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# Impact of Pharmaceutical Sales Promotion on Prescribing Behaviour among Doctors in Selected Hospitals

**BY**

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***Abstract***

*The study aimed to determine the impact of pharmaceutical sales promotion on prescribing behaviour among doctors in selected private hospitals in Nyamagana District, Mwanza, Tanzania. The study tested four variables of marketing namely, drug advertising, direct marketing, personal selling and incentives. The theory of planned behavior (TPB) was used to underpin the study and to develop research hypothesis. A sample of 171 doctors was drawn from the targeted population of 240 doctors from the selected private hospitals. The study achieved a response rate of 87.13%, with primary data collected from respondents using self-administered closed-ended questionnaires. Data were analyzed using SPSS v26. Both descriptive and inferential statistics (correlation and regression) were employed to establish the relationships between pharmaceutical sales promotion constructs and doctors' prescribing behaviour. The study's findings revealed that direct marketing (DM) and drug advertising (DA) had a negative and insignificant relationship, while personal sales (PS) and incentives and sponsorship (IS) had a positive and significant relationship. The study concludes that pharmaceutical sales promotion strategies significantly influence doctors' prescribing behaviour. Similarly, the study recommends that drug manufacturers and marketers should employ sales promotion tools that emphasize ethical compliance and maintain professionalism among those responsible for selecting medications.*

***Keywords:*** *PSP strategies; prescription decisions; regulatory authorities; private hospitals, Doctors' Prescribing Behaviours; Theory of Planned Behavior; pharmaceutical industry*

## 1.0 INTRODUCTION

In the realm of healthcare, particularly in countries like Tanzania, ensuring the well-being of consumers, or patients, hinges on the adherence to rigorous ethical standards in pharmaceutical prescription practices (WHO, 1994). This framework highlights the critical need to establish and nurture a sustainable professional culture among healthcare providers, particularly doctors across all levels of care.

Over the years, the landscape of prescription decision-making has evolved significantly. It has transitioned from a focus on content-based, quality-driven prescriptions to a more complex scenario where cost considerations and brand-based prescriptions have gained prominence. This shift has been intensified by the influence of aggressive sales promotions by pharmaceutical companies (Ion et al., 2021). Consequently, consumers found themselves in an era where prescription practices are increasingly shaped by the pursuit of prestige and financial gain. However, within this evolving landscape of prescription practices, there's a pressing concern. Pharmaceutical companies, in their pursuit of expanding market share and profits, often prioritize the promotion of their products without adequately emphasizing the cautious use of cost-effective drug alternatives (Lexchin, 2019). This imbalance in priorities poses significant ethical and healthcare challenges.

To address these emerging concerns and safeguarding public health interest, national medicine regulatory authorities, including Tanzania's Tanzanian Medicines and Medical Devices Authority (TMDA), have taken proactive steps. They've developed regulatory frameworks designed to closely monitor and enforce stringent measures against pharmaceutical firms that fall short of ethical standards (TFDA, 2018). This is especially pertinent in an age marked by technological advancement and intense market competition, particularly through digital marketing channels.

It's worth noting that pharmaceutical manufacturers, such as Pfizer, Novartis and the alike, allocate substantial resources to

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research and development (R & D) endeavors, targeting to bring new drugs to market. However, this process comes at a considerable cost, with estimates of R & D expenses for a single new drug can soar to approximately 2.6 billion USD (Ozieranski et al., 2022). As a result, the global pharmaceutical market is projected to exceed 1.5 trillion USD in 2023, with an average annual growth rate of 3-6% over the next five years (Mihaela et al., 2021).

To remain competitive in this dynamic landscape, the pharmaceutical industry, encompassing drugs and medical supplies, requires substantial investments in technology and skilled workforce. However, challenges arise from inadequate government funding for health sector, particularly essential drugs for global health interventions, coupled with limited sales by pharmaceutical companies. This, in turn, has led to reduced profits available to support the R & D of cost-effective drug alternatives for emerging and challenging diseases.

Remarkably, despite the immense value of the pharmaceutical industry, which has been estimated at 816 billion USD globally, only a modest 20.5% of the market value is allocated to R & D (Nilan, 2017). This apparent shift in investment priorities towards marketing and sales expenditures by firms has raised concerns about inappropriate prescriptions.

The World Health Organization (WHO) defines pharmaceutical promotion as "any actions taken by manufacturers and distributors that aim to encourage the prescription, distribution, acquisition, and/or consumption of medicinal drugs" (Lexchin, 2019). However, there is an inherent risk when such promotional activities disseminate incorrect information about illnesses and associated conditions. This misinformation can lead to medication-related harm, inappropriate drug utilization, and elevated healthcare costs for individuals, communities, medical institutions, and governments.

Recognizing the ethical challenges posed by pharmaceutical promotion, the WHO has articulated clear ethical standards. These standards emphasize the importance of trustworthiness, accuracy, honesty, informative content, balance, currency, and the substantiation of claims. Moreover, these principles discourage the exploitation of scientific and educational events for promotional purposes and prohibit the provision of financial or material incentives to healthcare professionals to influence prescription decisions.

In Sub-Saharan African countries, including Tanzania, the inadequacy of pharmaceutical manufacturing facilities has led to a significant increase in pharmaceutical imports. Tanzania, in particular, stands as one of the largest pharmaceutical importers in the region, with a market value of approximately USD 496 million in 2017, projected to reach USD 730 million by 2022 (TFDA, 2018). The pharmaceutical importation market is projected to reach a total value of 906 USD million for private sector supply (Wande et al., 2019).

Tanzania's regulatory landscape for pharmaceutical sales promotion (PSP) is overseen by the TMDA, which mandates that firms conducting sales promotions are in accordance with specified guidelines. The guidelines emphasize that doctors should not be persuaded by promotional claims regarding the safety or superiority of certain drugs over alternatives, more cost-effective options, unless such claims are supported by robust clinical trials and extensive marketing surveillance reports. Similarly, the Ministry of Health of Tanzania has established Standard Treatment Guidelines and the National Essential Medicine List of Tanzania (STG & NEMLIT), which align with WHO ethical standard recommendations.

Globally, concerns have been raised about the inappropriate use of drugs resulting from insufficient drug information and misleading promotional materials. PSP strategies, including the deployment of pharmaceutical sales representatives, drug advertisements in medical and scientific journals, and influence from key opinion leaders, warrant vigilant oversight from healthcare stakeholders, including national medicine regulatory authorities (Alves et al., 2017).

