR is very expensive, it remains the most useful marketing tool used by pharmaceutical companies to promote their prescription drugs (Murshid & Mohaidin, 2017).

The point, that direct marketing is effective was supported by the various studies. These studies concluded that the frequent visits made by PMRs are the most significant factor influencing physician prescribing decisions (Workneh et al., 2016; Kalaskar & Sager, 2012). Increased physician– PMR interaction, as well as exposure to information provided by PMRs, causes increased prescription rate and the number of medicines per prescription (Jacob, 2018; Spurling et al., 2010). The prescription of a medicine by a physician is thought to be highly affected by how frequently the PMRs present the drug's details to physicians. The more frequent physicians communicate with PMRs and listen to them presenting their drug's details, the more they refer their patients to pharmacotherapy, even in cases where non-drug therapy was the best choice for their patients (Lieb & Scheurich, 2014). This increase in the frequency of drug prescribing can cause other problems in medical practice, such as elevating prescribing costs and inappropriate, irrational prescribing of drugs (Wood et al., 2017; Perlis & Perlis, 2016; Yeh et al., 2016). The frequent presence of PMRs in physician clinics is one of the main reasons making them highly aware of drug companies' advertisements (Ammous et al., 2017; Green et al., 2012).

2.2.7.1.2 Effect of Free Medical Sample on Physicians Prescribing Behavior:

According to Fickweiler et al., (2017) most physicians who accepted free medical samples had a positive attitude towards the PMR, and higher branded drug prescription instead of generic prescribing. Studies also revealed that the availability of free medical samples encourage physicians to prescribe non-generic, expensive drugs that they have free samples, this leads to higher prescription cost. It also leads to prescribing habits inconsistent with practice guidelines and formulary policies (Schrier et al., 2020).

Most physicians deny the effect of free medical samples on their prescribing behavior (Schrier et al., 2020). Moreover, physicians who distribute these samples believe that they are helping their patients. However, this may be true if the problem being treated is an acute disease, but for a chronic disease the benefit is short-term and after finishing the samples dispensed the patient is obliged to buy the medication for long-term use (Schrier et al., 2020).

2.2.7.1.3 Effect of Gifts on Physicians Prescribing Behavior:

Gifts provided to physicians from pharmaceutical companies still one of the most effective tools that could lead to a conflict of interest and negatively impact physicians prescribing, thus ultimately affect patient health (Wood et al., 2017). This problem is common where the regulation of pharmaceutical marketing is weak as in developing countries (Mohiuddin et al., 2015).

While most physicians considered themselves immune to be affected by gifts (Fickweiler et al., 2017), the PMRs present gifts to influence physicians prescribing behavior. Gifts do not need to be valuable to have a powerful effect on human relationships. Meals, pens, notepads, coffee mugs, and other small gifts create a subconscious commitment to reciprocate. In the physician– PMR relationship, physicians reciprocate not by providing gifts but through changes in prescribing practice (Sah & Fugh- Berman, 2013; Fugh-Berman & Homedes, 2018). In their study, Wood et al., (2017) found that physicians who received gifts with a value less than $500 a year prescribed more expensive medicines than physicians who received no gifts. More expensive gifts had a greater effect in a direct-related fashion (Fugh-berman & Homedes, 2018). In an investigation that studied the effect of gifts on prescribing behavior for 150,323 physicians, it was found that physicians who received any gifts from pharmaceutical companies prescribed a higher percentage of branded drugs than physicians who received no gifts (Ornstein et al., 2016). When

compared with physicians who received no payments, even a few meals increased branded-drug prescribing (Fugh-berman & Homedes, 2018).

2.2.7.1.4 Effect of Continuing Medical Education on Physicians prescribing Behavior

The impact of pharmaceutical companies sponsored CME programs have been studied and results showed that the physicians prescribing behavior was affected after these programs. Previous studies revealed that attending company-sponsored CME and educational symposia was associated with increased prescription rates of drugs from the sponsoring companies without sufficient evidence supporting the superiority of those medications (Fickweiler et al., 2017; Wazana, 2015). Moreover, Physicians who've attended company-sponsored CME programs had a more positive attitude toward brand medicines prescribing. On the other hand, physicians who's attended sponsored CME events were seen to prescribe a higher proportion of brands and higher costs medicines when compared with physicians who refused such CME programs (Fickweiler et al., 2017). Prescriptions of one drug increased many times after the symposium, also usage of the other drug changed to increased nearly double times after the symposium (Robertson et al., 2013). Besides, the majority of physicians attending sponsored symposia failed to identify incorrect information about the company drug (Fickweiler et al., 2017). Previous research indicates significant levels of persistence in drug choice, the non-persistent physicians are responsive to promotion detailing and symposium meetings, whereas persistent physicians seem to be responsive only to symposium meetings (Murshid, 2016). According to Fickweiler et al., (2017) a significant increase in the prescribing rate of two company products was noticed after the physicians attended a company-sponsored symposium with all their expenses covered.

2.2.7.1.5 Effect of Honoraria (Monetary incentives) on Physicians Prescribing Behavior

Paid to physicians increase the number of prescriptions including the drug for which they received payment and increase the total amount of expenditures on that drug (Carey et al., 2020). A physician who accepts funding is up to ten times more likely to prescribe the sponsored medications after such fund than before and nearly eight times more likely to prescribe such drug than a physician who does not (Anand, 2011). Furthermore, physicians who received money requested formulary addition of the company's drug more often than other physicians did (Fickweiler et al., 2017).

2.2.8 Sources of Drug Information

Prescribing is a complicated responsibility of physicians that requires an informed decision about the drug of choice for the management of a certain patient. Thus, up-to-date, high-quality information is an influential tool for better prescribing decisions and so optimal healthcare outcomes. The pharmacological basis of drug prescription and clinical decision-making requires evidence-based medicine information resources (Al-areefi, 2013). Physicians mostly use a diversity of drug information sources (Oshikoya et al., 2011). According to literature, these sources included pharmacists, physician colleagues, the internet, the British national formulary (BNF), journal articles, pharmaceutical manufacturers' literature, medical representatives, symposia/conferences, medical textbooks, drug information centers, CME, sponsored meetings, and national standard treatment guidelines (Lua et al., 2011; Oshikoya et al., 2011; Othman et al., 2009). Physicians had significantly different opinions and beliefs toward drug information sources concerning the factors of past use, ease of use, emotional response to using, quality of information on adverse effects drug efficacy, colleagues' opinions, degree of convenience, availability, and intention to use (Tefera et al, 2019, Lua et al, 2011). In every case, physicians indicate that professional journals and texts are the most frequently consulted source of drug information (Workneh et al., 2016; Kamuhabwa & Kisoma, 2015; Zahrani, 2014; Alemayehu, 2011). In fact, professional journals and textbooks are the ideal sources for drug information. Generally, textbooks are the most preferred source of drug information for physicians; which is easily accessible to them in their offices. Also, the reliability, comprehensiveness of drug information as well as the ease of access to these information in medical textbooks were also important advantages (Lua et al, 2011). The importance of professional journals was highly regarded by a large group of participants due to their perceived greater credibility. These journals contain well-researched scientific articles. Therefore, can be considered as a trustworthy source of information for physicians when prescribing (Kamuhabwa & Kisoma, 2015). Although medical textbooks and scientific literature have a great theoretical significance, colleagues, clinical meetings, and PMRs are the main sources of drug information used to prescribe new drugs (Alakeel et al., 2020; Kier & Goldwire, 2018). However, the use of the internet is certainly increasing as a source of information (Alakeel et al., 2020; Almazrou et al., 2019; Hailemeske et al, 2016). The establishment of the internet has greatly influenced both the availability of publications and information retrieval practices (Ibrahim & Bélanger, 2015). Recently, it is

clear that there has been a great move towards an active use of various digital resources and electronic databases as a source of drug information. This is especially true for younger physicians and specialists who favor the internet and advances in technology rather than journals and textbooks (Alakeel et al., 2020). Technological innovations have the power to improve the way physicians may research and prescribe drugs (Niwandinda et al., 2020). The roles of new technologies in affecting the prescribing patterns of physicians can be great, that a significant study explained that the technology decreased the number of irrational prescriptions (Niwandinda et al., 2020).

Moreover, easy, rapid, and low-cost access, in addition to updated contents, regardless of accuracy, make the internet the most popular drug information source (Alakeel et al., 2020). Therefore, it is necessary to consider increasing access to computers and internet connectivity in health facilities (Tahamtan et al., 2015).

2.2.8.1 Classification of Drug Sources of Information

Literature classified sources of information into two main categories; professional sources and commercial sources. Commercial sources including those which are marketer controlled as journal advertising, direct mail, and detailing. The professional sources included professional journal articles, medical textbooks, meetings, conventions, pharmacists, and physician colleagues (Anandabaskar, 2019).

2.2.8.2 Availability and Access to up-to-date Drug Information

Availability and access to up-to-date drug information sources is a real challenge that physicians may face. Physicians depend on textbooks, journals, and electronic databases to find medical knowledge. In developing countries, PMR are a key source of drug information (Carmen et al., 2017).

Limited access to current medical information can be attributed to the high cost of accessing up-to-date information from journal publications and most recent textbooks, lack of time to consult standard pharmacology textbooks, and the lack of a reliable internet connection (Kier & Goldwire, 2018).

2.2.8.3 Marketing as a Source of Information

Precise, up-to-date information about drugs is critical for high-quality health care providers as physicians, pharmacists, and nurse practitioners (Carmen et al., 2017). Introduction of new medicine to the market usually occurs proactively by wide drug promotion; this including visits by a PMR and detailing. Generally, physicians favoring professional drug information sources (Workneh et al., 2016; Kamuhabwa & Kisoma, 2015; Zahrani, 2014; Alemayehu, 2011; Lua et al., 2011). Notwithstanding what mentioned above, the literature

reports that PMRs are the primary source of drug information -especially regarding new drugs- for physicians and pharmacists in developing countries (Ibrahim & Bélanger, 2015; Al-Areefi et al., 2013; Alssageer & Kowalski, 2013; Murshid&Mohaidin, 2017; Carmen et al., 2017). In many developing countries, the majority of medical professionals have limited access to reliable information (Tahamtan et al., 2015).

Despite questioning the quality and trustworthiness of the information provided by PMRs, researchers suggest that physicians depend heavily on commercial sources of information for different causes including that commercial information sources is quick, require less effort, are easily available, up to date, and useful (Alssageer & Kowalski, 2013). Due to time pressures, physicians may rely on PMR as a quick way to obtain current medicines information in specific therapeutic areas rather than reading journal articles, conducting internet searches, or consulting with colleagues (Shankar, 2017; Katsanis, 2017). In fact, information from commercial sources was received more frequently than information from professional sources. Pharmaceutical companies claim that drug promotion is a vital way to provide physicians with the information they need about the drug, as well as information concerning the differences between competing medicines available in the market. (Handa et al., 2013). Many, but not all physicians think PMR a valuable source of new drug knowledge (Carmen et al., 2017). According to literature, in the US about 85 % of physicians receive their first information when prescribing a new drug from PMRs (Chalkley, 2009). Due to time pressures, physicians may rely on PMR as a quick way to obtain current medicines information in specific therapeutic areas rather than reading journal articles, conducting internet searches, or consulting with colleagues (Shankar, 2017; Katsanis, 2017). This is of important concern because the information provided by PMR has been found to be incomplete, inaccurate, or biased towards the benefits of the products being marketed. Furthermore, it has been shown that PMR underestimates or omits adverse drug effects even serious ones (Mintz et al., 2013; Carmen et al., 2017).So such biased information may compromise the integrity of Physicians (Lotfi et al., 2016).

Physicians believe they can extract unbiased information from information provided by PMR, studies show that physicians cannot distinguish between scientific and promotional information provided by PMR (Carmen et al., 2017). A review of 58 studies found that exposure to pharmaceutical marketing information did not improve physician prescribing, but it was associated with higher prescribing frequency, higher costs, or lower prescribing quality (Fickweiler et al., 2017).

Chapter 3

Methodology

This chapter presents the study methodology. It includes study design, study population, sampling, study instrument, data collection, and statistical analysis.

3.1 Study Design

The design of this study was a mixed approach that utilizes quantitative and qualitative data. The researcher collected quantitative data from physicians of the selected organizations through well-structured questionnaire. The qualitative data was collected through focus groups and in-depth interviews with physicians, pharmacists, pharmaceutical companies. Using triangulation method can enhanced the integration of qualitative and quantitative data helped researchers to clarify their theoretical suggestions and the basis of their results. This can present a better understanding of the links between theory and our findings (Östlund et al., 2011).

3.2 Study Setting

The study performed at public and private healthcare facilities in the GS, including the main MoH hospitals (Al-Shifa Hospital, Nasser Hospital, European Gaza Hospital, Al-Aqsa Hospital, and Indonesian), private clinics, private hospital or centers, pharmacies and pharmaceutical companies.

3.3 Study Population

The research included physicians and pharmacists

3.3.1 Quantitative

All physicians are working in public and private healthcare facilities in the GS.

3.3.2 Qualitative

All physicians and pharmacists are working in public and private healthcare facilities in the GS.

However, the population composed of a homogenous sample comprising physicians with different specializations, pharmacists working in both pharmacies and pharmaceutical companies.

3.4 Sampling:

Quantitative Data: physicians group only

According to MoH (2019), the total number of physicians was (6157) physicians. Using Epi info to determine the sample size, the sample size will be 362 physicians at 95% confidence interval. The researcher increased the sample up to 380 individuals to cover possible non-respondents.

Considering that, the study population is homogenous, in an attempt to select study respondents randomly from all geographic regions, all specialties, and both genders and from different types of healthcare facilities. Figure 3.1 shows the selection procedure of physicians practicing in hospitals, centers and clinics in the GS. First of all, a proportional stratified random sampling technique used to divide the population into subgroups. In the first stage, the population grouped based on the type of healthcare facility where the physician is working in. According to the type of healthcare facility the population grouped into governmental, none governmental sectors. The sample selected according to the proportional representation of physicians of each sector (120 physician for governmental sector, 260 for private sector). Afterwards, in governmental sector a non-probability purposive sampling technique employed to select 5 MoH hospitals (large hospitals and medical complexes: Al-Shifa Hospital, Nasser Hospital, European Gaza Hospital, Al-Aqsa Hospital and Indonesian Hospital). Sample selection performed randomly according to the proportional representation of specialists in each hospital (52 specialist from Al-Shifa Hospital, 24 specialists from Nasser Hospital, 19 specialists from European Gaza Hospital, 16 specialists from al-Aqsa Hospital and 9 specialists from Indonesian Hospital) and based on male to female ratio 6 to 1 in hospitals.

In the non-governmental sector, a proportional stratified random sampling technique used to select the sample from private hospitals/clinics at the GS five governorates. (15 physician from North GS, 173 physicians from Gaza city, 18 physicians from Dier-Albalah governorate, 28 physicians from Khan-Younis, and 26 physicians from Rafah). Then, a

simple random sampling technique employed to select physicians based on the male to female ratio of 8 to 1 in private hospitals/clinics.

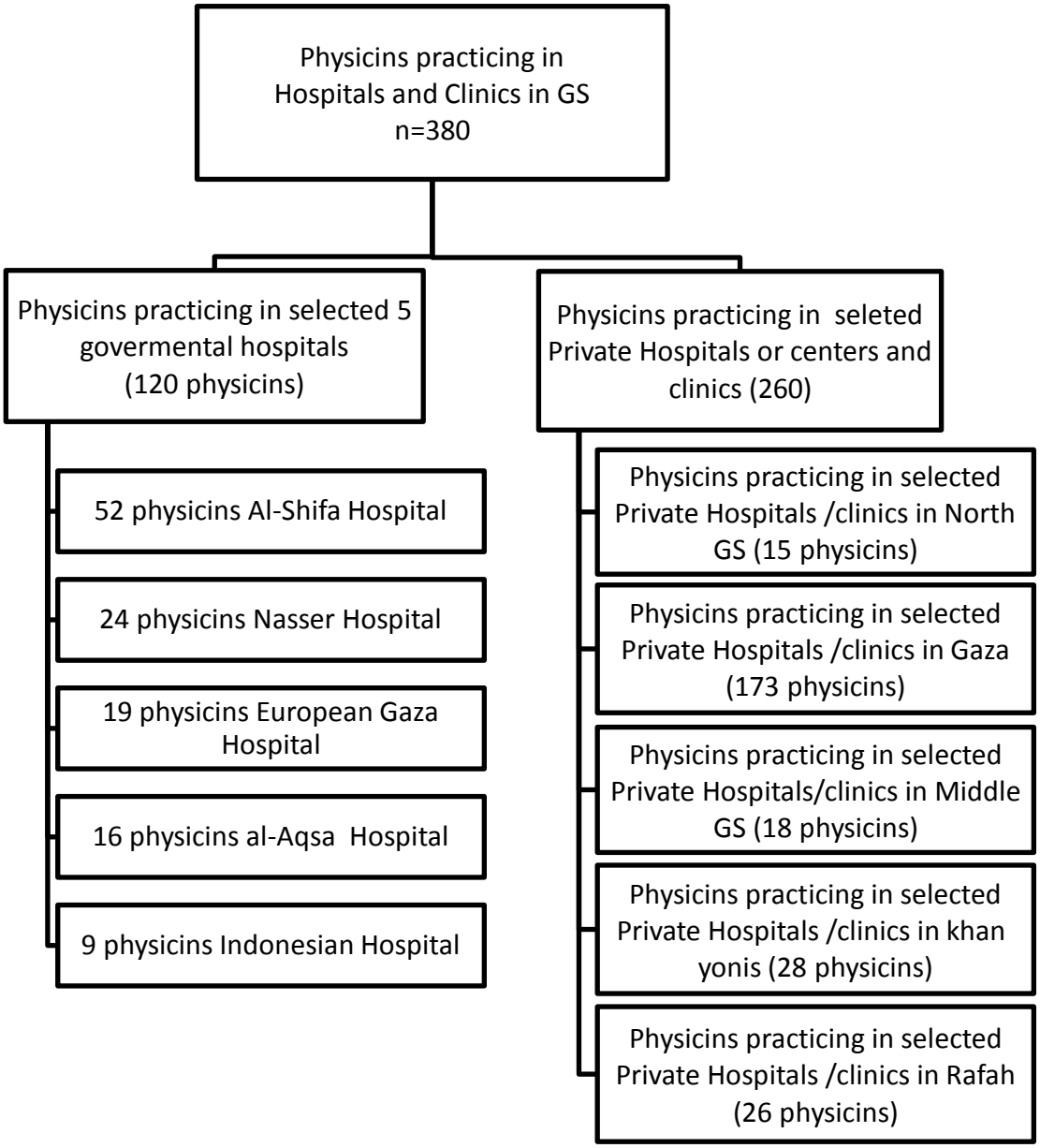


Figure 3.1: The selection procedure of physicians practicing in hospitals and clinics in the GS

Qualitative Data

Purposive sampling strategy used to identify interviewees from four respective groups: drug regulatory authorities, physicians, pharmacist and PMRs and senior executives in drug companies. The researcher also aims for maximum diversity by trying to recruit participants that varied by area, age, gender, and specialty. Table 3.1 includes the profile of the participants in the qualitative part.

Table 3.1: The profile of the participants in the qualitative part

Group	Numbers	Sample
Physicians	8	In-depth interviews with eight specialists, from both private and public sectors
PMRs senior and executives in drug companies	12	Two focus groups including pharmaceutical sales representatives from local and foreign pharmaceutical and senior executives in drug companies
Pharmacy staff	24	Four focus groups including pharmacists from the staff of large pharmacies located in different GS governorates

Focus Groups: Thirty-six pharmacists had been interviewed in six focus group discussions, four focus groups from Pharmacists including the staff of large pharmacies located in different governorates in the GS, and two focus groups from PMRs. of pharmaceutical companies (both local and foreign companies) and senior executives in drug companies.

In-depth Interviews Technique: The researcher conducted face-to-face eight in-depth individual interviews with two groups of participants: the first group was individual interviews with fourth specialist physicians from public, and the second one was individual interviews with fourth specialist from private sectors.

3.5 Eligibility Criteria

3.5.1 Inclusion Criteria

1. For quantitative data

- All specialist physicians in the G.S. that work either in governmental, and private sector, but without duplication.

2. For qualitative data

- All physicians in the G.S. that work either in governmental and private sector
- All pharmacists either in public and private sectors of the study setting.

- All pharmacists and managers in pharmaceutical companies' employees
- Pharmacists with experience more than one year.

3.5.2 Exclusion Criteria

1. For Quantitative Data

- General practitioners
- Unemployed physicians.
- physicians on non-permanent or temporary contracts
- Physicians working in military medical services, because of the difficulty of obtaining permission to take information from them.
- Physicians working at NGOs facilities.
- Physicians working in PHC facilities
- Physicians working at a high managerial position in the MoH
- Physicians working in unlicensed private health care facilities
- Private centers with less than three services.

2. For Qualitative Data

- Physicians on temporary contracts
- Pharmacists with experience less than one year.

3.6 Study Instruments

The study utilized both quantitative and qualitative tools. The researcher developed three instruments; a well self-administer-structured questionnaire for physicians, guiding questions for both the focus groups and the in-depth interviews.

3.6.1 The Quantitative Data: Self-Administered Well-Structured Questionnaire

Questionnaires are certainly one of the primary sources of data collecting in any research. However, the important point is that when designing a questionnaire, the researcher should ensure that it is "valid, reliable and unambiguous"(Zohrabi, 2013).

The questionnaire designed by the researcher based on literature review and prepared in both Arabic and English language. The questionnaire divided into two sections. The first section includes demographic information of the participants. In this section, information such as the age, gender, qualification, job title, years of practice and the specialization of the physician will be included. This information critical in analyzing the relationship between the demographic information and the effectiveness of the pharmaceutical marketing in influencing prescription behavior. The second section comprise questions aimed at assessing the effectiveness of pharmaceutical marketing practice in influencing the prescription behaviors of physicians. In this section, a five-point Likert scale used to measure the effect of each marketing tool on prescription behavior, ranging from 1 = not effective at all to 5 = very effective. Marketing practices are broadly classified into six groups/variables: free medical sample, detailing, gifts, PMR visits frequency, symposium sponsorship, honoraria (monetary incentives) and CME.

The second section also assess non-promotional factors that play a significant role in influencing prescription behavior, including the patient's financial situation, company image, drug price and the influence of colleagues on physicians' decisions/ behavior. For these factors, a five-point Likert scale also be used to assess how the participants agree with the effectiveness of these factors/tools in influencing their prescription behavior, ranging from 1 = strongly disagree to 5=strongly agree.

3.6.2 The Qualitative Data: Focus Groups and In-depth Interviews

First, the interviewers administer a short questionnaire asking for demographic characteristics, and then Open-ended questionnaires used to guide the interviews and focus group discussions. Questions address marketing, the nature and intensity of interactions between physicians and PMRs and whether these practices are impacting drug prescribing behavior. As a way to encourage participants to be more forthcoming with information, we asked them to describe interactions in general and not necessarily their own experience.

3.6.2.1 In-Depth Interviews

We used the in-depth interviews technique that a qualitative research method, which has been used extensively, and successfully in social science research as health. The main advantages relate to the quality of collected in a short period and the approach is potentially useful as an isolated research technique or with qualitative methods (Groppen, 2015).

Physicians from both private and public sector interviewed in order to provide information on the interaction with medical representatives, physicians' attitudes toward these interactions, reasons for their accepting the medical representatives' visits, how they received information on drugs, role of PMRs in detailing products to healthcare providers, quantity and quality of gifts offered and personalized services provided.

3.6.2.2 Focus groups

The focus groups used in combination with quantitative method in order to combine the strengths of both methodology types to obtain significant information useful for processing the question at hand. The strengths of the focus groups were that the researcher understands how people see the issue from their reality view and to gets closer to the data. Focus groups suggested that you could gain understanding by listening to the participants' discussions, challenging each other's contradictions and reacting to other points of view. Participants can present multiple understandings and meanings and provide the researcher with a many different perspectives in their reality. The researcher can find out what is important and why (Roisin, 2015).

