

**Investigating the Perception of the Influence of Pharmaceutical
Marketing on Pharmacists and Doctors Dispensing and
Prescribing Practices.**

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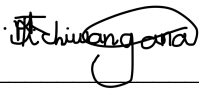
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A mini thesis submitted in partial fulfilment of the degree MSC Pharmacy Administration
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DECLARATION

I, Nothando Yollanda Tichiwangana declare that the contents of this mini thesis entitled, 'Investigating the influence of pharmaceutical marketing on Pharmacists and Doctors dispensing and prescribing practices,' is my own work and that the sources I have used or quoted have been referenced using the Harvard style of referencing.



Signature

06 December 2021

Date

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I would like to acknowledge the Almighty God for His mercies and taking me thus far. It is only by His grace. I also acknowledge my supervisor Dr Obikeze for all his support, I really appreciate. I would like to acknowledge the support that I have received from my family during the time I have been studying from my parents, husband and daughter, thank you.

ABSTRACT

Pharmaceutical marketing via a wide range of promotional tools to doctors and pharmacists is one of the primary methods used by the pharmaceutical industry to drive product sales. Pharmaceutical representatives are the key personnel employed in promoting pharmaceutical products, and their interactions with doctors and pharmacists may present a conflict of interest which may result in irrational prescribing or dispensing with the attendant negative outcomes for patients. As such, an awareness of the influence pharmaceutical marketing may have on their prescribing or dispensing practice is essential to mitigate its negative impact on professional practice. Although several studies have investigated the perception of healthcare professionals on the influence pharmaceutical marketing has on their prescribing and dispensing behaviour, no study has evaluated this in healthcare professionals in South Africa. This study aimed to investigate the perceptions and attitudes of doctors and pharmacists in private sector practice in Gauteng province of South Africa on the influence of marketing by pharmaceutical representatives on their decisions when prescribing and dispensing medication to patients.

The study involved a mixed methods approach, using a semi-structured questionnaire to elicit information on doctors and pharmacists' perceptions on gifts offered by pharmaceutical representatives, and the influence of pharmaceutical marketing on their dispensing and prescribing practice. A sample consisting of 120 doctors and pharmacists practising in the private sector of Gauteng province and who interacted with pharmaceutical representatives as part of their practice were included in the study using convenience sampling. The responses to the questionnaire were collated using descriptive statistics, and data analysed to identify relationships between the respondent's perceptions and specific prescribing and dispensing practices using SPSS statistical software. The Chi-squared test was used to test for the differences between groups, and the Spearman rho coefficient used to analyse associations between identified themes in the data in SPSS. Ethical approval for the study was obtained from the University of Western Cape.

Of the 220 questionnaires sent out either physically or electronically, 120 responses consisting of 55 doctors and 65 pharmacists were obtained which gave a response rate of 54%. A minority of the respondents indicated having received any educational material on pharmaceutical

marketing in their undergraduate studies. Most of the respondents spent between 1 to 5 minutes daily interacting with pharmaceutical representatives. Most of the respondents perceived gifts of low monetary value such as pens and stationery as appropriate, while gifts over a thousand rand in value were considered inappropriate. There was a moderate association ($\rho=0.426$) between the minutes spent interacting with pharmaceutical representatives and the perception that the information from the pharmaceutical representatives could be trusted. The majority of respondents indicated that the information and Continuous Professional Development (CPD) programmes provided by pharmaceutical companies were vital for their practices ($\rho= 0.560$) and felt more confident prescribing or dispensing medication detailed to them by a pharmaceutical representative over others.

Doctors and pharmacists were conscious of pharmaceutical marketing strategies, but felt they were immune to the influence. The appropriateness of gifts was dependent on monetary value or professional usefulness of the gift. It was inconclusive whether respondents perceived donations or gifts from pharmaceutical companies as appropriate. Information provided by pharmaceutical representatives was considered important and as such may influence prescription or dispensing behaviour. The results provide insightful areas for the development of interventions to reduce the impact of pharmaceutical marketing on prescribing and dispensing behaviour. This study was only done in the Gauteng province which limits the generalization of the results across South Africa.

Key words: Pharmaceutical marketing, doctors, pharmacists, pharmaceutical representative, perception, and gifts.

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ABBREVIATIONS

ALLHAT – Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial

ASHP – American Society of Health System Pharmacist

CME - Continuous Medical Education

CPD - Continuous Professional Development

EU – European Union

EFPIA – European Federation of Pharmaceutical Industries and Associations

DCTA – Direct To Consumer Advertising

IVD – In Vitro Diagnostics

KOL – Key Opinion Leaders

FDA - Food and Drug Administration

HPCSA – Health Professional Council of South Africa

HSSREC - Humanities and Social Sciences Research Ethics Committee

IFPMA – International Federation of Pharmaceutical Manufactures and Associations

MCA – Marketing Code Authority

NDH – National Department of Health (South Africa)

NHS – National Health Services (United States of America)

NSAID – Non-Steroidal Anti-Inflammatory Drug

PhRMA - Pharmaceutical Research and Manufactures of America

WHO – World Health Organisation

US – United States

SAPC – South African Pharmacy Council

SPSS – Statistical Package for Social Science

S1 to S6 – Schedule one to Schedule six medication

VAT – Value Added Tax

VIGOR - Virtual Immersive Gaming to Optimize Recovery in Low Back Pain

CHAPTER 1

INTRODUCTION

Marketing can be defined as a process through which the needs and wants of the customers are recognized and a product or service is generated to meet those needs and wants (Masood, et al., 2009). It involves developing a way of bringing and communicating the product or service to the marketplace (Masood, et al., 2009). Marketing is a process of understanding demand and supply from the perspective of the customer (Mnushko, et al., 2016). An effective marketing strategy provides a solution to satisfy the needs and wants of customers, while attaining the goals of the organization. In addition, marketing can generate new needs or reformat existing needs (Mnushko, et al., 2016). Mutually customers (demand) and organizations (supply) have goals, with the customers' goals to fulfil their needs and wants and the organizations' goals to supply a good or service that affords value, is beneficial to customers and to offer employment for workers and revenue to stakeholders (Mnushko, et al., 2016).

The principle of marketing is an exchange, and the existence of a market is the basis for an exchange and not a substitute for it (Mnushko, et al., 2016). Each exchange necessitates that there are two or more parties interested in fulfilling their unsatisfied needs that have something valuable to offer to each other and can communicate and deliver (Mnushko, et al., 2016). In general, marketing can be defined as satisfying the customer's needs to achieve corporate objectives (Negash & Adamu, 2017). It is also the management process responsible for identifying, anticipating, and satisfying customer requirements and profitability (Negash & Adamu, 2017).

As a subspecialty of marketing, pharmaceutical marketing can be defined as a process by which the market for pharmaceutical care is actualized (Mnushko, et al., 2016). Pharmaceutical marketing is defined by the World Health Organisation as all information and persuasive activities done by manufactures and distributors, the effect of which is to induce the prescription, supply, or use of medicinal drugs (WHO, 1988). Pharmaceutical marketing involves activities that are aimed at creating awareness of the product with healthcare professionals such as product samples, sponsorship of educational events including continuous professional development (CPD) events and conferences, and free lunches among other things (Orlowski & Wateska, 1992). Promotion of medication, scheduled substances, medical devices, and In-Vitro Diagnostics (IVDs) ethically is crucial in assisting healthcare

professionals and the public to have access to the information they require (MCA, 2021). This ensures that patients have access to healthcare products that they require and that healthcare products are prescribed and used in a manner that offers maximum health benefits to patients (MCA, 2021).

The pharmaceutical industry forms a significant part of the healthcare sector and the South African economy, with a total market value estimated to be \$3.3 billion in 2015 (South African Government News Agency, 2018). For the industry to flourish it must market its products to increase awareness and sales. The pharmaceutical industry invests a lot of money in the marketing and promotion of medicines and medical devices, with pharmaceutical marketing and promotion the main strategy used by the industry to inform stakeholders about the innovations obtained in research and development. In the United States from 1997 through 2016, pharmaceutical marketing to healthcare professionals increased from \$15.6 billion to \$20.3 billion (Schwartz & Woloshin, 2019). This included \$5.6 billion for prescriber detailing, \$13.5 billion for free samples, \$979 million for direct physician payments (e.g. meals) related to specific drugs, and \$59 million for disease education (Schwartz & Woloshin, 2019). Despite the new policies to limit the influence of pharmaceutical marketing on healthcare professionals, spending still remains high (Schwartz & Woloshin, 2019).

One of the roles of pharmaceutical companies is to offer information on their medicines to healthcare professionals (PhRMA, 2008). The interaction between pharmaceutical representatives and health care professionals is frequently referred to as “marketing and promotion.” Without it, health care professionals would be less likely to have the latest, accurate information available regarding prescription medicines, which plays an increasing role in effective health care (PhRMA, 2008). The other goal of pharmaceutical marketing is to raise profits by increasing the needs and desires of patients for the products (Biswas & Ferdousy, 2016). The pharmaceutical industry is different from other types of industries in that the target audience is not the consumer (patient) but rather doctors and pharmacists who prescribe, dispense, or recommend products to the patient (Biswas & Ferdousy, 2016). Hence, it is the doctors and pharmacists who make decisions on behalf of the patient who are the targets of pharmaceutical marketing. In South Africa the Medicines and Related Substance Act of 1965, allows for the advertising to the public of medicines belonging to schedule zero (S0) and schedule one (S1) (Osman, 2010). All other medication appearing in Schedules 2 to 6 may only be advertised for the information of healthcare professionals such as doctors, dentists and pharmacists (Osman, 2010), with marketing and dispensing requirements getting stricter as the

schedule status of a medication increases (MCA, 2021). Since all the prescription medication in South Africa are not allowed to be advertised directly to patients, healthcare professionals are the main targets for pharmaceutical marketing for prescription medication.

There is an increasing concern that pharmaceutical marketing drives the prescribing or dispensing practices of doctors and pharmacists (Lexachin, 2002). Drugs prescribed or dispensed may not necessarily be cost-effective for the patient, and in some cases may result in the inappropriate clinical use of medication (Lexachin, 2002). However according to the World Health Organisation (WHO) promotion of medication which leads to improved prescribing, rational use of medication or enhanced cost-effectiveness should be of no concern (WHO, 1988). As such interactions between pharmaceutical companies and healthcare professionals should be always appropriate and provide unbiased information that is based on scientific evidence that encourages rational prescribing and dispensing and support quality patient care. Evidence exists that suggests that exposure to pharmaceutical marketing negatively impacts the quality and quantity of prescriptions. This leads to a reduction in the quality-of-care patients receive while also increasing the risks of adverse events and treatment costs to patients (Health Action International, 2016). In interactions between pharmaceutical representatives and healthcare professionals, it is common for gifts of varying nature to be offered. Research has shown that doctors or pharmacists who accept gifts from pharmaceutical companies are more likely to prescribe or dispense the company's particular medicine (Ashker & Burkiewicz, 2007). McNeill and colleagues found a positive correlation between doctors' interactions with pharmaceutical representatives that included gifts and the likelihood for the doctor to request for the inclusion of the marketed drug in the formulary, even with the availability of cheaper alternatives (McNeill, et al., 2006).

Aggressive advertising of new medication can lead to extensive prescribing and use before the safety profile of these medicines is fully understood (Lexachin, 2002). Modern, more costly medicines displace older, cheaper ones without any evidence of an improvement in therapeutic outcomes (Lexachin, 2002). Inaccuracies and omissions in pharmaceutical marketing are driven by the need to obtain market share for a new branded medication despite the frequent lack of scientific evidence of therapeutic advantages over older treatments (Alves, et al., 2019). An independent French pharmaceutical bulletin which evaluated the evidence of the safety and effectiveness from a clinical trial of all new and approved medicines in France approved between 2006 and 2005, found that only 1.3% of 1038 new medicines were for major therapeutic discoveries and/or indications while 52% were not new and 17% of the medication

should have never been marketed (Prescrire International, 2016). It is extremely important that prescribers evaluate clinical data and the claims from a pharmaceutical representative before prescribing newer medicines.