Prescribing indicators for African countries, including Tanzania, have significantly diverged from the WHO reference targets. Therefore, member states, through their respective ministries of health, continually evaluate prescribing metrics (Lexchin, 2019; Ofori-Asenso et al., 2016). In Tanzania, doctors' prescribing practices rely heavily on medical information sourced from textbooks and the internet. These sources help them assess the effectiveness and cost of drugs, as well as their market availability (Kamuhabwa & Kisoma, 2015).

The complexity of prescribing practice involves evaluating various factors, including cost, drug potential, ethical considerations, and professionalism. Yet, it remains a limited understanding of the complex relationship between pharmaceutical firms and the prescription decisions made by doctors. This knowledge gap often leads to conflicts between financial motivations, ethical, and professional standards.

Pharmaceutical companies employ an array of marketing strategies, such as sponsoring seminars, conferences, hospital activities, and recreational events. These strategies have the potential to influence prescription tendencies without a thorough analysis of prescription costs, ethical considerations, and professionalism. The escalation of marketing expenditures has raised concerns about the inappropriate prescriptions of costly, irrational, and potentially harmful drugs to patients. Consequently, these irrational prescriptions result in deteriorating health, reduced quality of life, and increased medical expenses for patients, healthcare facilities, communities, and governments (Ahmed et al., 2021). Thus, addressing international ethical standards for PSP, as stipulated by regulatory authorities, is imperative to ensure ethical drug prescription remains a fundamental aspect of healthcare provision in Tanzania.

Within this context, the Theory of Planned Behaviour (TPB) emerges as a useful framework for understanding the complex link between firms' marketing efforts and the drugs' prescription decisions by doctors (Murshid & Mohaidin, 2017). Pharmaceutical companies have an undeniable impact

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on lives by restoring health and enhancing quality of life. On the other hand, doctors occupy a central role in the purchasing decision-making process to consumers (patients) of pharmaceutical products. Doctors serve as users, influencers, gatekeepers, and decision-makers, while patients assume the role of buyers and users of these products. In light of this intricate web of interactions, it is imperative to rigorously evaluate the relationship between pharmaceutical marketing strategies and drug prescribing decision-making processes. This is particularly crucial in the Tanzanian context, where there is a scarcity of research undertakings on pharmaceutical marketing efforts and prescribing behaviour among doctors in selected private hospitals.

Ultimately, the overarching goal of this study is to enhance prescribing behaviour and cultivate a professional culture among medical professionals at all levels of healthcare provision. Achieving this, it necessitates the integration of ethical guidelines into medical school curricula, by ensuring that medical professionals are well-informed about the role of pharmaceutical firms in healthcare provision. The purpose of this study therefore, was to examine the impact of Impact of Pharmaceutical Sales Promotion on Prescribing Behaviour among Doctors in Selected Private Hospitals. This area of research has received less attention and this study will add contribution to the body of literature. The next sections are divided into four parts. Section 2 is the literature review, section 3 is research methods, section 4 is findings and discussion and finally section 5 is conclusion and recommendations

## 2.0 LITERATURE REVIEW

The study critically reviewed both theoretical and empirical literature relevant on pharmaceutical sales promotion (PSP), including direct marketing, drug advertisement, personal selling, incentives, and sponsorship, impacts the prescribing behaviour of doctors in private hospitals.

### 2.2.1 Theoretical Framework

The study was guided by the Theory of Planned Behaviour (TPB) (Ajzen, 1991), a widely accepted framework in health related-behavioural studies. TPB examines factors influencing doctors' prescribing behaviour in response to PSP strategies. On the other hand, doctors' prescription decisions are multifaceted, taking into account the cost, drug potential, ethics, and professionalism, with conflicts of interest potentially leading to irrational prescriptions (Almasri et al., 2020). Meanwhile, pharmaceutical firms employ various marketing strategies, often lacking in-depth analysis of drug cost and ethics (Ahmed et al., 2021). Doctors, as key players in the drug purchasing process, require a theory-driven prescribing process (Murshid and Mohaidin, 2017). TPB's constructs, including attitude, subjective norm, and perceived behavioural control, offers a theoretical foundation for understanding how doctors' attitudes toward marketing efforts influence the prescribing practices (Ajzen, 1991), enlightening the link between PSP and doctors' prescribing behaviour while considering social pressures and perceived behavioral control (Bastan et al., 2019).

The TPB has proven to be a valuable framework in various health-related research endeavors, such as cost-effectiveness, medication adherence, and compliance with screening initiatives. For example, Eldrwish et al. (2022) conducted a quantitative study in Sudan involving 355 participants from private and public healthcare sectors, revealing that doctors' prescription behaviour was positively influenced by favorable attitudes toward promotional tools like direct marketing and educational travel but negatively impacted by the provision of gifts. Surprisingly, subjective norms didn't significantly modify the link between attitude and prescription behaviour. This study illustrates how TPB can enhance our understanding of the intricate interplay between attitude and doctors' prescribing decisions, particularly factors such as drug cost, ethics, and professionalism.

Similarly, Rich et al. (2020) investigated doctors' intentions to exhibit professional conduct with TPB, identifying attitude, subjective norms, and perceived behavioural control as predictors of prescription intentions, emphasizing the influential role of perceived behavioural control in expressing concerns and the significance of attitude in promoting reflective practice. In Nigeria, Sanusi et al. (2022) explored attitude towards the impact of advertisements on antimalarial drug purchases and consultation intentions, finding that advertisements significantly shape consumer information sources but also revealed limited awareness about drug efficacy information. Therefore, TPB provides a robust foundation for understanding and addressing critical patient-centered concerns in healthcare provision, including cost, drug efficacy, ethical considerations, and professionalism.

### 2.2.2 Empirical literature

The empirical literature has focused on the complex interplay between pharmaceutical sales promotion, doctors' prescribing behaviour, and the rational use of medicines. While PSP strategies can influence prescription decisions, it is crucial to strike a balance between marketing efforts and ethical, patient-centric prescribing practices. The influence of PSP on doctors' prescribing behaviour reveals several important findings. Direct marketing, which encompasses interactions between pharmaceutical companies and doctors (Kotler, 2002), has become increasingly prevalent due to its cost-effectiveness and access through electronic media and mobile technologies (Donohue, 2017). Studies have shown that such interactions can influence prescription decisions, with personal sales calls and incentives playing a role in increasing prescription volume (Klaus & Scheurich, 2014). Drug advertisement informs doctors about pharmaceutical products, impacting their attitudes and prescription behaviour (Kabir et al., 2021). While well-executed drug advertisements positively influence doctors' attitudes, gifts provided by pharmaceutical firms can have a negative impact on prescription decisions (Eldrwish et al., 2022). Incentives and sponsorship by pharmaceutical companies, including support for educational activities and conferences, can also shape doctors' prescription choices (Klaus & Scheurich, 2014).

