Optimizing Strategies for Pharmaceutical Drug Commercialization to Enhance Patient Outcomes

DBA Thesis
Geneva Business School

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Firstly, I would like to express my heartfelt gratitude to Dr. Oliver Elliot for the opportunity to undertake this DBA thesis and present a project that holds great significance to me. My sincere thanks go to Dr. Alex Pauceaunu for her availability in answering questions and providing constructive feedback, which has greatly guided my learning and enhanced my knowledge and skills.

I am deeply appreciative of my supervisor, Pr. Florin LUCA, for discussing each step of the process, and for being my coach throughout this journey. His management of this project and his assistance in maintaining the rhythm of the research have been invaluable.

I am also grateful to my company, Gedeon Richter, for allowing me to excel in my field through this DBA thesis, merging my scientific knowledge with business acumen.

My heartfelt thanks go to all the physicians who participated in my research and the pharmaceutical company experts who provided interviews. Special thanks to the gynaecologists and osteoporosis specialists, with whom I interact daily, for their support, real-world advice, and insights during my thesis.

Most importantly, I would like to extend special thanks to my wife, Feyza, for her unwavering support and patience throughout the years of work in addition to my current job. I am deeply thankful to my parents, who, despite not having the opportunity to study when they were young, worked hard in every job to give me the chance to achieve the highest levels of education. They have always motivated me to improve and strive for excellence. My gratitude also extends to my brothers and sisters for their support throughout my doctorate journey.

I would like to thank all my friends, especially those working in healthcare or the pharmaceutical industry, for their advice and for participating in the pilot testing of my survey and interviews.

Lastly, I would like to thank ChatGPT for assisting me with implementing advanced statistical analysis through Python coding support and for helping with grammatical revisions.

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Abstract

The pharmaceutical industry is marked by challenges such as high R&D costs, strict regulatory requirements, market access barriers, and ethical dilemmas. Effective commercialization strategies are crucial for ensuring that innovative drugs reach the patients who need them, thus improving public health outcomes. This study addresses the central question: How can pharmaceutical companies develop and execute a strategic business plan that incorporates effective marketing and sales strategies, fosters strong relationships with HCPs, and maximizes patient outcomes while adhering to high ethical standards?

Grounded in the theoretical framework of strategic business planning and ethical marketing, this research explores the evolution of pharmaceutical business models and the impact of these strategies on patient outcomes. Utilizing a mixed-methods approach, the study combines qualitative and quantitative research methods. Data were collected through interviews with three pharmaceutical company experts and two physicians, along with surveys involving 105 physicians globally from various segments of healthcare sectors. Thematic coding was applied to qualitative data, and statistical analysis was conducted on quantitative data.

Findings reveal the critical role of interdepartmental collaboration, especially between sales and marketing teams, in enhancing drug optimization and market success. The study highlights the necessity of integrating market analysis and strategic pricing to balance affordability and financial viability. It also emphasizes the effectiveness of building relationships with HCPs through educational engagements like congresses and project sponsorships, which significantly enhance product visibility and adoption. The importance of personal interactions with sales representatives in influencing HCPs decisions was noted, advocating for a shift towards more ethical, transparent, and patient-centred marketing strategies. Additionally, the growing relevance of digital marketing strategies was identified, suggesting an integrated approach that combines traditional methods with digital innovations to optimize patient outcomes and HCPs engagement.

In conclusion, the study advocates for a balanced commercialization strategy that prioritizes ethical considerations, patient-centric approaches, and continuous education to drive both commercial success and improved patient health outcomes. Potential actions stemming from this research include enhancing cross-departmental collaboration, refining pricing strategies, increasing educational initiatives, and integrating ethical practices into all aspects of pharmaceutical marketing.

1. Introduction

In the evolving field of pharmaceuticals, the commercialization of new drugs represents an important stage between scientific innovation and market success. This doctoral research aims to refine strategies for the commercialization of pharmaceutical drugs, with a special focus on enhancing patient outcomes while maintaining high ethical standards. Given the interaction of regulatory requirements, market trends, and ethical considerations, this research is situated within an essential approach that seeks to address both current issues and future possibilities in pharmaceutical business strategies.