It is in rare cases that healthcare professionals admit that their prescribing or dispensing behaviour has the potential of being influenced by pharmaceutical representatives and would mostly deny this influence (Alves, et al., 2019). For example, a survey conducted in Turkey with 446 physicians found that approximately two-thirds of the physicians thought that their prescribing was not influenced despite the fact that almost 50% of them had reported spending 15 minutes and above with pharmaceutical representatives on a daily basis (Guldal & Semim, 2000). Katz and colleagues argue that the fact that professional guidelines for interactions with pharmaceutical representatives exist indicates that gifts from the pharmaceutical industry creates a conflict of interest (Katz, et al., 2003). These guidelines tend to prohibit the acceptance of large value gifts but permit the acceptance of small value gifts such as pens, coffee and notebooks. However, evidence from social science research shows that the exchange of gifts creates a human tendency of networks of obligation (Gouldner, 1960) (Levi-Strauss, 1969). When a gift of any size is presented, it enacts in the receiver a sense of obligation, a commitment to directly reciprocate, whether or not the receiver is cognisant of it, which then has a tendency to influence their behaviour (Katz, et al., 2003). The preference to reciprocate is an adaptive mechanism that has facilitated binding and advancing of human societies by aiding exchange of food, skills, and goods, and this social rule of reciprocity forces on the receiver an obligation to pay back, in kind if possible, for kindnesses, gifts and offers (Gouldner, 1960) (Levi-Strauss, 1969)(Leakey & Lewin, 1978). On the basis of this Katz and colleagues phrased a statement, 'Those who do not acknowledge the power of small gifts are the ones most likely to be influenced, because their defences are down' (Katz, et al., 2003). Healthcare professionals may fail to acknowledge the rule of reciprocity and therefore fail to guard against its influence on their professional activity.

The marketing of pharmaceutical products is regulated by different regulatory authorities in different countries, and the WHO criteria for medicinal drug promotion, while major pharmaceutical companies also have their own code of ethics (Alves, et al., 2019). Pharmaceutical companies that are members of the International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) are required to apply the national association code of practice and the IFPMA code of practice worldwide, wherever they operate, even where regulatory controls are absent (Francer, et al., 2014). In South Africa, the local industry

associations, which includes producers of medical devices, diagnostics, generics, over the counter medicines and prescription medicines have formed a joined code which complies with the legal provisions in the Medicines and Related Substance Act of 1965 (Francer, et al., 2014). The Marketing Code of Health products was implemented in 2011 and established the Marketing Code Authority (MCA) as an independent enforcement authority (Francer, et al., 2014). It includes detailed enforcement procedures and the application of extensive and stringent sanctions in cases of code breaches (Francer, et al., 2014). In general, industry codes are tiered, and the National Codes must be consistent with the IFPMA Code of Practice (Francer, et al., 2014). However, compliance with these codes remains a problem. A Netherlands study which assessed printed campaigns in the media using the WHO ethical criteria for medical drug promotion and the Dutch regulations found overwhelming evidence of the lack of compliance with the guidelines and the use of misleading or incomplete information on the promoted products (Alves, et al., 2019). This shows that advertising information from the pharmaceutical industry may contain biases and as such it is important for healthcare professionals to be alert and conduct their own research on the proper use and efficacy of a particular medication before recommending it to a patient.

Research question

The study examined the attitudes and perceptions of doctors and pharmacists on pharmaceutical marketing as well as the tools used in pharmaceutical marketing. This was with the view to answering the following research question:

What is the perception of doctors and pharmacists on the influence that pharmaceutical marketing and pharmaceutical marketing tools such as gifts and CPD has on their prescribing and dispensing practices?

Aims and Objectives

This study aimed to investigate the perceptions and attitudes of doctors and pharmacists on the influence of marketing by pharmaceutical representatives on their decisions when prescribing and dispensing medication to patients.

To achieve this aim, the following objectives were met:

- Determined the perceptions of doctors and pharmacists on receiving gifts from pharmaceutical companies
- Determined the perceptions and attitude of doctors and pharmacists on asking for donations from pharmaceutical companies
- Investigated the perceptions of doctors and pharmacists on the influence of pharmaceutical marketing on their prescribing or dispensing practices
- Investigated whether doctors and pharmacists interact with pharmaceutical representatives

Justification for the study

South Africa operates a dual healthcare system, comprising of a public sector and a smaller, rapidly growing private sector with varying resources and access to medicines across various channels (OECD, 2018). About 16% of the population, or 7 million people who have access to medical insurance through medical aid schemes, are covered by the private healthcare sector (OECD, 2018). R33.2 billion in pharmaceutical spending is paid for by the private healthcare industry, equal to 84% of the country's overall pharmaceutical spending (OECD, 2018). Medicines from 130 producers and importers comprising of 5,000 product lines are supplied to the private sector (OECD, 2018). The South African public health sector serves about 84% of the population which equates to about 42 million people (OECD, 2018). Pharmaceutical spending in the public health sector is less than that in the private health care sector, accounting for 16% or R6.1 billion of the total pharmaceutical expenditure. Procurement of medication in the public health sector is done by the National Department of Health (NDH) through tenders (OECD, 2018). With most of the spending on pharmaceuticals coming from the private healthcare sector, and the centralised nature of the tender-based procurement used in the public healthcare sector, this research focused on private sector practitioners as they are more likely to be the target of pharmaceutical marketing. Direct to Consumer Advertising (DTCA) in South Africa is only allowed for unscheduled medicines, S0 and S1 medicines, while medicines in S2 and upwards are advertised only to the healthcare professionals. This makes doctors and pharmacists targets of pharmaceutical marketing of prescription medicines. Therefore, it is necessary to understand their perceptions of the interactions that occur between them and the pharmaceutical companies and possibility of this influencing the decisions made in their professional practice. Most studies on pharmaceutical marketing interactions between the pharmaceutical industry and healthcare professionals have been carried out outside Africa and

currently there is no literature that gives a South African context on the perception of doctors and pharmacists on the influence of pharmaceutical marketing. This study adds to the body of literature on the topic, gives a South African perspective to the topic and increases the understanding of the perceptions and attitudes that doctors and pharmacists have on the impact of pharmaceutical marketing on their prescribing and dispensing behaviour.

Overview of the dissertation

The thesis is made up of five chapters. Chapter 1 presents the introduction to the subject of marketing, pharmaceutical marketing and the law governing these. It also presents the aim and objectives of the study. Chapter 2 discusses the relevant literature on pharmaceutical marketing as well as the regulation of pharmaceutical marketing internationally and locally. Chapter 3 discusses the methods used in the study including the sample size and selection, data collection tools used and data analysis. Chapter 4 presents the results of the study and discusses the significance of the results with respect to relevant literature. The conclusion of the dissertation, limitations of the study and recommendations for future studies are presented in chapter 5.

CHAPTER 2

LITERATURE REVIEW

Approximately 88% of the value of the pharmaceutical market in South Africa comes from prescription medication with a market value of R35 billion in 2014 (OECD, 2018). In terms of monetary value, spending on patent medication in South Africa in 2014 was valued at R22.12 billion, representing 55.6% of total pharmaceuticals and 63.25% of prescription medication sales (OECD, 2018). In contrast, spending on generics was R12.85 billion in the same year, representing 32.3% of total pharmaceutical and 36.7% of prescription medication sales (OECD, 2018). This is despite the fact that patent medicines represented only 36% of all medicines sold in that year, with generics making up 64% (OECD, 2018). Prior to 1994, medicines pricing was largely driven by market forces and pharmaceutical companies utilised samples, bonuses, discounts, rebates, and other incentives to encourage doctors and pharmacists to prescribe or dispense their medicines (OECD, 2018). This was believed to influence doctors to prescribe more expensive medication to patients (OECD, 2018). With the advent of democracy, amendments were made to the legislation which were meant to increase access to safe, affordable, and quality medicines.

2.1. Regulations and codes governing pharmaceutical marketing

2.1.1. International regulation: The IFPMA code of pharmaceutical practices

The IFPMA is a non-profit, non-governmental organization representing industry associations and companies from both developed and developing countries (Francer, et al., 2014). The IFPMA Code includes standards for the ethical promotion of pharmaceutical products to healthcare professionals. It ensures that member companies' interactions with healthcare professionals and other stakeholders, such as medical institutions and patient organizations, are appropriate and perceived as such. Membership of the IFPMA is voluntary, and members including global research-based pharmaceutical companies are expected to be compliant with the ethical standards set out in the Marketing Code of Health products. The IFPMA code can be summarised as follows:

- Companies' relationships with healthcare professionals are to benefit patients and enhance the practice of medicines.

- No inducement to prescribe is permitted
- Promotion should be appropriate
- Local regulations or laws should be followed
- Promotion should not be disguised
- Pre-licence or off-label promotion is prohibited
- Information must be consistent with the label, accurate and not misleading and be capable of substantiation

In the European Union (EU), the Federation of Pharmaceutical Industries and Associations (EFPIA) has code on the promotion of prescription medication and interactions with healthcare professionals. The National codes in the EU are aligned with the EFPIA codes. In the US, the Pharmaceutical Research and Manufactures of America (PhRMA) has published a code on the interactions of the industry with healthcare professionals and guiding principles on the advertising of prescription medication.

2.1.2. Regulation in South Africa: The Marketing Code Authority

In South Africa, pharmaceutical marketing requirements are laid out in the Marketing Code of Health products established by the MCA in line with the legal requirements of the Medicines and Related Substance Act of 1965. The Marketing Code of Health products governs the ethical conduct of its members, marketing, and the independence of healthcare professionals. It also governs the relationship between the product supplier and the healthcare profession and sets out rules for the sponsorship of events and advertising of health products. According to the Marketing Code of Health products, healthcare professionals should not receive incentives for prescribing or dispensing any product and they should be free to choose any product they want for the patient. Membership to the MCA is however voluntary (MCA, 2021). Any sponsorship received from the pharmaceutical company should be intended to support science and education and should relate to the healthcare professional's area of practice (MCA, 2021). The Marketing Code of Health products states that written contracts are required between the sponsor and the recipient which must be transparent and reflect ethical guidance (MCA, 2021). It stipulates that all expenditures by the industry should be minimal, reasonable, and modest, and all sponsorship grants are prohibited unless they are duly approved by the compliance officer of the company (MCA, 2021). The documentation of any sponsorship must be kept for 5 years and should be open for an ethical audit (MCA, 2021). Hospitality and venues offered by the pharmaceutical companies should be modest and appropriate and secondary to the

scientific objectives of the event. Clinical, educational and conference centres should be preferred as meeting venues rather than venues that are viewed as holiday destination (MCA, 2021). Luxury and holiday destinations are prohibited under the Marketing Code of Health products. Economic air travel is advocated for, however, the spouse or any other guests should not be sponsored. No sponsorship of sporting events or hunting, payments for Wi-Fi and coffee machines is permitted under the Marketing Code of Health products (MCA, 2021).

Industry sponsorship of Continuous Professional Development (CPD) is vital to the knowledge of healthcare professionals of products. However, such sponsorship or grant is only permitted through a health practice. Individual healthcare professionals should not benefit from such transactions, and healthcare professionals should not be paid to attend an event or CPD. However, the Marketing Code of Health products allows for compensation for the event speaker for the time and effort involved in line with the Marketing Code of Health products agreements (MCA, 2021). The Marketing Code of Health products also states that all hospitality and meals given to healthcare professionals should be in a way that delegates will be able to pay for themselves if self-funding. Compliance with the Marketing Code of Health products is voluntarily and hence it is not compulsory for all pharmaceutical companies to comply with the Marketing Code of Health products in South Africa (Beaumont, 2018). This causes a concern as non-members of the Marketing Code of Health products may potentially engage in unethical pharmaceutical marketing practices which could advantage them over members of the MCA.