Pharmaceutical sales promotion, as a whole, encompasses various strategies employed by drug manufacturers to

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encourage drug prescription, distribution, acquisition, and consumption (WHO, Lexchin, 2019). The pharmaceutical industry invests significantly in R&D to develop new drugs (Ozieranski et al., 2022). Despite the high costs associated with R&D, only a fraction of the pharmaceutical industry's budget is allocated to it, suggesting a greater emphasis on marketing and sales (Nilan, 2017). Research has shown that well-implemented PSP strategies can indeed influence and alter doctors' prescribing behaviour (Nagesh & Adamu, 2017).

The rational use of medicines is essential in ensuring effective and appropriate treatment decisions (WHO, Amaha et al., 2019). However, unregulated prescribing practices can impact the quality of healthcare services. Disparities in drug prescribing practices have been observed among different healthcare facilities (Mambile et al., 2018; Kamuhabwa & Kisoma, 2015), emphasizing the need to advocate for the rational use of medicines.

Drawing from the insights of the literature and the conceptual framework, the following hypotheses were formulated:

*H1: There is a positive and significant relationship between direct marketing (detailing) and prescribing behavior among doctors in selected private hospitals.*

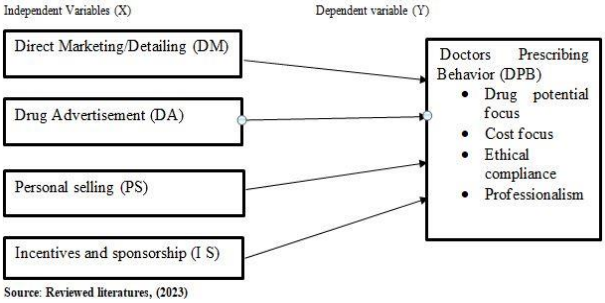
*H2: There is a positive and significant relationship between drug advertisement and prescribing behavior among doctors in selected private hospitals.*

*H3: There is a positive and significant relationship between personal selling and prescribing behavior among doctors in selected private hospitals.*

*H4: There is a positive and significant relationship between incentives and sponsorship and prescribing behavior among doctors in selected private hospitals.*

### 2.4 Conceptual Framework

The conceptual framework outlines PSP constructs (DM, DA, PS and IS) as independent variables (IVs) and doctors' prescribing behavior as the dependent variable (DV). The relationship between IVs and the DV forms the basis for developing the research instrument (questionnaire).




Source: Reviewed literatures, (2023)

## 3.0 RESEACH METHODS

The study deployed a quantitative research approach that aligns with positivism design, drawing conclusion based on reality and the type of quantifiable information from the field (Hiar et al., 2010). The study therefore focuses on analyzing the relationships between variables based on research hypotheses (Creswell, 2018). The study comprised 240 medical doctors with a minimum qualification of a bachelor of medicine degree from selected private hospitals in Nyamagana District The sample size was drawn based on Krejcie and Morgan's statistical table (1970). The research adopted a simple random sampling strategy, since it empowered the researcher to select respondents from the designated study area. A total of 171 doctors from two private zonal referral hospitals: 127 doctors from Hospital "M" and 44 doctors from Hospital "N." These hospitals were chosen due to their established infrastructure and qualifications of the research respondents, making them suitable for assessing pharmaceutical sales promotion's impact on prescribing behaviour. The use of mock names (Hospital M & N) aligns with ethical consideration in research which aimed to minimize harm and to ensure anonymity of the respondents (Silverman et al., 2015).

Data was collected using structured closed-ended questionnaires, following appropriate procedures for data coding, statistical analysis, and interpretation. A self-administered questionnaire based on a 5-point Likert Scale was used. The structured questionnaire allowed for efficient data collection from a large number of respondents, ensuring perceived anonymity and potentially increasing response rates (Creswell, 2009; Kumar et al., 2013; Saunders et al., 2012). The responses in the questionnaire were formulated based on specific research objectives allowing respondents to rate their level of agreement using the 5-point Likert Scale with 1 strongly disagree and 5 strongly agree. Similarly, the study adopted a multiple linear regression equation to predict doctors' prescribing behaviour based on PSP constructs. These statistical analyses were conducted using IBM SPSS v26 software, ensuring a systematic exploration and interpretation of the data at hand. Since the equation facilitates interpretation of the relationships between DV and IVs through beta values, similarly helping to test research hypotheses.

$$DPB = \beta 0 + \beta 1DM + \beta 2DA + \beta 3PS + \beta 4IS + \varepsilon$$

Whereby:

| | |
|---|---|
| DPB | Doctors' Prescribing Behaviour (Dependent Variable/DV) |
| DM | Direct Marketing (IV) |
| DA | Drug Advertisement (IV) |
| PS | Personal Selling (IV) |
| IS | Incentives and Sponsorship (IV) |
| β1, β2, β3, β4 | Partial regression coefficients (beta values) |
| β0 | Constant |
| ε | Error term |

## 4.0 FINDINGS AND DISCUSSION

### 4.1 Demographic Profile of Respondents

The study involved doctors with bachelor of medicine degree as a minimum qualification from the selected private hospitals in Nyamagana District, Mwanza, Tanzania. The target population comprised 240 medical doctors, basing on Krejcie and Morgan statistical table (1970) yielded 171 doctors as research respondents, received and responded to the research instrument (questionnaires), out of which 149 questionnaires

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were filled and returned for analysis, accounting 87.13% of the response rate. Additionally, 22 questionnaires were not returned, constituting 12.87% of the total respondents. Ndemi (2014) suggests that response rates can be categorized as satisfactory (50%), good (60%), and very good (70% and above)

**Table 4.1: Response Rate of respondents**

| Category | Expected Respondents | Actual Respondents | Percentage (%) Respondents |
|---|---|---|---|
| Hospital "M" | 127 | 119 | 69.59 |
| Hospital "N" | 44 | 30 | 17.54 |
| **Total** | **171** | **149** | **87.13** |

**Source: Field Data, (2023)**

The table 4.2 below shows that 55.7% of respondents were male, while 44.3% were female, ensuring gender balance. The age distribution ranged from 20 to 30 years (39.6%), 31 to 40 years (45.0%), and 41 years and above (15.4%). In terms of years of practice, 70.5% had 0-10 years of experience, 22.5% had 11-20 years, and 6.7% had more than 20 years. Furthermore, 62.4% held a first-degree qualification, 36.9% had a master's degree, and 0.7% had a PhD. Finally, 41.6% were single, 56.4% were married, and 2% were widowed. The DRP statistics provide a detailed overview for the subsequent statistical analyses of the relationships between PSP and doctors' prescribing behaviour.