The pharmaceutical industry faces the dual challenge of innovating at the speed of scientific advancements while ensuring that commercial practices align with ethical and patient-centred approaches. High development costs, stringent regulatory environments, and ethical dilemmas pose significant barriers to efficient drug commercialization. These issues underscore a critical gap in existing practices and knowledge particularly in how companies can strategically navigate these complexities to enhance access to and the effectiveness of new therapies. This study investigates the strategic business plans that pharmaceutical companies can adopt to address these multifaceted challenges effectively, to connect between development and market success with an emphasis on ethical commercial practices by asking "How can pharmaceutical companies develop and execute a strategic business plan for commercializing pharmaceutical drugs that incorporates effective marketing and sales strategies, fosters strong relationships with Healthcare professionals (HCPs), and maximizes patient outcomes while adhering to high ethical standards?"

My engagement in the pharmaceutical industry and my observation of the evolving market dynamics have fuelled my interest in this area of study. This is further driven by a personal commitment to ensuring that healthcare innovations reach patients swiftly and responsibly, guided by ethical principles that respect both individual patient rights and broader societal health needs. By addressing critical gaps in strategic planning and execution within the pharmaceutical sector, this thesis makes a significant contribution to the broader field of healthcare and business management, offering practical recommendations that promise to refine the commercialization processes of pharmaceutical companies.

In the complex world of pharmaceuticals, the pathway from drug discovery to market is fraught with challenges that not only demand scientific innovation but also strategic acumen in commercialization. The commercialization journey of a pharmaceutical drug encompasses numerous critical steps, from extensive research and securing regulatory approvals to establishing manufacturing facilities and implementing quality control measures. Intellectual property protection, market analysis, branding, and effective sales and marketing strategies are integral to this process, ensuring that new drugs can successfully navigate the competitive market environment. Pricing strategies that consider production costs and market demand, alongside engagement with healthcare payers, ensure favourable reimbursement and market access, while distribution channels and supply chain optimizations ensure that medications are readily available to those in need (Chaudhari, 2023).

This topic is of paramount importance due to the rapidly evolving market dynamics and stringent regulatory domain that significantly impact drug commercialization globally. The pharmaceutical sector plays a significant role in the worldwide healthcare system, and its ability to efficiently bring new drugs to market can significantly affect patient health and wellbeing.

Investigating this topic is important because it addresses several pressing issues within the pharmaceutical industry, including high Research and Development (R&D) costs, regulatory compliance, market access, and the ethical implications of drug promotion. By developing effective strategies for drug commercialization, pharmaceutical companies can ensure that new drugs are not only successfully brought to market but also reach the patients who need them most, thereby improving overall public health outcomes.

Firstly, I did a deep literature review regarding pharmaceutical business models, marketing strategies, sales strategies, and the impact of these strategies on patient outcomes. It also examines ethical considerations and regulatory compliance in drug commercialization.

Then I implemented a methodology, outlines the research design, data collection strategies, and analysis techniques applied in the study. It provides an in-depth explanation of the qualitative and quantitative approaches used to collect and interpret data.

The research findings include qualitative data gathered from interviews with experts from pharmaceutical companies and HCPs, along with quantitative data from a global survey aimed at HCPs to gather insights into their preferences. It identifies key themes and insights related to collaborative strategies, revenue generation, market access, marketing and sales strategies, the influence of HCPs relationships and impact on patients' outcomes.

Finally, I concluded with a chapter that summarizes the key findings of the research and offers recommendations for pharmaceutical companies to enhance their commercialization strategies. It also explores the implications of the results for the industry and suggests directions for future research.

This research holds significance for several key reasons. First, it delivers an in-depth analysis of the current challenges and opportunities in pharmaceutical drug commercialization. Second, it provides actionable recommendations for pharmaceutical companies to improve their marketing and sales strategies, ultimately enhancing patient access to new treatments. Third, it emphasizes the necessity of upholding high ethical standards in all areas of drug commercialization, including marketing practices and interactions with healthcare professionals. Lastly, it highlights the vital importance of fostering strong relationships with HCPs to achieve commercial success and enhance patient outcomes.

The commercialization of pharmaceutical drugs is complex and multifaceted process, demanding strategic planning, efficient marketing, and robust relationships with HCPs. This thesis provides a thorough analysis of these components and offers actionable recommendations for optimizing drug commercialization strategies. In doing so, it aims to improve patient outcomes while ensuring the ethical and effective distribution of new medications.

2. Literature Review

Pharmaceutical companies prioritize investment in R&D to introduce new drugs, which are then marketed to generate revenue (Booth, 2004). However, the business model of many companies in the industry is facing significant challenges. The pharmaceutical sector has long been a leader in drug discovery and development. The entire drug discovery process, from preclinical research through multi-center clinical trials to post-marketing stages, involves substantial costs, often reaching billions of dollars. Unfortunately, not all potential molecules progress to the testing phase or receive approval. The cost of bringing a new drug to market has risen due to increasingly stringent regulatory requirements aimed at ensuring patient safety and drug efficacy, especially for advanced therapies, combined with declining clinical success rates (Munos, 2009; Scannell, 2012; Smietana, 2010). This situation pressures manufacturers to maximize profits from approved drugs, making drug advertising practices crucial in this context (Jacob, 2018).