2.1.3. Regulation in South Africa: The Medicines and Related Substance Act 101 of 1965

Section 18a of the Medicines and Related Substance Act 101 of 1965 states that no person shall supply medicine according to a bonus system, rebate system or any other incentive scheme (Osman, 2010). Sampling of medicines is further prohibited in section 18b of the Act. Although a sample is defined by the Act as the supply of free medication to the healthcare professionals like doctors and pharmacists, it does not include provision of free medication to the state or for the purposes of clinical trials (Osman, 2010). In terms of advertising, the Act states that no advertising may contain a statement which deviates from, or conflicts with, or goes beyond the evidence submitted in the application for registration of such medicine with regard to its safety, quality or efficacy where such evidence has been accepted by the council in respect of such medicine and incorporated into the approved package of such medicine (Osman, 2010). Healthcare professionals are obliged to follow their respective codes of professional conduct

within their professional bodies. The South African Pharmacy Council (SAPC) regulates the practice of pharmacists, while the Health Professional Council of South Africa (HPCSA) regulates the practice of doctors. These bodies have rules that are in line with the guidelines of the South African code of practice for the marketing of healthcare products of 2021. It states that healthcare professionals should not use their healthcare professional registration in the marketing of health products or services.

Significant changes in the way pharmaceutical products are marketed and supplied occurred in 1997 after the introduction of the National Drug Policy of 1996 (OECD, 2018). These amendments prohibited sampling of medicines, bonuses and rebates and any other incentives and made the generic substitution of medicines mandatory (OECD, 2018). Generic substitution though vital to increasing medicines access and affordability, creates generic competition as different pharmaceutical companies need to gain market share for their medicinal products.

2.2. Pharmaceutical marketing

Promotional strategy is the design, planning, implementation and controlling of integrated communication activities (Negash & Adamu, 2017). Pharmaceutical marketing communications encompasses advertising, personal selling, public relations, and sales promotions as well as web communications together creating the promotion mix (Negash & Adamu, 2017). The purpose of the mix is to provide information, persuade and remind healthcare professionals of the products of the company (Sherlock, 2010). Pharmaceutical marketing communication is a management notion that is aimed at making all aspects of marketing communication such as advertising, sales promotions, public relations, and direct marketing work together in harmony rather than in isolation (Negash & Adamu, 2017). The communication between the seller and the buyer enables the buyer to obtain more information about the product and the main intention is to sell the product (Negash & Adamu, 2017). Pharmaceutical companies are very important in that they provide and produce novel medicines for patients which improves the quality of life (Negash & Adamu, 2017). However, pharmaceutical companies have an obligation to their stakeholders, and they must produce profits for them and reimburse the capital spend on research and development (Negash & Adamu, 2017).

2.2.1. Methods of Promotion to Healthcare Professionals

2.2.1.1. Pharmaceutical Representatives

Pharmaceutical representatives carry out verbal promotion or detailing. Detailing is a marketing approach used in pharmaceutical marketing which involves face to face promotional activities to doctors or pharmacists by pharmaceutical representatives. The pharmaceutical representative must have adequate training and scientific knowledge to ensure that they provide precise and accurate information on the products they market. Detailing occurs when the pharmaceutical representative pitches their medicines to the doctor or pharmacist and involves giving them information on the medicine and gifts such as reference books, stationery, and meals (Rockoff, 2012). In the US, policies that controlled detailing between 2006 and 2012, which limited pharmaceutical representatives' access to doctors resulted in the reduction of gifts that doctors received from pharmaceutical representatives and increased generic prescribing as compared to prescribing of detailed drugs (Kacik, 2017). In South Africa the Marketing Code of Health products regulates incentives that can be given during detailing and generic substitution is mandatory. Pharmaceutical representatives are not allowed to use any inducements to gain an interview with the healthcare professional, should not offer any payment or reward to the healthcare professional for gaining an interview, and should take reasonable steps to ensure that their identity is not misleading when representing a particular company (MCA, 2021). They should also ensure that their timing for calls to pharmacies, hospital and other healthcare practices should not inconvenience the healthcare professionals (MCA, 2021).

2.2.1.2. Written materials

There is a wide range of written materials that support marketing of medicines, they are often produced at global levels and adapted for local use. Written materials include detail aids which represent the product profile. It also includes promotional aids such as branded pens, wall charts and full advertising in medical journals. Brochures with the medicine information on uses and side effects obtained from clinical trials often form part of the promotional material. According to the WHO's ethical criteria, promotional materials to healthcare professionals should contain specific elements of information to enable them to understand the promoted product effectively (Alves, et al., 2019). However, this is not the case most of the time. In a systemic review that reviewed twenty-four studies on pharmaceutical advertisements from different countries, Othman and co-workers found that most of the advertisements had

information on the brand name and generic information as well as enough information needed for prescribing, but lacked information on side effects, contraindications, precautions, interactions, and warnings (Othman, et al., 2009). When present, such information was available in fine print which could easily be overlooked by the reader (Othman, et al., 2009). In addition to this, Wick reported that such promotional information is often biased and favours the marketed medication than its generic competitors (Wick, 2007). Healthcare professionals should have accurate information for them to be able to diagnose and treat patients to produce good therapeutic outcomes. Hence, they should be aware of all the information relating to the medication that they will give the patients in terms of the side effect, drug interactions and contraindications profile. Ideal pharmaceutical marketing should be able to provide all this information without any bias.

2.2.1.3. Samples

Samples are free medication samples given to doctors which have been proven to increase the prescribing of the promoted medication (Peay & Peay, 1998). In as much as pharmaceutical companies insist that samples are for the benefit of indigent patients, research has proved that most samples are given to patients who are already covered on some sort of medical insurance (Alexander, et al., 2008). As such, these patients end up having higher prescription costs as compared to those who do not receive samples because the sampled medication will be prescribed for them instead of the cheaper generic equivalent (Alexander, et al., 2008). Sampling is prohibited in South Africa under the Medicines and Related Substance Act of 1965 (Francer, et al., 2014). However, healthcare professionals can be given products that can be passed on to patients who are part of a formal program (MCA, 2021). The items must be inexpensive and must benefit the patient directly and be useful in their condition (MCA, 2021). These activities must be done in accordance with the Marketing Code of Health products and should not advertise S2 to S6 items.

2.2.1.4. Gifts

Gifts, free lunches, Continuous Medical Education (CME), and holidays for doctors and pharmacists are some of the strategies employed by the pharmaceutical industry in their marketing which have been criticised as being inducements to prescribe or recommend a particular product devoid of scientific basis (Gonul, et al., 2001). In South Africa it is prohibited to give incentives for the personal gain of the healthcare professional. However, occasional gifts are permitted under the Marketing Code of Health products and a single inexpensive gift

may be given to a healthcare professional in recognition of a national or religious holiday (MCA, 2021). Occasional gifts are generally utility items useful to the healthcare professional in their practice such as pens, notebooks and calendars, the value of which should not exceed R300 inclusive of Value Added Tax (VAT) (MCA, 2021). Gifts for medical use such as scientific reference books, anatomical models for patient education and journals are also accepted by the Marketing Code of Health products. The monetary value of such gifts should not surpass R2 500 VAT inclusive for individual healthcare professionals or practices and R10 000 VAT inclusive for training or academic institutions (MCA, 2021).

In a comparison of pharmaceutical promotional tactics between Hong Kong and China in 1995, Liu found that many physicians do not sense that the gifts and other incentives provided by pharmaceutical companies influence their prescriptions (Lui, 1995). The study also showed that pharmaceutical representatives or sales personnel do not significantly affect the doctor's prescription. Wanzana (2020) argued that gifts of insignificant value can affect the behaviour of the recipient in ways not always recognised by the recipient. As a sense of courtesy, pharmaceutical representatives bring along pens, notepads, or lunch as a conversation starter for the pharmacist responsible for ordering medication or to a doctor they are visiting. Accepting gifts from pharmaceutical representatives has become so normalized that some healthcare professionals feel as if they are entitled to gifts for the work they do (Alves, et al., 2019). The danger is that gifts create a sense of obligation which may be acted upon by the receiver either consciously or subconsciously (Alves, et al., 2019). When a doctor or pharmacist has received a gift, subconsciously they will want to give something back. Having a meeting with a pharmaceutical representative may be seen as a harmless way to pay back but may influence attitudes and behaviours towards certain medicines (Alves, et al., 2019). A qualitative study conducted in Yemen on the physician's perspective on medical representative visits concluded that even though physicians were aware of the influence of pharmaceutical representatives on their prescribing behaviour, they still accepted their gifts and welcomed them as normal practice (Al-Afreefi, et al., 2013). A Lebanese study found that physicians considered gift acceptance as unethical and were mostly motivated by pharmaceutical representative visits and drug samples, with a positive correlation reported between pharmaceutical marketing strategies and prescribing behaviour (Khazzaka, 2019). In Sudan, frequent visits from pharmaceutical representatives influenced the prescribing behaviour of physicians (Mohammed & Kheder, 2017).

2.3. Consequence of misinformation from pharmaceutical marketing

Most medications are marketed heavily when they first come on to the market, when very little information is known about their safety profile in the wider population (Alves, et al., 2019). This could result in the drug's rapid exposure to a diverse population of patients with comorbidities that could result in morbidity or mortality. Examples include Vioxx® a non-steroidal anti-inflammatory drug (NSAID) called rofecoxib which had to be recalled following several deaths from myocardial infarction in arthritis patients taking the drug and Seroxat® which led to an increased incidence of suicidal attempts by young people who took the drug (Karha & Topol, 2004)(Alves, et al., 2019). Safety and efficacy of medication should not be overlooked by healthcare professionals and educating them on the effects of pharmaceutical marketing will enable them to be aware of the conflict of interest from pharmaceutical companies (Karha & Topol, 2004)(Hodges, 1995).

The Antihypertensive and Lipid-Lowering Treatment to Prevent Heart Attack Trial (ALLHAT) study investigating the effectiveness of antihypertensive medication found that though the cheap, older generation medication were most effective, extensive marketing of the most expensive and new generation medication such as calcium channel blockers led to these being prescribed as first line treatment (ALLHAT, 2002). The cost of marketing of medication is added to the price of medication which means that the payer or the funder ends up paying more for treatment (Alves, et al., 2019). Kliner, (2012) goes further to argue that prescribers accepting gifts and free items from pharmaceutical companies encouraged this behaviour, and thus accepting and colluding with the increases in the cost of medication for their patients. Another study in the US found that doctors who had interactions with pharmaceutical representatives were thirteen times more likely to recommend that a particular medicine be added to an insurance plan list of official medicines (Parker & Pettijohn, 2003). In a study on prescription patterns, by Orłowski and Wateska (1992) doctors emphasised that pharmaceutical company's incentives did not affect their objectivity, but analysis of their prescriptions showed significant increases in the number of prescriptions for the promoted drugs after a sponsored seminar.

2.4. Influence of education

Dispensing and prescribing habits may be formed during the formative years in Pharmacy or Medical school. As such learning about pharmaceutical marketing strategies and ethical issues involved in the interactions between healthcare professionals and the pharmaceutical industry is very important. A study done at the University of Missouri-Columbia found that there was a statistically significant difference between students who had been taught about ethical issues on pharmaceutical marketing and those who had not (Vinson, et al., 1993). The students exposed to the course on ethical issues were less accepting of pharmaceutical marketing promotional tools as compared to those who were not (Vinson, et al., 1993). The curriculum may play a role in the future decisions that doctors and pharmacists make during their interactions with pharmaceutical representatives.

Pharmaceutical marketing targets brand naïve doctors and pharmacists where the pharmaceutical representatives bring awareness of the brand through detailing (Hajjar, et al., 2017). This in turn increases the knowledge of the doctor or pharmacist on the marketed product. With further interactions the doctor or pharmacist may start liking the product and preferring it over other products. Eventually they will have a conviction that the product works, and they may prescribe it or buy it to dispense in the pharmacy. The studies reviewed above show that pharmaceutical marketing influences the prescribing and dispensing behaviour of doctors and pharmacists. However, doctors and pharmacists tend to deny being influenced. Various regulations are in place to regulate pharmaceutical marketing, but compliance remains a problem.