**Table 4.2: Demographic Profile of Respondents**

| DRP | Category | Frequency | Percent (%) | Min | Max | Mean | Standard Deviation |
|---|---|---|---|---|---|---|---|
| gender | Male | 83 | 55.7 | 1 | 2 | 1.44 | 0.498 |
| | Female | 66 | 44.3 | | | | |
| | **Total** | **149** | **100** | | | | |
| Age (years) | 20-30 | 59 | 39.6 | 1 | 3 | 1.76 | 0.704 |
| | 31-40 | 67 | 45.0 | | | | |
| | 41 and above | 23 | 15.4 | | | | |
| | **Total** | **149** | **100** | | | | |
| Years of practice (Years) | 0-10 | 105 | 70.5 | 1 | 2 | 1.30 | 0.458 |
| | 11-20 | 34 | 22.5 | | | | |
| | 20 and above | 10 | 6.70 | | | | |
| | **Total** | **149** | **100** | | | | |
| Level of education | Degree | 93 | 62.4 | 1 | 1 | 1.38 | 0.501 |
| | Master | 55 | 36.9 | | | | |
| | PhD | 1 | 0.7 | | | | |
| | **Total** | **149** | **100** | | | | |
| Marital status | Single | 62 | 41.6 | 1 | 3 | 1.60 | 0.530 |
| | Married | 84 | 56.4 | | | | |
| | Widow | 3 | 2.0 | | | | |
| | **Total** | **149** | **100** | | | | |

**Source: Field Data, (2023)**

### 4.2 Descriptive statistics of predictor Variables of PSP

It presents a comprehensive analysis of the predictor variables related to PSP. These statistical measures, of mean and standard deviation, are instrumental in providing valuable insights into the dataset. The rigorous statistical analysis offers how healthcare professionals perceive various dimensions of DM, DA, PS and IS in the context of PSP.

Additionally, to enhance the interpretability of the results, we have adopted a Likert scale mean score classification system based on Mushtaq et al. (2019), which categorizes responses into distinct levels ranging from "never or very low level" to "always or highly extensive" as presented in table 4.2 below.

**Table 4.2: Classification of Likert Scale Mean Values**

| Mean Value | Level |
|---|---|
| 1.00 - 2.00 | Never or very low level |
| 2.10 - 3.00 | Low level |

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| | |
|---|---|
| 3.10– 4.00 | Moderate level |
| 4.10– 5.00 | Highly Extensive |

**Source: Adopted from Mushtaq et al, (2019).**

#### 4.2.1 Direct Marketing (DM) by Pharmaceutical Firms

By examining the DM of pharmaceutical products, the study reveals intriguing findings, as shown in table 4.3 below. The DM indicators overall average mean score attained 2.9, indicating a low level of agreement among respondents regarding the effectiveness of DM as a PSP strategy in influencing prescriptions.

However, it's worth noting that certain DM indicators, such as detailing from peer groups and sharing product information through email, are potentially effective strategies to influence doctors' prescribing behaviour. These findings align with insights from prior research (Donohue, 2017; Klaus & Scheurich, 2014), and highlight the significance of these marketing strategies within the pharmaceutical industry.

**Table 4.3: Respondents' perception towards DM of Pharmaceutical Products**

| | Min | Max | Mean | Std. Dev |
|---|---|---|---|---|
| I prefer online (mobile apps) detailing over direct marketing at th healthcare facility to influence prescriptions | 1 | 5 | 2.83 | 1.261 |
| Detailing from peer group is supportive on firms' drug choice | 1 | 5 | 3.07 | 1.085 |
| Product information shared through phone call influences my prescribing | 1 | 5 | 2.72 | 1.072 |
| Product information shared through E-mail influence my prescribing | 1 | 5 | 2.98 | 1.142 |
| **Overall average** | | | **2.9** | **1.14** |

**Source: Field Data, (2023)**

#### 4.2.2 Drugs Advertisement (DA) by Pharmaceutical Firms

As shown in table 4.4 below, the results indicate that the DA indicators attained an overall average mean score of 3.62, suggesting that respondents moderately agreed with the utilization of DA as a PSP strategy to influence doctors' prescription. However, the DA indicators related to the promotion of drugs through medical scientific journals (mean 3.72) and publications (mean 4.05) seem to be more influential to generate prescriptions.

Similar findings from Kamuhabwa and Kisoma (2015) also revealed that medical information from textbooks (64%) and the internet (63%) were the main sources of drug information, indicating their effectiveness, cost considerations for patients, and the influence of market availability on the prescribed products.

**Table 4.4: Respondents' Perception towards DA of Pharmaceutical Products**

| | Min | Max | Mean | Std. Dev |
|---|---|---|---|---|
| Drug advertisement by issuing free medical samples helps doctors to prescribe firm's drug. | 1 | 5 | 3.39 | 1.064 |
| Promotion of drugs through medical scientific journals encourages me to prescribe drugs to my patients | 1 | 5 | 3.72 | 1.019 |
| Gift items printed with firm's drug names and messages (doctor's name and designation) encourage me to prescribe. | 1 | 5 | 3.40 | 1.071 |
| Suppliers conducting in-house facility presentation by a specialist doctor, are supportive to issuing prescription to my clients | 1 | 5 | 3.56 | 1.061 |
| Scientific journals and publications provide useful and up-to-date drug information for doctors to issue prescription. | 1 | 5 | 4.05 | 1.087 |
| **Overall average** | | | **3.62** | **1.06** |

**Source: Field Data, (2023)**

#### 4.2.3 Personal Sales (PS) of Pharmaceutical Products

The table 4.5 below, shows that for the PS indicators, achieved an overall average mean score of 3.7, indicating that respondents extensively agreed with the utilization of PS as a PSP strategy to influence prescriptions.