PMRs employed in either local or international pharmaceutical companies as well as senior executives in drug companies also interviewed. The interviews focused on the following issues: composition of pharmaceutical marketing techniques, their appropriateness for physicians and what is actively sought by doctors from drug companies, the type of interaction between PMRs and physicians, and the types of pharmaceutical marketing techniques frequency used in clinics, private and public hospitals.

Pharmacists who handle drug prescriptions in an outpatient setting also interviewed. Pharmacists from the staff of large pharmacies located in different governorates of the

GS invited to participate. They also asked about the effect of marketing practices on Physician prescribing behavior.

Appropriate probing questions used when necessary. In order to draw out more ideas that are complete from the participants, they have the freedom to express additional views on the topic at the end of the interview sessions.

3.7 Data Collection

3.7.1 The Quantitative Data: Self-Administered Well-Structured Questionnaire

Self-administered structured questionnaires distributed among physicians, randomly selected from each sub group of the sample. Physicians invited to voluntarily participate in the anonymous study. The objectives of the study explained personally to all participants as well as explanations regarding the techniques employed to assure confidentiality and anonymity. If agree to participation, we provided Physicians with the questionnaire to complete at a convenient time. The questionnaire provided to the physicians in a sealed envelope (with no personally identifiable labels on the study form) to ensure the confidentiality and anonymity of the survey. If a physician was not able to fill out the questionnaires because of a heavy workload or were not available, they visited a second and third time to encourage participation. All the collected sealed questionnaires opened when the entire data collection period is completed.

3.7.2 The Qualitative Data Focus Groups and In-depth Interviews:

The interviews and focus group discussions conducted in Arabic language and in private locations convenient to the interviewees. The researcher pilot testing the first interview with each professional to ensure clarity and relevance of questions. Each interview/ focus group last from 30 to 60 minutes. Notes were taken during interviews and focus group discussions. With the permission of interviewees, all interviews and focus group discussions digitally recorded and transcribed verbatim.

3.8 Scientific Rigor

3.8.1 Content Validity

The purpose of content validation to assess the relevance of each domain of questions, the importance of each particular item and to check if the contents of the questions seem appropriate to the intended purpose and overall aim, to ensure the statistical consistency and capability to analyze data properly.

The content validity done for the quantitative and qualitative part. The questionnaire evaluated by experts to assess its relevance, and their comments have been taken in consideration. Also, a pilot study conducted for questionnaire before the actual data collection to examine physicians' responses to the questionnaire and how they understand it. That improves the validity of the questionnaire after modifying it.

The content validity for the focus groups and the in-depth interview guiding questions is to assess the relevance and appropriateness of the focus groups and the in-depth interviews guiding questions. Feedback and comments from health experts incorporated into a revised version of the guiding questions. Also, recording the in-depth interviews enhanced tracking up information and re-check the accuracy of the transcripts.

3.8.2 Reliability

To assure instruments reliability during review of medical records for patients so some steps were done: begin data entry at the same day of the data collection. This step minimized possible errors by checking the quality of data. Then, the researcher made re-entry of 5% of the data after finishing data entry to assure a correct entry process and to decrease entry errors.

3.9 Statistical Analysis

3.9.1 For Quantitative Data

Statistical analysis was done after data cleaning using "Statistical Package for Social Sciences" SPSSv.25. Descriptive statistics including frequency, percentages, mean and standard deviation calculated. We used t-test & a one-way ANOVA test used in case of continuous data & for multivariate analysis of the dependence of Physicians' Prescribing

Behavior on several variables. Pharmaceutical Marketing practice associated with the change of prescription behavior. P value under 0.05 considered significant.

3.9.2 For Qualitative Data

Audio-recorded interviews and focus group discussions firstly translated then transcribed. The transcribed data coded thematically and analyzed to discover emergent patterns and themes. Specifically, interview and focus group discussions data grouped into three levels by type of participant (physicians, PMRs and Pharmacy staff). Data then coded to identify themes and key findings for each level. Themes from each level used for generating an overall picture regarding the effect of marketing practice and prescribing behavior.

3.10 Ethical and Administrative Issues

Before conducting the study, the respondents present with an informed consent form that each respondent participating in the study will be expected to read, understand (in particular with regard to the purpose of the study and their roles and responsibilities during the study), and sign. Each respondent assigned a unique identifier to conceal their identities during the study, thus allowing anonymous answers. The questionnaire subjected to peer review by relevant experts to ascertain its effectiveness in obtaining the desired data for the purposes of the study. In addition, an academic approval obtained from Al-Quds University and Helsinki Committee in the GS, an admin approval asked from the General Directorate of Human Resources Development at the MoH in the GS before undertaking the study. To protect participants' rights, the In-depth we asked for their permission to record the in-depth interviews.

3.11 Study Limitation

Difficulty in meeting physicians in the private sector in different times and places, and difficulty of persuading them to participate may be the main limitations of this study. The questionnaire reflected physicians' self-reported views, as in case of all self-reported data, it includes the risk of social desirability bias if they reported what they considered acceptable to say rather than what they actually thought and still less of what they actually do.

Chapter 4

Results and Discussion

4.1 Introduction

This chapter displays the main results of the quantitative and qualitative data. The quantitative data illustrates the results of statistical analysis of the data and the interpretation of the main results. It begins with a descriptive analysis that presents the socio-demographic characteristics of the study sample and the answers to the study questions. The researcher used statistical procedures and tests including frequencies, percentages, mean, median, and standard deviation to analyze the variables questionnaire. Then inferential analysis used to focus on examining the relationship between selected variables and other selected covariates. The qualitative data used to support and argue the quantitative data.

4.2 Descriptive Analysis

4.1 Descriptive Analysis of Demographic and Professional Characteristics of Participants

Of the 380 questionnaires distributed, 347 questionnaires were returned duly completed and were analyzed with (response rate 91.3%). Table 4.1 shows socio-demographic and professional data among respondents. It shows that (288; 83%) of respondents were males, while females were (59; 17%). The greatest proportion of the participants was above 36 years of age; (125; 36%) were in the age group [36-45], (131; 37.8%) were in the age group [46-55], and (23; 6.6%) were in the age group above 55 years of age, while (68; 19.6 %) were below 36 years of age. The distribution of age groups can be attributed to the professional level of the study population; as senior physicians including (75; 21.6%) resident, (156; 45%) specialist, and (116; 33.4%) consultant were the target of our study. This was in line with the distribution of physicians by educational level as (147; 42%) participants have master or high diploma, while (200; 57.6%) of them have a doctoral or boarded degree. This was also reflected in the number of years of practice where the largest group of respondents had more than 11 years of practice experience (132; 38%) had between 11 and 15 years of practice experience, (112; 32.3%) had more than 15 years of practice experience. In terms of graduation country of bachelors, the majority of the respondents (180 participants which account for 51.9%) had been graduated from foreign countries, (103; 29.7%) from Arabic countries, and (63; 18.4 %) from Palestinian universities.

Table 4.1: Distribution of the study participants according to the socio demographic and professional Characteristics

Variable	Characteristics	Frequency	Percentage
Gender	Male	288	83.0
	Female	59	17.0
Age in Years	25-35	68	19.6
	36-45	125	36.0
	46-55	131	37.8
	>55	23	6.6
Average Monthly Income	<2000	54	15.6
	2000-3000	83	23.9
	3001-4000	136	39.2
	>4000	74	21.3
Income Satisfaction	Very Dissatisfied	5	1.5
	Dissatisfied	141	40.6
	Satisfied	152	43.8
	Very Satisfied	49	14.1
Graduation Country of Bachelor	Palestine	64	18.4
	Arab Countries	103	29.7
	Foreign Countries	180	51.9
Years of Experience	<5 years	40	11.5
	5-10 years	63	18.2
	11-15 years	132	38.0
	>15 years	112	32.3
Educational Degree (Highest)	High Diploma	48	13.9
	Master	99	28.5
	Doctoral	109	31.4
	Board	91	26.2
Professional Level	Resident	75	21.6
	Specialist	156	45.0
	Consultant	116	33.4
Specialty	Gynecology	77	22.2
	Internal medicine	111	32.0
	Orthopedic	32	9.2
	Pediatrics	34	9.8
	Surgery	93	26.8
Administrative Position	No	272	78.4
	Yes	75	21.6
Member in EDL or treatment guidelines update committees	No	286	82.4
	Yes	61	17.6
Work place	Governmental Hospital	64	18.4
	Private hospital / clinic	89	25.6
	Both	194	56.0
Approximate number of patients per day	<25	159	45.8
	25-50	152	43.8
	51-75	26	7.5
	>75	10	2.9
Average prescription number prescribed daily in all your working places	<25	179	51.6
	25-50	145	41.8
	51-75	18	5.2
	>75	5	1.4

Total number of all participant for all variables is 347

The high percentage of physicians were graduated from European countries, could be referred to lack of medical schools in the GS before and the ease and low fees required for medical students to gain a medical certificate. Also, results showed that the majority of physicians (273; 78.7%) earn less than 4,000 NIS monthly; just (74; 21.3%) earn more than 4000 NIS monthly. In addition, the distribution of physicians by income satisfaction shows that nearly (201; 58%) are (satisfied and very satisfied), and nearly (146; 42%) (dissatisfied and very dissatisfied). This decline in the physicians' income, as well as the low level of satisfaction, may reflect the general deterioration in the humanitarian, economic and social conditions in the GS. This critical situation in the GS was worsened by the Israeli siege as well as the internal palestinian political, geographic and administrative conflict (PCBS, 2019). However, such discontent among the physicians towards their basic salaries may push some towards accepting pharmaceutical industry financial incentives to compensate for their low income. However, one of the most widely used strategies by pharmaceutical companies to motivate prescription was to offer money as direct drug commissions on each prescription or in the form of other monetary incentives (Yang, 2016). This has contributed to alarms regarding conflicts of interest for physicians and adverse effects on the quality of patient care (Yang, 2016).

Among the possible workplaces available for the sample physicians, it could be seen that (89; 25.6%) of the physicians were associated with private hospitals and or private clinics while (64; 18.4%) of them were affiliated with governmental hospitals, while; the largest number of respondents (194 which account for 56%) are working in both private and governmental sectors.

Such a case could be explained by physician attempts to compensate for their low income by working in more than one place. Concerning specialty, results show that respondents are distributed as the following; (111; 32%) internal medicine, (93; 26.8%) surgery, (77; 22.2%) gynecology, (34; 9.8%) pediatrics, and (32; 9.2%) orthopedic. Based on the obtained results, the largest number of participants were not holding any managerial positions nor participating in committees, their value was (272; 78.4%) and (286; 82.4%) respectively.

Regarding the approximate number of patients seen by physicians per day, (159; 45.8%) of physicians saw less than 25 patients per day with time, while the remaining saw more than 25 patient per day. In the United States, in 2018 the major percentage of physicians saw between 11 and 20 patients per day (Michas, 2020). Such a large number of patients seen by physicians per day (more than 25 patients per day) may reflect physician work

overload. This can be attributed to the physician's commitment to more than one workplace, therefore, under such a work burden, burnout or medical malpractice could be a result (Michas, 2020). Also, results showed that the majority of physicians (179; 51.6%) write less than 25 prescriptions per day, (145; 41.8%) of them prescribe from 25 to 50 prescriptions and the rest (23; 6.6%) prescribe above 50 prescriptions per day.

4.3 Descriptive Analysis of Research Variables

4.3.1 References Used by Physicians as Source of Information

Results from Table 4.2 reveal that physicians receive information about a new drug or in case of any problems in their prescribing process from a few select sources and if we take in considerations (frequently& always) we will note: internet (83.3%), medical textbooks (74.6%), academic journals (63.1%), colleagues and peers (51.3%), medical representatives (35.7%), conferences and CMEs (33.1%), and pharmaceutical companies promotion materials (24.2%).

Table 4.2: Distribution of the study participants according to references used as source of information

Items	Never		Rarely		Occasionally		Frequently		Always	
	N	%	N	%	N	%	N	%	N	%
Medical text books	8	2.3	11	3.2	69	19.9	141	40.6	118	34.0
Academic journals	10	2.9	43	12.4	75	21.6	132	38.0	87	25.1
Internet	4	1.2	9	2.6	45	13.0	172	49.6	117	33.7
Colleagues/peers	7	2.0	31	8.9	131	37.8	144	41.5	34	9.8
Medical representatives	16	4.6	49	14.1	158	45.5	93	26.8	31	8.9
Conferences and CMEs	16	4.6	84	24.2	132	38.0	102	29.4	13	3.7
PC promotion materials	36	10.4	98	28.2	129	37.2	76	21.9	8	2.3

However, physicians interviewed in this study had controversial views toward their dependence on commercial sources of drug information when prescribing. Some of the interviewees confirmed their reference to scientific journals or reliable scientific internet sites to get accurate drug information. Others reported that they rely on the trusted PMRs to get sound medical information about medicines. Both PMR in focus groups & physicians in the interview pointed out that the physician's visit has two goals scientific and commercial. In the meantime, the PMRs in the focus group stated that the physician

evaluates the PMR and in case of trust building, physicians rely heavily on PMR to get the appropriate drug information.

"Generally, Physicians accept all of PMRs visits; however, with time friendly relationship may developed between physicians and selected PMR." (47 years old male obstetric Physician work in Nasser hospital)

Also, PMRs mentioned that they are keen to provide the physician with the correct scientific information. So that, the physician can prescribe the drug in the correct way achieving the intended effect. This is an important contributor to build a good image of the drug and the company.

In this study, the internet was the most frequent source of drug information. Similar results obtained from Alakeel et al., (2020) ; Almazrou et al., (2019) studies as it revealed that the major source of medical information was the internet and electronic databases. Also, Hailemeske et al., (2016) reported that Google® was a widely recognized resource of drug information for different health Health professional. However, this indicator gives us an alarm whether the internet can be used as a reliable source of information and wither physicians can really distinguish between reliable scientific sites and others. The establishment of the internet has greatly influenced both the availability of publications and information retrieval practices (Ibrahim & Bélanger, 2015). Recently, it is clear that there has been a great move towards an active use of various digital resources and electronic databases as a source of drug information. This is especially true for younger physicians and specialists who favor the internet and advances in technology rather than journals and textbooks (Alakeel et al., 2020; Martin, 2004). Technological innovations have the power to improve the way physicians may research and prescribe drugs (Niwandinda et al., 2020). Moreover, easy, rapid, and low-cost access, in addition to updated contents, regardless of accuracy, make the internet the most popular drug information source (Alakeel et al., 2020). Therefore, it is necessary to consider increasing access to computers and internet connectivity in health facilities.

Also, results revealed that many physicians prefer medical textbooks and academic journals as references for drug information rather than commercial sources of medical information including medical representatives detailing and pharmaceutical companies printed promotional materials. These results were consistent with Al Zahrani (2014) who revealed in his study that commercial sources of information are relatively unimportant to

specialists, as they are less likely to adopt new drugs depending on PMRs or other commercial sources of information. It has been reported that (52.5%) physicians in Saudi Arabia used textbooks and Micromedex as reference sources (Al Zahrani, 2014). This was similar to the situation in Northern Ethiopia (Addis Ababa), and Tanzania. Also, in Northern Ethiopia, most physicians preferred medical textbooks (56.6%) as the main source of drug information rather than drug guides of pharmaceutical companies and consultation of PMRs process (Workneh et al., 2016). In Addis Ababa, the most frequently used sources of drug information in case of any problems in prescribing process were medical textbooks (73.1%) and professional academic journals (39%) (Alemayehu, 2011). Medical practitioners in Tanzania depend widely on information from medical textbooks (64 %) followed by the internet (63 %) and (39.7 %) medical journals (Kamuhabwa & Kisoma, 2015). Also, according to Abou- Auda (2008) books and journals were the most trusted and used information resources. In fact, professional journals and textbooks are the ideal sources for drug information. Generally, textbooks are the most preferred source of drug information for physicians; which is easily accessible to them in their offices. Also, the reliability, comprehensiveness of drug information as well as the ease of access to these information in medical textbooks were also important advantages (Lua et al., 2011). The importance of professional journals was highly regarded by a large group of participants due to their perceived greater credibility. These journals contain well-researched scientific articles. Therefore, can be considered as a trustworthy source of information for physicians when prescribing (Kamuhabwa & Kisoma, 2015).

However, despit being the second and third source of drug information, a considerable percentage of physicians (37%, 26%) do not use scientific journals and medical textbooks respectively to obtain reliable scientific information. This may be attributed to a fact that, availability and access to up-to-date drug information sources is a real challenge that physicians may face. Limited access to current medical information can be attributed to the high cost of accessing up-to-date information from journal publications and most recent textbooks, lack of time to consult standard pharmacology textbooks, and the lack of a reliable internet connection (Kier & Goldwire, 2018).

Regarding commercial sources of drug information, PMR detailing ranked as the 5th source of drug information resources, and (35%) of physicians depend on detailing as a source of drug information. Pharmaceutical companies' printed promotional materials are rank as the last one. Generally, physicians favoring professional drug information sources (Kamuhabwa & Kisoma, 2015; Lua et al., 2011). Notwithstanding what mentioned above,

the literature reports that PMRs are the primary source of drug information - especially regarding new drugs- for physicians and pharmacists in developing countries (Ibrahim & Bélanger, 2015; Al-Areefi et al., 2013; Alssageer & Kowalski, 2013; Carmen et al., 2017). In many developing countries, the majority of medical professionals have limited access to reliable information (Tahamtan et al., 2015).

Despite questioning the quality and trustworthiness of the information provided by PMRs, researchers suggest that physicians depend heavily on commercial sources of information for different causes including that commercial information sources is quick, require less effort, are easily available, up to date, and useful (Alssageer & Kowalski, 2013). Due to time pressures, physicians may rely on PMR as a quick way to obtain current medicines information in specific therapeutic areas rather than reading journal articles, conducting internet searches, or consulting with colleagues (Shankar, 2017; Katsanis, 2017).

4.3.2 Factors that Affect Physicians' Prescribing Behavior

Our findings revealed that many factors can impact the prescribing behavior of physicians. These factors were categorized into drug characteristics (80.1%), organizational factors (79.1%), physician factors (75.8%), patient contexts (69.3%), and the least influential factor was pharmaceutical company factors (59.9%) as shown in Table 4.3.

When we talk about the most important factors that affect physicians when prescribing, we notice clear answers when talking about the physician, patients, or physicians' factors. But when talking about the pharmaceutical marketing practices factor, we note that 25% to 30% of physicians' answers indicate that physicians do not want to answer such moral questions.

Drug Characteristics

Results show that a number of factors associated with the drug characteristics were identified to impact physician prescribing behavior with a weighted mean of (80.1%). Proven clinical effectiveness, safety and drug price were seen as the most important criterion considered by physicians with a weighted mean of 85.2%, 83% and 79.8 % respectively.

These results were consistent with the opinions of physicians interviewed in this study, as they stressed that one of the most important factors they focus on when choosing treatment is drug effectiveness, and some of them stressed their interest in the price and its appropriateness to the patient. Similar results were found by (Al Zahrani, 2014) as

guidelines and drug characteristics were the most significant factors that affect physicians' prescribing. Also, Abolfazli et al., (2017) from their survey confirmed that the clinical effectiveness of a drug one of the most significant factors affecting physicians' prescribing behavior. Furthermore, Also (Yuniarti et al., 2019) shows that physicians' priority in drug selection is efficacy. Moreover, drugs with low efficacy, bioavailability, and pharmacokinetic characteristics will lose the chance of being known and prescribed and excluded from the competitive market (Sharifnia et al., 2018).

Table 4.3: Factors That Affect Physicians' Prescribing Behavior

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean	Weighted Mean (%)
	N	%	N	%	N	%	N	%	N	%		
Drug Factors						**80.1**						
Image of the drug in market	25	7.2	22	6.3	86	24.8	180	51.9	34	9.8	3.51	70.2
Safety side effects of drug	2	0.6	4	1.2	35	10	204	58.8	102	29.4	4.15	83
The efficacy of a drug	1	0.3	4	1.2	23	6.6	196	56.5	123	35.4	4.26	85.2
Form easy administration	1	0.3	8	2.3	28	8.1	220	63.4	90	25.9	4.12	82.4
The drug price	5	1.4	15	4.4	58	16.7	169	48.7	100	28.8	3.99	79.8
Patient Factors						**69.3**						
Request of a patient for drug	76	21.9	139	40	74	21.3	46	13.3	12	3.5	2.36	47.2
Dosage compliance of drug	1	0.3	13	3.7	32	9.2	214	61.7	87	25.1	4.07	81.4
Purchasing power	1	0.3	20	5.8	62	17.9	173	49.8	91	26.2	3.96	79.2
Physician Factors						**75.8**						
Brand tested by colleagues.	7	2.0	28	8.1	50	14.4	183	52.7	79	22.8	3.86	77.2
Drug positive experience	17	4.9	19	5.5	58	16.7	202	58.2	51	14.7	3.72	74.4
Organizational Factors						**79.1**						
Generic drugs policymaker	0	0	23	6.6	55	15.9	179	51.6	90	25.9	3.97	79.4
The treatment guidelines	1	0.3	19	5.5	66	19.0	174	50.1	87	25.1	3.94	78.8
Pharmaceutical company Factors						**59.9**						
Good reputation brand	6	1.7	9	2.6	23	6.6	213	61.4	96	27.7	4.11	82.2
The MR (repeated visits).	20	5.8	48	13.8	106	30.5	142	40.9	31	9.0	3.33	66.6
The MRs skillful detailing	15	4.3	39	11.2	87	25.1	161	46.4	45	13.0	3.52	70.4
Education material	13	3.7	44	12.7	102	29.4	151	43.5	37	10.7	3.45	69
Personal rapport with MR	44	12.7	86	24.8	99	28.5	97	28.0	21	6.0	2.90	58
MRs that loyal, committed.	43	12.4	90	25.9	96	27.7	98	28.2	20	5.8	2.89	57.8

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean	Weighted Mean (%)
	N	%	N	%	N	%	N	%	N	%		
Free samples to physicians.	42	12.1	96	27.7	89	25.6	105	30.3	15	4.3	2.87	57.4
Meals or entertainments	45	13.0	118	34.0	91	26.2	78	22.5	15	4.3	2.71	54.2
Inexpensive gift(pen, mug)	43	12.4	110	31.7	93	26.8	91	26.2	10	2.9	2.76	55.2
Valuable gifts travel tickets	74	21.3	115	33.1	96	27.7	42	12.1	20	5.8	2.48	49.6
Monetary incentives	99	28.5	119	34.3	87	25.1	34	9.8	8	2.3	2.23	44.6
Honorarium speak, consult	72	20.7	105	30.3	99	28.5	59	17.0	12	3.5	2.52	50.4
Sponsored CME	37	10.7	53	15.3	91	26.2	136	39.2	30	8.6	3.20	64
Overall	**Weighted mean = 67.9 % , SD= 11.83**											

Total number of all participant for all variables is 347

Also, Jain et al., (2015) study revealed that the side effect profile is considered while prescribing as it change the drug prescription patterns.

A study conducted by Ferdoush et al., (2018), shown that 79.09 % of physicians took the drug price seriously into consideration while prescribing. Moreover, in Saudi Arabia more than half of the respondents considered the price as an important factor in physicians' drug selection (Ibrahim & Bélanger, 2015). Here, it's worthy to mention that the drug price must be taken into account when prescribing to make therapy affordable. The high price of prescriptions may go unfilled or may be used less frequently than directed, resulting in compromised patient health. Therefore, cost-effective prescribing fosters better medication compliance and ultimately improves health outcomes (Niteesh et al., 2015).

Organizational Factors

Besides the Drug characteristics, a number of factors associated organization were identified to affect physicians' prescription choice with a weighted mean of (79.1%). The highest value were for generic drugs suggested by policymakers and treatment guidelines with weighted mean (79.4%) and (78.8%) respectively. Similar results were found by (Al Zahrani, 2014) as guidelines were the most significant factors that affect physicians' prescribing.