Table 2.1. Summary of studies reviewed

Author/s & year	Participants	Site	Objectives	Findings
(Hajjar, R. et al., 2017)	13 physicians, 13 pharmacists, and 6 pharmaceutical company representatives	Lebanon	To qualitatively explore the nature of the interactions between pharmaceutical companies, physicians and pharmacists, their impact on drug prescription and dispensing practices in Lebanon	Interactions between pharmaceutical representative and physicians and pharmacists were frequent. The interactions were beneficial but had a substantial effect on drug prescription and dispensing practices.
(Negasha & Adam, 2017)	270 physicians	Addis Ababa Ethiopia	To explore the effect of pharmaceutical promotion strategies on prescribing behaviour of physicians and to determine promotional tools which are effective in influencing prescribing behaviour	Sales promotion was perceived to be the most influencing factor by physicians when prescribing.
Lexchin 1993	36 studies from Medline and health searches were reviewed	Toronto Canada	To determine if physicians are affected by three type of interactions from pharmaceutical industry namely: company sponsored clinical trials, company sponsored CMEs and information provided by pharmaceutical representatives	Prescribing behaviour is affected by all three types of interactions.
(Orlowski & Wateska, 1992)	10 physicians for each symposia	US	Examining the impact of pharmaceutical company offering all-expenses-paid trips to popular sunbelt vacation sites to attend symposia sponsored by a pharmaceutical company on physician prescribing patterns.	There was a significant increase in the prescribing of the drug following the symposia
(Mohammed & Kheder, 2017)	77 physicians 123 pharmacists	Sudan	To investigate the influences of pharmaceutical marketing on perceptions of physicians and pharmacists on their rational prescribing and health profession	The main factors that affected the prescribing behaviour of physicians were: product safety and effectiveness and the frequent visits by pharmaceutical representatives. While the main factors that affected pharmacists ordering the product were the fact that it has been prescribed and the quality of the product

(Khazzaka, 2019)	282 practicing physicians	Lebanon	To examine the influence of pharmaceutical companies' strategies on physicians' prescription behaviour in the Lebanese market To test whether Lebanese physicians considered gifts and samples acceptance as an ethical practice.	Pharmaceutical marketing strategies are correlated to physicians' prescribing behaviour. Physicians considered gifts' acceptance as a unethical practice Physicians agreed to be mostly motivated by the visits of pharmaceutical representatives and drug samples
(Hodges, 1995)	74 residents, interns and clerks training in psychiatry	Seven teaching hospitals affiliated with the Department of Psychiatry, University of Toronto Canada	To examine the type and number of interactions of psychiatry residents, interns and clerks with sales representatives of pharmaceutical companies and the attitudes of physicians-in-training toward these interactions	Interactions between pharmaceutical representatives and psychiatry residents, interns and clerks are common. The physicians-in-training perceive slight educational value in these contacts and many, especially clerks, interns and junior residents, deny the potential of these interactions to influence prescribing.
(Sergeant, et al., 1996)	226 second-year family medicine residents in Ontario	Ontario	To determine the attitudes, knowledge and practices of family medicine residents relating to the pharmaceutical industry and to assess the effectiveness of existing guidelines on appropriate interactions with the pharmaceutical industry	The presence of guidelines concerning physicians' interactions with the pharmaceutical industry does not appear to have a significant impact on family medicine residents in Ontario
(Keim, et al., 2008)	106 program directors	Arizona	To study the beliefs and practices of emergency medicine program directors concerning interactions with the pharmaceutical industry. To study the prevalence of program policies and the desire for organisational policies	The majority 72% of program directors rarely allowed unrestricted access by pharmaceutical representative Most of the program directors required organisational guidelines on the interactions with Pharmaceutical industry
(Yimenu, et al., 2021)	81 pharmacy professionals 24 medical doctors	Ethiopia	To investigate the exposure, attitude, and training background of medical doctors and pharmacy professionals regarding drug promotional activities To assess their acceptance of promotional gifts provided by pharmaceutical representatives	69.5% agreed that sponsored talks from the industry were educational and helpful 39% agreed and 47.6% disagreed that receiving gifts from pharmaceutical representatives will increase the chance of eventually recommending the drug company's products. Significant gaps were found regarding the training of health professionals about the ethics of drug marketing and how to deal with pharmaceutical representatives

(Wazana, 2000)	29 MEDLINE articles reviewed	US	To determine the extent of and attitudes toward the relationship between physicians and the pharmaceutical industry and its representatives and its impact on the knowledge, attitudes, and behaviour of physicians.	Physicians who met with pharmaceutical representatives were likely to add the drugs to the formulary and change prescribing practices Pharmaceutical company-sponsored CME highlighted the sponsor's drug(s) compared with other CME programs. Attending sponsored CME events and accepting funding for travel or lodging for educational symposia were associated with increased prescription rates of the sponsor's medication. Attending presentations given by pharmaceutical representative speakers was associated with unethical prescribing
(Vinson, et al., 1993)	First and second year medical students	University of Missouri-Columbia	To measure attitudes about accepting gifts To compare variations in 2 nd year medical students' attitudes, after 7 weeks of a 1-hour lecture about the appropriateness of pharmaceutical gifts, to changes in 1 st year students who were not exposed to the program.	Significant changes to 2 nd year students became apparent as they became less accepting of these marketing practices; 1 st year students showed no significant change.

CHAPTER 3

METHODOLOGY

3.1 Research methods

This study was conducted using a mixed method study design. It involved the use of a self-administered, semi-structured questionnaire distributed either physically or electronically to doctors and pharmacists working in the private sector of Gauteng Province to elicit information on their perceptions of the influence of pharmaceutical marketing on their prescribing and dispensing practice.

3.2 Study area

The study was conducted in private hospitals, doctors' private practices and private pharmacies in the Gauteng Province of South Africa. South Africa is a large country, and the period for the research was limited, hence the focus on one province was seen to be appropriate to meet the deadlines. Gauteng is the smallest of the nine provinces in South Africa but the most densely populated with respect to humans, pharmaceutical companies, private pharmacies, private doctor's practices and private hospitals (Alexander, 2019) (SAPC, 2021). There are two types of healthcare systems in South Africa, the private and the public sector (OECD, 2018). The public sector is largely funded by the government while the private sector is funded privately through medical aid or out of pocket payments (OECD, 2018). Selection of medication in the public sector is centralised and orders are done via the national depots hence pharmaceutical marketing to doctors and pharmacists in the public sector is at a minimum as compared to the private sector. Pharmaceutical marketing in public sector is mainly centralised at the national or provincial depots that purchase medication in bulk through tenders (OECD, 2018).

3.3 Study sample

There were 6288 pharmacists including interns and community service pharmacists registered by the SAPC to be practicing in Gauteng Province in 2020 (SAPC, 2020). There was no data recorded on the SAPC website as to how many pharmacists practice in the public or private sector. There were 43 901 medical practitioners registered with the HPCSA in 2020, however

no data was available as to how many of the medical practitioners are working in the different provinces and sectors (HPCSA, 2020). For the purposes of this study, an assumption was made that the numbers are equally distributed within the provinces and sectors and so a population size of 5583 doctors and pharmacists practicing in the private sector in the province was assumed for this study. An online sample size calculator (www.surveysystems.com) was used to estimate the sample size for the study the confidence level set at 95% level of confidence, and the level of error set at 10% (SurveySystems, 2012). The sample size was calculated to be 94, however a sample size of 100 was used for the study.

3.4 Data collection

Inclusion and exclusion criteria

For participants to be included in the study they had to be a doctor or pharmacist practising in a private sector facility in Gauteng Province regardless of speciality. Participants also had to have had work-related interactions with pharmaceutical representatives in the workplace. Intern doctors and pharmacists, non-practising doctors or pharmacists, doctors or pharmacists practising in a public facility or practicing outside Gauteng province and doctors or pharmacists who did not have any work-related interactions with pharmaceutical representatives were excluded from the study.

Data collection tool

Data was collected using a self-administered questionnaire that consisted mostly of closed ended questions and one open ended question where respondents were invited to comment on anything concerning pharmaceutical marketing or elaborate on their choice of responses. The ideas for the questions in the questionnaire were synthesised from the literature on the topic reviewed in chapter 2 and summarised in table 2.1. The questionnaire which consisted of five parts was aimed at eliciting information from participants on their practice. The first part of the questionnaire consisted of three closed-ended questions, meant to elicit socio-demographic information. The second part of the questionnaire consisted of eight closed-ended questions, meant to elicit training and education information as well as information on the interactions between pharmaceutical representative and healthcare professionals. Information on pharmaceutical marketing strategies using a rating scale and information on their perceptions and attitudes on pharmaceutical marketing using a 5-point Likert scale made up the third and

fourth parts of the questionnaire. An open-ended comment section for respondents to further comment on the research topic or elaborate on their choice of responses made up the last part of the questionnaire (see Appendix 3).

Prior to the commencement of the study, the questionnaire was piloted using five participants to validate the tool and ensure that the questions were clear, easy to understand, elicited the appropriate responses from participants and was able to capture data required to answer the research question. The responses from the pilot study were not included in data from the study for analysis. The questionnaire was also approved by the Humanities and Social Sciences Research Ethics Committee (HSSREC) of the University of the Western Cape. The pilot study and the HSSREC did not recommend any changes to the questionnaire as they deemed the questions to be clear and easy to understand.

Data collection process

Initial plans were to use the databases of practicing professionals from the SAPC and HPCSA to identify and contact potential participants for the study. Due to the COVID-19 pandemic and the ensuing lockdown and work from home, enquiries to both the SAPC and HPCSA for access to the databases were unsuccessful. A Google search for doctor's practices and pharmacies enabled the researcher to obtain physical addresses, phone numbers and email addresses of prospective participants. Physical copies of the questionnaire were distributed physically to doctors practice rooms and pharmacies, while electronic copies were emailed to prospective participants that the researcher could not reach physically. For participants who met the inclusion criteria, informed consent was obtained, and participants given the questionnaire to complete. Follow up emails were sent out to participants a few weeks after to remind them to complete the questionnaire.

3.5 Data Analysis

Data quality assurance

The questionnaire was tested for reliability in a pilot study prior to use in the main study. The purpose of the research was explained to participants before they consented and answers to questions that they had were given. Data input from completed questionnaires was done by the investigator, emailed questionnaires were printed and collected data was evaluated for completeness and accuracy daily before capturing in the SPSS (version 25) for analysis and

coded into the SPSS system. All physical copies of completed questionnaires are retained in access-controlled storage and will be kept for a period of 5 years.

Data processing and analysis

The collected data was coded and analysed using the SPSS (version 25) to obtain descriptive statistics of the dataset. The Chi-squared test was used to analyse associations between occupation and training, education, and interactions with pharmaceutical representatives at 95% level of significance. The Spearman's rho correlation was used to evaluate correlations between perceptions that participants had on the appropriateness of gifts and the general questions asked about pharmaceutical marketing with the significance set at 0.05. Graphs were generated using Microsoft Excel. The data was analysed for agreement using means obtained from Likert scale questions in SPSS. The interval scales improve the labelling for the descriptive interpretation of the computed mean.

3.6 Ethics

A detailed informed consent form was issued to participants which thoroughly explained the purpose of the research and the nature of the questions that they would be expected to answer (Appendix 1). The informed consent form clearly stated the right of the participant to confidentiality and their right to withdraw from participating in the research any time they would feel like. It also clearly stated that no incentives were going to be provided for participating in the research. Before participating the participants had to sign the certificate of consent to show that they fully understood what the research was about and their rights. Ethical approval for the research was granted by the Humanities and Social Sciences Research Ethics Committee of the University of The Western Cape in July 2020 (ethics reference number HS20/5/14) (Appendix 2). To maintain anonymity the informed consent forms were separated from the questionnaires during data capturing so that they could not be linked to the responses of the respondents.

CHAPTER 4

RESULTS AND DISCUSSION

This study aimed to investigate perceptions and attitudes of doctors and pharmacists on the influence of marketing by pharmaceutical representatives on their decisions when prescribing and dispensing medication to patients. To achieve this, the study used a self-administered questionnaire which aimed to elicit information from doctors and pharmacists in private practice in Gauteng province of South Africa. A total of 220 questionnaires were distributed to doctors and pharmacists practising in the private sector in Gauteng province, with 70 printed questionnaires and 150 electronic questionnaires distributed. The 220 questionnaires were sent out instead of 100 to accommodate an expected 50% non-response rate. Of the 70 printed questionnaires, 50 questionnaires were completed by respondents, while 70 respondents completed the 150 electronic questionnaires sent out, giving a total response rate of 54.54% (120 respondents). All the completed questionnaires were included in the data analysis.