One of the biggest obstacles is rising health budgets and pressure on profits in a growing number of developed countries as ageing populations push up healthcare spending. For example, European Union nations and Japan have introduced price controls on pharmaceuticals (Angelis, 2018; Teramae, 2019). Faced with increasing market and regulatory pressures to distinguish themselves from their competitors, traditional pharmaceutical companies are looking for new directions.

The World Health Organization (WHO) defines drug promotion as encompassing "all informational and persuasive activities by manufacturers and distributors, aimed at influencing the prescription, supply, purchase, or use of medicinal drugs" (World Health Organization, 1988). Over the years, pharmaceutical marketing targeted at physicians has drawn increasing attention. On average, pharmaceutical companies allocate around 20% or more of their sales revenue to promote their products. It is estimated that 84% of pharmaceutical marketing expenditure is directed toward physicians, who are viewed as key decision-makers and gatekeepers in drug sales. While the structure of pharmaceutical markets differs by country due to national characteristics, the industry operates on a global scale (De Laat, 2002).

In recent literature, business models of the pharmaceutical industry, traditionally revolving around investments in R&D to bring new drugs to market and generate

profits, faces evolving challenges and opportunities. Gupta highlights the importance of innovative drug delivery systems, such as BBG-250 loaded liposomal formulations, which show promise in enhancing the efficacy of anticancer treatments. This advancement underlines the crucial role of technological innovation in pharmaceutical commercialization and patient outcomes (Gupta, 2024).

In addition, the incorporation of artificial intelligence (AI) is reshaping the pharmaceutical industry, revolutionizing both drug discovery and development processes. Bhatt discuss how AI technologies are optimizing clinical trials and accelerating drug discovery, thereby reducing time-to-market for new drugs and improving patient outcomes. AI's role in creating more efficient, cost-effective, and patient-centred drug development strategies underscores the potential for pharmaceutical companies to overcome market and regulatory pressures (Bhatt, 2023).

Patient counselling and pharmacist engagement are also essential in the pharmaceutical commercialization process. A study by Jayasekara (2024) in Sri Lanka emphasizes the importance of professional development and effective patient counselling practices among pharmacists. Enhanced pharmacist-patient interactions can significantly contribute to better healthcare outcomes, highlighting the need for pharmaceutical companies to foster strong relationships with HCPs..

By leveraging advancements in drug delivery systems, embracing AI, and prioritizing effective communication with HCPs, pharmaceutical companies can develop and execute strategic business plans that not only adhere to high ethical standards but also maximize patient outcomes. In the ever-changing sector of the pharmaceutical industry, the importance of marketing and sales strategies is paramount. Chime (2024) highlights the influence of internal environmental factors on the growth and success of pharmaceutical companies, suggesting that marketing capabilities play a crucial role in driving sales growth. This underscores the need for pharmaceutical companies to harness robust marketing strategies to navigate the competitive market dynamics effectively.

Furthermore, the utilization of decision support systems in pharmaceutical sales strategies is highlighted by Patria (2024), who advocates for the alignment of marketing campaigns with strategic objectives. The integration of performance

indicators into decision-making processes enables pharmaceutical companies to refine their sales tactics, ensuring the effective execution of marketing strategies that align with market patterns and company goals.

Moreover, the evolution of Business to Business (B2B) marketing in the pharmaceutical and MedTech sectors is marked by the adoption of advanced Key Account Management (KAM) strategies. Moorman (2024) discuss how B2B marketing serves as a cornerstone for enhancing KAM capabilities, which are vital for the future success of companies in these industries. This perspective highlights the critical role of strategic marketing practices in forging and nurturing essential business relationships, which are instrumental in achieving commercial success and improving patient outcomes .

These discussions inevitably bring up the crucial topic of ethical considerations in the commercialization of pharmaceutical products. Ethical concerns in the commercialization of pharmaceutical drugs cover a wide range of issues, from marketing practices and regulatory compliance to the impact of commercial strategies on patient outcomes. As the pharmaceutical industry navigates these challenges, the integration of ethical considerations into every facet of drug commercialization becomes paramount. By adhering to high ethical standards, pharmaceutical companies can ensure that their commercialization strategies not only comply with regulatory requirements but also prioritize patient health and safety, thereby contributing to the overarching goal of enhancing patient outcomes (Outterson, 2014).