Different results were found by Ferdoush et al., (2018) study which revealed that only 45.58% of physicians check guidelines before prescribing. However, practice treatment guidelines became a key tool for patient treatment in the last few decades, as the presence of clinical guidelines can limit the discretion of prescribers (Franco et al, 2020).

Physician Factors

Factors related to individual physicians were also mentioned as an influential factor in drug selection decisions with weighted mean (75.8%). Colleagues and physician personal experience of medication were seen as the most important criterion considered by physicians with a weighted mean of (77.2%) and (74.4%) respectively. Different results were obtained Ibrahim & Bélanger, (2015) as they found that only (37.7%) of participants agreed/strongly agreed that colleagues affected their prescribing habits. Also, Yang, (2016) reported that the peer effect is less important compared with other factors, but it has a greater effect when drugs are newly introduced to the market.

In general practice, physicians' prescribing behavior is also affected by colleagues and hospital consultants (Donohue et al., 2018). Physicians meet their peers and interact with them about their experiences (Nair et al., 2010). Sorensen, (2019) reported that in treating difficult illness in which the effects of drug therapy is not well identified, physicians depend on more professional sources, particularly colleagues. In general practice, physicians sharing an office will depend on a colleague as a source of information for drugs they do not presently use. Moreover, attending hospital staff meetings seems to affect the adoption of new drugs positively.

Clinical experience was mentioned by different studies as an important factor that impacts physician prescribing behavior. The Physician clinical experience and familiarity with the disease being treated is an important factor that can influence prescribing decisions(Kalyanaram et al., 2016; Niteesh et al., 2015; Al-Areefi et al., 2013).Therefore, with increased clinical experience and years of service, the physician is exposed to a larger number of drugs with diverse patient outcomes (Davari et al., 2018). Previous physician experience with drugs and its previous clinical success has a great impact in changing prescribing decisions(Al-areefi et al., 2013; Davari et al.,2018).

Patient Factors

Results show that a number of factors associated with the patient were identified to impact physician prescribing behavior with a weighted mean of (69.3%). The most important of these factors as mentioned by respondents was dosage compliance of drug (81.4%), followed by purchasing power of patient (79.2%). While the request of a patient for the drug was mentioned as less influential factor with weighted mean (47.2%).

As a result of people's bad financial situations, physicians pay attention to the price of the drug and prefer the lowest-priced drug with the effectiveness of treatment that what physician mentioned in the interviews.

Similar results were found in different studies as physicians select the medicine based on different patient-related factors including socio-deomgraphic characteristics such as age, gender, and race, the patients' clinical condition, treatment history, comorbidity, and financial situation, ability to purchase, and patient's compliance (Davari et al., 2018; Al-Areefi et al., 2013). Also, patients have an important influence on physician prescribing behavior (Davari et al., 2018; Maxwell, 2016). According to literature, a number of factors associated with patients were identified to affect physician prescribing behavior including patients' need for a drug, the socio-demographic characters, knowledge of patient about drugs, their likely adherence to treatment, their ability to pay, their expectation, and request to a particular drug (Mohammadzadeh et al., 2018).

According to the literature, a physician may prescribe when a patient requests to maintain a good relationship with his patients (Mckinlay et al., 2014). Also, evidence suggested that patients who expect prescription are more likely to have it (Pohontsch et al., 2017). Patient's pressure on physicians may lead to prescribing new drugs, unnecessary prescribing, and referral (Pohontsch et al., 2017; Mohammadadeh et al., 2018).

However, these findings differ from those of our research, which found that less than half (47.2%) of the participants mentioned that patient request for a drug was an important factor in physicians' drug selection.

Pharmaceutical Company Factors

Results show that a number of factors associated with the pharmaceutical company were identified to have moderate impact on physician prescribing behavior with a weighted mean of (59.9%). It was ranked as the least factor regarding the effect on the physician drug selection choice. The most important of these factors as mentioned by physicians was good reputation brand with weighted mean (82.2%) .

As shown in Table (4.3), the promotional tools were considered as a moderate or high influential factors motivating physicians to prescribe promoted drugs. The main tools that the majority of physicians mentioned to be motivated mainly by were the PMRs skillful detailing, drug education material and the PMR repeated visits with weighted mean (70.4%), (69%) and (66.6%) respectively. While the least influential factors were monetary incentives (44.6%) and Valuable gifts (49.6%).

Building a positive corporate image is considered an effective means that provides a unique competitive advantage from rival organizations. The success of a promising corporate image is based on effective marketing communication strategies that attract existing and new customers (Ahmed et al., 2018). The advantages of a powerful corporate image include trust, loyalty, and scientific credibility for its R&D, as well as the making of a positive environment for introducing new products (Iglesias et al., 2020).A significant phenomenon in prescribing is known as prescription loyalty, in which a physician continues in prescribing the same company's products. This loyalty could result from the positive experiences gained by a physician after repeated prescriptions of the company drugs (Sutiono & Purwanto, 2019). If physicians assume that the corporate image and reputation are worthy, they usually tend to prescribe its medicines based on the company's history of effective drugs (Iglesias et al., 2020).

This study finding were consistent with (Biswas & Ferdousy, 2016) study, as PMRs frequent visits and detailing were rated the top tools that impact the prescription behavior in Bangladesh. According to (Aschalew, 2019) majority physicians confirmed that the most significant tool that impact the prescription behavior was regular follow up of PMR, brand image, and promotional material (mean 3.71, 3.58 and 3.54 respectively). In contrast in Saudi Arabia, almost a similar number of physicians stated that their prescription was not by visits of PMRs (43.6%) or may be influenced affected (41.7%) (Al Zahrani, 2014).

4.3.3 Exposure to Overall Marketing Practices

Results showed that there is an active interaction between physicians and the pharmaceutical industry in the studied population. According to their own estimates, the majority of physicians (334; 96%) indicated that they had been visited by PMRs at least once a month in the previous 6 months. Nearly half (163; 47%) of the physicians were visited at least once a week by PMRs; (46; 13.3%) were visited daily, (64; 18.4%) were visited 2–3 times per week, (53; 15.3%) were visited once weekly. Also, (32; 9.2%) of the physicians were visited 2–3 times per month, more than one third (139; 40%) of them were visited once a month, and (13; 4%) were never been visited by PMRs as shown in figure (4.1).

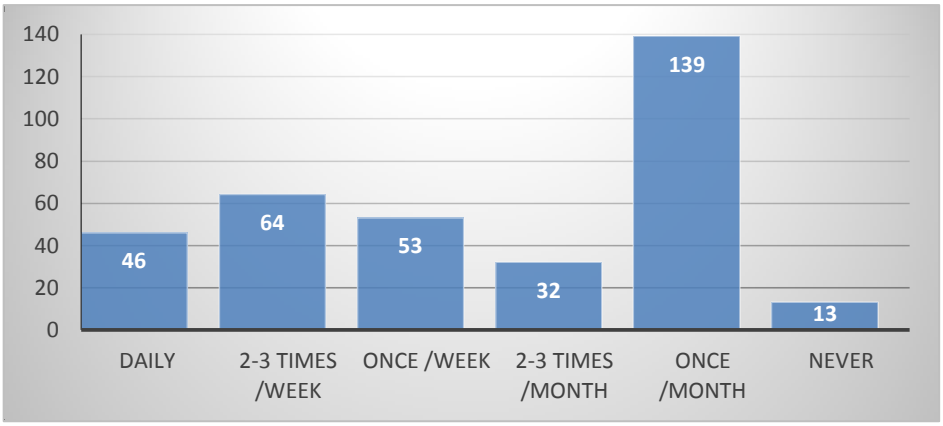


Figure 4.1: Distribution of respondents according to frequency of PMRs during last six months

However, during a focus group discussion with PMRs, they confirmed that physicians accept their visits, and these visits are almost at a rate of one or two visits per month, but they pointed out that these visits can increase if they want to focus on specific items or want to remind them of old drugs to activate them. Also, physicians through interviews mentioned that they are visited by PMRs at a rate of twice a month for each company.

Also, physicians confirmed that PMR enter all places in the MoH hospitals to promote their drugs, this includes departments or outpatient clinics.While Pharmacists in focus groups, reported an increase in the number of medicines registered, which leads to increased competition between companies, leading to increased visits to promote their drugs further. By comparison, palestinian physicians in the GS were visited more frequently than their Libyan as 50% of physicians were visited at least once a month (Alssageer & Kowalski, 2017), Northern Ethiopia as (38.6%) of physicians were visited occasionally while only (1.2%) of them was visited daily in the last year (Workneh et al., 2016). But considerably less than in Yemen as the the majority of physicians are visited by PMRs 2–3 times per week (Al-Areefi et al., 2013). Also, reports regarding low and middle-income countries have revealed that majority of physicians (about 90%) received, at least, one visit from PMRs per week (Lotfi et al., 2016). Moreover, a previous study in Germany that sampled different groups of physicians in 2010 showed that 19% of physicians were visited daily, 77% of them see PMR at least once a week and accept gifts provided by them (Lieb & Brandtönies, 2010). Also, a previous study in Japan showed that on average, most physicians met with PMRs at rate of 7 times /month (Saito et al., 2010).

Findings also revealed that (139; 40.1%) of respondents were visited by one PMR per a day, (129; 37.2%) of them were visited by 2-3 PMRs per a day, (52; 15.0%) of them were

visited by 4-5 PMRs per a day, and (27; 7.8%) of physicians were visited by more than five PMRs per day in the last six months as shown in figure 4.2.

These findings are consistent with the PMR focus groups as well as physicians interview, that pharmaceutical companies focus on physicians with a good reputation and reviewed by a large number of patients more than others.

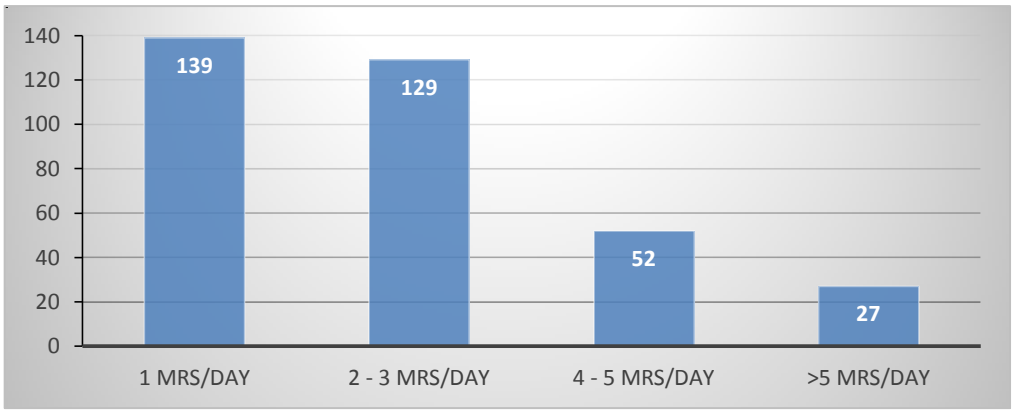


Figure 4.2: Distribution of respondents according to number of PMRs who visit them per day

Almost all of the physicians (98.3%) reported receiving at least one of the mentioned promotional tools offered by pharmaceutical drug companies, details shown in table (4.4).

Table 4.4: Frequency of receiving promotional tools in the previous 6 months

Items	Number (%)					
	Never	< once a month	once a month	> once a month	Once a week	> Once a week
Skillful detailing	13 (3.8%)	93 (26.8%)	159 (45.8%)	54 (15.6%)	23 (6.6%)	5 (1.4%)
Promotional printed materials	15 (4.3%)	103 (29.7%)	161 (46.4%)	43 (12.4%)	17 (4.9%)	8 (2.3%)
Free medical samples	21 (6.1%)	79 (22.8%)	140 (40.3%)	84 (24.2%)	17 (4.9%)	6 (1.7%)
Inexpensive gifts	88 (25.4%)	134 (38.6%)	89 (25.6%)	29 (8.4%)	7 (2%)	0 (0.0%)
Meals outside the workplace	144 (41.5%)	129 (37.2%)	42 (12.1%)	26 (7.5%)	6 (1.7%)	0 (0.0%)
Monetary incentives	278 (80.1%)	49 (14.1%)	16 (4.6%)	2 (0.6%)	2 (0.6%)	0 (0.0%)

Detailing

Skillful detailing was the most common tools used by PMRs during their promotional visits. The majority of respondents (334; 96.2%) received skillful detailing from pharmaceutical companies. Nearly two thirds of them (241; 69.4%) received skillful detailing at least once a month during the last six monthes.

These results are consistent with findings obtained by (Ammar, 2015), his study revealed that PMRs' visits and detailing was the most frequently used tool in marketing practices by the pharmaceutical companies in the GS. The percentage of respondents visited by PMRs was 87.2%. This result was slightly lower than that was shown in our study.

Direct marketing of drugs by employing PMRs and physician detailing remains the major tool of pharmaceutical marketing communication (Katsanis, 2017). The PMR is responsible for updating the physicians' knowledge about the latest drug promoted by the company (Jacob, 2018). Personal selling activities and detailing allow PMR to provide "details" of approved scientific information, to discuss benefits, side effects, or adverse events and clinical studies of the drugs (Pharma marketing network, 2021; Ching & Ishihara, 2015). Also, they act as a support team in answering physicians' queries (Alowi & Kani, 2018). According to the largest proprtion of respondents (247; 71.2%) the maximum duration of discussion with PMR was 10 minutes (Figure 4.3).

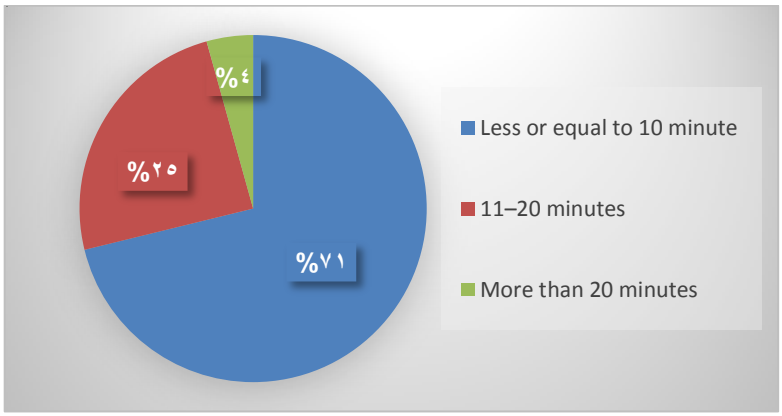


Figure 4.3: Distribution of respondents according to duration of discussion with PMR during last six months

These results were consistent with the opinions of physicians interviewed in this study, as they confirmed that they are careful not to dwell, and to be careful in communicating information clearly and quickly. Also PMRs in focus groups confirmed that they are trying to provide physicians with the most important information in a focused manner due to time constraints. This makes sense because the physician is busy in his workplace, so the PMR must deliver what he wants quickly and clearly.

Finding of this study is similar to (Workneh et al., 2016) study as (48.2%) of physicians spent a maximum time of 10 minutes for discussion with PMRs.

The researcher may conclude the presence of active interaction between PMRs and physicians in the GS that is clear by frequent visiting and detailing. This may be explained

by the large number of pharmaceutical companies including foreign, local, Israeli, Egyptian as well as drug wholesalers, while all these parties compete in a small market.

Promotional Printed Material

According to (332; 95.7%) of respondents, promotional printed material was the second most frequent tool supplied by PMRs during promotional visits. About two-thirds of them (229; 66%) received printed material at least once a month during the last six months.

These results were much higher than those obtained by (Ammar, 2015). His study revealed that promotional printed materials are less popular among pharmaceutical companies. It was ranked as the fifth commonly used marketing tool in the GS. Only 72% of respondents in his study reported that they receive promotional printed materials from pharmaceutical companies.

The common use of printed material in the GS was similar to distribution in another developing country as Libya and Nigeria as printed material was the most common promotional tool distributed by PMRs (Alssageer & Kowalski, 2013). In Saudi Arabia, 62% of physicians receive such materials (Zaki, 2014).

PMRs commonly depend on printed materials to increase awareness and knowledge about their drugs and to impact physicians' attitudes and behavior. Printed materials are important tools that offer written support of any verbal message provided by PMRs during their promotional visits. They are quite low-cost compared with other promotional tools and are an enduring product that allows health care providers to review the content at a suitable (Alssageer & Kowalski, 2013).

Free Medical Samples

The majority of respondents (326; 93.9%) reported that they had been given drug samples. The majority of respondents (247; 71.1%) received drug samples at least once a month during the last six monthes.

These results were consistent with the opinions of physicians interviewed in this study, as they confirmed that the advertising representatives are interested in giving them samples to remind them of the brand names of their companies. Also, through discussion with the medical representatives, they stated that free medical samples are one of the most important means of medical advertising. Moreover, pharmacists during the focus group discussion confirmed that offering drug samples is one of the main marketing tools used by pharmaceutical companies.

Our finding is consistant but higher than that obtained by (Ammar, 2015), his study showed that the free medical samples distribution was ranked the second commonly used tool in pharmaceutical marketing in the GS. (86.2%) of respondents reported that they receive free medical samples from PMRs.

The result of the current study revealed that the level of sample provision in the GS is very high compared with that in Libya where only 69% of respondents received drug samples (Alssageer & Kowalski, 2013), (85%) in Japan (Saito et al., 2010), and (42%) Saudi Arabia (Zaki, 2014).

Offering Free medical samples is one of the main marketing tools used by pharmaceutical companies and a common cause for PMR visits (Albarq & Suleiman, 2021). Free samples offered by PMR after the physician visits might act as long-term reminders of the existence of the drug. Many physicians believe that free samples can help uninsured and poor patients, and they prescribe the sampled drug commonly to get the goodwill of their patients "happy to go home with free samples" (Joseph & Mantrala, 2009). Because a drug sample will eventually be used by a patient, the acceptance of samples may be considered as more ethically acceptable (Rafique et al., 2017).

The wide use of free medical samples in the GS may be attributed to the great competition among pharmaceutical companies particularly the local ones. They use free medical samples as the main marketing tool in their job (Ammar, 2015). Additionally, the lack of effective regulations that control free medical sample distribution (Abu Mhadi, 2013). pharmaceutical companies may distribute non reduced, full package free medical samples that are not distinguished from original ones. In addition, these samples are not stamped by the "not for sales" statement. These factors lead to the widespread of one of the most unethical behaviors among physicians and pharmacist. Selling medical samples to community pharmacies, where they can be re-sold to patients. According to the General Administration of Pharmacy(GAP) annual report GAP, (2020), 36% of violations recorded by the pharmaceutical inspection team were attributed to selling free medical samples. This makes the implementation of effective regulation of free medical samples distribution is required (GAP, 2020).

Inexpensive Gifts

Inexpensive gifts including pens, notepads, and mugs were also one of the tools used by PMRs during their promotional visits. The majority of respondents (259; 74.6%) received simple gifts from pharmaceutical companies. Nearly one third of the total respondents

(125; 36%) received simple gifts at least once a month during the last six monthes. Also nearly half of the surveyed respondents (203; 58.5%) were invited by pharmaceutical companies to have a meal outside the workplace. Approximately two thirds (129 out of 203) of these respondents received a meal invitation outside the workplace less than once a month during the last six months, and nearly one third (74 of the 203) of them received a meal invitation outside the workplace at least once a month during the last six months.

However, according to physicians interviewed in this study simple gifts are not very popular through companies and may be sometimes seasonal, especially at the beginning of the year.

Our finding is much higher than that obtained by (Ammar, 2015), as his study showed that only 38.8% of physicians reported that they receive gifts from pharmaceutical companies.

However, study results are concordant with Libyan, as (79%) of physicians reported that they receive simple gifts (Alssageer & Kowalski, 2013), Northern Ethiopia, as almost half of the physicians accepted gifts from PMRs in the last year (Workneh et al., 2016), Japanese (Saito et al., 2010), and German (Lieb & Brandtönies, 2010) results, which reported that simple gifts and drug samples were the most common tools used by PMRs.

Receiving simple gifts of small and limited value from PMRs can produce an unintentional bias meanwhile simple stationery gifts with the names of medicinal products expose physicians to particular company products (Alssageer & Kowalski, 2013). Stationery gifts that show the brand name of a specific medicinal product can have an important effect on physician prescribing behavior (Workneh et al., 2016). This silent reminder regarding brand products is often more effective than verbal reminders (Yimenu et al., 2021).

Monetary Incentives

Monetary incentives including cash payment, bonuses, and commissions were the least frequent tool supplied by PMRs during promotional visits. The majority of respondents (278; 80.1%) confirmed that they never received monetary incentives during the last six monthes. During focus groups both, pharmacists and PMR confirmed the existence of financial transitions between some physicians and pharmaceutical companies.

Sponsored Items

Results revealed that sponsored items were not of the popular tools used by PMRs as shown in table (4.5). The majority of respondents (261; 75.2%) were never received honorarium from PCs for speaking or consulting. Also (257; 74.1%) of respondents were

never received valuable gifts such as travel tickets, watches, and any medical equipment. Moreover (224; 64.6%) of respondents were never received financial subsidies to attend CME events/international conferences. And about half (200; 57.6%) of respondents were never Participating in scientific study funded by PCs.

Table 4.5: Frequency of receiving sponsored items in the previous year

Items	Number (%)				
	Never	< once a year	once a year	> once a year	> Once a month
Valuable gifts	257 (74%)	60 (17.3%)	24 (6.9%)	4 (1.2%)	2 (0.6%)
Receiving honorarium for speaking/consulting	261 (75.1%)	52 (15%)	29 (8.4%)	4 (1.2%)	1 (0.3%)
Attending local sponsored conferences & CME	130 (37.5%)	131 (37.7%)	73 (21%)	12 (3.5%)	1 (0.3%)
Financial subsidies to attend CME / conferences	224 (64.6%)	72 (20.7%)	41 (11.8%)	9 (2.6%)	1 (0.3%)
Participating in scientific study funded by PCs	200 (57.6%)	91 (26.3%)	40 (11.5%)	13 (3.7%)	3 (0.9%)

However, approximately two-thirds of respondents (217; 62.6%) acknowledged that they had attended local scientific conferences and CME events sponsored by PCs. Also, physicians interviewed in this study confirmed that they were invited to meetings and scientific conferences before the Covid-19 pandemic. This was also confirmed PMRs by during their focus groups.

While the foreign conferences travel, sponsoring is less commonly used as compared with other marketing practices. Finding in this study (35.4%) were higher than that that obtained by (Ammar, 2015), as his study showed that only 18.4% of physicians reported that they are sponsored by pharmaceutical companies to attend foreign conferences. Also, much higher than that in Saudi Arabia as only 3.6 % of physicians were sponsored to foreign conferences (Zaki, 2014). From these data, the researcher may suggest that the marketing tool is directed towards a small group of physicians who represent the key opinion leaders affecting drug selection decisions in the market.

Findings in this study related to local scientific conferences and CME events sponsored by PCs were much lower than those obtained by (Ammar, 2015), as his study showed that 80.6% of respondents attend such events. In addition, the result matches with (Sismondo & Chloubova, 2016) study in Pakistan (69.2%). But lower than that (Saito et al., 2010) study in Japan (80%).

Finding in this study revealed that (24.8%) of respondents reported that pharmaceutical companies paid them honoraria for speaking or consulting. This was much higher than that obtained by (Ammar, 2015), as his study showed that only 4.6% of physicians mentioned that they received honoraria pharmaceutical companies. However, lower than the percentage of (33%) shown in other Arab counties studies as Libya (Alssageer & Kowalski, 2013) and Saudi Arabia (Alosaimi et al., 2013). Similar to foreign conferences travel sponsoring, honoraria paying is limited to a small group of key opinion leaders in the market. The researcher suggests that it is good that honorariums' paying is not a common tool used in the GS, particularly in the presence of ineffective regulations to control and monitor these honoraria.

According to Ammar, (2015), only 14.5% of physicians reported that they participate in scientific studies funded by pharmaceutical companies. This was much lower than our study finding (42.4%) of respondents.