4.1. Socio-Demographic Information

This section reports on the respondent's demographic information which consists of their occupation, age and years of working experience. Doctors and pharmacists from all age groups participated in the questionnaire survey, with the majority of respondents (65.83%) from the youngest age group (Table 4.1). Most of the doctors (67.3%) who participated in the survey had more than ten years of experience while most pharmacists (46.2%) had between one and five years of experience. There was a relatively strong association ($p=0.878$) between the years of experience and the age of respondents. This shows that as the age increases the experience of respondents also increased. However, the number of years of experience did not influence the nature of the responses given by the respondents.

Table 4.1 Demographic information (n = 120)

Age group	Frequency		Percentage	
Up to 40 years	79		65.83	
41 to 50 years	26		21.66	
51 to 60 years	11		9.16	
61 or above	4		3.33	
Total	120		100	
Occupation	Doctors	Pharmacists	Doctors	Pharmacists
	55	65	45.8	54.2
Years of experience	Doctors	Pharmacists	Doctors	Pharmacists
	1-5	30	23.6	46.2
5-10	21	9.1	32.3	
Above 10	14	67.3	21.5	
Total	55	65		

4.2. Training and education

Only 9 doctors (16.4%) and 31 pharmacists (47.7%) recalled receiving any learning material on the effect of pharmaceutical marketing in their undergraduate studies. Chi-squared analysis showed that there was a statistically significant difference ($p=0.000$) in the likelihood of having received any learning material on the effect of pharmaceutical marketing in their undergraduate studies between the doctors and pharmacists. Equally, a minority of the respondents (16.4% of the doctors and 38.5% of the pharmacists) indicated that their undergraduate studies included information on how to evaluate or interpret the information given as part of pharmaceutical marketing. A statistically significant difference ($p=0.007$) in the likelihood of having learnt how to interpret and evaluate information given as part of pharmaceutical marketing between the professions was found. The results seem to suggest that there is a significant difference in the level of training between pharmacists and doctors with respect to pharmaceutical marketing. Although pharmacists seem to receive more training on pharmaceutical marketing as compared to doctors in this study, it is however very concerning to note that less than 50% of respondents in both professions had received any training or education on pharmaceutical marketing. This suggests that the curriculum of doctors and pharmacists may be lacking in information and training on the effect and influence of pharmaceutical marketing on healthcare

professionals. Similar to the results of this study, a study done in Saudi Arabia reported that more pharmacists than doctors had reported having received any education on the ethics of pharmaceutical marketing (Zaki, 2014). A study in 64 countries within the WHO region on education on pharmaceutical marketing found that of the 137 medical schools and 91 pharmacy schools, pharmaceutical marketing formed part of the curriculum in only 72% of the cases (Mintez, 2005). Although 72% is a high number, the study noted that in cases where this existed in the curriculum, it mostly involved not more than two hours of contact time varying from a short lecture to an assignment (Mintez, 2005).

It is very important to educate and train doctors and pharmacists on medication promotion by the pharmaceutical industry to enable them to make ethical decisions when faced with promotional gifts and influence from pharmaceutical representatives. In most universities in the US, medical students and pharmacy students are exposed to the pharmaceutical industry who come to advertise (Wofford & Ohi, 2005). This exposes doctors and pharmacists to the marketing strategies of pharmaceutical industry at an early stage as students which may negatively influence their practice in the future. In South Africa this rarely happens but the industry does advertise their business to recruit interns. Provision of educational training and guided experience when interacting with pharmaceutical representatives is essential in producing healthcare professionals who will be able to critically evaluate information provided to them, taking into consideration the potential conflict of interest due to the profit driven nature of the pharmaceutical industry (Wofford & Ohi, 2005). Restricting the interactions between pharmaceutical representatives and students in training at McMaster University Department of Medicine in Hamilton, Ontario resulted in less dependence on information from pharmaceutical representatives and a reduced contact with them after training (McCormick, et al., 2001). However, Wofford and Ohi (2005) have argued that such restrictive policies seem to imply that trainees are not educable or able to resist the marketing strategies of the pharmaceutical industry (Wofford & Ohi, 2005). Alternatively, they suggested that the learning of skills of interactions with pharmaceutical representatives should not be delayed until the healthcare professionals have entered practice and banning pharmaceutical representatives may extend the period of naiveté for doctors and pharmacists in training and misses the opportunity of teaching doctors and pharmacists' professional relationships surrounding the business model (Wofford & Ohi, 2005).

4.3. Interactions with Pharmaceutical Representatives

Most of the respondents (85.5% of doctors and 95.4% of pharmacists) worked in practices that were visited by pharmaceutical representatives, while 85.5% of the doctors and 92.3% of the pharmacists surveyed interacted with pharmaceutical representatives in their line of duty. No differences were noted in the likelihood of interactions with pharmaceutical representatives between the doctors and pharmacists surveyed. Similarly, most of the doctors and pharmacists surveyed interacted with pharmaceutical representatives in their line of duty. This is similar to a Canadian study on hospital pharmacists' perceptions on the effects of interactions with the pharmaceutical industry, where almost every participant claimed to have had some sort of interaction with the pharmaceutical industry (Tejani, et al., 2015). One-fifth to one-third of the participants in the Canadian study perceived that such interactions influenced their behaviour and that of their colleagues (Tejani, et al., 2015).

The majority of respondents (66.7%) saw between one and five pharmaceutical representatives per month, with 21.7% seeing five to ten pharmaceutical representatives and only 3.3% seeing more than ten pharmaceutical representatives monthly. Of the respondents, 29.1% of the doctors and 41.5% of the pharmacists spent five to ten minutes interacting with a pharmaceutical representative. In a systemic review of empirical studies conducted on the effects of promotion on doctor behaviour, it was found that doctors who met with pharmaceutical representative had a greater prescription volume (Wazana, 2000). They also prescribed expensive medicines, had a high rate of adoption of new medicines, including those that did not add any therapeutic value, and requested the inclusion of medicines on the formulary which did not show any therapeutic advantages (Wazana, 2000). It has been observed that general practitioners that interact with pharmaceutical sales representatives were less likely to follow guidelines in a study based on the Dutch general prescribing guidelines (Muijers, et al., 2005). These suggest that spending time with the pharmaceutical representatives may influence the behaviour of the pharmacist or the doctor. Most respondents (65.6%) indicated they did not have friends who were pharmaceutical representatives and only interacted with pharmaceutical representatives in their professional capacity.

The results showed no statistically significant association between interactions with a pharmaceutical representative and confidence to dispense a product that would have been detailed by the pharmaceutical representative. This may mean that the respondents in this survey make independent decisions when dispensing or prescribing although they met with

pharmaceutical representatives. This survey was conducted during Covid-19 lock-down period when most businesses, hospitals and pharmacies had lots of visiting restrictions which may be the reason for the observed lack of significant association.

4.4. Appropriateness of gifts

Respondent’s views on the appropriateness of gifts from pharmaceutical representatives varied depending to a large extent on the nature of the gifts. The gifts that were considered the most appropriate by the majority of doctors were pens or any type of stationery (81.8%), conference fees (76.4%) and textbooks (69.1%) (Figure. 4.1; Table 4.2).

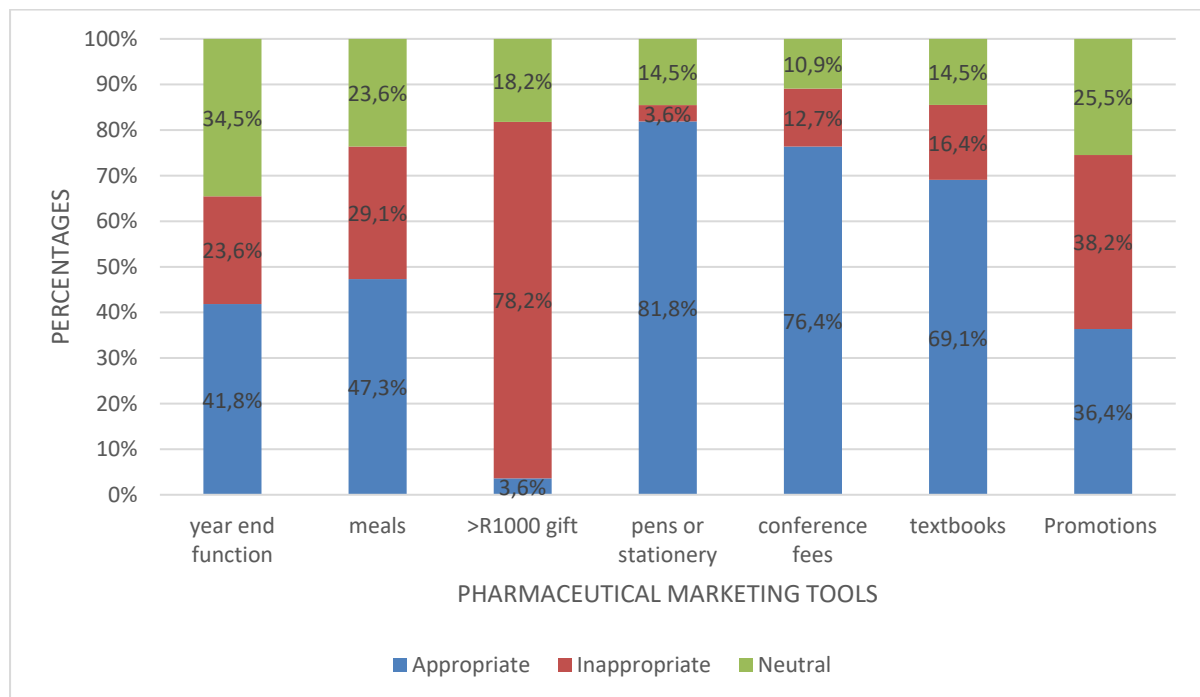


Figure 4: 1 Doctors’ views on the appropriateness of gifts from pharmaceutical representatives.

Gifts of more than one thousand rand were considered inappropriate by most doctors (78.2%), while on the other hand most pharmacists considered pens or any type of stationery (92.3%), textbooks (72.3%), conference fees (58.5%) and meals (56.9%) the most appropriate gifts. Gifts of a value greater than one thousand rand and promotions such as buy five and get five

free were considered inappropriate by most pharmacists (69.2% and 58.5% respectively) (figure. 4.2; Table 4.2).

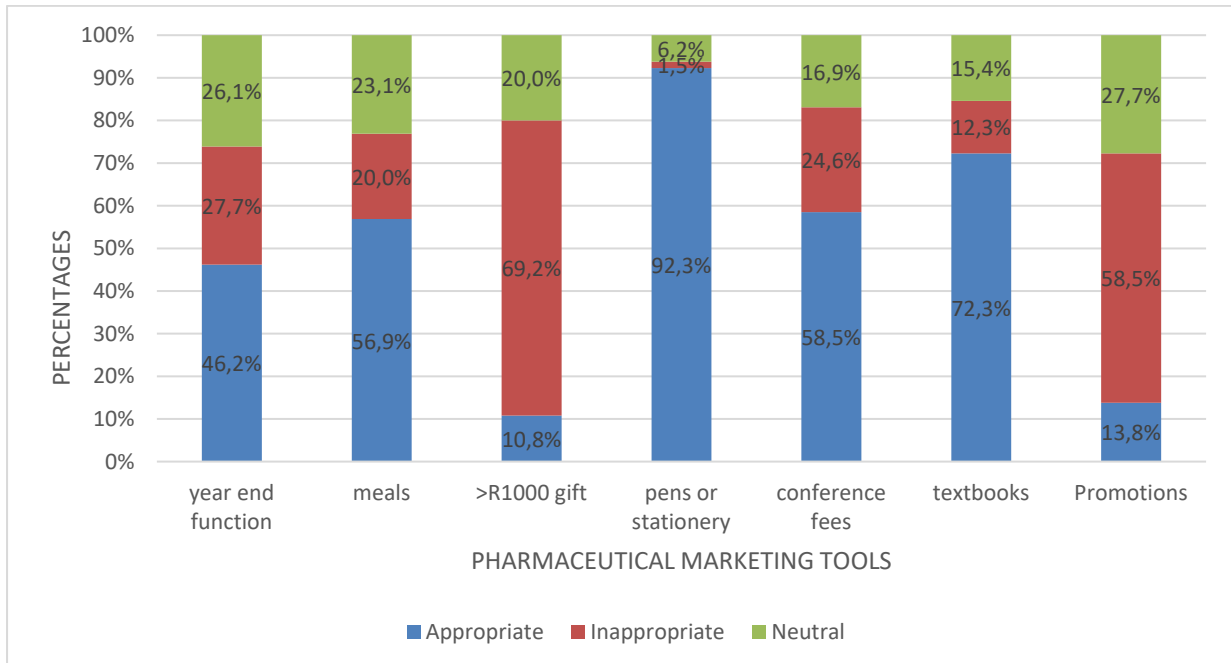


Figure 4.2. Pharmacists' views on the appropriateness of gifts from pharmaceutical representatives.