**Table 4.5: Respondents' Perception towards PS by Pharmaceutical Firms**

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| | Min | Max | Mean | Std. Dev |
|---|---|---|---|---|
| Sales representatives provide accurate and up- to- date drug information regarding firm's brands. | 1 | 5 | 3.52 | .960 |
| Skillful detailing of pharmaceutical sales representative influence doctors to prescribe | 1 | 5 | 3.68 | 1.069 |
| Drug information availability in the market has an influence on prescription choice of firms' drugs. | 1 | 5 | 3.77 | .981 |
| Provision of free medical samples help doctors to initiate treatment immediately to the needy as well as evaluating drug's efficacy and side effects of new drugs. | 1 | 5 | 3.64 | 1.000 |
| Drug characteristics (Fixed Dose Combination, duration, dose and frequency) motivates a doctor to issue prescription. | 1 | 5 | 3.88 | 1.049 |
| Interpersonal relationships between doctors and pharmaceutical sales representatives motivate doctors to prescribe firm's drug (corporate reputation) | 1 | 5 | 3.55 | 1.133 |
| I prefer to prescribe firms' drugs available in the STG and NEMLIT. | 1 | 5 | 3.91 | 1.033 |
| **Overall Average** | | | **3.7** | **1.00** |

**Source: Field Data, (2023)**

It's worth noting that the PS indicators related to drug information availability in the market (mean 3.77), drug characteristics like fixed-dose combinations and treatment duration (mean 3.88), as well as the preference for prescribing firms' drugs available in the STG and NEMLIT (mean 3.91) are considered important strategies for firms to influence prescriptions.

Similar findings from Kabir et al. (2020) also highlighted the significance of personal selling skills, relationship-building, and customer-oriented problem-solving strategies in influencing prescriptions.

#### 4.2.4 Incentives and Sponsorship (IS) by Pharmaceutical Firms

As shown in Table 4.6 below, the results indicate that IS indicators, attained an overall average mean score of 3.38, signifying that respondents moderately agreed with the utilization of incentive and sponsorship strategies by pharmaceutical firms as PSP strategies to influence prescriptions.

**Table 4.6: Respondents' Perception towards IS by Pharmaceutical Firms**

| | Min | Max | Mean | Std. Dev |
|---|---|---|---|---|
| Pharmaceutical firm's new product launch meeting while offering free lunch or dinner encourages a doctor to prescribe firm's drug brands | 1 | 5 | 3.28 | 1.034 |
| Suppliers sponsoring events and scientific conference on special days (doctors' associations) encourage doctors to prescribe firms' drugs. | 1 | 5 | 3.47 | .979 |
| Pharmaceutical firms offering support on recreational activities (facility/doctors) motivate doctors to issue prescriptions. | 1 | 5 | 3.44 | 1.070 |
| Suppliers sponsoring doctors' conferences (domestic and / or international) while arranged for travel and hotel accommodation influence to prescribe firms' brands more. | 1 | 5 | 3.44 | 1.123 |
| Low-cost gifts (pen, clinical coats, writing pads, etc. depicted with firm's drug brands) from pharmaceutical suppliers serves as a reminder while prescribing. | 1 | 5 | 3.23 | 1.171 |
| Pharmaceutical firms offering token gifts (airtime/internet bundle) help to get customer feedback as well as evaluating drug's efficacy and side effects of the firms' drugs. | 1 | 5 | 3.43 | 1.126 |
| **Overall average** | | | **3.38** | **1.08** |

**Source: Field Data, (2023)**

It is worth noting that IS indicators such as suppliers sponsoring events and scientific conferences (mean 3.47), pharmaceutical firms offering support for recreational activities (mean 3.44), sponsoring doctors' conferences (mean 3.44), and offering token gifts (mean 3.43) are considered effective strategies by firms to influence doctors' prescriptions.

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**4.4.5 Doctors' Prescription Behaviour (DPB)**

As shown in Table 4.7 below, the overall average mean of 4.01 suggests that respondents extensively agreed on utilizing PSP strategies while taking into account various aspects of cost and drug potential to all healthcare stakeholders. This indicates a commitment to ethical compliance and professionalism. However, DPB indicators of drug clinical efficacy, quantity of drug prescription, cost-effective drugs, effective promotion of products by firms, adherence to standard treatment guidelines, registration with TMDA, and training received during undergraduate studies pertained to pharmaceutical firms are significant considerations to generate prescriptions.

**Table 4.7: Doctors' Prescription Behaviour towards Pharmaceutical Sales Promotion**

| | Min | Max | Mean | Std. Dev |
|---|---|---|---|---|
| Clinical efficacy of drugs matters the most to me (Drug Potential Focus) | 1 | 5 | 4.09 | 1.027 |
| I assess the quantity of drug prescription issued to my client related to bill burden, drug adherence and drug compliance (Cost Focus) | 1 | 5 | 4.24 | 1.057 |
| I prescribe firms' drugs that are cost effective and enhance patients' drug compliance (Cost Focus) | 1 | 5 | 4.23 | 1.047 |
| I prescribe firms' drugs who promote their products effectively (Ethical Compliance) | 1 | 5 | 3.82 | 1.060 |
| I prescribe drugs to my clients basing on the Standard Treatment Guideline and National Essential Medical List of Tanzania (Ethical Compliance) | 1 | 5 | 4.14 | 1.078 |
| I prescribe drugs from pharmaceutical firms registered in health insurance schemes' price catalogue; National Health Insurance Fund (Cost Focus/Ethical Compliance) | 1 | 5 | 3.95 | 1.058 |
| I prescribe firms' drugs registered with TMDA (Ethical Compliance) | 1 | 5 | 4.11 | 1.079 |
| During my undergraduate studies at medical school, i have been trained on how to interact with pharmaceutical firms and the impact of educational interventions on my prescribing behaviour (Professionalism) | 1 | 5 | 3.52 | 1.359 |
| **Overall Average** | | | **4.01** | **1.09** |

**Source: Field Data, (2023)**

Notably, the high mean scores for factors such as clinical efficacy of drugs, quantity of drugs per prescription, cost efficiency, adherence to stipulated guidelines by regulatory authorities highlight the importance of good prescription practices. Similarly, doctors prioritize WHO ethical standards in their prescriptions and acknowledging the impact of increased PSP efforts by firms on prescribing practices.

**4.4 Detailed Data Analysis**

**4.4.1 Reliability analysis**

Cronbach's Alpha is a widely used measure of internal consistency for multi-item measurement instruments (questionnaires) in social science studies (Field, 2013; Bougie et al, 2010). It assesses the extent to which the scores from the instrument's items are consistent and free from measurement errors. However, it is recommended that Cronbach's Alpha values of 0.60 and above indicate acceptable internal consistency (Malhotra, 2009).