4.3.4 Effect of Pharmaceutical Marketing Practices on the Physicians' Prescribing Behavior

As shown in table (4.6), the pharmaceutical marketing practices have a high effect on the physicians' prescribing behavior in general with weighted mean (61.7%). Also, physicians prefer prescribing newer medications with weighted mean (66.8%). Results also revealed that the more frequently physicians are exposed to pharmaceutical marketing, the greater their prescribing rate of the promoted company products with weighted mean (61.4%). Moreover, physicians declared that their prescribing rate of the promoted company products increased as the value of marketing practice increase with weighted mean (54.2%).This effect of marketing practice on physicians' prescribing behavior is also confirmed by physicians through interviews.

''From my opinion, taking into consideration the drug quality, the PMR who recognizes and supports me more absolutely will have more of my interest and support" (51years old male pediatric Physician work in private clinic).

These results are consistent with the opinions of PMRs in the focus group disussion, they confimered that use different marketing tools to change physicians' prescribing behavior.

''We depend on different types of marketing tools to motivate physicians to prescribe our drugs as much as possible. These tools including, free medical samples, frequent visits and gifts etc. and all of these are mainly used.'' (PMR focus group 03)

In developed and developing countries, many studies have been conducted to investigate the influence of promotional tools on physician prescribing decisions (Alowi & Kani, 2018; Spurling et al., 2010). The finding of these studies proves that promotion of medicines increases physicians' prescription of targeted medicines, and increases prescription costs (Wood et al., 2017; Perlis & Perlis, 2016; Workneh et al., 2016; Yeh et al., 2016).

When asked more specifically about their own prescribing, respondents believed that promotional techniques can affect their drug selection decisions and increase prescription rate with weighted mean (64.2%). Also, physicians confirmed that pharmaceutical marketing increases their prescription rate particularly for the promoted drugs with weighted mean (65.2%). Also, of respondents believed that pharmaceutical marketing increases their colleagues' prescription rate with weighted mean (65.8%). This was opposite to other studies where although physicians deny the influence of promotion on their prescribing behavior, claiming that it influences other physicians (Edwards et al., 2011).

Previous studies have shown that pharmaceutical marketing influences drug prescription. More specifically, eleven studies of different designs were reviewed by (Fadlallah et al., 2017), 15 studies by (Brax et al., 2017) and 29 studies by (Green et al., 2012), 58 studies by (Spurling et al., 2010), most of these studies showed negative effects of pharmaceutical marketing on physician behavior, including increased prescribing frequency, irrational prescribing of expensive drugs, lower prescribing quality and lack of accurate drug information. On the other hand, few studies showed positive effects of pharmaceutical marketing as providing suitable drug choices for treating complicated cases.

When we explore the questionnaire results about the pharmaceutical marketing practice and its effect on the physicians' prescribing behavior, we note that 20 to 30% of physicians response was "Neutral" on these items and this indicates the unwillingness to answer these questions in general, because it relates to sensitive issues of a moral dimension affecting the physicians' reputation which one of the most important questionnaires problems.

But we were able to overcome this problem through qualitative research as indicated in the physicians' interviews that some of these methods affect them when prescribing, including PMR and their personal rapport with them.

Pharmacists and PMR also stressed in their interviews the existence of monetary incentives and their effect on the physicians' behavior, especially in case of new drugs or near expire, as well as on the impact of gifts and free samples on the physicians' prescribing behavior.

Table 4.6: Distribution of respondents according to the effect of pharmaceutical marketing practices on their prescribing behavior

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean	Weighted Mean (%)
	N	%	N	%	N	%	N	%	N	%		
MP affect my drugs choice, and increase prescribing.	23	6.6	68	19.6	91	26.2	142	40.9	23	6.7	3.21	64.2
MP induce me to prescribe promoted drugs	18	5.2	70	20.2	79	22.8	164	47.2	16	4.6	3.26	65.2
MP induce other physicians to prescribe promoted drugs	15	4.3	64	18.4	95	27.5	151	43.5	22	6.3	3.29	65.8
Repeated visits prescribe the drug company's products	10	2.9	50	14.4	97	28.0	173	49.8	17	4.9	3.39	67.8
Discussions with PMR increase prescribe company's products.	5	1.4	32	9.2	63	18.2	220	63.4	27	7.8	3.67	73.4
Brochures, posters increase prescribe company's products.	10	2.9	45	13.0	109	31.4	169	48.7	14	4.0	3.38	67.6
Personal rapport with PMRs increase prescribing PC products	31	8.9	61	17.6	100	28.8	128	36.9	27	7.8	3.17	63.4
Free samples increase prescribe the PC products	33	9.5	86	24.8	96	27.6	112	32.3	20	5.8	3.00	60
Meals from MRs increase prescribe PC products	51	14.7	100	28.8	86	24.8	97	28.0	13	3.7	2.77	55.4
MR Gifts increase prescribe, regardless monetary value.	56	16.1	126	36.3	80	23.1	75	21.6	10	2.9	2.59	51.8
Gifts are influential that induce to prescribe any medicine	71	20.5	126	36.3	86	24.8	57	16.4	7	2.0	2.43	48.6
Inexpensive gifts from PMR increase prescribe PC products	44	12.7	93	26.8	95	27.3	104	30.0	11	3.2	2.84	56.8
Valuable gifts from PMR bias doctor's behavior	55	15.9	118	34.0	82	23.6	78	22.5	14	4.0	2.65	53
Physicians will maintain same contact with or without gifts	19	5.5	51	14.7	85	24.5	141	40.6	51	14.7	3.44	68.8
PC monetary incentives considered prescribing	56	16.1	100	28.8	96	27.7	86	24.8	9	2.6	2.69	47.8
Honorarium increase prescribe the PC products	44	12.7	142	40.9	84	24.2	68	19.6	9	2.6	2.59	51.8
My clinical practice changes after CME events	32	9.2	122	35.1	85	24.5	96	27.7	12	3.5	2.81	56.2
Financial to attend CME increase chance prescribe the PC products	43	12.4	122	35.2	95	27.4	77	22.2	10	2.8	2.68	53.6
PMR provide accurate information new medications.	8	2.3	40	11.5	85	24.5	185	53.3	29	8.4	3.54	70.8
PMR provide accurate information old	11	3.2	43	12.4	93	26.8	186	53.6	14	4.0	3.43	68.6

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean	Weighted Mean (%)
	N	%	N	%	N	%	N	%	N	%		
medications.												
Exposure to MP increases, prescribe products increase.	23	6.6	77	22.2	110	31.7	128	36.9	9	2.6	3.07	61.4
Value of MP increases prescribe company's products increase.	41	11.8	118	34	98	28.2	82	23.6	8	2.4	2.71	54.2
Do you prefer prescribing newer medications?	11	3.2	59	17.0	101	29.1	152	43.8	24	6.9	3.34	66.8
Stopped the use of a promoted drug cause many side effects?	7	2.0	53	15.3	65	18.7	178	51.3	44	12.7	3.57	71.4
Stopped the use of a promoted drug due to drug ineffectiveness?	7	2.0	42	12.1	63	18.2	187	53.9	48	13.8	3.65	73
Over All	**Weighted mean = 61.74%, SD = 14.62**											

Total number of all participant for all variables is 347

4.3.4.1 Effect of PMR /detailing on physician prescribing behavior

According to physicians, discussions with PMRs was the most effective pharmaceutical marketing tool used with weighted mean (73.4%). This is also supported by physicians who confirmed the ability of the PMRs to provide them with accurate and correct information about the new and old drugs with weighted mean (70.8%, 68.6%) respectively. Also, respondents mentioned that repeated visits and contact with PMRs as well as personal rapport with PMRs increased prescribing frequency for the promoted drugs with weighted mean (67.8%, 63.4%) respectively. However, while PMR is important in fetching physician drug prescriptions, finding revealed that physicians' priority is their patients' health as well as the safety and quality of their drugs. Physician confirmed that they stop the use of a promoted drug that causes many side effects with weighted mean (71.4%). Also, respondents mentioned that they stop the use of a promoted drug due to drug ineffectiveness with weighted mean (73%). These results were consistent with the opinions of physicians interviewed in this study. They confirmed accepting all PMRs visits, they also mentioned that the physician- PMRs interactions are of professional nature that aims to provide physicians with information regarding drugs particularly the new ones and nearly two thirds of physicians depend on detailing as a source of drug information. However, they declared that the relationship could develop into a personal relationship but it does not affect them in terms of prescribing practice. On the other hand, some interviewees pointed out that the personal relationship may affect the prescription when more than one product has the same pharmacological effect are available.

"In the GS, there is no policy to regulate accepting the medical representative visits or not it, depends on my opinion in the promoted drug and the medical representatives. Here in the GS, the personal relationship is a very important factor, but the drug quality is also a critical point" (45 years old male obstetric Physician work in private hospital).

"We welcome any representative regardless of his company, they provide me with important drug information, some of them are my friends," (55 years old male dermatologist Physician work in private clinic).

This was consistent with the opinions of PMRs in the focus group discussion, as they confirmed the professional relationship with physicians. Also, they confirmed that physicians' priority is their patients' health as well as the safety and quality of their drugs, even when a personal relationship between PMR and physicians is developed. However, other PMR confirmed that they keen to meet the personal needs of the physician if necessary. Some PMR may resort to make deals especially in case of the approach of the drug expire date, promoting a drug that has many competing types. That deal not essentially to be financial, it is possible to pay the rent of the clinic, laptop to work, sofa.

In the focus group discussion, pharmacists from the private sector indicated that PMRs-physician personal relationships could push physicians to prescribe unnecessary medications for the patient.

"When the expiry date of a drug is approaching, a very large number of prescription including this drug is written. In our opinion, this is unethical, but this is what we have, and we have to deal with.'' (pharmacists focus group 03).

"The situation is very bad; it has been changed from a health care service to findout personal gains" (pharmacists focus group 01).

The point that direct marketing is effective was supported by the various studies that concluded that the frequent visits made by PMRs are the most significant factor influencing physician prescribing decisions (Workneh et al., 2016; Kalaskar & Sager, 2012). Physicians are influenced by finely titrated doses of friendship presented from the PMR (Bhatt, 2018). Many, but not all physicians think PMR a valuable source of new drug (Carmen et al., 2017). Increased physician– PMR interaction, as well as exposure to information provided by PMRs, causes increased prescription rate and the number of medicines per prescription (Jacob, 2018). The prescription of a medicine by a physician is thought to be highly affected by how frequently the PMRs present the drug's details to physicians. The more frequent physicians communicate with PMRs and listen to them

presenting their drug's details, the more they refer their patients to pharmacotherapy, even in cases where non-drug therapy was the best choice for their patients (Lieb & Scheurich, 2014).

Due to time pressures, physicians may rely on PMR as a quick way to obtain current medicines information in specific therapeutic areas rather than reading journal articles, conducting internet searches, or consulting with colleagues (Shankar, 2017; Katsanis, 2017). This is of important concern because the information provided by PMR has been found to be incomplete, inaccurate, or biased towards the benefits of the products being marketed. Furthermore, it has been shown that PMR underestimates or omits adverse drug effects even serious ones (Mintzes et al., 2013; Othman et al., 2009; Carmen et al., 2017), so such biased information may compromise the integrity of Physicians (Lotfi et al., 2016). Physicians believe they can extract unbiased information from information provided by PMR, studies show that physicians cannot distinguish between scientific and promotional information provided by PMR (Carmen et al., 2017). A review of 58 studies found that exposure to pharmaceutical marketing information did not improve physician prescribing, but it was associated with higher prescribing frequency, higher costs, or lower prescribing quality (Spurling et al., 2010).

4.3.4.2 Effect of Promotional Printed Material on Physician Prescribing Behavior

Promotional printed material including brochures and posters have a high effect on physician prescribing behavior and it increases the prescribing rate of promoted drugs with weighted mean (67.6%).

However, according to pharmacists in the focus group discussion, the content of promotional printed material is not subjected to any regulation in the GS. Therefore, biased or misleading information can't be excluded.

Despite being a key source of information for physicians, the accuracy and validity of the information presented in promotional printed materials are questionable. A study in Germany declared that only 6% of brochures given to physicians were supported by scientific literature (Henry, 2006). A study by Mali et al., (2010) revealed that none of the promotional printed materials fulfilled all WHO standards, the majority (92%) of brochures focus on the efficacy of the product, and a few on safety (37.8%).

4.3.4.3 Effect of Free Medical Sample on Physician Prescribing Behavior

Finding reveals that free medical samples has moderate effect on physician prescribing behavior as it increase the prescribing of promoted drugs with weighted mean (60%).

During the focus group discussion, PMRs declared that many companies try to make pressure and influence physicians by increasing the intensity of advertising practiced on them. This is especially done by increasing the volume of free medical samples provided to them. In general practice, many physicians sell these free samples or replace them with medicines or medical supplies from community pharmacies.

Studies revealed that the availability of free medical samples encourage physicians to prescribe non-generic, expensive drugs that they have free samples, this leads to higher prescription cost. It also leads to prescribing habits inconsistent with practice guidelines and formulary policies (Schrier et al., 2020). The physicians who distribute these samples believe that they are helping their patients. However, this may be true if the problem being treated is an acute disease, but for a chronic disease the benefit is short-term and after finishing the samples dispensed the patient is obliged to buy the medication for long-term (Schrier et al., 2020).

4.3.4.4 Effect of Gifts on Physician Prescribing Behavior

The finding showed that offering gifts has a moderate effect on physician prescribing behavior. Respondents confirmed that meals and gifts regardless of monetary value (whether valuable or inexpensive could act as a motivation to prescribe promoted drugs with weighted mean (55.4%, 51.8%) respectively. Also, respondent stated that gifts are influential because the gifts that are of substantial value act as an inducement to prescribe any medicine. With weighted mean (48.6%), also respondents confirmed that they would maintain same contact with or without gifts with weighted mean (68.8%).

Also, respondents confirmed that inexpensive gifts and valuable gifts can bias physicians' behavior and increase prescribing with weighted mean (56.8%, 53%) respectively. During the focus group, discussion with pharmacists in the private sector reported that improper advertising methods are practiced by pharmaceutical companies such as restaurant invitation, and precious gifts. These methods are often exercised more often when some medicines nearly expired or when promoting a new item of the company.

The final effect of these activities is to affect the physician's prescribing behavior, among the most significant changes observed is the prescription of advanced generations of antibiotics for simple diseases, writing very high-priced herbal medicines, and sometimes writing some unlicensed medicines because of the deal agreed with the company.

This descriptive finding is inconsistent with literature that considers gifts provided to physicians from pharmaceutical companies as one of the most effective tools that could lead to a conflict of interest and negatively impact physicians prescribing, thus ultimately affect patient health (Wood et al., 2017). While most physicians considered themselves immune to be affected by gifts (Fickweiler et al., 2017), PMRs present gifts to influence physicians prescribing behavior. Gifts do not need to be valuable to have a powerful effect on human relationships, meals, pens, notepads, coffee mugs, and other small gifts create a subconscious commitment to reciprocate. In the physician– PMR relationship, physicians reciprocate not by providing gifts but through changes in prescribing practice (Sah & Fugh- Berman, 2013; Fugh-Berman & Homedes, 2018). In their study, Wood et al., (2017) found that physicians who received gifts with a value less than $500 a year prescribed more expensive medicines than physicians who received no gifts. More expensive gifts had a greater effect in a direct-related fashion (Fugh-berman & Homedes, 2018). In an investigation that studied the effect of gifts on prescribing behavior for physicians, it was found that physicians who received any gifts from pharmaceutical companies prescribed a higher percentage of branded drugs than physicians who received no gifts (Ornstein et al., 2016). When compared with physicians who received no payments, even a few meals increased branded-drug prescribing (Fugh-berman & Homedes, 2018).

4.3.4.5 Effect of Sponsored CME on Physician Prescribing Behavior

Finding showed that sponsored CME has only moderate effect on physician prescribing behavior. As respondents mentioned that financial subsides to attend CME increase the chance to prescribe company products with weighted mean (53.6%). In addition, respondents confirmed that their clinical practice change after attending sponsored CME events with weighted mean (56.2%).

Previous studies revealed that attending company-sponsored CME programs associated with an increase in the prescription of the sponsor’s drugs (Wazana, 2015). Moreover, physicians who have attended company-sponsored CME programs had a more positive attitude toward brand medicines prescribing. On the other hand, physicians who's attended sponsored CME events were seen to prescribe a higher proportion of brands and higher costs medicines when compared with physicians who refused such CME programs (Fickweiler et al., 2017).

4.3.4.6 Effect of Honoraria (Monetary Incentives) on Physicin Prescribing Behavior

Results revealed that (95; 27.4%) of respondents either agree or strongly agree that monetary incentives are considered by physicians when prescribing. Also, (77; 22.2%) of respondents either agree or strongly agree that honorarium increases prescribing of promoted products.

During focus groups, Pharmacists reported financial transactions between PMR and physicians, this includes payments to physicians offered by pharmaceutical companies to obtain a known and pre-determined number of prescriptions, or replaces his free samples for monetary incentives.

In general, practice, offering money to prescribe a characterized drug from a particular company is an illegal practice in many countries (Alssageer & Kowalski, 2012). However, in the absence of legislation or suitable codes of conduct for interactions between PMRs and physicians as in the Palestine case, PMRs may be involved in less ethical marketing practices to induce prescribing a particular drug. Monetary incentives offered by PMRs to physicians can produce a conflict of interest and may encourage less rational prescribing choices (Alssageer & Kowalski, 2012). Also, payments may be associated with larger prescription costs, and a higher percentage of branded medication prescribed (Perlis & Perlis, 2016).

Finding showed that honoraria and monetary incentives have only moderate effect on physician prescribing behavior. It increases the chance to prescribe company products and it was considered when selecting alternative drugs with weighted mean (51.8%, 47.8%) respectively. Paid physicians increase the number of prescriptions including the drug for which they received payment and increase the total amount of expenditures on that drug (Carey et al., 2020). A physician who accepts funding is up to ten times more likely to prescribe the sponsored medications after such fund than before and nearly eight times more likely to prescribe such drug than a physician who does not (Anand, 2011). Furthermore, physicians who received money requested formulary addition of the company's drug more often than other physicians did (Fickweiler et al., 2017).

4.3.5 Preparedness to the Regulation of the Marketing Practices

Finding in this study showed that the weighted mean for the preparedness to the regulation of the marketing practices is (61.73%) as in (Fig.4.7). The highest perentage was for the statement " encourage PCs to sponsor local scientific conferences and CME" with

weighted mean (75.5%). This mean that the majority of respondents agreed with the importance of boosting pharmaceutical companies to support important conferences and CME events. This result matches with (Ammar, 2015; Misra et al., 2010; Lieb & Brandtönies, 2010).

Also, respondents confirmed the importance of monitoring the promotional printed materials of PCs as well as developing ethical code that govern the interaction of physicians & PCs with wieghted mean (72.6%, 71.8%) respetively. Furthermore, they support implementing regulations to control interaction of physicians and PCs with wieghted mean (70%).

Table 4.6: Distribution of the Study Respondents According Preparedness to the Regulation of the Marketing Practices

Items	Strongly disagree		Disagree		Neutral		Agree		Strongly agree		Mean	Weighted Mean (%)
	N	%	N	%	N	%	N	%	N	%		
Implement regulations to control interaction of physicians and PCs.	13	3.7	56	16.1	69	19.9	164	47.3	45	13.0	3.50	70
Ethical code that governs the interaction of physicians &PCs.	14	4.0	43	12.4	62	17.9	181	52.2	47	13.5	3.59	71.8
Arrange training to physicians about interaction with PCs.	13	3.7	56	16.1	75	21.6	170	49.1	33	9.5	3.44	68.8
Prohibit the entrance of PCs' PMR to MOH hospitals.	59	17.0	159	45.8	77	22.2	42	12.1	10	2.9	2.38	47.6
monitor the promotional printed materials of PCs.	3	0.9	31	8.8	97	28.0	178	51.3	38	11.0	3.63	72.6
Distribute reduced packs of free samples by " Not for sales".	23	6.6	56	16.1	101	29.1	141	40.7	26	7.5	3.26	65.2
limit the distributing of free medical samples to patients	20	5.8	70	20.2	139	40.0	104	30.0	14	4.0	3.06	61.2
Limit the value of gifts given from PCs to a specific value.	29	8.4	90	25.9	136	39.2	75	21.6	17	4.9	2.89	57.8
encourage PCs to sponsor local scientific conferences and CME	8	2.3	36	10.4	57	16.4	175	50.4	71	20.5	3.76	75.2
Prohibit PCs from organizing presentations in MOH hospitals.	65	18.7	154	44.4	73	21.0	39	11.2	16	4.7	2.39	47.8
Select physicians for conferences travel of PCs by MOH.	32	9.2	104	30.0	89	25.6	98	28.3	24	6.9	2.94	58.8
MOH approval when participate in scientific studies for PCs	52	15.0	104	30.0	92	26.5	83	23.9	16	4.6	2.73	54.6
Physician to disclose MOH about the honoraria from PCs.	69	19.9	101	29.1	106	30.5	55	15.9	16	4.6	2.56	51.2
Over All	**Weighted mean = 61.73%, SD = 7.64**											

Total number of all participant for all variables is 347

While the lowest percentage was for the statement "prohibit the entrance of PCs' representatives to MoH hospitals" and "prohibit PCs from organizing presentations inside MoH hospitals" with weighted mean (47.6%, 47.8%) respectively.

Pharmacists & PMRs during the focus group discussion suggest the importance of enhancing the cooperation between the relevant unions and the MoH to provide clear protocols and definite methods to regulate the relationship between physicians and pharmaceutical companies. And to establish clear policies for free samples in particular because it is the most negatively influenced method.

Study findingds revealed that the respondents are well prepared for the regulations of marketing. It matches with (Ammar, 2015; Alssageer & Kowalski, 2013; Misra et al., 2010; Sharma et al., 2010; Pinto et al., 2007) studies which showed the preparedness of physicians toward regulating some types of marketing practices.

In contrast, other studies revealed that physicians are against such marketing regulations (Zaki, 2014; Lieb & Brandtönies, 2010; Balhara et al., 2012; Korenstein et al., 2010). These results confirm that the respondents are prepared to the implement regulations and ethical codes to govern physicians – PMRs interactions. It is important for decision makers to recognize how physicians are prepared to the regulation regarding the marketing practices. This is essential to determine the appropriate corrective actions that can be implementd.

4.3.6 Differences in the Effect of Pharmaceutical Marketing Due to Physicians' Characteristics

Findings of the study shows that the physicians prescribing behaviour is affected by the pharmaceutical promotional activities. In this part the researcher will test the differences among physicians in the effect of the marketing practices on their prescribing behavior due to physicians' characteristics which include personal, professional and practice setting characteristics. However, after a detailed literature review Alowi & Kani, (2019) conclude that most previous research has generally ignored physicians' demographic characteristics when studying the effect of the promotional tools used by pharmaceutical companies on physician prescribing behavior. As seen from table (4-8) that the impact of promotional tools on prescribing behaviour of physicians revealed no statistically significant difference between male participants (76.49%) and female participants (80.54%) with regards to effect of pharmaceutical marketing practices (T= 1.947, Sig.= 0.996). In another words, male & female are the same in the effect of pharmaceutical marketing practices on the physicians' prescribing behavior. This result is consistent with Gebreegziabher, (2017)

study that there was an insignificant association for gender in relation with influence of promotional tool on prescription decision.

Table 4.7: Differences in The Effect of Pharmaceutical Marketing Due to Physicians' Gender, Administrative Position, and Committee Membership

Domain	Characteristics	Mean	T	P Value
Gender	Males	76.5	1.947	0.996
	Females	80.5		
Have any administrative position	No	77.6	1.155	0.717
	Yes	75.4		
Are you member in any committee	No	77.8	0.634	1.808
	Yes	74.1		

An independent t-test for grouping variables, P<0.05

Regarding physicians' administrative position as shown in table (4-8) an independent t-test revealed no statistically significant difference between" Have administrative position" (75.45%) and "not Have administrative position" (77.65%) with regards to effect of pharmaceutical marketing practices (T= 1.155, Sig.= 0.717). In another words, "Have any administrative position or Not" are the same in the effect of pharmaceutical marketing practices on the physicians' prescribing behavior.