Table 4.2. Pharmacists and Doctors perceptions on the appropriateness of gifts: Agreement scores.

Type of gift	Pharmacists	Doctors	p-value (doctors vs pharmacists)
Year-end function	1.80	1.93	0.602 non-significant
meals	1.66	1.76	0.460 non-significant
Gifts of > R1000	2.09	2.15	0.302 non-significant
Pens or stationery	1.14	1.32	0.223 non-significant
Conference fees	1.58	1.35	0.111 non-significant
Textbooks	1.43	1.45	0.817 non-significant
Promotions	2.14	1.89	0.012 significant

The results showed no significant difference in the perceptions of doctors and pharmacists on the appropriateness of all types of gifts except for promotions ($p = 0.01$). Most doctors perceived promotions as appropriate as compared to most pharmacists who considered these

inappropriate. This difference may be related to more pharmacists receiving some training in pharmaceutical marketing than doctors. More pharmacists may also be aware that promotions are prohibited in terms of the marketing code of health products than doctors. A study in Ontario by Sergeant and co-workers however found no significant difference between those who were aware of the Marketing Code of Health products and those who were not among family physicians who were willing to attend an industry-sponsored private dinner (Sergeant, et al., 1996). In that study being aware of the departmental policies on the interactions with pharmaceutical industry did not affect the resident's attitudes or their future intended behaviour (Sergeant, et al., 1996). It is very important for doctors and pharmacists to be aware of the marketing code of health products as their professional bodies' mandates them to follow the code and act ethically.

Less expensive gifts such as pens or any type of stationery and educational gifts like textbooks and conferences were considered more appropriate by both groups than expensive gifts of more than one thousand rand in value. This is in line with the South African marketing code for Health products. This finding was also similar to that reported in a Saudi Arabia study where gifts that were considered to be beneficial to patients and medical or pharmacy practice were considered appropriate (Zaki, 2014). A study done on the effect of exposure to small promotional gifts found that small, branded gifts such as pens or stationery influenced the attitude of medical students towards the branded products versus non-branded products (Grand, et al., 2009). Most of the stationery provided by pharmaceutical representatives are branded with the company's name and medicines name. This strengthens brand awareness and constructs brand equity through a variety of unconscious but influential mechanisms (Hasher & Zacks, 1979). Non-verbal information such as pens with brand symbols have been reported to be more influential than verbal signals (Reddy, 1972). Since most respondents perceived pens or stationery as appropriate gifts, they could likely be influenced by these small gifts subconsciously without noticing the brand reinforcement occurring. To mitigate this the guidelines to the South African code of practice for the marketing of health products of 2021 discourages the use of brand names on promotional items where it would be inappropriate to do so and were it might be misleading to the nature of the item. However, this is yet to be realised as most of the promotional items from pharmaceutical companies are currently branded.

The American Society of Health-System Pharmacists (ASHP) suggests that its members should not accept gifts that are intended to influence behaviour and gifts of a personal nature (ASHP,

1992). However, the guidelines do not provide clarity on which types of gifts should be considered personal or those that can influence behaviour. A part of the United States health reform legislation under the Affordable Care Act called the Physician Payments Sunshine Act, approved provisions that required all payments above US\$10 to physicians by the pharmaceutical industry to be publicly declared in 2010 (Alves, et al., 2019). As from September 2014 these payments have been made accessible via the open payments websites of the centres for Medicare and Medicaid services (Lenzer, 2016). A study correlating data from the Sunshine Act with prescribing information acquired from the Medicare Part D database found that accepting payments was associated with increased prescribing costs per patient and extra prescribing of branded medication (Perlis & Perlis, 2016). A separate study which analysed the same data found that accepting meals sponsored by the pharmaceutical industry of US\$20 or less was associated with an increase in prescribing of the branded medication that was been marketed at the meal (DeJong, et al., 2016). This shows that gifts of whatever value have the potential to influence the prescribing and dispensing behaviour of the recipient.

4.5. Attitudes and perceptions of the effect of pharmaceutical marketing

The results from the 5-point Likert scale showed no statistically significant differences between the responses of doctors and pharmacists as shown in tables 4.3 and 4.4. This means that the doctors and pharmacists in this survey had similar attitudes and perceptions towards the effect of pharmaceutical marketing.

Table 4.3: Interval Scale for 5-point Likert scale

Likert Scale	1	2	3	4	5
Interval	1.00-1.79	1.80-2.59	2.60-3.39	3.40-4.19	4.20-5.00
Difference	0.79	0.79	0.79	0.79	0.80
Description	Strongly disagree	Disagree	Neutral	Agree	Strongly agree

Table 4.4: Pharmacists and Doctors perceptions agreement score for the 5-point Likert scale questions

Question	Doctors	Pharmacists	p-value (doctors vs pharmacists)
S1. The information provided by pharmaceutical representatives about their medication can be trusted	3.5636	3.5692	0.823 Not significant
S2. The information provided by pharmaceutical representatives is vital for medical doctor or pharmacists and their staff	3.9455	3.9846	0.442 Not significant
S3. It is acceptable for pharmacy or medical staff to accept gifts or presents from PR since their influence on them is minimal	3.1636	2.8462	0.492 Not significant
S4. The CPD programs sponsored by pharma are educational	4.2545	4.2154	0.849 Not significant
S5. Pharmaceutical representatives are more biased towards the products of their own portfolio	4.3455	4.1538	0.213 Not significant
S6. An increase in the price of medication is caused by gifts from Pharma	2.4545	2.2615	0.127 Not significant
S7. Pharmaceutical companies provide useful ways for professionals to learn about new medicines	4.0364	4.2154	0.146 Not significant
S8. Accepting gifts increases the chances that I will dispense or prescribe the product from that Pharm company	2.5455	2.6615	0.849 Not significant
S9. It is acceptable for pharmacy or medical staff to ask for donations from PR for events such as stocktakes or diabetes campaigns	3.2727	3.1231	0.214 Not significant
S10. I feel confident to dispense or prescribe a generic or product that the PR has detailed to me as compared to those I have not seen a PR for	3.3818	3.3692	0.508 Not significant
S11. I always do my own research of the information that the PR details to me	4.1455	3.8923	0.617 Not significant
S12. I always consider the cost-effectiveness of a product before I prescribe or dispense	4.2727	4.2462	0.575 Not significant

4.5.1. Acceptance of pharmaceutical marketing

The majority of respondents (60.3%) indicated that they trusted the information provided by pharmaceutical representatives with (agreement scores of 3.56 for and 3.57 for doctors and pharmacists respectively). Likewise, 80% of respondents felt that the information provided by pharmaceutical representatives was important for healthcare professionals (3.95 and 3.99 for doctors and pharmacists respectively) (fig. 4.3). CPD programmes facilitated by pharmaceutical companies were considered to be educational by 87.5% of the respondents (4.25 and 4.22 for doctors and pharmacists respectively). Pharmaceutical companies were considered to provide useful ways for healthcare professionals to learn about new medicines by 85% of the respondents (4.04 and 4.22 for doctors and pharmacists respectively) (fig. 4.3).

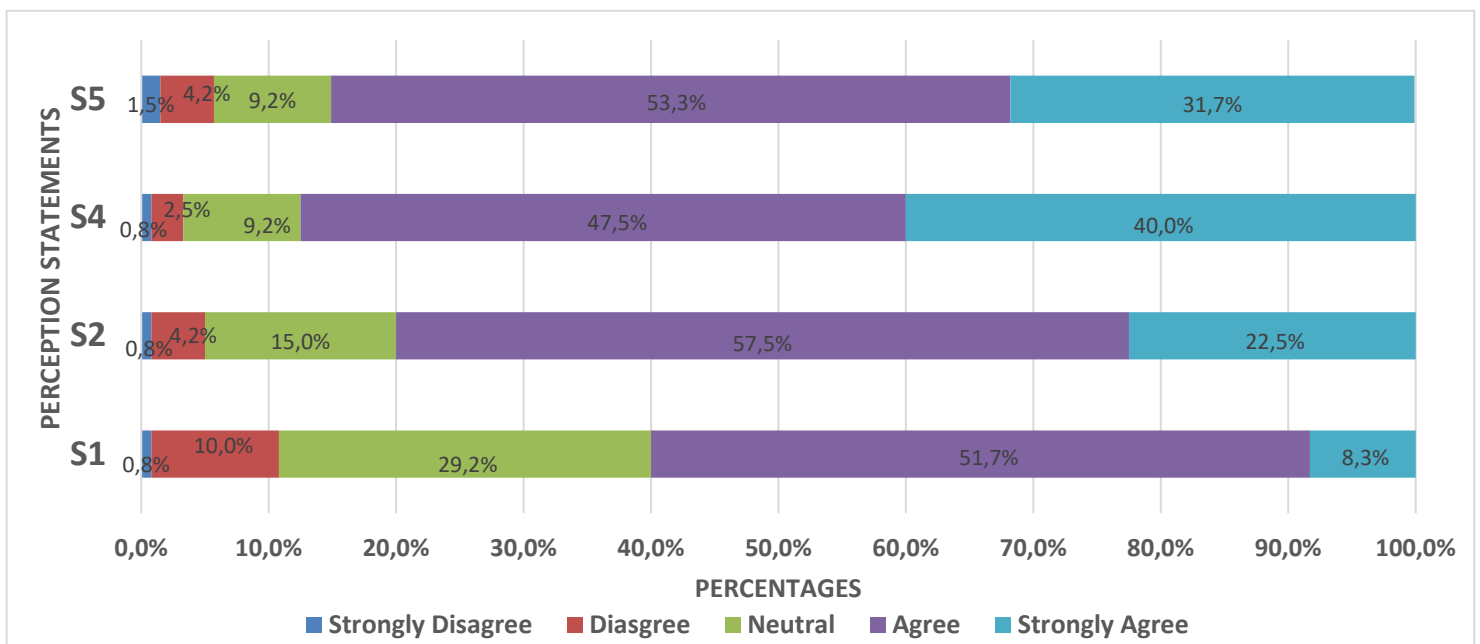


Figure 4.3: Respondents perceptions on information provided during pharmaceutical marketing

There was a moderately strong association ($\rho=0.539$), between the view that information from pharmaceutical representatives can be trusted and that the information is important for healthcare professional and a moderate association ($\rho=0.426$) between the minutes spent interacting with pharmaceutical representatives and the perception that the information from the pharmaceutical representatives can be trusted. There was also a moderately strong

association ($\rho=0.560$) between the view that CPDs provided by pharmaceutical companies were educational and the view that pharmaceutical companies provided useful ways to learn about a new medication. These correlations seem to suggest that healthcare professionals do consider pharmaceutical marketing as a source for learning about new medicines and that they trust the information from pharmaceutical companies.

More than half of the US\$1,4 billion that was spent on accredited CPDs for healthcare professionals in the United States was sponsored by commercial or pharmaceutical companies in 2003 (Alves, et al., 2019). As such there are rising worries that the boundary between promotions and education has become distorted. There is also concern that support from these companies can result in the distortion of the topics that are taught as well as embellishment of positive aspects of some interventions which could then influence doctors prescribing habits (Alves, et al., 2019). In South Africa, the marketing code of health products for marketing of healthcare products has stricter regulations to mitigate this, however, pharmaceutical companies still sponsor CPDs through healthcare professional practices not individuals (MCA, 2021). With new medications and new disease conditions emerging in the world, the information learnt by healthcare professionals in their undergraduate studies always needs to be updated, and CPDs are one of those tools. Hence, many respondents felt that pharmaceutical representatives provide useful ways to learn about new medicines.