I reviewed the literature to understand how various organizations adopt and optimize commercial strategies to enhance sales performance and patient outcomes, while adhering to ethical standards. Although my focus was on recent studies, I also considered older publications but still relevant sources that address ethics and previously implemented strategies that is still useful. The literature highlights several key factors that contribute to an organization's success. Additionally, I sought methods to address biases in the literature, aiming for a critical evaluation of the implemented strategies. Despite the extensive information available, there's a lack of comprehensive literature that consolidates all strategies into a single overview. This thesis aims to aggregate these findings into one document to explore, analyse, and propose new alternatives for future success.

2.1. Pharmaceutical business model

The successful commercialization of a pharmaceutical drug relies on a well-defined business model that encompasses various stages, including drug development, marketing, distribution, and sales. The key steps involve thorough research, preclinical testing, and clinical trials to discover potential drug candidates and obtain regulatory approval. Securing intellectual property through patents and trademarks, along with adhering to legal and regulatory standards, is essential. Additionally, establishing pharmaceutical manufacturing facilities and implementing stringent quality control measures ensures safe and consistent drug production (Lalit, 2024).

Market analysis helps to identify target patient populations, understand competition, and engage key opinion leaders, while a strong brand identity and effective marketing materials aid in promoting the drug. Pricing strategies consider production costs and market demand, and engagement with healthcare payers ensures favourable reimbursement and market access. Distribution channels are set up for easy accessibility, and the supply chain is optimized to minimize delays. Regulatory compliance and pharmacovigilance are essential to monitor and report any adverse reactions. Post-marketing surveillance gathers feedback to improve the drug's performance continuously. Additionally, planning for line extensions, new indications, and patent strategies ensures effective lifecycle management (Devi, 2024).

Lalit (2024) recommends collaboration with healthcare providers and patient advocacy groups to enhance drug adoption and support, while maintaining patient safety and ethical marketing practices is a top priority throughout the drug's commercialization journey. A well-executed business model, coupled with a responsive regulatory strategy, is vital for the sustained success of a pharmaceutical drug in a dynamic market driven by patient needs.

2.1.1. Historical context

In recent decades, the pharmaceutical industry has experienced major changes, shifting from a strictly product-centric model to more diversified and patient-focused approaches. In the early stages, the focus was primarily on mass production and distribution, leveraging blockbuster drugs for high returns. However, this model faced

sustainability issues due to high R&D costs, patent expiries, and market saturation (Garnier, 2008).

Some key dates and examples allowing us to understand and highlight this evolution:

- **1950s-1960s: The Golden Era of Antibiotics**

The discovery and mass production of antibiotics revolutionized medicine. Pharmaceutical companies focused on producing these "blockbuster" drugs to meet global demand, emphasizing mass production and distribution (Davies, 2010; Podolsky, 2015).

- **1970s-1980s: Biotechnology Revolution**

The advent of biotechnology introduced a new era of drug development. In 1978, Genentech produced the first human insulin developed through recombinant DNA technology. This period marked a shift towards targeting specific molecular and genetic pathways, shifting away from the traditional one-size-fits-all model (Winnacker, 1987).

- **1990s: Rise of Blockbuster Drugs**

The industry relied heavily on blockbuster drugs for revenue growth. Medications like Lipitor (atorvastatin), introduced in 1996, became one of the top-selling drugs of all time, addressing widespread health issues like high cholesterol (Avorn, 2004; Werth, 1994).

- **2000s: Patent Cliffs and R&D Challenges**

As patents for blockbuster drugs began to expire in the early 2000s, the industry faced a wave of generic competition. The rising cost of R&D, along with a decrease in the discovery of new blockbuster drugs, prompted pharmaceutical companies to rethink their strategies (Landau, 1999).

- **2010s: Patient-centric Approaches**

The focus moved toward personalized medicine, fueled by advancements in genomics and a deeper understanding of disease mechanisms. A key example of this shift is the approval of the first Chimeric Antigen Receptor T-cell (CAR-T) therapies in 2017 for cancer treatment, offering highly tailored treatments that use a patient's own immune

cells to fight cancer more efficiently. CAR-T cell therapy represents a groundbreaking approach in cancer treatment, marking a significant departure from traditional treatments like chemotherapy, radiation, and surgery (Joyner, 2019; June 2018).