Additionally, to enhance the interpretability of the results, we have adopted Cronbach Alpha reliability system of classification based on Bougie et al. (2010) as shown in table 4.9

**Table 4.9: Cronbach Alpha Reliability Scale Interpretation**

| Cronbach Alpha Values | Reliability |
|---|---|
| 0.70-1.00 | High |
| 0.60-0.69 | Moderate |
| 0.00-0.59 | Low |

**Source: Bougie *et al* , (2010)**

Table 4.10 below reveals that the Cronbach's Alpha values for the study variables ranged from 0.778 to 0.916, indicating a high level of internal consistency. These values suggest that the variables are reliable and free from measurement errors.

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**Table 4.10: Data Field Reliability Analysis Summary**

| Variable | Items | Cronbach value | Interpretation |
|---|---|---|---|
| Direct marketing (DM) | 4 | 0.803 | High |
| Drugs Advertisement (DA) | 5 | 0.778 | High |
| Personal Selling (PS) | 7 | 0.887 | High |
| Incentives and Sponsoring (IS) | 6 | 0.856 | High |
| Doctor's Prescribing Behavior (DPB) | 8 | 0.857 | High |
| **Total reliability of all items** | **30** | **0.916** | High |

**Source: Field Data, (2023)**

All the main variables, namely DM (0.803), DA (0.778), PS (0.887), IS (0.856), and DPB (0.857), have achieved acceptable Cronbach's Alpha values that fall within the acceptable benchmarks. This indicates that the tested variable items were indeed consistent with the gathered responses and are devoid of measurement errors. Thus, the obtained results of Cronbach's Alpha values for all variables provide the researcher with the assurance to proceed with inferential analysis.

### 4.4.3 Correlation Analysis

The established correlation coefficients between PSP constructs (IV) and Doctors' Prescribing Behavior (DV), as illustrated in table 4.11 below.

**Table 4.11: Correlation Analysis Results**

| | | DM | DA | PS | IS | DPB |
|---|---|---|---|---|---|---|
| **DM** | Pearson Correlation | 1 | .338** | .142 | .240** | -.066 |
| | Sig. (2-tailed) | | .000 | .084 | .003 | .427 |
| | N | 149 | 149 | 149 | 149 | 149 |
| **DA** | Pearson Correlation | .338** | 1 | .575** | .412** | .326** |
| | Sig. (2-tailed) | .000 | | .000 | .000 | .000 |
| | N | 149 | 149 | 149 | 149 | 149 |
| **PS** | Pearson Correlation | .142 | .575** | 1 | .472** | .647** |
| | Sig. (2-tailed) | .084 | .000 | | .000 | .000 |
| | N | 149 | 149 | 149 | 149 | 149 |
| **IS** | Pearson Correlation | .240** | .412** | .472** | 1 | .362** |
| | Sig. (2-tailed) | .003 | .000 | .000 | | .000 |
| | N | 149 | 149 | 149 | 149 | 149 |
| **DPB** | Pearson Correlation | -.066 | .326** | .647** | .362** | 1 |
| | Sig. (2-tailed) | .427 | .000 | .000 | .000 | |
| | N | 149 | 149 | 149 | 149 | 149 |

**. Correlation is significant at the 0.01 level (2-tailed).

**Source: Field Data, (2023)**

As shown in table 4.11 above, the relationship between pharmaceutical firms' DM and DPB was found to be negative and statistically insignificant (r = -0.066, ρ value = 0.427). On the other hand, DA exhibited a positive and significant correlation with DPB (r = 0.326, ρ value = 0.000). Similarly, PS demonstrated a significant positive correlation with DPB (r = 0.647, ρ value = 0.000). Furthermore, IS displayed a positive and significant relationship DPB (r = 0.362, ρ value = 0.000). For predictor variables to establish significant relationships (positive or negative) for the purpose of recommendations and predictions, the derived statistical test results of the significance values (ρ value) should align within the benchmarks below 0.05, otherwise, they are considered statistically insignificant

**Table 4.12: Summary of Predictor Variables Regression Analysis**

| | | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
| **Model** | | **B** | **Std. Error** | **Beta** | **t** | **Sig.** |
| 1 | (Constant) | 1.854 | .282 | | 6.586 | .000 |
| | DM | -.149 | .057 | -.174 | -2.625 | .001 |
| | DA | -.028 | .081 | -.027 | -.342 | .733 |

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| | | | | | |
|---|---|---|---|---|---|
| PS | .626 | .079 | .633 | 7.929 | .000 |
| IS | .238 | .067 | .256 | 1.612 | .000 |

**Source: Field Data, (2023)**

As shown in table 4.14 above, the results indicate that DM has a beta coefficient value of -0.149 and a ρ value of 0.001. This suggests a negative and significant relationship between DM by pharmaceutical firms and DPB. On the other hand, DA has obtained a beta coefficient value of -0.028 and a ρ value of 0.733, indicating a negative and insignificant relationship between DA by pharmaceutical firms and DPB.

Conversely, PS has a beta coefficient of 0.626 and a ρ value of 0.000, signifying a positive and significant relationship between PS deployed by pharmaceutical firms and DPB. Similarly, IS by pharmaceutical firms possess a beta coefficient of 0.238 and a ρ value of 0.000, demonstrating a positive and significant relationship that impacts DPB. By considering the existing relationship between DPB as DV and the predictor variables of DM, DA, PS, and IS as the IV, the multiple linear regression equation, can be presented as follows: DPB = β0 + β1DM + β2DA + β3PS + β4IS + ε

By taking into account for the ρ values of the predictor variables of DM (0.010), DA (0.733), PS (0.000), and IS (0.000), the established final multiple linear regression would be:

$$DPB = 1.854 - 0.149DM + 0.626PS + 0.238IS + 0.282$$

Where:
β1, β2, β3, and β4 = Partial regression coefficients (beta values)
β0 = Constant
ε = Error term

The predictor variables of PS and IS have established positive and significant relationships, as presented in table 4.22. Conversely, the DM has demonstrated a negative but significant relationship with DPB. Additionally, the derived beta coefficients can be utilized to discuss and test the research hypotheses to ascertain whether there exists a relationship between the predictor variables of PSP and the pharmaceutical firms' profit attainment goals.

### 4.4.4 Multiple Regression Analysis

Multiple regression analysis is utilized to determine the coefficients (beta) that establish the existing relationship between independent variables (IV) and the dependent variable (DV) within a sample size that is sufficient for proceeding with inferential statistics. The regression analysis helps to confirm the most significant factors for recommendations and predictions. Similarly, it involves generating a model summary that presents the final regression results as shown in table 4.11

Both tables 4.11 and 4.12 offer a concise representation of the regression and ANOVA results derived from IBM SPSS v26, pertaining to the existing relationship between DV of DPB and IV of PSP constructs (DM, DA, PS, and IS).