4.5.2. Bias

The dependence on pharmaceutical companies for the provision of continuing education or information may result in the inculcation of biased information. In this study most of the respondents (87.5%) felt that pharmaceutical representatives were more biased towards the products that they market. As such 80% of the respondents said that they always do their own research to evaluate whether the information shared by the pharmaceutical representative was true. In a study done by Burkiewicz and Zgarrick (2005) most of the pharmacists favoured evidence-based medical practice and believed that they were obliged to make recommendations that were evidence-based. The study however also reported that 45% of practising pharmacists lacked the time to conduct literature reviews to make evidence-based decisions and 11% lacked the resources to do so (Burkiewicz & Zgarrick, 2005). A study conducted in Bangladesh found that of the 116 brochures for family physicians, 34% of them contained misleading information (Islam & Farah, 2007). In a Zimbabwean study less than half of the brochures for doctors and pharmacists for prescription medication had information on drug interactions, serious side

effects, warnings, and precautions (Sibanda, et al., 2004). This is really concerning as some doctors and pharmacist may rely on the information in the brochures as their sole source of information regarding the drug, which may result in them making decisions based on incomplete information, which may harm the patient. Time constraints and the lack of resources could lead to doctors and pharmacists relying more on the information that pharmaceutical representatives provide to them. This increases their vulnerability to some of the biases that come with promotional information from the pharmaceutical companies which might influence prescribing or dispensing behaviour.

4.5.3. Donations and gifts and prescribing or dispensing behaviour

With regards to the appropriateness of doctors and pharmacists asking for donations or accepting gifts from pharmaceutical representatives, the perceptions of respondents varied with some agreeing, others disagreeing, and others remaining neutral on the issue. The agreement scores (3.27 and 3.12 for doctors and pharmacists respectively) fall within the neutral range hence it is not conclusive whether the respondents felt it was appropriate or not. The Canadian Society of Hospital Pharmacists requires members not to accept gifts of a personal nature, although donations may be accepted if they do not influence decision making (Tejani, et al., 2015). In South Africa, the marketing code of health products also has strict guidelines on donations, with donations to be approved by the pharmaceutical company's compliance officer and documentation kept for up to 5 years (MCA, 2021).

As stated earlier, non-verbal promotional tools may influence the subconscious mind, and receiving donations from pharmaceutical companies could subconsciously influence pharmacists and doctors in their dispensing or prescribing practices. In this study, a little over half of the respondents (55%) felt that accepting gifts from pharmaceutical representatives did not influence their prescribing or dispensing behaviour while 22% remained neutral, 18.8% agreed and 8.3% strongly agreed that gifts may influence their dispensing or prescribing practices. Agreement scores (2.55 and 2.66 for doctors and pharmacists respectively) indicate doctors believed more strongly than pharmacists that gifts did not influence their decision making. Both doctors and pharmacists were sceptical to ask for donations from pharmaceutical company or to accept that accepting gifts from them could influence their behaviour. Cognizance research has reported that when people are exposed to information and are told not to be influenced by it, they are not able to do so (Gilbert, 2006). In general, people tend to underestimate the influence exerted on them and overestimate the degree to which others are

being influenced (Tejani, et al., 2015). It could be that the respondents in this survey underestimate the degree to which accepting gifts or donations may influence their dispensing or prescribing practices. This is of concern as the perception by most of the respondents of their immunity from this type of influence would prevent them from consciously examining their prescribing and dispensing for signs of marketing influences.

Many of the respondents (55%) felt confident to prescribe or dispense a medication that they had received training for by pharmaceutical representatives as compared to a medication not detailed by the pharmaceutical representative. Agreement scores (3.38 and 3.3692 for doctors and pharmacists respectively) however indicate that respondents were neutral regarding the issue. Pharmaceutical marketing may increase the chances of a doctor prescribing or a pharmacist recommending it. This is evidenced in a study by Orłowski and Wateska (1992) who found that the number of prescriptions of promoted medicines increased after the doctors had attended a seminar on the medication. Healthcare professionals gain confidence once they have been trained on a particular medication and may be more likely to dispense or prescribe the medication. As such although ostensibly giving reliable information to the healthcare professional, detailing may invariably increase the prescription or recommendation of the medication by a doctor or pharmacist who now has more information about the medication.

Interestingly there was a weak association ($\rho=0.232$) between the confidence to prescribe after a product has been detailed by a pharmaceutical representative and the perception that information provided by pharmaceutical representatives is vital for doctors and pharmacists. This is the opposite of what was expected and may be because most of the respondents were neutral to the perception that they felt confident to prescribe or dispense after meeting with a pharmaceutical representative. There was also a weak association ($\rho=0.351$) between feeling confident to dispense after detailing and the perception that it was acceptable to accept gifts from pharmaceutical companies as their influence is minimum. This could be that respondents underestimate the degree of influence that meeting with a pharmaceutical representative and accepting of gifts can have on dispensing and prescribing practices, however further studies would be required to investigate this.

4.5.4. Cost effectiveness and price of medication

Most respondents (90%) indicated that they always considered the cost-effectiveness of medication before prescribing or dispensing a medication (agreement scores of 4.27 and 4.25 for doctors and pharmacists respectively). It is very important to ensure that patients receive

the best possible care at the lowest cost to achieve expected therapeutic outcomes. In a survey comparing physicians' attitudes and practices concerning cost effectiveness in patient care, doctors had inconsistent practices in their application of cost effectiveness despite their support of it in theory (Ginsburg, et al., 2000). The study found that most doctors regard cost-effectiveness as an appropriate criterion for selecting treatment options but had divided opinions on whether they had the duty to recommend all treatment options with lower success rates when their costs were high (Ginsburg, et al., 2000).

Ubel and Arnold (1995) argued that doctors should use cost-effectiveness with caution as the society is willing to pay huge sums of money for the treatment of patients with special needs despite the low technical cost effectiveness of those lifesaving treatments. Hence it is important for doctors and other healthcare professionals to engage with the family, the patient and the payers when selecting treatment options that may be lifesaving instead of the doctors making the decisions alone. Hence it is not known how many of the 90% of the respondents who agreed or strongly agreed with the statement that they always considered the cost effectiveness of a product regularly implement this in practice.

There was a weak negative association ($\rho=-0.207$) between the perception that accepting gifts increases the chances of prescribing and consideration of the cost effectiveness of a product before recommendation. This negative association maybe because most respondents were neutral to the perception that accepting gifts can increase the chances of prescribing or dispensing (agreement scores of 2.46 and 2.26 for doctors and pharmacists respectively) while they agreed to always consider the cost effectiveness of a product. There was no significant association between this perception and the perception of always considering the cost effectiveness of medication before recommending. However, there was a weak negative association ($\rho=-0.227$) with the perception of feeling confident to recommend what has been detailed by a pharmaceutical representative. The respondents in this survey seem to believe that gifts from a pharmaceutical company do not affect the price of medication. However, as mentioned earlier, all costs involved in marketing are factored in the price of medication as the manufacturers expect make a profit for themselves and their stakeholders.

4.6. Themes emerging from the comments section of the questionnaire

At the end of the questionnaire, participants were requested include comments related to the study which were not covered in the structured parts of the questionnaire. Comments were collated, analysed, and grouped into themes which are presented below.

4.6.1. Theme 1: No autonomy over sales

Some respondents seemed to suggest that in corporate pharmacies, there was no autonomy of choice when dispensing as corporate pharmacies had brands that the pharmacist was expected to dispense. Respondents noted that they were placed under supervision if found not to be dispensing the preferred brands of the companies that they work for.

“I work of a private hospital that dictates which brands are to be kept and sold, so the pharm rep has minimal influence on our dispensing practices”

As such they were unlikely to be affected by direct pharmaceutical promotion as they are told what to dispense. It will be of interest to study the impact of pharmaceutical marketing to corporate pharmacies and hospitals and the impact of this on the prescribing and dispensing practices of their doctors and pharmacists.

4.6.2. Theme 2: Code of Conduct

Some respondents noted that although they were aware of the Marketing Code however, they required more further training on the contents in order to ensure so that they can always acted ethically always. They advocated for cost effectiveness, efficacy of the medication and saving lives while saving the patient money.

R43. “The above answers are personal views or opinions however, the Marketing code gives guidance for the industry. Therefore as a HCP, I have learned that when pharm representative do their work they are doing it within the prescripts of the code”.

R72. “As a HCP we are guided by our specific professional code of conduct & ethical rules. However, in answering these questions I feel I need more training on the marketing code to understand both side i.e. pharma companies’ guidelines and my responsibilities as the receiver”.

R97. “In my understanding marketing must be directed and focused on HCP’s education about the product, its use and the education about the disease. Therefore sponsorship for e.g. diabetes campaigns is appropriate but not for stock takes. Thank you”.

4.6.3. Theme 3: Unethical Conduct

Some respondents noted with despair the extent of unethical conduct by doctors, pharmacists and pharmaceutical representatives, including the formation of syndicates.

R56. *“The sales representatives provides money to our Pharmacies for every product we sell e.g., if I sell 20 [REDACTED] diclofenac boxes of 21 tablets, on top of the dispensing fee the company will give me a certain amount of money (10 per each box I dispense) because I am pushing their products, yes this is normally only known by us the practicing pharmacists and Dr's (I also have Dr's who gets a certain amount of money for prescribing a certain product, e.g. they make R100 per script depending on the items which are on the scripts, the Dr has to have copies of those prescriptions and tell the patients to go to buy the products at specific Pharmacies, those Pharmacies work with the Dr and will email the purchase invoice to the Dr as proof that such a patient collected or bought the medication, the Dr will take the prescription copy plus the invoice and email to the sales rep and that's how they get paid and share with the pharmacist) - so for us who run independent practice, this is our way of making money or profit because we don't get many patients. You didn't hear this from me 😊”*

Although South Africa has rules and regulations in the Marketing Code regarding the ethical marketing of health products, unethical conduct seems to occur. As such it is important for surveys such as this to highlight this and stimulate improvements to enforcement of ethical practice.

4.6.4. Theme 4: Bias and profit making

Some respondents acknowledged that pharmaceutical marketing provides a way of learning new information. However, they said the industry must stop the bias. They also said it is a business first to make profits before saving lives.

R45. *“I see pharmaceuticals marketing as a great way to convey the product's information to healthcare professionals that prescribe and dispense it however pharmaceutical companies should not be biased towards their own products.”*

R69. *“Each company is trying meet their profit targets, as an HCP make sure that the product prescribed/dispensed should be of minimal cost to the patient unless*

otherwise stated. Regardless of if the Pharmaceutical rep comes in often, this should not affect GPP guidelines.”

4.7. Summary

In summary, the survey had a 54.54% response rate from doctors and pharmacists in the private healthcare sector in Gauteng Province. A minority of the respondents, 16.4% doctors and 47.7% pharmacists had been instructed on pharmaceutical marketing in their undergraduate studies. Most respondents worked in practices that were visited by pharmaceutical representatives and interacted with them on an average of one to five pharmaceutical representatives in a month for five to ten minutes. The gifts that were considered the most appropriate were pens, stationery, textbooks, and conference fees. There was inconclusive evidence on the respondents' perceptions of the appropriateness of donations or gifts from pharmaceutical companies. Respondents did not associate accepting gifts with asking for donations. Most respondents trusted the information provided by pharmaceutical representatives and thought that such information was vital for healthcare professionals. Likewise, the majority felt that the CPDs provided by pharmaceutical companies were educational and that pharmaceutical companies provide useful ways of learning about new medicines. There was also a moderately strong association between the view that CPDs were educational and that pharmaceutical companies provided useful ways to learn about a new medication, however, most of the respondents felt that pharmaceutical companies were biased towards the products of their own portfolio. Despite this bias, the majority felt confident to prescribe or dispense a product that had been detailed to them by the pharmaceutical representative.