- **2020s: Digital Transformation and Global Health Challenges**

The COVID-19 pandemic has been a catalyst for significant digital transformation within the pharmaceutical industry, pushing companies to rapidly adopt digital tools for drug development, clinical trials, and the swift development and distribution of vaccines. This period highlighted the industry's innovative capabilities in facing global health crises. Alo highlights the critical role of digital technologies in contact tracing and social distancing efforts, showcasing the industry's quick adaptability and innovative response to the pandemic's challenges (Alo, 2021).

2.1.2. Contemporary Business Models

In the pharmaceutical industry, various business models can be utilized based on the particular type of drug, it is depending on the market potential, and the company's overall strategy. The pharmaceutical industry's evolution and its commercial strategies can be dissected through various business models, each addressing different facets of drug development, market entry, and patient engagement. This comprehensive approach reflects a dynamic sector responsive to technological advances, regulatory frameworks, and patient needs.

- **R&D model:** Pharmaceutical companies invest heavily in R&D to discover and develop new drugs. They fund each stage of drug development, from preclinical research to clinical trials, aiming to bring new medications to market. At the heart of pharmaceutical innovation is a strong focus on R&D, where substantial resources are dedicated to finding and creating new therapeutic solutions. Munos (2009) emphasizes the critical importance of R&D in driving innovation, noting the industry's dedication to meeting unmet medical needs.
- **Licensing and partnerships model:** Companies may license or partner with other pharmaceutical firms or research institutions to gain access to promising drug candidates or innovative technologies. This model allows for cost-sharing and risk mitigation. As Danzon elucidates, strategic alliances and partnerships, including licensing agreements, are integral for leveraging external expertise

and technologies, thereby enhancing R&D productivity and mitigating risks associated with drug development (Danzon, 2005).

- **In-licensing model:** Companies acquire the rights to market and distribute drugs developed by other firms, usually those that have successfully completed clinical trials or are already approved in other markets.
- **Out-licensing model:** A company with promising drug candidates may out-license the rights to market and distribute the drug to other pharmaceutical companies, leveraging their partners' expertise, infrastructure, and market presence.
- **Generic drug model:** After the patent for a branded drug expires, other companies can produce and sell generic versions, usually at lower prices. This approach offers consumers affordable alternatives. The introduction of generic drugs following patent expiration leads to increased competition and greater accessibility (Grabowski, 1992).
- **Biosimilars model:** Companies develop and market biologic drugs that are highly similar to existing biologic medications, providing more affordable alternatives once the original biologic's patent expires. In the realm of biologics, biosimilars offer a pathway to cost-effective alternatives once original patents expire (Blackstone, 2013).
- **Specialty drug Model**: This model focuses on developing and marketing drugs for specific medical conditions or patient populations, often addressing rare diseases or complex medical needs. Targeting niche markets, especially for rare diseases or complex conditions, specialty drugs represent a focused approach within the pharmaceutical sector (Gupta, 2018).
- **Personalized medicine model:** Companies invest in developing drugs tailored to specific genetic profiles or disease subtypes, providing more targeted and effective treatments. The transition towards personalized or precision medicine has been essential, with Hamburg illustrating how advancements in genomics and diagnostics are enabling the creation of therapies customized to individual patient profiles, improving treatment efficacy and outcomes (Hamburg, 2010).
- **Hospital only drug model:** Some drugs may be exclusively marketed and sold to hospitals, clinics, or healthcare providers, rather than directly to consumers.

- **Over the Counter (OTC) drug model:** Some drugs are available for direct purchase by consumers without the need for a prescription, offering wider availability and more convenient access.
- **Direct-to-Consumer (DTC) model:** Pharmaceutical companies' market and advertise drugs directly to consumers to raise awareness and drive demand. The DTC advertising model has transformed the way pharmaceutical companies engage with consumers (Donohue 2007).
- **Combination drug model:** Companies develop drugs that combine multiple active ingredients or therapies to address complex medical conditions.
- **Pay-for-Performance model:** This emerging model involves pricing drugs based on their demonstrated efficacy and patient outcomes. The emerging pay-for-performance model links drug pricing to clinical outcomes, proposing a value-based approach to pharmaceutical pricing. Neumann delves into the complexities and challenges of implementing such models, emphasizing the potential for more aligned incentives in healthcare delivery (Neumann, 2011).

In synthesizing the dynamic business models of the pharmaceutical industry, it's clear that the sector's adaptability is key to meeting the evolving demands of healthcare and patient needs. The industry's capacity to innovate through various models from R&D and licensing to personalized medicine and pay-for-performance demonstrates a multifaceted approach to drug development and distribution. These models, each with unique benefits and challenges, underline the importance of flexibility and strategic partnerships in navigating the complexities of global health challenges. However, despite the diversity and adaptability of these business models, there exists a notable gap in the literature regarding a comprehensive overview that encompasses all these models in detail. This gap signifies a critical point for academic and industry analysis, as understanding the full spectrum of business models could provide insights into more efficient and innovative ways to address healthcare challenges.