**Table 4.13: Model Summary of Multiple Regression Analysis**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .674[a] | .454 | .439 | .58239 |

a. Predictor variables: (Constant), IS, DM, PS, DA

**Source: Field Data, (2023)**

**Table 4.12: ANOVA[a] Result Summary**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 40.644 | 4 | 10.161 | 29.957 | .000[b] |
| | Residual | 48.842 | 144 | .339 | | |
| | Total | 89.486 | 148 | | | |

a. Dependent Variable: DPB
b. Predictors/IV: (Constant), IS, DM, PS, DA

**Source: Field Data, (2023)**

The results from table 4.11 above revealed a correlation value, denoted as R, of 0.674 with a standardized error of estimate (SEE) of 0.58239. The findings align with a previous study by Field (2013), which supports the significance of regression tests such as R-square ($R^2$) and adjusted $R^2$. Both $R^2$ and adjusted $R^2$ explain the value of the regression model by accounting the combined impact of predictor variables of DM, DA, PS, and IS. Consequently, the R-Square ($R^2$) value of 0.454 and the calculated Adjusted $R^2$ of 0.439 provide a moderate level of predictive power for the independent variables (DM, DA, PS, and IS) in relation to the dependent variable (DPB).

Furthermore, the F-test, as presented in table 4.12 above, is a crucial determinant of the variations seen in the predictor variables of DM, DA, PS, and IS. Nonetheless, the low computed F-test value of 29.957 for the predictor variables

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indicates that the variability in the IV does not explain a substantial proportion of the variation in the DV. This phenomenon can be attributed to respondents' inherent conflict of interest in their responses, as they may be hesitant to disclose their actual prescribing behaviour towards pharmaceutical firms. Additionally, these observations might be explained by the recognition that prescribing practices are influenced by factors beyond mere disclosure to administrative bodies and adherence to ethical codes of conduct.

### 4.5 Discussion of the findings

#### 4.5.1 Direct Marketing and Prescribing Behavior

The research objective of examining the relationship between DM and DPB has been thoroughly investigated in the study. The initial hypothesis (H1) proposing a positive and significant relationship between DM and prescribing behaviour has been rigorously tested and analysed. The findings, provide valuable insights into the dynamics of this relationship.

The regression coefficient of -0.149, which is statistically significant with a p-value of 0.001, indicates a negative and significant relationship between DM and DPB in the selected private hospitals. This suggests that as the level of DM increases, doctors' prescribing behaviour tends to decrease by approximately 14.9%. The significance of the regression coefficient strengthens the argument that DM has an impact on doctors' prescribing decisions.

On the other hand, the correlation coefficient (r) of -0.066 with a p-value of 0.427 indicates a weak and insignificant correlation between DM and DPB. This suggests that the observed correlation could have occurred due to random chance, and there isn't sufficient statistical evidence that supports the existing relationship between DM and DPB.

Based on the regression and correlation coefficients, the study concludes that there is no substantial evidence to support the initial hypothesis (H1) proposing a significant positive relationship between DM and DPB. This implies that firms deploying DM as a PSP strategy might not significantly influence prescriptions.

The study's alignment with the theory of planned behaviour (TPB) is an important aspect of the findings. It suggests that doctors' prescribing decisions are influenced by a complex interplay of factors beyond just DM. This aligns with the understanding that medical professionals prioritize patient welfare, safety, and evidence-based practices in their decision-making process.

The reference to Ahmed et al. (2018) is captivating and relevant in the context of the research findings. The idea that firms providing sponsorship to doctors for conferences can establish drug ambassadors who then share educational information with their peers aligns with the broader theme of peer influence and professional networks. The findings underscore the multifaceted nature of doctors' decision-making processes and the significance of evidence-based practices over external influences in the medical field.

Thus, the research provides a comprehensive analysis of the relationship between DM and DPB, ultimately rejecting the hypothesis of a significant positive relationship.

#### 4.5.2 Drug Advertisement and Prescribing Behavior

The second research objective aims to examine the relationship between DA and DPB in selected private hospitals. The formulated hypothesis (H2) proposes a positive and significant relationship between these two variables. The research findings, as outlined, provide valuable insights into this relationship and its implications.

The regression coefficient of -0.28, while statistically insignificant with ρ value of 0.733, implies a negative and insignificant effect of DA on DPB. This suggests that an increase in DA does not correspond to a significant change in doctors' prescription behaviour. The lack of statistical significance reinforces the idea that DA might not be a major influencer of doctors' prescribing decisions.

However, the correlation coefficient (r) of 0.326 with a p-value of 0.000 indicates a significant positive correlation between DA and DPB. This discrepancy between the regression coefficient and the correlation coefficient suggests that there might be some underlying complexity in the relationship that requires further investigation.

However, the research concludes that there is insufficient statistical evidence that supports the relationship between DA and DPB. Thus, leads to the rejection of the hypothesis (H2) and suggests that DA as a PSP strategy is not effective in influencing doctors' prescription decisions. These findings also align with previous studies that highlight doctors' reliance on sources beyond drug promotion when indulging in prescription decisions. The emphasis on scientific evidence, professional judgment, and other sources of information resonates with the broader context of doctors' ethical and evidence-based practices.

The reference to Kamuhabwa and Kisoma (2015) regarding medical information sources reinforces the idea that doctors prioritize reliable and credible sources, such as textbooks and the internet, for drug information. This strengthens the study's finding that doctors rely on established and verified information rather than promotional materials like DA.

Similarly, the study aligns with the chosen theory of TPB. The findings suggest that doctors' prescribing decisions are influenced by a complex interplay of factors, including ethical considerations, evidence-based information, and professional judgment. The lack of statistically significant relationships between DA and prescribing behaviour reinforces the notion that doctors prioritize patient well-being.

Therefore, the research provides insights into the relationship between DA and doctors' prescribing behaviour, concluding that this relationship is not statistically significant. The study highlights the multifaceted nature of doctors' decision-making processes and the limited impact PSP strategies on their prescription decisions. This aligns with the broader context of ethical and evidence-based medical practices.

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#### 4.5.3 Personal Selling (PS)and Prescribing Behavior

The third research objective focuses on investigating the relationship between PS and DPB in selected private hospitals. The formulated hypothesis (H3) suggests a positive and significant relationship between these two variables. The regression coefficient of 0.626, with a p-value of 0.000, signifies a positive and significant impact of PS on DPB. This indicates that an increase in PS is associated with a substantial increase of approximately 62.6% in prescription decisions. The significance of the coefficient strengthens the argument that PS is an influential factor in doctors' prescription decisions.