Regarding physicians' committee membership as shown in table (4-8) the test revealed no statistically significant difference between" member in any committee "(74.115%) and "not member in any committee " (77.83%) with regards to effect of pharmaceutical marketing practices (T= 0.634, Sig.= 1.808). In another words, " to be a member in any committee or Not" are the same in the effect of pharmaceutical marketing practices on the physicians' prescribing behavior.

Table 4.8: Differences in The Effect of Pharmaceutical Marketing Due to Physicians' Socio-demographic and Professional Characteristics

Domain	Characteristics	No.	Mean	SD	F	Sig.
Age group	From 25 to 35 years	68	80.47	15.70	4.18	0.006
	From 36 to 45 years	125	78.17	13.51		
	From 46 to 55 years	131	75.96	14.46		
	55 years and more	23	68.96	15.13		
Monthly Income	<2000	54	82.11	13.75	3.937	0.009
	2000-3000	83	79.04	17.16		
	3001-4000	136	74.94	12.58		
	>4000	74	75.61	14.80		
Income Satisfaction	Very Dissatisfied	5	73.20	19.38	3.656	0.013
	Dissatisfied	141	75.72	13.69		
	Satisfied	152	79.93	14.60		
	Very Satisfied	49	73.24	15.68		
Graduation Country of Bachelor	Palestine	64	80.20	13.858	4.848	0.008
	Arab Countries	103	79.34	14.79		
	Foreign Countries	180	74.87	14.49		

Domain	Characteristics	No.	Mean	SD	F	Sig.
Years of practice in Gaza	<5	40	80.23	16.81	5.185	0.002
	5-10	63	80.59	13.60		
	11-15	132	78.19	12.08		
	>15	112	72.98	16.21		
Educational Degree (Highest)	High Diploma	48	74.25	15.71	1.462	0.225
	Master	99	78.64	15.02		
	Doctoral	109	76.02	14.58		
	Board	91	78.53	13.50		
Professional Level	Resident	75	77.97	15.58	1.291	0.276
	Specialist	156	75.80	15.48		
	Consultant	116	78.52	12.63		
Specialty	Gynecology	77	80.1688	14.56691	1.131	0.342
	Internal medicine	111	76.4054	15.77188		
	Orthopedic	32	76.6563	15.04747		
	Pediatrics	34	74.9118	13.41724		
	Surgery	93	76.6344	13.42757		
work place	governmental	64	75.36	15.34	1.479	0.229
	Private (clinic or center)	89	75.90	12.70		
	Governmental & private	194	78.37	15.16		
Approximate number of patients seen per day	<25	159	75.94	13.91	0.758	0.518
	25-50	152	78.24	14.90		
	51-75	26	78.81	17.83		
	>75	10	76.60	12.78		
Average number of prescription prescribe day in your working	<25	179	75.96	13.91	1.587	0.192
	25-50	145	78.81	14.93		
	51-75	18	78.44	18.71		
	>75	5	69.00	11.11		

Total number of all participant for all variables is 347

One-way ANOVA test for grouping variables, P<0.05

Regarding physicians' age, a one-way ANOVA test was conducted to examine whether there were statistically significant differences among participants in different age groups in relation to the effect of pharmaceutical marketing practices on the physicians' prescribing behavior. The test revealed a statistically significant difference across participants age groups regarding "the effect of pharmaceutical marketing practices" (F= 4.18, Sig.= 0.006). A Tukey post hoc test was conducted to examine which of participants' age groups are significantly different. The test revealed that participants aged from 25 to 35 years have a statistically higher score of " the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants aged 55 years and more (MD= 11.51, Sig.= 0.006), and the participants aged from 36 to 45 years have a statistically higher score of " the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants aged 55 years and more (MD= 9.22, Sig.= 0.026). These findings mean that older physicians will affect less than junior physicians from pharmaceutical marketing practices (table 4-9). This result is consistent with

Gebreegziabher, (2017), which revealed a significant difference among the different age groups. Also Kasliwal & Bansal (2013) study revealed that a significant difference in age group of 25-30 years and 41-45 years, although the effect on older physicians was less influencing. Lublóy (2014) in his review found that early prescribers for a new drug were younger than the majority.

Regarding physicians' monthly income as shown in table (4-9), a one-way ANOVA test was conducted to examine whether there were statistically significant differences among participants in different "monthly income" in relation to the effect of pharmaceutical marketing practices on the physicians' prescribing behavior. The test revealed a statistically significant difference across participants "monthly income" regarding" the effect of pharmaceutical marketing practices" (F= 3.94, Sig. = 0.009). A Tukey post hoc test was conducted to examine which of participants' monthly income are significantly different. The test revealed that participants monthly income <2000 have a statistically higher score of "the effect of pharmaceutical marketing practices on the physicians' prescribing behavior" than participants monthly income 3001-4000 (MD= 7.17, Sig. = 0.012). These findings mean that more highly monthly income physicians will affect less than less monthly income physicians from pharmaceutical marketing practices. However, one of the most widely used strategies by pharmaceutical companies to motivate prescription was to offer money as direct drug commissions on each prescription or in the form of other monetary incentives (Yang, 2016). Therefore, the low basic salaries of physicians may push some towards accepting pharmaceutical industry financial incentives to compensate for their low income.

Regarding physicians' Income Satisfaction, a one-way ANOVA test was conducted to examine whether there were statistically significant differences among participants in different "Income Satisfaction " in relation to the effect of pharmaceutical marketing practices on the physicians' prescribing behavior. The test revealed a statistically significant difference across participants "Income Satisfaction" regarding "the effect of pharmaceutical marketing practices" (F= 3.656, Sig.= 0.013). A Tukey post hoc test was conducted to examine which of participants' Income Satisfaction are significantly different. The test revealed that participants "Satisfied" physicians have a statistically higher score of "the effect of pharmaceutical marketing practices on the physicians' prescribing behavior" than "Very Satisfied" (MD= 6.689, Sig. = 0.026).

Regarding physicians' graduation country of bachelor, As shown in table (4-9) a one-way ANOVA test was conducted to examine whether there were statistically significant differences among participants in different "Graduation Country of Bachelor" in relation to

the effect of pharmaceutical marketing practices on the physicians' prescribing behavior. The test revealed a statistically significant difference across participants graduation country regarding" the effect of pharmaceutical marketing practices" (F= 4.848, Sig.= 0.008). A Tukey post hoc test was conducted to examine which of participants' graduation country are significantly different. The test revealed that participants graduation country from Palestine have a statistically higher score of " the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants graduation country from foreign countries (MD= 5.33, Sig.= 0.031), and the participants graduation country from Arab countries have a statistically higher score of "the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants graduation country from foreign countries (MD= 4.47, Sig.= 0.034). These findings mean that physicians graduated from foreign countries are affected less than physicians graduated from (Palestine & Arab countries) by pharmaceutical marketing practices.

Regarding physicians' years of practice in the GS, as shown in table (4-9) a one-way ANOVA test was conducted to examine whether there were statistically significant differences among participants in different " Years of practice in Gaza " in relation to the effect of pharmaceutical marketing practices on the physicians' prescribing behavior. The test revealed a statistically significant difference across participants years of practice in Gaza regarding "the effect of pharmaceutical marketing practices" (F= 5.185, Sig.= 0.002). A Tukey post hoc test was conducted to examine which of participants' Years of practice in Gaza are significantly different. The test revealed that participants practice in Gaza 5-10 have a statistically higher score of " the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants practice in Gaza >15 (MD= 7.605, Sig.= 0.005), the participants practice in Gaza <5 have a statistically higher score of " the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants practice in Gaza >15 (MD= 7.24, Sig.= 0.033), and the participants participants practice in Gaza 11-15 have a statistically higher score of " the effect of pharmaceutical marketing practices on the physicians' prescribing behavior " than participants practice in Gaza >15 (MD= 5.21, Sig.= 0.026). These findings mean that physicians with more years of practice in Gaza will affect less than physicians with less years of practice in Gaza by pharmaceutical marketing practices. This result is consistent with Vancelik et al (2007) study which revealed that the percentage of the influenced physicians whose year of practice was equal to or less than 5 years was significantly higher

than the percentage of influenced physicians who were more experienced. However, this result is opposite to Kasliwal & Bansal (2013) study findings, they reported that there is a significant difference in the influence of promotional tools on physicians' prescribing behavior due to different years of experience, and physicians with 41 and above years of work experience were more influenced.

The ANOVA test revealed that there were no significance differences among participants regarding the effect of pharmaceutical marketing practices on the physicians' prescribing behavior due to educational degree, professional level, specialty, work place, approximate number of patients seen per day, average number of prescription prescribe per day.

Chapter 5

Conclusions & Recommendations

5.1 Conclusions

The current study investigated the effect of pharmaceutical marketing practices on physicians prescribing behavior in the GS.

Results of this study revealed that many physicians prefer internet the medical, textbooks and academic journals as references for drug information rather than commercial sources of medical information including medical representatives detailing and pharmaceutical companies printed promotional materials. However, nearly two thirds of physicians depend on detailing as a source of drug information.

Also, this study highlighted the complex correlated factors that impact physicians' prescription behavior. The study results indicated that the most influencial factors on physicians' drug selection include drug characteristics, with clinical effectiveness, safety and drug price were seen as the most important criterion considered by physicians. Besides the drug characteristics, generic drugs suggested by policymakers and treatment guidelines have high effect on physicians' prescription choice. Also, physicians' colleagues and clinical experience was considered by majority of respondents as an important factor that impacts physician prescribing behavior. Furthermore, a number of factors associated with the patient were identified to impact physician prescribing behavior. The most important of these factors was dosage compliance of drug and patient's purchasing power. Finally, number of factors associated with the pharmaceutical company were ranked as the least influential factor regarding the effect on the physician drug selection choice. The most important of these factors as mentioned by majority of respondents was good reputation brand. However, the promotional tools were considered as a high influential factor motivating physicians to prescribe promoted drugs. Findings of this study revealed that there is an active interaction between physicians and the pharmaceutical industry. PMRs detailing has become prevalent in health facilities in the GS with nearly half of the physicians were visited at least once a week by PMRs. The provision of promotional printed material, free medical samples and inexpensive gifts were the major inducements tools used by PMRs.

The study results revealed that the current promotional tools had a considerable role in affecting physicians' prescription behavior; however, the influence of these tools was not similar. Detailing and discussions with PMRs was the most effective pharmaceutical marketing tool used, this is also supported by majority of physicians who confirmed the ability of the PMRs to provide them with accurate and correct information about the new and old drugs. Also, promotional printed material including brochures and posters have a high effect on physician prescribing behavior as it increases the prescribing rate of promoted drugs. Finding reveals that free medical samples, offering gifts, sponsored CME, honoraria and monetary incentives are moderate influential factors motivating physicians to prescribe promoted drugs. The study results also proved that the following characteristics were significantly associated with the effect of pharmaceutical marketing on physicians' prescription behavior: age, years of practice, average monthly income, income satisfaction, graduation country of bachelor. Also results confirm that the respondents are prepared to the implement regulations and ethical codes to govern physicians – PMRs interactions

All these results indicate a lack of formal continuing medical education, inadequate control of promotional activities, and inadequate monitoring of prescribing behaviors provided by governmental bodies or professional societies. Therefore, the findings of this study provided insights for drug policymakers and regulatory authorities in the GS into potential target areas to develop. This include developing drug prescribing policy as well as a comprehensive guideline for health professionals' interactions with pharmaceutical companies along with follow-up mechanisms for its enforcement.

5.2 Recommendations

1.There is an urgent need to updates the policies regarding licensing of pharmaceutical companies and drug stores.

2. A drug registration policy should be established to limit the number of alternative drugs that can be registered for generic medicine and prohibiting the marketing of unregistered medicines.

3. There is a dire need to establish comprehensive guidelines for health professionals' interactions with pharmaceutical companies along with follow-up mechanisms for its enforcement.

4. Governmental bodies, as well as physician professional societies, should establish comprehensive formal continuing medical education for physicians on their prescribing behavior.
5. It is of great importance to enhance physicians' knowledge and practice toward the ability to differentiate between promotional and scientific evidence information.
6. At the national level, promoting the concept of rational use of medicines and developing clear protocols and guidelines, and applying them.
7. There is an urgent need to develop ethical codes that direct the interaction between physicians and pharmaceutical companies with obvious rules about and provide a tool for dealing with the code details.
8. The national drug regulatory authority should establish a formal committee to ensure the accuracy and validity of the information presented in the promotional printed material, conferences, and CME.

5.3 Future Research

The exposure and effect of pharmaceutical marketing practice on physicians are an exciting topic in developed countries; it represents a new field that is not well researched in the Arab countries. Thus, there is a field for more research: -

1. Exposure of doctors toward the marketing practices in Palestine.
2. Evaluating the interaction between physicians and pharmaceutical companies by broad-spectrum qualitative research.
3. Evaluate the factors that negatively affect physicians prescribing behavior.

References

Abdi, A., Faraji, A., Dehghan, F. et al. Prevalence of self-medication practice among health sciences students in Kermanshah, Iran. BMC Pharmacol Toxicol 19, 36 (2018).

Abou Auda HS. (2008). "Information-seeking behaviors and attitudes of physicians toward drug information centers in Saudi Arabia". *Saudi Med J*; 2008;29:107-15.

Abolfazli, S., Mohammadzadeh, M., Peiravian, F., Sharifnia, H. (2017). "Factors influencing hematologists-oncologists' prescription of chemotherapy drugs in cancer treatment in Iran: aninterview-questionnaire study". I*ranian Journal of Pharmaceutical Sciences*, 13(1), 7-22.

Abu Mhadi, A. (2013). "Strategic Plan for Health Sectors in Gaza Strip Technical Paper for Pharmacy Sector". *Gaza: Ministry of health.*

Adibe, M. O., Igboeli, N. U., Michael, C., Udeogaranya, P. O., & Onwudiwe, N. P. (2015). "Evaluation of Information Contained in Drug Advertisement and Promotion Materials in Nigeria". *Tropical Journal of Pharmaceutical Research;14*(March), 539–544.

Ahmed, R. R., Channar, Z. A., Soomro, R. H., Vveinhardt, J., Streimikiene, D., & Parmar, V. (2018). "Antecedents of Symmetry in Physicians' Prescription Behavior: Evidence from SEM-based Multivariate Approach". *MDPI, Symmetry*, *10*(12), 1–26. https://doi.org/10.3390/sym10120721

Ahmed, R. R., Streimikiene, D., Abrh, J., & Streimikis, J. (2014). "Social and Behavioral Theories and Physician ' s Prescription Behavior". *MDPI, Sustainability;* 1–25.

Alakeel, Y. S., Almutairi, D., & Layqah, L. (2020). "Needs and utilization of drug-information resources of healthcare providers in an academic tertiary care center". *International Journal of Pharmacy and Pharmaceutical Sciences*, 124-128.

Al-areefi, M. A. H. (2013). *"The Influence of Drug Promotion Techniques on Prescribing Decisions Among Physicians in Sana ' a city"*. University Sains Malaysia. Malaysia.

Al-areefi, M., Hassali, M. A., & Izham, M. (2013). "Physicians' Perceptions of Medical Representative Visits in Yemen: A qualitative study". *BMC Health Services Research*, *13*(1), 1. https://doi.org/10.1186/1472-6963-13-331

Albarq, A. N., & Suleiman, A. K. (2021). "Pharmaceutical marketing strategies' influence on physician's prescription behavio"r. *Archives of Pharmacy Practice*, 12(1).

Al-Hamdi, A. Y., Hassali, M. A. A., & Ibrahim, M. I. M. (2012). "Impact of Pharmaceutical Promotion on Healthcare Professional's Practices and Behaviour: Views from General Practitioners, Medicine Dispensers and Medical Representatives in Yemen". *Journal of Medical Marketing*, *12(4)*, 240–246.

Alemayehu, M. T. (2011). "*Assessment on the Effect of Pharmaceutical Promotion on Prescribing Decisions of Doctors in Hospitals and Higher Clinics of Addis ababa"*. University of Gondar.

Almasri, M. S., Bukhari, Y. R., Alzuair, B. S., Almadi, M. K., Khalid, A., & Abdulrahman, B. (2020). "Ethical Considerations in Doctors & Pharmaceutical Industries Relationship : a Narrative Review". *International Journal of Medicine in Developing Countries. 2020;4(1):244–252.*. https://doi.org/10.24911/IJMDC.51-1572794591

Almazrou, D. A., Ali, S., Al-Abdulkarim, D. A., Albalawi, A. F., & Alzhrani, J. A. (2019). "Information seeking behavior and awareness among physicians regarding drug information centers in Saudi Arabia". *Pharmacy Practice (Granada)*, 17(2).

Alosaimi, F. D., AlKaabba, A., Qadi, M., Albahlal, A., Alabdulkarim, Y., Alabduljabbar, M., & Alqahtani, F. (2013). "Interactions Between Physicians and Pharmaceutical Sales Representatives in Saudi Arabia". *Annals of Saudi Medicine*, *33*(6), 601–609. https://doi.org/10.5144/0256-4947.2013.601

Alosaimi, F.D., Al Kaabba, A., Qadi, M., Albahlal, A., Alabdulkarim. (2014). "Physicians' attitudes towards interaction with the pharmaceutical industry". *EMHJ-Eastern Mediterranean Health Journal, 20 (12), 812 - 819*. World Health Organization, Regional Office for the Eastern Mediterranean. https://apps.who.int/iris/handle/10665/255332

Alowi, M., & Kani, Y. A. M. (2018). *Impact of Pharmaceutical Companies' Promotional Tools on Physicians' Prescription Patterns: A systematic Review.*.

Alowi, May, & Kani, Y. (2018). "Promotional Tools on Physicians ' Prescription Patterns : A Systematic Review". *Journal of Applied Pharmacy Impact of Pharmaceutical Companies. 10*(3). https://doi.org/10.4172/1920-4159.100026

Alowi, May, & Kani, Y. (2019). "Pharmaceutical Care & Health Systems Promotion of Prescription Drugs and Its Impact on Physician's Choice". *5*(3). https://doi.org/10.4172/2376-0419.1000200

Alssageer, M. A., & Kowalski, S. R. (2013). "What do Libyan Doctors Perceive as the Benefits, Ethical Issues and Influences of Their Interactions with Pharmaceutical Company Representatives?". *The Pan African Medical Journal*, 14.

Alssageer, Mustafa A, & Kowalski, S. R. (2017). "Doctors' opinions of information provided by Libyan pharmaceutical company representatives". Libyan Journal of Medecine. *2820*(February).. https://doi.org/10.3402/ljm.v7i0.19708

Alves, T. L. ., Lexchin, J., & Mintzes, B. (2018). "Medicines Information and the Regulation of the Promotion of Pharmaceuticals". *Science and Engineering Ethics*. https://doi.org/10.1007/s11948-018-0041-5

Al Zahrani, H. S. (2014). "The Impact of Pharmaceutical Promotions on Primary Health Care Physicians ' Prescribing Behavio in kamc in Central Region". *Int J Med Sci Public Health. 2014; 3(3): 358-361*.. https://doi.org/10.5455/ijmsph.2014.150120141

American Marketing Association. (2021). *from https://www.ama.org/the-definition-of-marketing-what-is-marketing/*.https://www.ama.org/the-definition-of-marketing-what-is-marketing/

Ammar, H. (2015). *Exposure and Attitudes of MOH Hospitals' Physicians Toward the Marketing Practices of Pharmaceutical Companies in the Gaza Strip*.

Ammous, A., Bou, S., Eddine, Z., Dani, A., Dbaibou, J., El-asmar, J. M., Sadder, L., & Akl, E. A. (2017). *Awareness and Attitudes of the Lebanese population with Regard to Physician – Pharmaceutical Company Interaction : a Survey Study*. 1–7. https://doi.org/10.1136/bmjopen-2016-013041

Anand, A. C. (2011). "Professional Conferences , Unprofessional Conduct". *Medical Journal Armed Forces India*, *67*(1), 2–6. https://doi.org/10.1016/S0377-1237(11)80002-X

Anandabaskar N. (2019) Drug Information. In: Raj G., Raveendran R. *(eds) Introduction to Basics of Pharmacology and Toxicology. Springer,* Singapore. https://doi.org/10.1007/978-981-32-9779-1_14

Appiah-kubi,. (2011). "The Promotion of Prescription Medicines by Pharmaceutical Sales Representatives and its Effects on Health Professionals".

Agarwal, P., Kaur, S. (2017). "Pharmaceutical Promotion and Its Influence on Prescription Behavior: Ethical Issues and Legal Framework in India". *ABR* 9, 73–85 (2017).

Armstrong, G., Adam, S., Denize, S., & Kotler, P. (2017). *Principles of Marketing* (7th ed.). Pearson Australia.

Aschalew, K. (2019). *The Effect Of Sales Promotion On Prescribing Behavior Of Prescriber's In Tikur Anbessa Specialized Hospital*. ***Addis Ababa, Ethiopia***. Mary's university.

Baker, M. J. (2016). What is Marketing? *The Marketing Book: 7Th. Edition, March 2009*, 3–20. https://doi.org/10.4324/9781315890005

Bala, R. (2010). "Detailing vs . Direct-to-Consumer Advertising in the Prescription Pharmaceutical Industry Detailing versus Direct-To-Consumer Advertising in the Prescription Pharmaceutical Industry".*Management Science*; Vol.56, No. 1, January 2010, pp. 148-160.

Balhara, Y. P. S., Mathur, S., & Anand, N. (2012). "A Study of Attitude and Knowledge of the Psychiatry Resident Doctors toward Clinician–Pharmaceutical Industry Interaction" . *Indian Journal of Psychological Medicine*, *34*((1)), 61–65.

Bhatia, T., Hansen, K., & Krishnamurthi, L. (2006). "Modeling Key Drivers of Physician's Choice of Prescription Drugs: An Integrated View Incorporating Patient and Physician Heterogeneity".

Bhatt, P. (2018). "Study on Influence of Medical Representative in Conversation of Doctor's Prescription in India". *Global Journals of Management and Business*. Vol. 18, No. 3-E (2018).

Biswas, K., & Ferdousy, U. (2016). "Accounting & Marketing Influence of Pharmaceutical Marketing on Prescription Behavior of Physicians : A Cross-sectional Study in Bangladesh". *Journal of Accounting and Marketing.* 5(2), 2–5. https://doi.org/10.4172/2168-9601.1000160

Blackstone, E. A., Fuhr, J. P., Jr, & Pociask, S. (2014). "The health and economic effects of counterfeit drugs". *American health & drug benefits*, 7(4), 216–224.

Brax, H., Fadlallah, R., Al-khaled, L., Kahale, L. A., Nas, H., El-, F., & Akl, E. A. (2017). "Association Between Physicians ' Interaction with Pharmaceutical Companies and Their Clinical Practices : A Systematic Review and Meta-analysis". National Library of Medicine. 2017 Apr 13; 12(14):e0175493.

Brown, J. L. (2017). "Physician Exposure to Direct-to-Consumer Pharmaceutical Marketing: Potential for Creating Prescribing Bias". *The American Journal of Medicine, 130(6),* e247–e248.

Carey, C., Lieber, E. M., & Miller, S. (2020). "Drug Firms' Payments and Physicians' Prescribing Behavior in Medicare P". *National Bureau of Economic Research*.

Carmen E. Capó-Lugo, Abel N. Kho, Linda C. O'Dwyer, Marc B. Rosenman. (2017). "Data Sharing and Data Registries". *Physical Medicine and Rehabilitation*,Volume 9, Issue 5, Supplement,2017,Pages S59-S74,

Carey, Colleen and Lieber, Ethan M.J. and Miller, Sarah (2020). "Payments and Physicians' Prescribing Behavior in Medicare Part D.Working Pape"r. *National Bureau of Economic Research*

Chalkley, P. (2009). "Targeting Accessible Physicians". *Canadian Pharmaceutical Marketing, 2*, 29–30.