2.1.3. Transitioning to strategic innovation: enhancing organizational success

The pharmaceutical industry has undergone a major transformation in recent decades, shifting from a focus on mass drug production to adopting diverse business strategies to address the varying needs of the global healthcare market. This evolution is

characterized by a stronger emphasis on R&D, strategic licensing, partnerships, and the integration of digital technologies, all aimed at navigating the challenges of drug development, commercialization, and patient care. Central to these efforts is the investment in R&D, a crucial driver of pharmaceutical innovation. Despite the high risks involved, companies dedicate substantial resources to discovering and developing new drugs. The collaborative model, which includes licensing and strategic partnerships, has become a key approach to reducing risks, sharing costs, and harnessing external expertise and technology (Munos, 2009; Mahoudeaux, 2023).

Grupta (2018) and Hamburg (2010) suggest that specialty drugs and personalized medicine represent another strategic pivot, focusing on the development of treatments for specific medical conditions or patient populations, including rare diseases and genetic subtypes. This approach not only addresses the demand for targeted therapies but also aligns with the broader industry trend toward precision medicine, where treatments are tailored to individual patient profiles, improving both efficacy and outcomes.

The industry also navigates through patent deadlines by diversifying its portfolio through the development of generic drugs and biosimilars. Once patents for blockbuster drugs expire, generic versions can be produced and sold by other companies at lower prices, providing cost effective alternatives to consumers. Biosimilars further enhance this approach by providing similar therapeutic benefits to their biologic counterparts at a lower cost, once patent protections expire (Grabowski, 1992; Blackstone, 2013).

For Donohue (2007) and Neumann (2011) digital transformation has also left an indelible mark on the industry, reshaping how companies approach drug development, marketing, and patient engagement. The adoption of digital tools and platforms facilitates more efficient clinical trials, enhances patient outreach and education through DTC marketing, and enables the integration of real-world evidence into drug development and lifecycle management. The commercialization journey of pharmaceutical drugs entails extensive research, securing regulatory approvals, and establishing robust marketing strategies. Intellectual property protection, market analysis, and effective engagement with healthcare payers are critical to navigating the competitive context and ensuring successful market entry .

The consolidation of major pharmaceutical companies has been a defining trend, reshaping the industry's competitive sector. Gagnon explores the anatomy of big pharma, highlighting how these entities have consolidated structural power through specific dominant business models. This consolidation has implications for market dynamics, regulatory influence, and the direction of pharmaceutical innovation. The digital transformation of the pharmaceutical industry represents an important shift in its business model. The adoption of digital technologies, including AI, blockchain, and the metaverse, has opened new avenues for drug development, patient engagement, and supply chain optimization (Gagnon 2024). Gupta (2023) illustrates how the pharma industry is embracing the metaverse in hospitals and pharmaceutical settings, signifying a leap towards futuristic business models.

The rise of online pharmacies and e-commerce platforms has revolutionized the way pharmaceutical products are marketed, sold, and distributed. Adelina (2023) evaluates user perceptions of online pharmacy applications in Indonesia, reflecting on the significant impact of internet evolution and innovation on developing sustainable business models within the health sector, including pharmaceuticals. Looking ahead, the pharmaceutical industry continues to explore sustainable business models aligned with global health challenges and the sustainable development goals. The integration of environmental, social, and governance factors into business strategies is becoming increasingly vital, alongside the ongoing quest for balancing profitability with patient access and ethical considerations. As healthcare paradigms shifted towards personalized medicine, the industry began to adopt more patient-centric business models (Kluza, 2021).

The successful commercialization of pharmaceutical drugs in today's dynamic and patient-driven market requires a multifaceted business model that is responsive to technological advancements, regulatory changes, and evolving patient needs. By blending innovative R&D, strategic partnerships, and digital advancements, the pharmaceutical industry continues to evolve and succeed, ensuring the delivery of effective, accessible, and personalized healthcare solutions worldwide.

2.1.4. Market dynamics of drug types: Originals, Generics, and Biosimilars

The pharmaceutical field is distinctly segmented into original drugs, generics, and biosimilars, each playing a unique role in healthcare. Pharmaceutical industries are

developing different model based on these drugs to increase their drug portfolio and reach most patient. To better understand why implementation of commercial strategies are important in pharmaceutical industries, in this section I will explore and compare the differences of drug types.