The correlation coefficient (r) of 0.647 with a p-value of 0.000 confirms a significant positive correlation between PS and DPB. This alignment between the regression and correlation coefficients indicates a robust relationship between PS and DPB.

Given the consistent and significant results, the research supports the hypothesis (H3) and concludes that PS is an effective PSP strategy for influencing prescription decisions. This implies that interactions with sales representatives have a meaningful impact on doctors' prescribing behaviour. These findings align with previous studies that emphasize the significance of PS in pharmaceutical marketing. The findings suggests that doctors respond positively to interactions with sales representatives which ultimately, lead to increased prescriptions of promoted drugs aligns with the idea that personal connections and effective communication play a pivotal role in generating prescriptions.

The study by Kabir et al. (2020) further reinforces the findings by postulating the importance of personal selling skills, relationship-building, and customer-oriented strategies in influencing prescription decisions. This underlines the practical and strategic aspects of PS within the pharmaceutical marketing arena. The research aligns with the TPB as discussed earlier. The positive relationship between PS and DPB indicates that doctors' decisions are influenced by both internal factors (such as attitudes, subjective norms, and perceived behavioural control) and external factors, including interpersonal interactions.

Therefore, the research effectively demonstrates the positive and significant impact of PS on DPB. The findings emphasize the importance of effective communication, relationship-building, and personal interactions in pharmaceutical marketing strategies. This aligns with the broader context of the TPB and underlines the multifaceted nature of doctors' prescription decisions, influenced by both internal beliefs and external influences.

#### 4.5.4 Incentives and Sponsorship (IS) and Prescribing Behavior

The fourth research objective delves into the relationship between IS and DPB in selected private hospitals. The hypothesis (H4) postulates a positive and significant relationship between these variables. The findings offer insights into the impact of IS on prescription decisions and complexity of this relationship. The regression coefficient of 0.238, with a statistically significant p-value of 0.000, signifies a positive and significant impact of incentives and sponsorship (IS) on DPB. This suggests that an increase in incentives and sponsorship is linked with a substantial increase of approximately 23.8% in doctors 'prescribing behaviour. The correlation coefficient (r) of 0.362 with a p-value of 0.000 indicates a significant positive correlation between IS and DPB. This alignment between the regression and correlation coefficients reinforces the conclusion that IS play a crucial role in influencing doctors' prescription decisions. The study's results support the hypothesis (H4) and suggests that providing incentives and sponsorship is an effective PSP strategy for influencing DPB. This implies that these incentives and sponsorships hold the potential to influence doctors' prescription decisions towards the promoted products.

Similar findings by Klaus and Scheurich, 2014 and Ahmed et al. (2018), emphasize the positive role of IS in motivating doctors to prescribe specific drugs. The financial support, gifts, and sponsorships offered by pharmaceutical companies can indeed impact doctors' attitudes and behaviors related to prescribing, as these incentives can shape doctors' perceptions and influence their decisions.

From a theoretical perspective, these findings align with the chosen theory of TPB. The positive relationship between IS and DPB highlights the role of external influencers on doctors' decisions. Similarly, it reinforces the notion that prescription decisions are influenced by a complex interplay of internal beliefs and external influences. However, it's also important to consider the ethical implications of these interactions, as excessive reliance on incentives and sponsorship could potentially compromise the integrity of medical decision-making.

## 5.0 Conclusions and Recommendations

### 5.1 Conclusions

Based on the findings of the study, several important conclusions can be drawn: Effectiveness of Pharmaceutical Sales Promotion Strategies (PSP): The study revealed that different PSP strategies have varying degrees of influence on doctors' prescribing behaviour. Direct Marketing (DM) was found to have a moderate level of effectiveness, with specific aspects of peer group detailing and email communication showing promise. Drug Advertisement (DA), especially through publication in medical scientific journals, was recognized as valuable in providing up-to-date drug information. Personal Selling (PS) emerged as a highly effective strategy, highlighting the importance of drug information availability, drug characteristics, and adherence to treatment guidelines. Incentives and Sponsorship (IS) strategies, such as event sponsorship and token gifts, also had a moderate impact.

For the healthcare professionals, the study suggests prioritizing ethical considerations in their prescription decisions. Notably, they significantly weigh numerous factors like clinical efficacy, adherence to guidelines, and cost-effectiveness. This underlines their commitment to uphold

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ethical standards in healthcare provision. Similarly, doctors prioritize the well-being of consumers and seek to provide treatments that genuinely improve health outcomes at minimal costs.

Doctors' preferences for prescribing drugs listed in standard treatment guidelines further highlights the importance of maintaining strong relationships among healthcare professionals. This emphasizes the need for pharmaceutical industry to invest in sales representatives with medical field backgrounds to build and nurture these relationships.

Clinical efficacy emerged as a paramount factor that influence doctors' prescription decisions. The finding stresses the critical role of pharmaceutical companies in ensuring that their products are not only effective but also supported by robust clinical evidence.

Balancing Ethical Promotion: firms' marketing and promotion are essential for business growth, while maintaining ethical standards is crucial in the healthcare industry. Thus, pharmaceutical companies should strike a balance between products promotion and ethical compliance.

### 5.2 Recommendations:

The research offers several recommendations for various stakeholders: pharmaceutical marketers and manufacturers should utilize sales promotion strategies that positively influence product sales while adhering to ethical standards and regulatory compliance of the promoted products; drug manufacturers should choose promotional strategies that encourage ethical compliance and professionalism among marketers and doctors, ensuring an effective communication of the promoted products; personal sales representatives should acquire academic competencies in health-related fields to enhance their ethical conduct and understanding of pharmaceutical sales promotion and healthcare provision; healthcare facilities, should allocate resources for training, particularly in medical specialties requiring up-to-date information on emerging diseases.

### 5.3 Areas for Further Studies

The study suggests several areas for future research, including: Investigating the influence of the National Health Insurance Fund (NHIF) pricing scheme on the registration of drugs by regulatory authorities; exploring the long-term effects of pharmaceutical sales promotion on doctors' prescribing behaviour, considering patient outcomes, medication adherence, and potential biases; examining the ethical implications of pharmaceutical sales promotion and its impact on doctors' prescribing behaviour, including conflicts of interest and patient well-being. These areas for further studies aim to provide deeper insights into the complex relationship between pharmaceutical sales promotion and prescribing behaviour, contributing to more effective and ethical healthcare practices.

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