Chauhan I, Yasir M, Kumari M, Verma M. (2018). "The pursuit of rational drug use: Understanding factors and interventions". *Pharmaspire* 2018; 10(2),48-54.

Ching, A., & Ishihara, M. (2015). "The Effects of Detailing on Prescribing Decisions Under Quality Uncertainty". July. https://doi.org/10.1007/s11129-010-9082-z

Choi, K. H., Park, S. M., Lee, J. H., & Kwon, S. (2012). "Factors Affecting the Prescribing Patterns of Antibiotics and Injections". *Journal of Korean Medical Science*, *27(2)*, 120.

Davari, M., Khorasani, E., & Tigabu, B. M. (2018). "Factors Influencing Prescribing Decisions of Physicians: a Review". *Ethiopian Journal of Health Sciences*, *28(6)*.

DeLaat, E., Windmeijer, F., & Douven, R. (2002). "How Does Pharmaceutical Marketing Influence Doctors 'Prescribing Behaviour ?". *ResearchGate*.

Ding M, Eliashberg J, S. S. (2016). "Innovation and Marketing in the Pharmaceutical Industry". *Springer*.

Dohnhammar, U., Reeve, J., & Walley, T. (2016). "Patients' expectations of medicines–a review and qualitative synthesis". *Health Expectations*, 19(2), 179-193.

Donohue, J. M., Guclu, H., Gellad, W. F., Chang, C. C. H., Huskamp, H. A., Choudhry, N. K., Zhang, R., Lo-Ciganic, W. H., Junker, S. P., Anderson, T., & Richards-Shubik, S. (2018). "Influence of Peer Networks on Physician Adoption of New Drugs". *PLoS ONE*, *13*(10), 1–18. https://doi.org/10.1371/journal.pone.0204826

Edwards, L. D., Fox, A. W., & Stonier, P. D. (2011). *Principles and Practice of Pharmaceutical 3rd*. edition.

Erwin J., Siew H. (2018). "How can we balance our ethical concerns and responsibilities with the benefits of dealing with commercial organisations?". *Acta Paediatrica*, 10.1111/apa.14362, 107, 9, (1492-1493).

Fadlallah, R., Alkhaled, L., Brax, H., Nasser, M., & Rajabbik, M. H. (2017). "Extent of Physician – Pharmaceutical Industry Interactions in Low- and Middle-Income Countries : a Systematic Review". *28*(2), 224–230. https://doi.org/10.1093/eurpub/ckx204

Ferdoush, J., Chowdhury, A., Parveen, K., Ata, M., Alam, S. S., & Reza, F. H. (2018). "A Survey of Factors Influencing Drug Choice and the Prescribing Attitudes Among Junior Doctors of Two Major Tertiary Care Hospitals in Chittagong City. Chattagram Maa-O-Shishu". *Hospital Medical College Journal*, *17*((1)), 17-22.

Fickweiler, F., Fickweiler, W., & Urbach, E. (2017). "Interactions Between Physicians and the Pharmaceutical Industry Generally and Sales Representatives Specifically and Their Association With Physicians' Attitudes and Prescribing Habits: A Systematic Review". *Bmj Open*, *7*(9), 1–12. https://doi.org/10.1136/bmjopen-2017-016408

Fidler, A., & Msisha, W. (2008). "Governance in the Pharmaceutical Sector. Eurohealth" 14(1), 25-29. *Governance in the Pharmaceutical Sector. Eurohealth 14(1), 25-29.*

Franco, J. V. A., Arancibia, M., Meza, N., Madrid, E., & Kopitowski, K. (2020). *Clinical practice guidelines: concepts, limitations and challenges*. Medwave, 20(3).

Fugh-Berman, A. (2008). "Key Opinion Leaders: Thus Are Our Medical Meetings Managed". *Bmj(Clinical Research Ed*. https://europepmc.org/articles/PMC2483888

Fugh-berman, A., & Homedes, N. (2018). "Colombian Journal of Anesthesiology How drug Companies Manipulate Prescribing Behavior Cómo Las Empresas Farmacéuticas Manipulan la Conducta Para Formular Los Medicamentos". *46*(4), 317–321.

Gasparini, M., Tarquini, D., Pucci, E. (2020). "Conflicts of interest and Scientific Societies". *Neurological Science*. 41, 2095–2102.

Gereffi, G. (2017). *The Pharmaceutical Industry and Dependency in the Third World: . Princeton:* Princeton University Press

Ghaith, A., Dmour, H., & Alabbadi, I. (2013). "Investigating the Effe ct of Pharmaceutical Companies ' Gifts on Doctors ' Prescribing Behavior in Jordan". *36*(4), 528–536.

Goyal, R., & Pareek, P. (2013). "A Review Article on Prescription Behavior of Doctors , Influenced By The Medical Representative In Rajasthan , India". *8*(1), 56–60.

Green, M. J., Masters, R., James, B., Simmons, B., & Lehman, E. (2012). "Do Gifts From the Pharmaceutical Industry Affect Trust in Physicians?". *Family Medicine*, *44*(5), 325–331.

Groppen, V. O. (2015). "Gravity Forces as a Tool for the Experimental Verification of the Universe Simulators Based on the Measurement Standards Variability". *International Journal of Mathematical Models and Methods in Applied Sciences*, *9*(1), 345–351.

Hailemeske B, Drame I, Choi M, Pansiri P. (2016). "Preferences and utilization of drug information resources by practicing pharmacists". *J Nurs Care* 2016; 2:1-5.

Handa, M., Vohra, A., & Srivastava, V. (2013). "Device , Perception of physicians Towards Pharmaceutical Promotion in India". *Journal of Medical Marketing*. https://doi.org/10.1177/1745790413480519

Hossain, M., Kawsar, S., Tanmy, T., & Yousuf, A. (2013). "Assessment of Influencing Factors on Prescription Practices of Physicians in Bangladesh". *Int Res J Pharm*, *4*, 112–116.

Ibrahim, I. A. Y., & Bélanger, C. H. (2015). "Pharmaceutical Representatives and Prescription Decisions by Physicians in Saudi Arabia". *3*(2), 69–79. https://doi.org/10.15640/jmm.v3n2a7

IFPMA. (2012). "IFPMA Code of Practice". *IFPMA.org*. http://ifpma.org/fileadmin/%0Acontent/Publication/2012/IFPMA_Code_of_Practice_2012_new_logo.pdf

Iglesias, O., Markovic, S., Bagherzadeh, M. et al. Co-creation (2020). "A Key Link Between Corporate Social Responsibility, Customer Trust, and Customer Loyalty. J Bus Ethics". 163, 151–166 (2020).

Jain, S., Upadhyaya, P., Goyal, J., Kumar, A., Jain, P., Seth, V., & Moghe, V. V. (2015). "A systematic review of prescription pattern monitoring studies and their effectiveness in promoting rational use of medicines. Perspectives in clinical research", 6(2), 86.

Jacob, N. T. (2018). "Drug Promotion Practices: A Review". *British Journal of Clinical Pharmacology*, *84(8)*, 1659–1667.

Johanne Korsdal Sørensen (2019). "How physicians professional socialisation and social technologies may affect colleagues in substance use disorders". *Addiction Research & Theory*, 27:2, 104-113

Joseph, K., & Mantrala, M. (2009). "A Model of the Role of Free Drug Samples in Physicians ' Prescription Decisions". 15–29. https://doi.org/10.1007/s11002-008-9045-2

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

Kier, K., & Goldwire, M. (2018). *Drug information resources and literature retrieval*.

Kireev, Vasiliy S; Nekrasova, Marina L; Shevchenko, Ekaterina V; Alpatskaya, Irina E; Makushkin, Sergey A. (2016). "International Review of Management and Marketing, suppl". Special Issue.

Kalaskar, P. B., & Sager, P. N. (2012). "Factors Influencing Prescription Behavior of Physicians: A study With Reference to Marathwada Regio" . *Indian Streams Research Journal*, *2*, 1–4.

Kamuhabwa, A. A., & Kisoma, S. (2015). "Factors Influencing Prescribing Practices of Medical Practitioners in Public and Private Health Facilities in Dar es salaam, Tanzania. Kale, R. (1994). Health Information for the Developing World. Bmj". 309(6959), 939-942.. *Tropical Journal of Pharmaceutical Research*, *14*((11)), 2107-2113.

Katsanis, L. (2017). *Global Issues in Pharmaceutical Marketing*.

Khazzaka, M. (2019). "Pharmaceutical Marketing Strategies' Influence on Physicians' Prescribing Pattern in Lebanon: Ethics, Gifts, and Samples". *BMC Health Services Research*, *19*(1), 1–11. https://doi.org/10.1186/s12913-019-3887-6

Kim, W., & King, W. (2009). "Product Category Effects on External Search for Prescription and Nonprescription Drugs". *Journal of Advertising*, *38(1)*, 5–20.

Korenstein, D., Keyhani, S., & Ross, J. S. (2010). "Physician Attitudes Toward Industry: a View Across the Specialties". *Archives of Surgery*, *145*((6)), 570–577.

Kotler, P., & Armstrong, G. (2009). *Marketing, an Introduction* (10th ed.). River, NJ.

Kremer, S. T. M., Bijmolt, T. H. A., Lee, P. S. H., & Wieringa, J. E. (2008). "Generalizing on the effectiveness of pharmaceutical promotional expenditure". *Intern . J . of Research in Marketing Generalizations on the Effectiveness of Pharmaceutical Promotional Expenditures*. *25*, 234–246. https://doi.org/10.1016/j.ijresmar.2008.08.001

Lublóy, Á. (2014). "Factors affecting the uptake of new medicines: a systematic literature review". *BMC Health Serv Research*. 14, 469 (2014). https://doi.org/10.1186/1472-6963-14-46

Lakhawat, P. S., Kenneth, A. B., & Chandra, A. (2016). "Review Study on Factors Affecting the Prescription Pattern of Physicians". *PharmaTutor*, *4*, 18–22.

Lidstone, J., & MacLennan, J. (2017). *Marketing Planning for the Pharmaceutical Industry* (2nd ed.). Routledge.

Lieb, K., & Brandtönies, S. (2010). "Original Article A Survey of German Physicians in Private Practice About Contacts With Pharmaceutical Sales Representatives". *107*(22), 392–398. https://doi.org/10.3238/arztebl.2010.0392

Lieb, K., & Scheurich, A. (2014). *Contact Between Doctors and the Pharmaceutical Industry, Their Perceptions, and the Effects on Prescribing Habits*. *9*(10). https://doi.org/10.1371/journal.pone.0110130

Little, P., Dorward, M., Warner, G., Stephens, K., Senior, J., & Moore, M. (2004). "Importance of Patient Pressure and Perceived Pressure and Perceived Medical Need for Investigations, Referral, and Prescribing in Primary Care: Nested Observational Study". *Bmj*, *328(7437)*, 444.

López-Valcárcel, B. G., Librero, J., Sanfelix-Gimeno, G., & Peiró, S. (2011). "Are Prescribing Doctors Sensitive to the Price That Their Patients Have to Pay in the Spanish National Health System?." *BMC Health Services Research, 11(1),* 1–9.

Lotfi, T., Morsi, R. Z., Rajabbik, M. H., Alkhaled, L., Kahale, L., Nass, H., Brax, H., Fadlallah, R., & Akl, E. A. (2016). "Knowledge, Beliefs andAttitudes of Physicians in Low and Middle-Income Countries Regarding Interacting With Pharmaceutical Companies: A Systematic Review". *BMC Health Services Research*, *16*(1). https://doi.org/10.1186/s12913-016-1299-4

Lua, H., Sklar, G., & Ko, Y. (2011). "Identification and Physicians' Views of Their Commonly-Used Drug Information Sources in Singapore". *Int J Clin Pharm*, *33,* 772.

Magno-Gatmaytan, M. C. (2013). *Influencing Physician Prescribing Behavior: Direct-to-Consumer Advertising and the Demand for Me-to Drugs*. Northeastern University.

Makowska, M. (2017). *Polish Physicians ' Cooperation with the Pharmaceutical Industry and its Potential Impact on Public Health*. 1–17.

Mali, S., Dudhgaonkar, S., & Bachewar, N. P. (2010). "Evaluation of Rationality of Promotional Drug Literature Using World Health Organization Guidelines". *Indian Journal of Pharmacology*, *42*((5)), 267.

Maxwell, S. (2016). *Rational Prescribing : the Principles of Drug Selection*. *16*(5), 459–

McKinlay, J. B., Trachtenberg, F., Marceau, L. D., Katz, J. N., & Fischer, M. A. (2014). "Effects of patient medication requests on physician prescribing behavior: results of a factorial experiment". *Medical care*, 52(4), 294.

Michas, F. (2020). *Number of Patients U.S. Physicians Saw Per Day 2012-2018.*

Mim, I., Of, E., & Techniques, M. (2014). " A Study on the Acute Kidney Injury in Snake Bite Victims in a Teriary Care Center". *Journal Of Clinical and Diagnostic Research*. *Wilderness&EnvironmentalMedicine*,*25*(1)114. https://doi.org/10.1016/j.wem.2013.09.006

Mintzes, B., Lexchin, J., Sutherland, J. M., Beaulieu, M. D., Wilkes, M. S., Durrieu, G., & Reynolds, E. (2013). "Pharmaceutical Sales Representatives and Patient Safety: a Comparative Prospective Study of Information Quality in Canada, France and the United State"s. *Journal of General Internal Medicine*, *28(10)*, 1368–1375.

Mohammadzadeh, M., Arzani, G., Salamzadeh, J., Abolfazli, S. A., Zali, A., & Khoshdel, A. R. (2018). “Main Factors Affecting Physicians' Prescribing Decisions: The Iranian Experience”. *Iranian Journal of Pharmaceutical Research*, 17(3).

Mintzes, B., Lexchin, J., Sutherland, J. M., Beaulieu, M., Wilkes, M. S., Durrieu, G., Reynolds, E., Mintzes, B., Lexchin, J., Sutherland, J. M., Beaulieu, M. D., Wilkes, M. S., Durrieu, G., & Reynolds, E. (2013). "Pharmaceutical Sales Representatives and Patient Safety: a Comparative Prospective Study of Information Quality in Canada, France and the United States". *Journal of General Internal Medicine*, *28(10)*, 1368–1375. https://doi.org/10.1007/s11606-013-2411-7

Misra, S., Ganzini, L., & Keepers, G. (2010). "Psychiatric Resident and Faculty Views on and Interactions With the Pharmaceutical Industry". *Academic Psychiatry*, *34*((2)), 102–108.

MoH. (2018). *Health Annual Report Palestine 2018 Palestinian Health Information Center*.

Mohiuddin, M., Rashid, S. F., Shuvro, M. I., Nahar, N., & Ahmed, S. M. (2015). "Qualitative Insights into Promotion of Pharmaceutical Products in Bangladesh : How Ethical Are the Practices ?". *BMC Medical Ethics*, 1–9. https://doi.org/10.1186/s12910-015-0075-z

Muktak, V., & Ashwani, P. (2019). "Pharmaceutical Marketing Communication Strategies and Its Influence on Physician Prescription Preference". *Zenith Int J Multidisciplinary Res.* http://www.indianjournals.com/ijor.aspx?target=ijor:zijmr&volume=9&issue=5&article=031

Murshid, M., & Mohaidin, Z. (2017). "Models and Theories of Prescribing Decisions : A Review and Suggested a New Model". *15*(2), 1–12.

Murshid, M., Mohaidin, Z., & Goh, Y. (2016). "Moderating Effects of Contextual Factors on Relationship Between Pharmaceutical". *EBSCOhost*. *15*(July), 1559–1568. http://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=6&sid=209f691a-6f97-485d-b8a7-9ce2cd4f7ec4%40sessionmgr4010&hid=4204

Murshid, M.A. and Mohaidin, Z. (2017), "A systematic review of the influence of medical representatives and promotional tools on prescribing: A comparison between developed and developing countries", *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 11 No. 4, pp. 361-394.

Musallam, A. (2015). *Measuring Transparency in the Palestinian Public Pharmaceutical Sector in the Gaza Strip*. Al Azhar University Gaza.

Nair, H., Manchanda, P., & Bhatia, T. (2006). "Asymmetric Peer Effects in Physician Prescription Behavior: the Role of Opinion Leaders". *Research Papers*, *1970*, 1–32.

Nair, H. S., Manchanda, P., & Bhatia, T. (2010). *Asymmetric Social Interactions in Physician Prescription Behavior : The Role of Opinion Leaders*. *XLVII*(October), 883–895.

Negash, D., & Adamu, M. (2010). *The Impact of Pharmaceutical Promotion Strategies on Prescribing Behavior of Physicians a Developing Country Experience: Case of Addis Ababa, Ethiopia*.

Niteesh K., Thomas D. & Amir Q., MD, PhD, MHA. (2016). "*Improving Adherence to Therapy and Clinical Outcomes While Containing Costs: Opportunities From the Greater Use of Generic Medications: Best Practice Advice.*" The Clinical Guidelines Committee of the American College of Physicians

Niwandinda, F., Lukyamuzi, E. J., Ainebyona, C., Ssebunya, V. N., Murungi, G., & Atukunda, E. C. (2020). "Patterns and Practices of Self-Medication Among Students Enrolled at Mbarara University of Science and Technology in Uganda". I*ntegrated pharmacy research & practice*, 9, 41–48.

O'Connor, G. E. (2014). "Emerging Promotional and Pricing Approaches in the US Pharmaceutical Market". https://doi.org/10.1108/JPBM-08-2014-0684

Ornstein, C., Jones, R. G., & Tigas, M. (2016). "Now There's Proof: Docs Who Get Company Cash Tend to Prescribe More Brand-Name Meds. Dollars for Doctors. New York,NY". *ProPublica*. https://www.propublica.org/article/Doctors-Who-Take-Company-Cash-Tend-to-Prescribe-More-Brand-Name-Drugs

Oshikoya, K. . A., Oreagba, I., & Adeyemi, O. (2011). "Sources of Drug Information and Their Influence on the Prescribing Behaviour of Doctors in a Teaching Hospital in Ibadan, Nigeria". *Pan African Medical Journal*, *9(1)*.

Östlund, U., Kidd, L., Wengström, Y., & Rowa-Dewar, N. (2011). "Combining Qualitative and Quantitative Research Within Mixed Method Research Designs: A Methodological Review". *International Journal of Nursing Studies*, *48*(3), 369–383. https://doi.org/10.1016/j.ijnurstu.2010.10.005

Othman, N., Vitry, A. I., Roughead, E. E., Ismail, S. B., & Omar, K. (2010). "Medicines Information Provided by Pharmaceutical Representatives : a Comparative Study in Australia and Malaysia".

Othman, N., Vitry, A., & Roughead, E. E. (2009). "Quality of Pharmaceutical Advertisements in Medical Journals : A Systematic Quality of Pharmaceutical Advertisements in Medical Journals : A Systematic Review". *April 2014*. https://doi.org/10.1371/journal.pone.0006350.

Parmata, U.M.D. and Chetla, S.P. (2021), "Effect of service quality on doctor's satisfaction and prescribing behavior in pharmaceutical supply chain – a study with reference to a major Indian pharmaceutical company". *International Journal of Pharmaceutical and Healthcare Marketing*, Vol. 15 No. 2, pp. 173-211.

PCBS. (2017). *PCBS 2017*.

Perlis, R. H., & Perlis, C. S. (2016). "Physician Payments from Industry Are Associated with Greater Medicare Part Prescribing Costs". *Journal Pone* 1–12. https://doi.org/10.1371/Journal.Pone.0155474

Petryna, A., Lakoff, A., & Kleinman, A. (2006). *Global Pharmaceuticals: Ethics, Markets, Practices*. Duke University Press.

Pohontsch, N.J., Heser, K., Löffler, A. (2017). "General practitioners' views on (long-term) prescription and use of problematic and potentially inappropriate medication for oldest-old patients—A qualitative interview study with GPs (CIM-TRIAD study)". *BMC Fam Practi*tionor. 18, 22 (2017).

PEW. (2013). *Pew Charitable Trust . Persuading the Prescribers: Pharmaceutical Industry Marketing and Its Influence on Physicians and Patients*. https://www.pewtrusts.org/en/research-and-analysis/fact-sheets/2013/11/11/*Persuading*-the-Prescribers-Pharmaceutical-Industry-Marketing-and-Its-Influence-on-Physicians-and-Patients

Pharma Marketing Network. (2021). *The Pharma Marketing Glossary*. https://www.pharma-mkting.com/glossary/?name_directory_startswith=S

Pharmaceutical, T., & Occupation, I. (2012). *Captive Economy*. *March*.

Pinto, S. L., Lipowski, E., Segal, R., Kimberlin, C., & Algina, J. (2007). "Physicians' Intent to Comply With the American Medical Association's Guidelines on Gifts From the Pharmaceutical Industry". *Journal of Medical Ethics*, *33*((6)), 313–319.

Pokharel, P. R. (2017). *Promotional Tools Effect on Pharmaceuticals Marketing*. *VIII*(February), 79–84.

Rafique, S., Sarwar, W., Rashid, A., & Sheerin, F. (2017). "Influence of free drug samples on prescribing by physicians: A cross sectional survey". Journal Pak Med Assoc, 67(3), 465-467.

Robertson, C., Rose, S., & Kesselheim, A. S. (2013). "On the Behaviors of Health Care Professionals : A Review of the Evidence". *Journal of Law, Medicine & Ethics*, 452–467.

Roisin, G. (2015). "Identifying and Exploring Future Trends Impacting on Academic Libraries: A Mixed Methodology Using Journal Content Analysis, Focus Groups, and Trend Reports, New Review of Academic Librarianship". 21:3, 269-285

Rubin, P. H. (2004). "Pharmaceutical Marketing: Medical and Industry Biases". *Journal of Pharmaceutical Finance, Economics & Policy*, 1–16.

Sah, S., & Fugh- Berman, A. (2013). "Physicians Under the Influence: Social Psychology and Industry MarketingStrategies". *Journal of Law, Medicine and Ethics*, *41(3)*, 665–672.

Saito, S., Mukohara, K., & Bito, S. (2010). "Japanese Practicing Physicians ' Relationships with Pharmaceutical Representatives : A National Survey". *5*(8), 1–7. https://doi.org/10.1371/journal.pone.0012193

Schrier, L., Hadjipanayis, A., Stiris, T. (2020). "Off-label use of medicines in neonates, infants, children, and adolescents: a joint policy statement by the European Academy of Paediatrics and the European society for Developmental Perinatal and Pediatric Pharmacology". *European Journal Pediatritian*. 179, 839–847.

Sismondo, S., Chloubova, Z. (2016). "You're not just a paid monkey reading slides": How key opinion leaders explain and justify their work". *BioSocieties* 11, 199–219 (2016).

Shankar, P. R. (2017). "Fact or Fiction? What Healthcare Professionals NEed to Know About Pharmaceutical Marketing in the European Union". *Indian Journal of Pharmacology*, *49(2)*, *49(2)*, 211.

Sharifnia, S. H. A., Mohammadzadeh, M., Arzani, G., Salamzadeh, J., Abolfazli, S. A., Zali, A., & Khoshdel, A. R. (2018). "Main Factors Affecting Physicians' Prescribing Decisions: The Iranian Experience". *Iranian Journal of Pharmaceutical Research*, *17*(3), 1105–1115. https://doi.org/10.22037/ijpr.2018.2260

Sharma, V., Aggarwal, S., Singh, H., Garg, S., Sharma, A., & Sharma, R. (2010). "Attitudes and Practices of Medical Graduates in Delhi Towards Gifts From the Pharmaceutical Industry". *Biswaroop Chatterjee*, *7*(4).

Sherlock, P. (2010). *Pharmaceutical Marketing : A Comparison of Different Markets Pharmaceutical Marketing : a Comparison of Different Markets*.

Singh, N., Bush, R., Dalsing, M., & Shortell, C. K. (2011). "New Paradigms for Physician-Industry Relations : Overview and Application for SVS Members". *YMVA*, *54*(3), 26S-30S. https://doi.org/10.1016/j.jvs.2011.06.016

Sutiono, T. H., & Purwanto, E. (2019). "Identification of Factors Influencing Physician Prescription Loyalty". *International Journal of Scientific & Technology Research,* 8(08), 1339-1345.