In the dynamic area of pharmaceutical development, the distinction among original drugs, generics, and biosimilars underscores a multifaceted approach to improving healthcare accessibility and fostering innovation. Each drug type plays a critical role within the healthcare system, offering a balance between pioneering treatments and making existing therapies more affordable. This comprehensive comparison elucidates the differences in development processes, regulatory pathways, economic impacts, and market dynamics of original drugs, generic drugs, and biosimilars.

The development and marketing of original drugs, generics, and biosimilars reflect a strategic balance between innovation, cost, accessibility, and therapeutic needs. Original drugs continue to push the boundaries of medical science, addressing unmet medical needs. In contrast, generics and biosimilars offer more affordable alternatives to existing therapies, essential for the sustainability of healthcare systems globally. As regulatory frameworks evolve and market dynamics shift, the interplay among these drug types will remain crucial in shaping the future of healthcare delivery.

2.1.4.1. Original drugs

Developing a new drug is a complex, time-intensive, and costly endeavour, typically divided into several stages: discovery and preclinical testing, clinical trials, regulatory approval, and market launch. This entire process, from initial discovery to market approval, usually takes between 10 to 15 years, though this can vary depending on the drug's complexity, therapeutic area, and regulatory obstacles. The average cost of drug development is estimated at $2.6 billion, including both direct costs and capitalized investments. The process is also characterized by a high failure rate, with only about 12% of drug candidates entering Phase I clinical trials ultimately receiving approval from regulatory bodies like the FDA (U.S. Food and Drug Administration). Attrition rates increase further along the pipeline, often due to safety or efficacy issues (DiMasi, 2016).

Discovery and Preclinical Testing 1 to 3 years: In this early stage, potential drug candidates are identified, and laboratory tests are carried out to evaluate their safety

and effectiveness. Preclinical tests on animals are essential for determining a drug's pharmacokinetics, pharmacodynamics, and toxicological profiles, which inform subsequent clinical trial designs (Munos, 2009).

Clinical Trials: Clinical trials are carried out in three or four phases to test the drug on human participants. These trials are structured to evaluate the drug's safety, efficacy, optimal dosage, and potential side effects.

- **Phase I trials** (lasting 1 to 2 years) focus on determining safety and dosage by administering the drug to a small group of healthy individuals or patients.
- **Phase II trials** (lasting 2 to 3 years) assess the drug's effectiveness and potential side effects in a larger group of patients.
- **Phase III trials** (lasting 3 to 4 years) compare the new drug to existing treatments or a placebo in a larger population to confirm its effectiveness, monitor side effects, and gather data to ensure its safe usage.
- **Phase IV trials**, also known as post-marketing surveillance, collect further information on the drug's risks, benefits, and optimal use once it is available to the general population (Hamburg, 2010).

Regulatory Approval (1 to 2 years): Upon successful completion of clinical trials, pharmaceutical companies submit a new drug application to regulatory bodies such as the FDA or EMA (European Medicines Agency) to gain marketing approval. The regulatory review is stringent, ensuring that only drugs meeting high standards for safety, efficacy, and manufacturing quality are approved (Hamburg, 2010).

After a new drug receives regulatory approval, it enters the market, a phase that involves critical decisions on pricing. Setting the price of a new drug is a multifaceted challenge that hinges on various factors. These include the costs incurred during the drug's development and production, the competitive sector, market demand, and the value the drug offers to both patients and HCPs. Pharmaceutical companies aim to set a price that not only covers the extensive investment poured into the drug's development but also secures a profit. The strategy behind pricing new drugs considers multiple considerations. Among these are the drug's therapeutic benefits over existing treatments, its potential reach within the market, and the novelty it introduces to the field.

A common approach is value-based pricing, which aligns the drug's price with its perceived value to both patients and the healthcare system at large. This strategy often results in higher prices for drugs that mark a significant leap forward in treatment, particularly in areas where there is a lack of effective solutions. To make informed pricing decisions and shape reimbursement policies, economic evaluations play an increasingly significant role. Tools like cost-effectiveness analysis assess the value of a new drug by calculating the cost per quality-adjusted life year (QALY) it offers. This method helps ensure that the price of the drug reflects its true benefit compared to its costs, aiming for a balance that acknowledges the drug's contribution to healthcare while considering economic sustainability (Neumann, 2011).