CHAPTER 5

CONCLUSION, RECOMMENDATIONS AND LIMITATIONS

5.1 Introduction

The study was conducted in Gauteng province and a total of 120 doctors and pharmacists responded to the invitation to participate in the study. A minority of the respondents received some form of education on pharmaceutical marketing in their undergraduate studies, while most of the respondents worked in practices that were visited by pharmaceutical representatives. The majority of spent between five to ten minutes interacting with pharmaceutical representatives per visit.

Pens, stationery, textbooks, and conference fees were regarded to be the most appropriate gifts, while gifts of a value over one thousand rand were considered inappropriate. It was inconclusive whether respondents felt that asking for donations or accepting gifts from pharmaceutical companies was appropriate. Most of the respondents felt that the information provided by the pharmaceutical representatives was useful and trustworthy. CPD programs provided by pharmaceutical companies were useful to provide new information on new medication, and the majority felt more confident prescribing or dispensing detailed medication than non-detailed medication.

Pharmaceutical representatives were considered to be more biased towards the products of their own portfolio and respondents did their own research of the information received from pharmaceutical companies. The cost effectiveness of the medication was considered before prescribing or dispensing to a patient. Most respondents considered themselves immune to the influence of pharmaceutical marketing.

5.2 Conclusion

Pharmaceutical marketing is an essential part of the healthcare system because it increases awareness of new medical advances in the healthcare industry. However, effective regulation of pharmaceutical marketing is required to ensure that healthcare professionals are not coerced into prescribing or dispensing by pharmaceutical companies.

Awareness and enforcement of the Marketing code of Health Products in South Africa should be of priority to the healthcare sector. This will help mitigate industry-driven unethical and prescribing and inappropriate practices that pose a risk to the patient.

Most of the respondents felt that pharmaceutical representatives were biased towards their own products. This bias increases the risk of misinformation on indications, adverse effects, and drug interactions that may promote the irrational use of medication. It is thus important for doctors and pharmacists to do their own research on the information provided to them by pharmaceutical representatives amidst their busy schedules. Although most of the respondents perceived their practice to be impervious to influence by pharmaceutical marketing, the fact that they trusted the information provided by the pharmaceutical industry and were more confident to recommend or prescribe detailed products contradict this.

5.3 Recommendations

It is recommended that more studies should be done in South African universities to evaluate the extent to which pharmaceutical marketing strategies and their ethical implications are taught. This would help identify any gaps in the curriculum and provide information on how to improve the curriculum in pharmacy and medical schools to better equip graduates for practice of medical doctors and pharmacists in training are recommended. This will help to obtain the necessary information on how to handle pharmaceutical marketing strategies in their future practice. Regulatory bodies should devote funds to monitor the appropriateness of pharmaceutical marketing, with fines for non-compliance, and compliance with the Marketing Code of Health products should be made compulsory for all registered pharmaceutical companies and healthcare professionals. There seems to be rather a great degree of influence by pharmaceutical marketing on the respondents dispensing and prescribing behaviour which requires further studies to fully elucidate.

5.4 Limitations

There were several limitations to this study. Most importantly the study was done only in Gauteng province and in the private sector. It may not fully represent the perceptions of the whole of South Africa and of doctors and pharmacists working in the public healthcare sector. No knowledge questions were addressed in the survey tool. The questions on gifts only asked

for the opinion of whether certain gifts were appropriate or not. It would have been interesting if the questions also determined what type of gifts the respondents had received from pharmaceutical representatives. The survey did not ask if the doctors and pharmacists were aware of the Marketing Code even though some of the questions were derived from the Marketing Code. This would have helped in assessing if at all doctors and pharmacists are aware of the marketing code that governs the promotion of medicinal products. There is also a risk of dishonesty from respondents and they may have chosen responses deemed to be acceptable, but which may differ from their actual practices.

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15 July 2020

Ms NY Tichiwangana
School of Pharmacy
Faculty of Natural Science

Ethics Reference Number: HS20/5/14

Project Title: Investigating the influence of
Pharmaceutical marketing on Pharmacists
and Doctors dispensing and prescribing
practices.

Approval Period: 13 July 2020 – 13 July 2023

I hereby certify that the Humanities and Social Science Research Ethics Committee of the University of the Western Cape approved the methodology and ethics of the above mentioned research project.

Any amendments, extension or other modifications to the protocol must be submitted to the Ethics Committee for approval.

Please remember to submit a progress report by 30 November each year for the duration of the project.

The permission to conduct the study must be submitted to HSSREC for record keeping purposes.

The Committee must be informed of any serious adverse event and/or termination of the study.

*Ms Patricia Josias
Research Ethics Committee Officer
University of the Western Cape*

Director: Research Development
University of the Western Cape
Private Bag X 17
Bellville 7535
Republic of South Africa
Tel: +27 21 959 4111
Email: research-ethics@uwc.ac.za

NHREC Registration Number: HSSREC-130416-049



Informed Consent Form

Name of researcher: Nothando Yollanda Tichiwangana

Programme: MSc Pharmacy Administration and Policy Regulation

Name of Supervision: Dr Kenechukwu Obikeze

Name of Institution: University of the Western Cape

Title of Research: Investigating the effect of Pharmaceutical marketing on pharmacists and doctors dispensing and prescribing practices.

This Informed Consent Form has two parts:

- Information Sheet (to share information about the study with you)
- Certificate of Consent (for signatures if you choose to participate)

You will be provided with the full Informed Consent Form.

Part I: Information Sheet

Introduction

My name is Nothando Yollanda Tichiwangana. I am a student at University of the Western Cape studying MSc Pharmacy Administration and Policy Regulation. Part of my studies involve a mini research and my title is Investigating the effect of Pharmaceutical Marketing on Pharmacists and Doctors dispensing and prescribing practices. I am inviting you to participate on my research. Information about the research will be provided to you. You are free to either participate or not.

Purpose of the research

Pharmaceutical marketing helps to increase awareness of new and old medicines to the Health care professionals. The study is aimed at investigating if this marketing is done in an ethical way. The study also aims to investigate if there are any gaps in



the curriculum of Doctors and Pharmacist in terms of learning about Pharmaceutical marketing.

Type of Research Intervention

This research will involve your participation in the answering of a questionnaire which will take about 15 minutes of your time should you choose to participate.

Participant Selection

You have been selected to participate in this research because of the experience that you have in the Medical or Pharmacy field which can contribute to our knowledge and understanding on the influence that Pharmaceutical marketing has.

Voluntary Participation

Your Participation in this research is entirely voluntary and you are free to choose not to participate.

Procedures

A questionnaire will be provided to you. It has 3 sets of questions which are:

- Practice questions consisting of yes or no answers,
- Questions on the Pharmaceutical marketing strategies which have 3 choices to choose from (appropriate, inappropriate and neutral)
- Question which ask for general option on the information on pharmaceutical marketing consisting of 5 choice of answers (strongly disagree, disagree, neutral, agree and strongly agree)

Duration

The research data collection will be over 3months from the month of July to September 2020. It will take you about 15mins to complete the questionnaire.

Risks



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The research is anticipated to be of low risk. However, anxiety and distress may occur due to the stress that can occur when answering questions. When this happens you are encouraged to calm down and stop the activity until the anxiety is gone. Some participants may feel exploited due to the fact that I am a Pharmacist and this research involves Pharmacists and Doctors and may participate just to maintain professional relations. However, you reminded that your participation is completely voluntary and you are free to withdraw your participation at any point should you feel vulnerable. No confidential information will be required in this research. The questionnaire contains questions that are related to ethical conduct, some participants may be tempted to give answers that reflect good ethical conduct when it not what normally happens in real life. You are encouraged to answer the questions are truthful as possible so that this research may help in obtaining information of what influences the dispensing practice of Pharmacists and the prescribing practice of Doctors. Should you feel vulnerable please feel free not to participate in this research

Benefits

They will be no direct benefits to you. However, your participation will help us to uncover if there any unethical issues in Pharmaceutical marketing and any gaps in healthcare professional education which can be improved on.

Reimbursements

They will be no remuneration or incentive of any nature for your participation in this research.

Confidentiality

Confidentiality will be maintained throughout the research. The information provided will only be used for the purposes of the research. Your names and contact details will not be required of you. The questionnaires will be numbered and no information about personal details will be required.



Sharing the Results

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The results from the research will be used in the submission of my mini thesis at the University of the Western Cape, and may form the basis of an academic article.

Right to Refuse or Withdraw

You are reminded of your right to refuse or withdraw from participating in this research at any time and that your participation is completely voluntary.

IF YOU REQUIRE FURTHER INFORMATION

For additional information, please contact Nothando Yollanda at nothandotich@yahoo.com or Dr Kenechukwu Obikeze at kobikeze@uwc.ac.za or the University of the Western Cape Humanities and Social Sciences Ethics Committee (HSSREC) at 021 959 2988 Research-office@uwc.ac.za

Part II: Certificate of Consent

I have read the foregoing information, or it has been read to me. I have had the opportunity to ask questions about it and any questions I have been asked have been answered to my satisfaction. I consent voluntarily to be a participant in this study

Print Name of Participant _____

Signature of Participant _____

Date _____

Day/month/year



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Statement by the researcher/person taking consent

I have accurately read out the information sheet to the potential participant, and to the best of my ability made sure that the participant understands that the following will be done:

1. Questionnaire with 3 type of questions with the given them to complete
2. The results from their answers will be used in the submission of my mini thesis at the University of Western Cape

I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Print Name of Researcher/person taking the consent _____

Signature of Researcher /person taking the consent _____

Date _____

Day/month/year

Investigating the effect of Pharmaceutical marketing on pharmacists and doctors dispensing and prescribing practices.

Questionnaire

Age: years

Occupation i) Doctor:

ii) Pharmacist:

Years of Experience i) 1-5:

ii) 5-10:

iii) More than 10:

Please answer to following questions honestly

1. In your undergraduate studies do you remember receiving any learning material on the effects of Pharmaceutical Marketing

Yes

No

2. Did your studies include information on how to evaluate or interpret information given as part of pharmaceutical marketing

Yes

No

3. Do you see Pharmaceutical Reps in your practice?

Yes

No

4. In your line of duty, do you interact with Pharmaceutical Representatives?

Yes

No

5. In your social life do you interact with Pharmaceutical Representatives?

Yes No

6. Do you form friendships or personal relationships with Pharmaceutical Representatives?

Yes No

7. On average how many minutes do you spend with a Pharmaceutical Representative per visit? Between:

- i) 1-5
- ii) 5-10
- iii) 10-15
- iv) Above 15

8. How many Pharmaceutical Representatives do you see in a month? Between:

- i) 1-5
- ii) 5-10
- iii) More than 10

May you please provide your opinion on the gifts given to Healthcare professionals by Pharmaceutical Representatives.

Type of Gift	Appropriate	Inappropriate	neutral
End of year function for pharmacy or medical staff			
Meals			
Gifts of more than r1000			
Pens or any type of stationary			
Conference registration fees			
Textbooks			
Promotions like buy 5 and get 5 free or get a rebate			

May you please fill the most appropriate selection

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
The information provided by Pharmaceutical Representatives about their medication can be trusted					
The information provided by Pharmaceutical Representatives is vital for medical doctors or pharmacists and their staff					
It is acceptable for pharmacy or medical staff to accept gifts or presents from Pharmaceutical Representatives since their influence on them is minimal					
The Continuous Professional Development programs sponsored by Pharmaceutical companies are educational					
Pharmaceutical Companies provide useful ways for professionals to learn about new medicines					
Pharmaceutical Reps are more biased towards the products in their own portfolio					
An increase in the price of medication is caused by gifts from Pharmaceutical companies					

Questions	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Accepting gifts from the Pharmaceutical Representative increases the chance that I will dispense or recommend or prescribe the product from that company.					
It is acceptable for pharmacy or medical staff to ask for donations from the Pharmaceutical Representatives for events such as stocktakes or diabetes campaigns					
I feel confident to dispense or prescribe a generic or product that the Pharmaceutical Representative has detailed to me as compared to those I have not seen a Pharmaceutical Representative for.					
I always do my own research of the information that the Pharmaceutical Representative details to me					
I always consider the cost effectiveness of the product before I recommend or prescribe					

Further Comments:

Thank you for your participation