Spurling, G. K., Mansfield, P. R., Montgomery, B. D., Lexchin, J., Doust, J., Othman, N., & Vitry, A. I. (2010). "Information From Pharmaceutical Companies and the Quality , Quantity , and Cost of Physicians ' Prescribing : A Systematic Review". *Journal pmed. 7*(10). https://doi.org/10.1371/journal.pmed.1000352

Tahamtan, I., Farahi, M. T., Afshar, A. S., & Baradaran, H. R. (2015). "Drug information seeking behaviours of health care professionals in Iran". *New Library World.*

Taylor, D. (2016). "The Pharmaceutical Industry and the Future of Drug Development. In Issues in Environmental Science and Technology". (Vols. 2016-Janua, Issue 41). https://doi.org/10.1039/9781782622345-00001

Tefera, Y. G., Gebresillassie, B. M., Ayele, A. A., Belay, Y. B., & Emiru, Y. K. (2019). "The characteristics of drug information inquiries in an Ethiopian university hospital: A two-year observational study". *Scientific reports*, 9(1), 1-9.

The National Academies Press (2018). *The National Academies Press*. https://doi.org/10.17226/24946

Tigas, M., & Ornstein, C. (2016). "We've Updated Dollars for Docs. Here's What's New". *Propublica.* https://www.propublica.org/article/updated-dollars-for-docs-heres-whats-new

Tušek-Bunc, K., Kersnik, J., Petek-Šter, M., Petek, D., & Klemenc-Ketiš, Z. (2010). "Explanatory Model of Prescribing Behavior in Prescription of Statins in Family Practice". *Wiener Klinische Wochenschrift*, *122(2)*, 79–84.

USAID. (2013). *WTO and the Palestinian Pharmaceutical Sector*.

Workneh, B. D., Gebrehiwot, M. G., Bayo, T. A., Gidey, M. T., Belay, Y. B., Tesfaye, D. M., & Kassa, T. T. (2016). "Influence of medical representatives on prescribing practices in Mekelle, Northern Ethiopia". *PloS one*, 11(6), e0156795.

World Health Organization (WHO). (1988). *Ethical Criteria for Medicinal Drug Promotion World Health Organization*.

World Health Organization (WHO). (2009). *Assessment Instrument*.

World Health Organization (WHO). (2010). *of medicines Regulatory Systems in Sub-Saharan African Countries*.

World Health Organization (WHO). (2020). *Health Conditions in the Occupied Palestinian Territory , Including East Jerusalem , and in the Occupied Syrian Golan* (November).

World Health Organization (WHO). (2004). *COUNTRIES AT THE CORE*.

Wazana, A. (2015). "Physicians and the Pharmaceutical IndustryIs a Gift Ever Just a Gift?" *January 2000*. https://doi.org/10.1001/jama.283.3.373

World Health Organization (WHO). (2009). *WHO Specialized Health Mission to the Gaza strip As Mandated by the Executive Board of WHO in its Resolution EB124 . R4 Adopted on 21 January 2009 Contents list* (may).

World Health Organization (WHO). (2019). *WHO_Right_to_health_2018_Web-Final*. http://apps.who.int/Bookorders. To Submit Requests for Commercial Use and Queries on Rights and Licensing. http://www.who.int/about/licensing.

Wood, S. F., Podrasky, J., Mcmonagle, M. A., Raveendran, J., Bysshe, T., Hogenmiller, A., Fugh-berman, A., Sf, C. W., Podrasky, J., & Ma, M. (2017). *Influence of Pharmaceutical Marketing on Medicare Prescriptions in the District of Columbia*. 1–13.

Workneh, B. D., Gebrehiwot, M. G., Bayo, T. A., Gidey, M. T., Belay, Y. B., Tesfaye, D. M., & Kassa, T. T. (2016). "Influence of Medical Representatives on Prescribing Practices in Mekelle, Northern Ethiopia". *PLoS ONE*, *11*(6), 1–11. https://doi.org/10.1371/journal.pone.0156795

Wright, R. F., & Lundstrom, W. J. (2004). "Physicians ' Perceptions of Pharmaceutical Sales Representatives : A Model for Analysing the Customer Relationship". *4*, 29–38.

Yang, W. (2016). How Does the Pharmaceutical Industry Influence Prescription? "A Qualitative Study of Provider Payment Incentives and Drug Remunerations in Hospitals in Shanghai". *Health Economics, Policy and Law, 11*((4)), 379–395.

Yimenu, D. K., Demeke, C. A., Kasahun, A. E., Siraj, E. A., Wendalem, A. Y., Bazezew, Z. A. & Mekuria, A. B. (2021). "Health professional's exposure, attitude, and acceptance of drug promotion by industry representatives: A cross-sectional study in Ethiopia. Science Progress". 104(2), 00368504211029435.

Yeh, J. S., Franklin, J. M., Avorn, J., Landon, J., & Kesselheim, A. S. (2016). "Association of Industry Payments to Physicians With the Prescribing of Brand-name Statins in Massachusetts". *176*(6), 763–768. https://doi.org/10.1001/Jamainternmed.2016.1709.

Yuniarti, E., Prabandari, Y.S., Kristin, E. (2019). "Rationing for medicines by health care providers in Indonesia National Health Insurance System at hospital setting: a qualitative study". *Journal of Pharm Policy and Pract*ice. 12, 7 (2019).

Zaki, N. M. (2014). "Pharmacists' and Physicians' Perception and Exposure to Drug Promotion: A Saudi Study". *Saudi Pharmaceutical Journal, 22(6),* 528–536.

Zohrabi, M. (2013). "Theory and Practice in Language Studies". *Theory and Practice in Language Studies, 3*(2).

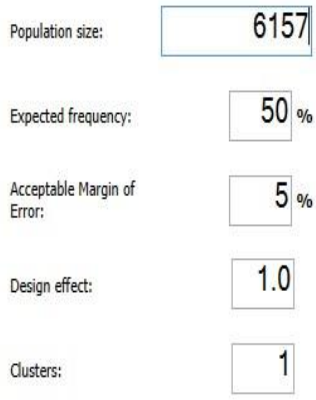
Annexes

Annex (1): Map of Palestine

Annex (2): Map of Gaza governate

Source: (PCBS, 2010)

Annex (3):- Epi Info for sample size calculation



Confidence Level	Cluster Size	Total Sample
80%	160	160
90%	259	259
95%	362	362
97%	437	437
99%	599	599
99.9%	921	921
99.99%	1215	1215

Annex (4):- Helsinki Approval

المجلس الفلسطيني للبحث الصحي
Palestinian Health Research Council

تعزيز النظام الصحي الفلسطيني من خلال مأسسة استخدام المعلومات البحثية في صنع القرار
Developing the Palestinian health system through institutionalizing the use of information in decision making

Helsinki Committee
For Ethical Approval

Date: 10\08\2020 **Number:** PHRC/HC/761/20

Name: Rafat Subhi Abu Radwan الاسم:

We would like to inform you that the committee had discussed the proposal of your study about: نفيدكم علماً بأن اللجنة قد ناقشت مقترح دراستكم حول:

Effect of Pharmaceutical Marketing practice on Physicians' Prescribing Behavior in the Gaza Strip

The committee has decided to approve the above mentioned research. Approval number PHRC/HC/761/20 in its meeting on 10\08\2020 و قد قررت الموافقة على البحث المذكور عاليه بالرقم والتاريخ المذكوران عاليه

Signature

Member 10/8/2020

Chairman 10/8/2020

Member Dr. Chamis Elessi 10/8/2020

Genral Conditions:-
1. Valid for 2 years from the date of approval.
2. It is necessary to notify the committee of any change in the approved study protocol.
3. The committee appreciates receiving a copy of your final research when completed.

Specific Conditions:-

10/8/2020

E-Mail:pal.phrc@gmail.com

Gaza - Palestine غزة - فلسطين
شارع النصر - مفترق العيون

Al-Quds University
Jerusalem
School of Public Health

جامعة القدس
القدس
كلية الصحة العامة

التاريخ: 2020/10/19

حضرة الدكتور/ رامي العبادلة المحترم
مدير عام تنمية القوى البشرية–وزارة الصحة

تحية طيبة وبعد،،،

الموضوع: مساعدة الطالب رأفت رضوان

نشكر لكم دعمكم الدائم لمسيرة العلم والتعليم وخصوصاً دعم كلية الصحة العامة وطلابها، وتود أعلامكم بأن الطالب المذكور أعلاه يقوم بعمل بحث كمتطلب للحصول على درجة الماجستير في الصحة العامة–مسار الإدارة الصحية بعنوان:

"Effect of Pharmaceutical Marketing practice on Physicians' Prescribing Behavior in the Gaza Strip"

وعليه نرجو من سيادتكم التكرم بالموافقة على تسهيل مهمة الطالب في إنجاز هذا البحث حيث أن الفئه المستهدفة هم الأطباء العاملين بالمستشفيات الحكومية التابعة لوزارة الصحة.

و اقبلوا فائق التحية و الاحترام،،،

د. بسام أبو حمد
منسق عام برامج الصحة العامة
فرع غزة

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- الملف

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Annex (5):- physicians' Questionnaire (English & Arabic version)

1. Section One: Physician's Characteristics

Please fill the needed information or tick (√) in the box that reflects you best answers:

1.1 Personal Characteristics					
1	Gender	□ Female		□ Male	
2	Age	□ 25–35	□ 36–45	□ 46–55	□ 56–65
3	Average Monthly Income				
4	Income Satisfaction	□ Very Satisfied	□ Satisfied	□ Dissatisfied	□ Very Dissatisfied

1.2 Professional Characteristics					
5	Graduation Country of Bachelor's				
6	Years of practice	□ 1-3	□ 4-6	□ 7-9	□ >10 and above
7	Educational Degree (Highest)	□ High Diploma	□ Master	□ Doctoral	□ Board
8	Job Rank	□ Resident	□ Specialist	□ Consultant	
9	Specialty				
10	Do you currently hold a managerial position?	□ Yes	□ No		
11	Do you currently participate in Scientific/Drugs/Referral committee?	□ Yes	□ No		

1.3 Practice Setting Characteristics						
12	Hospital you work at					
13	Department you work at					
14	Do you have a private clinic?	□ Yes	□ No			
15	Location of the private clinic	□ North Gaza	□ Gaza City	□ Mid Zone	□ Khanyunis	□ Rafah
16	Do you work at Non-Governmental Organization (NGO)	□ Yes	□ No			
17	Average number of patients you treat per day in all your working places					
18	Average number of prescriptions you prescribe per day in all your working places					

Section Two: Factors That Affect Physicians' Drug Selection Decisions

	Criteria	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The physician takes into consideration prescribing drugs that have a good reputation and reliable brand.					
2.	The physician takes into consideration prescribing drugs that have a brand already been tested by colleagues.					
3.	The physician takes into consideration prescribing the same drug that they have had a positive experience with the patient.					
4.	The physician takes into consideration prescribing the same drug that they have had a positive experience with.					
5.	The physician takes into consideration the image of the drug in the market					
6.	The physician takes into consideration the age of the drug in the market					
7.	The physician takes into consideration the efficacy of a drug					
8.	The physician takes into consideration easy availability of the drug					
9.	The physician takes into consideration easy administration and dosage compliance of the drug					
10	The physician takes into consideration the cost/benefit relation of a drug					
11	The physician takes into consideration the purchasing power (the patient's ability to pay for the drug) of the patient					
12	The physician takes into consideration the request of a patient for a specific type of drug regardless of the drug's efficacy					
13	The physician takes into consideration the generic drugs suggested by health policymakers					
14	The physician takes into consideration the treatment guidelines					
15	The physician takes into consideration prescribing drugs where the MRs possess sufficient knowledge of the medicine and can explain the side effects					
16	The physician takes into consideration prescribing drugs where the MRs keep in contact with the physicians (i.e., repeated visits).					
17	The physician takes into consideration prescribing the same drug from particular companies/MRs that they are loyal to or committed with.					
18	The physician takes into consideration prescribing drugs from companies that initially offer free samples to physicians.					
19	The physician takes into consideration prescribing drugs from companies that offer supplementary valuable incentives, i.e. office-practice items, prescription pads, and patient record forms.					
20	The physician takes into consideration prescribing drugs from companies that provide educational materials to patients (i.e.، poster).					
21	The physician takes into consideration prescribing drugs from companies that give financial incentives (i.e., cash payment, bonuses, and commissions)					

Section Three: Exposure to Marketing Practices of Pharmaceutical Companies

Number of medical representatives who visit the physician's per day

- □ 1 MRs/day
- □ 1 - 3 MRs/day
- □ 3 - 5 MRs/day
- □ >5 MRs/day

On average, how often do you meet medical representatives on the last 12 months?

- □ Daily
- □ 2-3 times /week

- Once /week
- 2-3 times /month
- once /month
- Never

How length is the discussion between medical representatives with you on the last 12 months?

- Less than or equal to 10 minutes
- 11–20 minutes
- More than or equal to 21 minutes

How often were you given any of the following promotional tools over the last 12 months?

	promotional tools	Never	Less than once a month	once a month	2-3 times a month	Once a week	2-3 times a a week	Nearly everyday
1.	Promotional printed materials (journal articles, brochures or pamphlets)							
2.	Free medical samples							
3.	Textbooks							
4.	Simple gifts (pens, note pads, stationery items)							
5.	Attending local scientific conferences or CME events sponsored by PCs							
6.	Meals outside the workplace							
7.	Receiving honorarium from PCs for speaking or consulting.							

	promotional tools	Never	Less than once a year	Once a year	more than once a year
8.	Financial subsidies to attend CME events/international conferences				
9.	Participating in scientific study funded by PCs				

Section Four: References used by physicians as source of information

	Reference	Never	Rarely	Occasionally	Frequently	Always
1.	Medical text books					
2.	Academic journals					
3.	Internet					
4.	Colleagues/peers/professional meetings					
5.	Medical representatives					
6.	Drug guides of pharmaceutical companies					
7.	Conferences and CMEs					
8.	Pharmaceutical companies' promotional materials other than drug guides (brochures, posters, etc)					

Section Five: Most Effective "Reminder Methods"

"Most effective reminder methods" refers to what best makes a physician think of a particular brand when he or she prescribes.

	Reminder methods	Always	Mostly	Sometime	Rarely	Never
1	Visits of medical representatives					
2	Skillful detailing					
3	Quality of the product					
4	Drug samples					
5	Promotional drug brochures					
6	Medical equipment as gifts					
7	Branded pen/ magnet/ mouse pad as gifts					
8	Sponsorship for travel / expenses in conferences/sponsorship for personal tour					
9	Direct mail					
1	Subscription of journals					
1	Participation by company in continuing medical education conferences					

Section six: the effect of marketing practices on the physicians' prescribing behavior

	5.1 Perception about the Influence of Marketing Practices	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	The marketing practices of PCs affect physicians' prescribing behavior and their drugs choice.					
2.	Discussions with medical representatives have an unfavorable impact on my prescribing behaviors.					
3.	The support received from PC is considered when selecting among alternative drugs.					
4.	Gifts/promotional materials from medical representatives have an unfavorable impact on my prescribing behaviors, regardless of the monetary value					
5.	Medication samples have an unfavorable impact on my prescribing behaviors					
6.	Medication samples should only be given to the financial needy					
7.	Promotional Materials such as brochures, posters, drug guides, etc. have an unfavorable impact on my prescribing behaviors					
8.	Stationery such as pens, notepads, chips, etc. have an unfavorable impact on my prescribing behaviors					
9.	Other gifts such as watches, stethoscope, any medical equipment etc. have an unfavorable impact on my prescribing behaviors					
10	Meals or entertainments from medical representatives should be discouraged as they bias doctor's behavior					
11	Gifts are influential because the gifts that are of substantial value act as an inducement to prescribe any medicine					
12	Physicians cannot be compromised with very expensive gifts and they will maintain the same contact without gifts					
13	My clinical practice changes after attending sponsored conferences, meetings sponsored CME events					

14	Financial subsidies to attend international conferences/CME events have an unfavorable impact on my prescribing behaviors.					
15	Gifts from medical representatives have an unfavorable impact on other physicians' prescribing behaviors, regardless of the monetary value					
16	It is appropriate to receive gifts of low monetary value from medical representatives					
17	It is appropriate to receive gifts of high monetary value from medical representatives					
18	Medical representatives provide accurate information about new medications.					
19	Medical representatives provide accurate information about old (established) medications.					
20	As the exposure to marketing practices increases, the chance that I'll eventually prescribe the drug company's products increase.					
21	As the value of the marketing practices increases, the chance that I'll eventually prescribe the drug company's products increase.					
22	Do you prefer prescribing newer medications?					
23	Have you ever stopped the use of a promoted drug that you already prescribed to many patients if you find that this drug causes many side effects?					
24	Have you ever stopped the use of a promoted drug that you already prescribe due to drug ineffectiveness?					
25	Other physicians are under pressure from PCs to prescribe their drugs.					
26	Other physicians are more influenced by marketing practices of PCs to prescribe their drugs.					

Section Seven: Preparedness to the Regulation of the Marketing Practices

	6.1 Preparedness to the Regulation of Marketing Practices	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
1.	It is necessary to implement formal regulations that control the interaction between physicians and PCs.					
2.	It is necessary to implement ethical code that govern the interaction between physicians and PCs.					
3.	It necessary to arrange training courses for physicians about interaction with PCs.					
4.	It necessary to prohibit the entrance of PCs' representatives to MOH hospitals.					
5.	It is necessary to monitor the promotional printed materials of PCs.					
6.	It is necessary to distribute reduced packs of free medical samples stamped by " Not for sales".					
7.	It is necessary to limit the distributing of free medical samples to patients only.					
8.	It necessary to limit the value of gifts given from PCs to a specific value.					
9.	It is necessary to encourage PCs to sponsor local scientific conferences and CME lectures					
10.	It is necessary to prohibit PCs from organizing presentations inside MOH hospitals.					
11.	It is necessary to select physicians for participation in foreign conferences travel of PCs by MOH.					

12.	It necessary for a physician to get MOH approval when participate in scientific studies for PCs					
13.	It is necessary for a physician to disclose for MOH about the honoraria paid from PCs.					
14.	It is necessary to restrict the marketing of prescription only drugs for physicians only.					

Self-Administered Questionnaire

Serial Number:…….

حضرة الدكتور/ ة ،،،

تحية طيبة وبعد،،،

يسعدني أن أتقدم لسيادتكم بجزيل الشكر على مشاركتكم في البحث العلمي الخاص بي والذي بعنوان

"Effect of Pharmaceutical Marketing practice on Physicians'

Prescribing Behavior in the Gaza Strip"

حيث أضع بين أيديكم الاستبانة التي صممت بهدف جمع المعلومات اللازمة للتعرف على مدى تأثير الأساليب الدعائية لشركات الأدوية على سلوك الأطباء عند الوصف في "قطاع غزة" والذي أقوم به كمساق بحثي ضمن خطة دراستي لنيل درجة الماجستير في الإدارة الصحية من كلية الصحة العامة في جامعة القدس أبو ديس.

يحتوي كل سؤال من الاستبانة على عدة خيارات للإجابة، يرجى اختيار الإجابة الأقرب لرأيك وخبرتك الواقعية في العمل، حيث لا توجد إجابة صحيحة أو خاطئة. كما أن المشاركة في هذا البحث تطوعية ولك حق الانسحاب متى شئت.

تستغرق تعبئة الاستبانة مدة ربع ساعة تقريبا. ونؤكد على أن المعلومات الواردة في الاستبانة تعتبر سرية ولن يكون لها استخدامات أخرى خارج نطاق الدراسة، كما أن نتائج الدراسة سوف تقدم لوزارة الصحة كمقترح لتطوير العمل بما يحقق تحسين جودة الخدمة المقدمة في وزارة الصحة.

وتفضلوا بقبول فائق الاحترام والتقدير،

الباحث

رأفت صبحي أبو رضوان

القسم الأول: خصائص الطبيب

يرجى تعبئة البيانات المطلوبة أو وضع إشارة (√) في المربع الذي يعكس أفضل اجاباتك:

1.1 الخصائص الشخصية									
1.	الجنس	☐	أنثى	☐			☐	ذكر	
2.	العمر	☐	35-25	☐	45-36	☐	55-46	☐	55 <
3.	الدخل الشهري	☐	2000 >	☐	3000-2000	☐	4000-3001	☐	4000 <
4.	الرضا عن الدخل	☐	راضي جدا	☐	راضي	☐	غير راضي	☐	غير راضي بتاتا

1.2خصائص المهنية										
1.	بلد التخرج للبكالوريوس									
2.	سنوات ممارسة الطب في غزة	☐	5 >	☐	10-5	☐	15-11	☐	15 <
3.	الدرجة العلمية (آخر مؤهل)	☐	دبلوم عالي	☐	ماجستير	☐	دكتوراه	☐	بورد
4.	المستوى المهني	☐	مقيم	☐	أخصائي	☐	استشاري		
5.	التخصص								
6.	هل تشغل حاليا أي موقع إداري؟					☐	نعم	☐	لا
7.	هل تشارك حاليا في لجنة علمية / أدوية/ تحويلات؟					☐	نعم	☐	لا

1.3خصائص الممارسة الطبية											
1.	مكان العمل (بإمكانك اختيار أكثر من خيار)										
	مستشفى حكومي	☐	شمال غزة	☐	غزة	☐	الوسطى	☐	خانيونس	☐	رفح
	مستشفى خاص	☐	شمال غزة	☐	غزة	☐	الوسطى	☐	خانيونس	☐	رفح
	مؤسسة غير حكومية	☐	شمال غزة	☐	غزة	☐	الوسطى	☐	خانيونس	☐	رفح
	عيادة خاصة	☐	شمال غزة	☐	غزة	☐	الوسطى	☐	خانيونس	☐	رفح
2.	متوسط عدد المرضى الذين تعالجهم يوميا في جميع أماكن عملك	☐	25 >	☐	50-25	☐	75-51	☐	< 75		
3.	متوسط عدد الوصفات الطبية التي تكتبها يوميا في جميع أماكن عملك	☐	25 >	☐	50-25	☐	75-51	☐	< 75		

القسم الثاني: الأطباء كمرجع للمعلومات

يرجى وضع إشارة (√) أمام مدى اعتمادك على المراجع التالية: -

	المراجع	مطلقاً	نادراً	أحياناً	غالباً	دائما
1.	الكتب المرجعية الطبية					
2.	المجلات العلمية					
3.	الإنترنت					

4.	زملاء المهنة					
5.	مندوبي الدعاية					
6.	المؤتمرات واللقاءات العلمية					
7.	المواد التسويقية للشركات (مثل البروشورات، البوسترات والنشرات)					

القسم الثالث: العوامل التي تؤثر على قرارت الأطباء عند وصف الدواء

يرجى وضع إشارة (√) امام كل بند في المربع الذي يعكس بدقة وجهة نظرك نحو العوامل التي تؤثر على قرار الطبيب في اختيار الأدوية عند كتابة الوصفة الطبية:

#	يأخذ الطبيب في الاعتبار عند الوصف ما يلي: -	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
1.	وصف الأدوية ذات العلامة التجارية الموثوقة والسمعة الجيدة في السوق					
2.	وصف الأدوية ذات العلامة التجارية التي تم تجربتها بالفعل من قبل الزملاء					
3.	وصف دواء معين بناءً على طلب المريض					
4.	وصف نفس الدواء الذي كان لديه تجربة إيجابية ناجحة معه					
5.	صورة الدواء وانطباع المستهلك عنه في السوق					
6.	مأمونية الدواء والآثار الجانبية له					
7.	فاعلية الدواء					
8.	سهولة تناول المريض للدواء من حيث شكله الصيدلاني (شراب، أقراص، حقن...الخ)					
9.	سهولة التزام المريض وامتثاله في أخذ الجرعات الدوائية					
10.	سعر الدواء					
11.	القدرة الشرائية للمريض (قدرة المريض على دفع ثمن الدواء)					
12.	الالتزام بوصف الأدوية المسجلة والمسموح بتداولها من قبل وزارة الصحة					
13.	بروتوكولات العلاج					
14.	وصف الأدوية الخاصة بالشركات التي يقوم مندوب الدعاية الممثل لها بزيارته بشكل منتظم ومتكرر					
15.	وصف الأدوية الخاصة بالشركات التي يكون مندوب الدعاية الممثل لها لديه المعرفة الكافية عن الأدوية وتفاصيلها					
16.	وصف الأدوية من الشركات التي تقدم مواد تعليمية (مثل مقالات المجلات، البروشورات والبوسترات)					
17.	وصف الأدوية الخاصة بالشركات التي تجمعه بمندوب الدعاية علاقة شخصية					
18.	وصف نفس الدواء من (شركات معينة / مندوبي دعاية) يكون ملتزماً معها					
19.	وصف الأدوية الخاصة بالشركات التي تقدم له العينات الطبية المجانية					

.20	وصف الأدوية الخاصة بالشركات التي تنظم فعاليات ترفيهية ووجبات الطعام (غذاء و عشاء)					
.21	وصف الأدوية الخاصة بالشركات التي تقدم له الهدايا البسيطة مثل (الأكواب، دفاتر الملاحظات، الأقلام.... الخ)					
.22	وصف الأدوية الخاصة بالشركات التي تقدم له الهدايا الثمينة مثل (تذاكر السفر، ساعات اليد الثمينة، الأجهزة الطبية..... الخ)					
.23	وصف الأدوية الخاصة بالشركات التي تعطي حوافز نقدية (الدفع النقدي، المكافآت والعمولات)					
.24	وصف الأدوية الخاصة بالشركات التي تقدم له الأتعاب نظير التحدث في الفعاليات أو تقديم الاستشارات					
.25	وصف الأدوية الخاصة بالشركات التي تقوم بعقد المؤتمرات والمحاضرات العلمية والندوات وغيرها من فعاليات التعليم الطبي المستمر					

القسم الرابع : التعرض للممارسات التسويقية لشركات الأدوية

1. عدد مندوبي الدعاية الطبية الذين يقومون بزيارتك يومياً

- □ مندوب واحد
- □ 2-3 مندوب
- □ 4-5 مندوب
- □ أكثر من 5 مندوب

2. معدل عدد اللقاءات التي تمت بينك وبين مندوبي الدعاية خلال الست شهور (6) السابقة

- □ يومياً
- □ 2-3 مرات أسبوعياً
- □ مرة أسبوعياً
- □ 2-3 مرات شهرياً
- □ مرة شهرياً
- □ مطلقاً

3. في المتوسط، مدة المناقشة بينك وبين مندوب الدعاية خلال الست شهور (6) السابقة

- □ أقل من أو يقارب 10 دقائق
- □ 11-20 دقيقة
- □ أكثر من 20 دقيقة

4. يرجى وضع إشارة (√) أمام كل بند في المربع الذي يعكس بدقة وجهة نظرك نحو معدل تعرضك للممارسات التسويقية الصيدلانية خلال الستة أشهر (6) السابقة

#	الممارسات التسويقية	مطلقاً	أقل من مرة شهرياً	مرة شهرياً	أكثر من مرة شهرياً	مرة أسبوعياً	أكثر من مرة أسبوعياً
.1	تقديم المعلومات الشاملة والشرح الوافي عن المستحضر من قبل مندوب الدعاية						
.2	المطبوعات والمواد التسويقية للشركات (مثل البروشورات، البوسترات والنشرات)						
.3	العينات الطبية المجانية						

.4	الهدايا البسيطة مثل (الأكواب، دفاتر الملاحظات، الأقلام .....الخ)						
.5	وجبات الطعام خارج مكان العمل والفعاليات الترفيهية						
.6	الحوافز النقدية مثل (الدفع النقدي، المكافآت والعمولات)						
#	الممارسات التسويقية	مطلقاً	أقل من مرة سنوياً	مرة سنوياً	أكثر من مرة سنوياً	أكثر من مرة شهرياً
.7	الهدايا الثمينة مثل (تذاكر السفر، ساعات اليد الثمينة، الأجهزة الطبية.....الخ)					
.8	الأتعاب المالية نظير التحدث في الفعاليات أو تقديم الاستشارات					
.9	المشاركة في المؤتمرات والمحاضرات العلمية والندوات وغيرها من فعاليات التعليم الطبي المستمر الفعاليات والمؤتمرات العلمية					
.10	التغطية المالية لحضور فعاليات التعليم الطبي المستمر /المؤتمرات الدولية					
.11	المشاركة في الدراسات العلمية الممولة من شركات الأدوية					

القسم الخامس: تأثير الممارسات التسويقية الصيدلانية على سلوك الأطباء عند الوصف

يرجى وضع إشارة (√) أمام كل بند في المربع الذي يعكس بدقة وجهة نظرك:

#	العبارة	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
.1	الممارسات التسويقية لشركات الأدوية تؤثر على اختياري للأدوية وتزيد من معدل وصفي					
.2	الممارسات التسويقية تكون بمثابة حافز لي على وصف الأدوية المروج لها					
.3	الممارسات التسويقية تكون بمثابة حافز للأطباء الاخرين على وصف الأدوية المروج لها					
.4	الزيارات التي يقوم بها مندوب الدعاية بشكل منتظم ومتكرر تزيد من معدل وصفي للأدوية المروج لها					
.5	النقا ش مع مندوب الدعاية حول الأدوية يزيد من معدل وصفي للأدوية المروج لها					
.6	المطبوعات والمواد التسويقية للشركات (مثل البروشورات، البوسترات والنشرات) تزيد من معدل وصفي للأدوية المروج لها					
.7	العلاقة الشخصية مع مندوب الدعاية تزيد من معدل وصفي للأدوية المروج لها					
.8	العينات الطبية المجانية تزيد من معدل وصفي للأدوية المروج لها					
.9	وجبات الطعام خارج مكان العمل والفعاليات الترفيهية تزيد من معدل وصفي للأدوية المروج لها					
10	تقديم الهدايا (بغض النظر عن قيمتها المادية) من قبل مندوبي الدعاية تزيد من معدل وصفي للأدوية المروج لها					
11	الهدايا مؤثرة لأن الهدايا الثمينة والقيمة تكون بمثابة حافز لوصف أي دواء					
12	الهدايا البسيطة مثل (الأكواب، دفاتر الملاحظات والأقلام) تزيد من معدل وصفي للأدوية المروج لها					

13	الهدايا الثمينة مثل (تذاكر السفر، ساعات اليد الثمينة والأجهزة الطبية) تزيد من معدل وصفي للأدوية المروج لها					
14	لا يمكن مساومة الأطباء من خلال إعطائهم هدايا ثمينة وقيمة، حيث أن سلوكهم في وصف الأدوية لا يتغير بتقديم هذه الهدايا					
15	الحوافز النقدية مثل (الدفع النقدي المكافآت، العمولات، الخ) يتم وضعها في الحسبان عند الاختيار بين البدائل التجارية للدواء					
16	الأتعاب المالية التي تقدمها شركات الأدوية نظير التحدث في الفعاليات أو تقديم الاستشارات تزيد من معدل وصفي للأدوية المروج لها					
17	تتغير ممارستي السريرية بعد حضور المؤتمرات والفعاليات التي ترعى بواسطة شركات الأدوية.					
18	التغطية المالية التي تقدمها شركات الأدوية لحضور الفعاليات /المؤتمرات الدولية تزيد من معدل وصفي للأدوية المروج لها					
19	يقوم مندوب الدعاية بتقديم بمعلومات طبية دقيقة وموثوقة عن الأدوية الجديدة					
20	يقوم مندوب الدعاية بتقديم بمعلومات طبية دقيقة وموثوقة عن الأدوية الموجودة مسبقاً					
21	كلما زاد التعرض لممارسات التسويق من قبل شركة أدوية معينة، يزداد معدل وصفي لأصناف هذه الشركة					
22	كلما زادت القيمة المادية للممارسات التسويقية التي تقوم بها شركة أدوية معينة، يزداد معدل وصفي لأصناف هذه الشركة					
23	تفضل وصف الأدوية الجديدة					
24	هل سبق لك أن توقفت عن وصف أدوية مروج لها قد سبق وأن وصفتها بشكل كبير للعديد من المرضى بعد أن وجدت أن هذا الدواء يسبب العديد من الآثار الجانبية؟					
25	هل سبق لك أن توقفت عن وصف أدوية مروج لها قد سبق وأن وصفتها بعد أن وجدت أن هذا الدواء غير فعال؟					

القسم السادس: ضبط وتنظيم الممارسات التسويقية

يرجى وضع إشارة (√) أمام كل بند في المربع الذي يعكس بدقة وجهة نظرك حول ما يمكن القيام به لضبط وتنظيم الممارسات التسويقية لشركات الأدوية:

#	تنظيم الممارسات التسويقية	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة
.1	وضع وتطبيق قوانين تنظم العلاقة بين الاطباء وشركات الأدوية					
.2	وضع وتطبيق ميثاق أخلاقي يضبط العلاقة بين الاطباء وشركات الأدوية					
.3	عقد دورات تدريبية للأطباء حول التعامل مع شركات الأدوية					
.4	منع ممثلو شركات الأدوية من دخول مستشفيات وزارة الصحة					
.5	ضرورة الرقابة على المواد المطبوعة لشركات الأدوية					
.6	ان تكون العينات الطبية بعبوات مخفضة مختومة بعبارة "ليست للبيع"					
.7	حصر استخدام العينات الطبية المجانية بتوزيعها على المرضى					
.8	حصر قيمة الهدايا المقدمة من شركات الادوية ضمن قيمة مالية محددة					
.9	تشجيع شركات الأدوية على تمويل المؤتمرات ومحاضرات التعليم الطبي المستمر					
.10	منع شركات الأدوية من تقديم محاضرات في مستشفيات وزارة الصحة					
.11	اختيار الأطباء للمشاركة بالمؤتمرات الخارجية الممولة من قبل شركات					

	الأدوية بواسطة الوزارة					
12.	على الطبيب الحصول على موافقة وزارة الصحة عند المشاركة ببحث علمي لشركات الأدوية					
13.	على الطبيب ان يفصح للوزارة عن المكافآت المالية التي يتلقاها من شركات الأدوية					

برأيك، ما هي المواضيع التي لم يغطيها الاستبيان بأسلوب ملائم والتي يمكن بإضافتها المساهمة في تحسين نتائج الدراسة؟

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Annex (6): - The Guiding Questions of Interview
مقابلات الأطباء

In-depth Interview

	السؤال الرئيسي	أسئلة إضافية	توضيح واستفسار
.1	حدثنا عن زيارة مندوبي الدعاية الطبية	يومي ?أسبوعي ?شهريا ? هل تقبل جميع الزيارات من الجميع؟ أم هل لديك أي معايير محددة? هدف الزيارات تعليمي ام ترويجي والقيمة العلمية لتلك الزيارات	أين تفضل مكان الزيارة؟ السبب؟ أمثلة على زيارات المندوبين إن وجد
.2	كيف يمكن أن تصف طبيعة العلاقة بين مندوبي الدعاية وبينك (لاستكشاف تضارب المصالح الشخصية والمالية)	وجود علاقات شخصية مع مندوبي الدعاية أم أنها مهنية بحتة؟ برأيك قيمة الطبيب العلمية ومعدل وصفه تؤثر على مدي استهدافه من شركات الأدوية؟	هل يسعى مندوب الدعاية لعمل صفقات معك لترويج منتجه؟ هل مندوب الدعاية يلبي احتياجاتك في أي وقت؟
.3	ما رأيك بالأساليب التي يستخدمها مندوبي الدعاية للترويج لمنتجاتهم؟	ذكر هذه الأساليب؟ مدى تأثيرها عليك؟ ما هي أكثر الأساليب الدعائية تأثيرا؟	هل تأثيرها يكون على: – الوصف، المعرفة العلمية، غير ذلك نسبة الوصف بناء على الدعاية؟
.4	حدثنا عن شركات الأدوية ومتابعتها لوصفات الأطباء؟	هل تستطيع شركات الأدوية الوصول إلى وصفات الأطباء؟ هل يراجعك مندوب الدعاية لوصفك للأدوية هل أنت على علم بوجود علاقة بين مندوبي الدعاية والصيدليات وإمكانية استخدام هذه العلاقة كوسيلة لمراقبة الوصفات الطبية؟	هل بالإمكان توضيح ذلك؟
.5	كيف يمكن تقييمك لممارسات التسويق الصيدلاني الحالية فيما يتعلق بالجوانب الأخلاقية؟	كيف يمكن تقييمك ممارسات التسويق الصيدلاني الحالية فيما يتعلق بالجوانب التنظيمية؟	الأسباب اذا كانت الإجابة سلبية اقتراحاتك لتنظيمها

Annex (7): - The Guiding Questions of Focus Group Discussion for PMR

مقابلات مندوبي دعاية الشركات: -(Focus Groups)

	السؤال الرئيسي	أسئلة إضافية	توضيح واستفسار
.1	حدثونا عن زيارتكم للأطباء من اجل ترويج منتجاتكم	من يقوم بالزيارات؟ وأين تتم؟ والوقت؟ يوميا؟ أسبوعياً؟ شهريا؟ ما هي المعايير التي يتم بناءً عليها اختيار الأطباء الذين تزورهم؟	هل تفضل تخصصات محددة؟ هدف الزيارة تعليمي أم ترويجي؟ هل قيمة الطبيب العلمية ومعدل وصفه تؤثر على مدي استهدافه من قبلكم؟
.2	حدثنا كيف يتم اقناع الأطباء بوصف المنتج الخاص بك؟	هل تشكل علاقات شخصية مع الأطباء أم أنها مهنية بحتة؟ هل تعطيهم أدلة علمية حول فاعلية وتأثير المنتج الذي تروج له؟	أيهم أكثر فاعلية من وجهة نظرك؟ هل تسعى لعمل صفقات مع الأطباء لترويج منتجاتك؟
.3	حدثنا عن الأساليب التي تستخدمها للترويج لمنتجاتك "أنواعها "	أنواع الأساليب ؟ تأثيرها؟ من منها أكثر تأثيرا؟ هل تأثيرها يكون على: - الوصف، المعرفة العلمية، غير ذلك هل ما تقدمه يعتمد على حجم الوصف للطبيب؟	من وجهة نظرك، يجب أن يكون مندوبي الدعاية قادرين في أي وقت على تلبية احتياجات الطبيب نسبة الوصف بناء على الدعاية؟
.4	حدثنا عن متابعتك للأطباء للتأكد من انهم يقوموا بوصف أدويتك المروج لها؟	1.هل تقوم بزيارات مفاجئة إلى أماكن عمل الأطباء للتأكد من أنهم يقوموا بوصف منتجك؟ في حال اكتشفت عدم وصفه لدوائك الذي تقوم بترويجه فما هي ردة فعلك؟	2.هل تستطيع الحصول على وصفات الأطباء؟ 3.هل تنسق مع الصيدليات لمتابعة الدواء الموصوف من قبل كل طبيب؟
.5	كيف يمكن تقييم ممارسات التسويق الصيدلاني الحالية فيما يتعلق بالجوانب الأخلاقية؟	كيف يمكن تقييم ممارسات التسويق الصيدلاني الحالية فيما يتعلق بالجوانب التنظيمية؟	الأسباب اذا كانت الإجابة سلبية اقتراحاتك لتنظيمها

Annex (8):- The Guiding Questions of Focus Group Discussion for Pharmacists

مقابلات الصيادلة (Focus Groups)

	السؤال الرئيسي	أسئلة إضافية	توضيح و استفسار
.1	حدثنا عن زيارات الشركات الدعائية للأطباء	هل الهدف تعليمي أم ترويجي؟ من خلال عملك من فئة الأطباء الأكثر تعرضا للأساليب الدعائية؟	هل بإمكانك إعطاء مثال؟
.2	كيف يمكن أن تصف طبيعة العلاقة بين مندوبي الدعاية والأطباء	هل يشكل الأطباء علاقات شخصية مع مندوبي الدعاية أم أنها مهنية بحتة؟	هل يسعى مندوب الدعاية لعمل صفقات مع الأطباء لترويج منتجاتهم؟
.3	الوسائل التي يستخدمها مندوبي الدعاية لإقناع الأطباء بوصف المنتج الخاص بك؟	اذكر هذه الأساليب؟ أيهم أكثر فاعلية من وجهة نظرك؟ هل ما تقدمه شركات الأدوية أو مندوبي الدعاية يعتمد على حجم الوصف للطبيب؟	هل يتم تشكيل علاقات شخصية مع الأطباء أم أنها مهنية بحتة؟ هل يتم ترويج الأدوية بناءً على أدلة علمية حول فاعلية وتأثير المنتج؟ هل يوجد صفقات (بين مندوبي الدعاية والأطباء) لترويج منتجاتهم؟
.4	من وجهة رأيك، كيف يمكن لأليات التسويق الصيدلانية التأثير على ممارسة الأطباء	هل الأطباء يقومون بوصف المنتج بشكل أكبر بعد زيارتهم من مندوبي الدعاية؟	هل تأثيرها يكون على: – الوصف، المعرفة العلمية، غير ذلك نسبة الوصف بناء على الدعاية؟
.5	دوركم في متابعة وصف الأطباء للأدوية المروج لها	هل تطالبكم شركات الأدوية بمعرفة ما يقوم الأطباء بوصفه؟ ردة فعل الشركة في حال أن الطبيب لا يقوم بوصف دوائه المروج له	هل يتم عقد صفقات مع الشركات تبعا لذلك
.6	كيف يمكن تقييم ممارسات التسويق الصيدلاني الحالية فيما يتعلق بالجوانب الأخلاقية؟	كيف يمكن تقييم ممارسات التسويق الصيدلاني الحالية فيما يتعلق بالجوانب التنظيمية؟	الاسباب إذا كانت الاجابة سلبية اقتراحاتك لتنظيمها

Annex (9): - List of Arbitrators

The interview questionnaire was reviewed and evaluated by the following exerts: -

Dr. Bassam Abu Hamad: Al-Quds University

Dr. Taha Ashanti: Ministry of Health-The Licensing and Accreditation Unit

Dr. Ayman Kurdia: Drug Control Department- The General Administration of Pharmacy

Dr. Ashraf Abu Mahdi: Ministry of Health

Dr. Ayman Abu Mostafa: Ministry of Health- The General Directorate for Human Resources Developments.

Dr. Shereen Ayoub: Planning and Drug Information Department - The General Administration of Pharmacy.

Dr. Mohammed El Nono: Medical Registration Department- The General Administration of Pharmacy

عنوان الدراسة: تأثير الأساليب الدعائية لشركات الأدوية على سلوك الأطباء عند الوصف في قطاع غزة

إعداد: رأفت صبحي عبد الفتاح أبو رضوان

إشراف: أ.د. يحيى عابد

ملخص الدراسة:

تستخدم شركات الأدوية العديد من الوسائل التسويقية للتأثير على سلوك وصف الأدوية لدى الأطباء، إلا أن التفاعل بين الأطباء وشركات الأدوية يعتبر عامل أساسي في تضارب المصالح لدى الأطباء والذي قد يؤثر سلبا على سلوك الوصف لديهم.

تهدف هذه الدراسة إلى تحديد تأثير ممارسات التسويق الصيدلاني على سلوك الأطباء في وصف الأدوية في قطاع غزة، ولتحقيق أهداف الدراسة اتبع الباحث منهجاً مختلطاً يستخدم البيانات الكمية والنوعية. بالنسبة للبيانات الكمية، أجريت دراسة مقطعية وصفية تحليلية بين الأطباء المتخصصين العاملين في المستشفيات الحكومية وكذلك المستشفيات والعيادات الخاصة في قطاع غزة لعام 2020. واستخدم استبيان منظم، ذاتي التعبئة. بينما لجمع البيانات النوعية، استخدمت المجموعات البؤرية والمقابلات المتعمقة لجمع البيانات من الأطباء والصيادلة ومندوبي الدعاية الطبية.

تم تحليل البيانات باستخدام SPSS وتحقق معدل استجابة للاستبيان قدره 91.3% (347 استبيانا مسترداً).

كشفت نتائج الدراسة أن العديد من الأطباء يفضلون الإنترنت (83.3٪)، الكتب الطبية المرجعية (74.6٪)، والمجلات العلمية (63.1٪) كمرجع للمعلومات الدوائية بدلاً من المصادر التجارية للمعلومات الطبية. وبالرغم من ذلك يعتمد (35.7٪) من الأطباء على شرح مندوب الدعاية كمصدر للمعلومات الدوائية. كما أن (70.8٪، 68.6٪) من الأطباء أكدوا على أهمية ومصداقية المعلومات المقدمة من خلال مندوبي الدعاية حول الأدوية الجديدة والقديمة على التوالي.

سلطت هذه الدراسة الضوء على العوامل المترابطة التي تؤثر على سلوك الوصف لدى الأطباء، وصنفت هذه العوامل لعوامل مرتبطة بخصائص الدواء (80.1%)، عوامل مرتبطة بالمؤسسة الصحية (79%)، عوامل مرتبطة بالطبيب (75.8%)، وأخرى مرتبطة بالمريض (69.3%)، وكانت العوامل الأقل تأثيراً هي المتعلقة بشركات الأدوية (59.9 %).

مع ذلك، فقد أظهرت النتائج أن هناك تفاعل نشط بين الأطباء وشركات الأدوية. وكشفت النتائج أن (96٪) من عينة الدراسة قد تمت زيارتها من قبل مندوبي الدعاية مرة واحدة على الأقل شهرياً، وتمت

زيارة (47٪) منهم لمرة واحدة على الأقل أسبوعياً في الأشهر الستة السابقة. وقد تلقى غالبية أفراد العينة (98.3٪) واحدة على الأقل من أدوات التسويق التي تقدمها الشركات الدوائية، حيث تلقى (96.2٪) من الأطباء شرح عن الأدوية من قبل مندوبي الدعاية، وتلقى (95.7٪) منهم المواد الترويجية المطبوعة، وتلقى (93.9٪) منهم العينات الطبية المجانية، وتلقى (74.6٪) منهم أنواع من الهدايا الرمزية. وكشفت نتائج الدراسة أيضاً أن أدوات التسويق الحالية لها تأثير كبير (64.2٪) على قرارات اختيار الأدوية لدى الأطباء، وتمثل حافزاً لوصف الأدوية وخاصة الجديدة منها لدى (65.2٪، 66.8٪) من أفراد العينة على التوالي. ومع ذلك، وقد لوحظ وجود تفاوت في تأثير ممارسات التسويق الصيدلاني على سلوك الطبيب في وصف الأدوية، وقد كانت أكثر الأدوات المستخدمة فاعلية هي شرح مندوبي الدعاية عن الأدوية (73%)، والمواد الترويجية المطبوعة (67%).

أظهرت النتائج وجود فروق ذات دلالة إحصائية في تأثير التسويق الصيدلاني على سلوك الوصف لدى الأطباء تعزى للعوامل التالية وهي العمر، سنوات الخبرة، متوسط الدخل الشهري، الرضا عن الدخل، بلد التخرج من البكالوريوس.

كما أكدت النتائج أن (61.7٪) من أفراد العينة على استعداد لتنفيذ اللوائح والمدونات الأخلاقية التي تحكم العلاقة بين الأطباء ومندوبي الدعاية الطبية. وفي الختام، أظهرت نتائج الدراسة أن هناك تفاعل نشط بين الأطباء وشركات الأدوية في قطاع غزة في القطاعين الحكومي والخاص على حد سواء وكان لهذه التفاعلات دور كبير في التأثير على سلوك الوصف لدى الأطباء. وعليه توصي الدراسة بضرورة وضع سياسة لوصف الأدوية، فضلا عن مبادئ توجيهية شاملة لتفاعلات الأطباء مع شركات الأدوية إلى جانب آليات متابعة لتطبيقها.