Original drugs enjoy a period of market exclusivity protected by patents, typically 20 years from the filing date, although effective market exclusivity is shorter due to the development period. It often takes several years post-launch for an original drug to become profitable, depending on its market performance and the therapeutic area's competitive environment. This period is critical for recovering development costs and generating profit before generic competitors enter the market, despite their high costs, original drugs can achieve profitability within 5 to 10 years post-launch, depending on market success and competition (DiMasi, 2016).

For drugs that address widespread diseases or conditions with a high unmet medical need, profitability can be achieved more quickly due to higher sales volumes. However, for niche or orphan drugs targeting rare diseases, the path to profitability may be longer, although these drugs often command higher prices which can help offset the smaller market size (Scholte, 2023; Trilokekar, 2023).

2.1.4.2. Generic drugs

Generic drugs are identical to brand-name drugs in terms of dosage form, safety, strength, route of administration, quality, performance characteristics, and intended use. Unlike original medications, the development of generics doesn't involve the costly and lengthy clinical trials required for new drugs, as they are based on previously approved products. The primary challenge in developing generics is proving bioequivalence, ensuring that the generic functions in the body in the same way as the original drug.

To gain approval, generic drug manufacturers must submit an Abbreviated New Drug Application (ANDA) to regulatory authorities such as the FDA or EMA. This application confirms that the generic is bioequivalent to the brand-name drug and meets the same rigorous standards for identity, strength, quality, purity, and potency. It also guarantees that the generic is manufactured under strict conditions, similar to those for branded medications (FDA, 2021). The core of generic drug approval is establishing bioequivalence rather than re-testing for safety and efficacy. This more efficient process shortens both the time and cost required to bring a generic drug to market, with the review typically taking 1 to 2 years.

The expense involved in developing a generic drug is substantially lower than that for an original drug, typically ranging from $1 to $5 million (Grabowski, 2016). Their lower development and approval costs allow for profitability within 1 to 2 years, enhancing patient access to essential medications. Annually, generic drugs contribute to saving the healthcare system billions of dollars (Grabowski 2007).

2.1.4.3. Biosimilar drugs

Biosimilars are an expanding category of therapeutic options in healthcare, developed to closely resemble FDA-approved biological products, known as reference products, with no meaningful differences in safety, purity, or potency. These therapies, derived from living organisms, are commonly used to treat complex conditions such as cancer and autoimmune diseases. Developing biosimilars requires a rigorous process involving extensive analytical studies, preclinical assessments, and clinical trials to demonstrate similarity to the reference biologic (FDA, 2018).

The process of bringing a biosimilar to market is complex due to the intricate nature of biological products. Unlike generic drugs, which are chemically synthesized with simpler structures, biosimilars are derived from living cells, introducing natural variability. This requires thorough characterization and comparison to ensure the biosimilar closely matches the reference product in terms of efficacy and safety. The development process typically involves cutting-edge analytical methods, such as advanced molecular and cellular assays, to evaluate the structural and functional similarities between the biosimilar and the original biologic. After these analytical studies, biosimilars undergo preclinical testing both in vitro and in vivo to assess pharmacodynamics, pharmacokinetics, and toxicity. This is followed by phase I and

phase III clinical trials to verify safety, efficacy, and immunogenicity in humans (Schellekens, 2010; EMA, 2014).

The regulatory framework for biosimilars is carefully designed to ensure these products meet rigorous standards of bio similarity. In the United States, the Biologics Price Competition and Innovation Act (BPCIA) of 2009 established the legal foundation for biosimilar approval, outlining the necessary steps for demonstrating bio similarity, which include analytical, animal, and clinical studies. This framework seeks to strike a balance between ensuring strong evidence of safety and effectiveness and promoting the timely entry of biosimilars into the market (Grabowski, 2014). Similarly, the EMA has established guidelines that delineate the necessary data for biosimilar development, emphasizing comparability studies that are critical for regulatory approval (European Medicines Agency [EMA], 2014).

Blackstone (2013) mentioned that developing a biosimilar is financially demanding, with estimated costs ranging from $100 to $250 million significantly lower than the costs associated with bringing a new biologic to market but higher than those for generic drugs. This reflects the extensive analytical and clinical work required to establish bio similarity. Despite the high development costs, biosimilars offer a more affordable alternative to expensive reference biologics, with prices generally 15-30% lower. The potential for quicker profitability (3 to 5 years post-market entry) and healthcare savings is significant and enhance patient access to vital biologic therapies.

2.1.4.4. Strategic investment decisions to optimize commercial strategies

From the comprehensive analysis of the development, regulatory pathways, and economic implications associated with original drugs, generics, and biosimilars, it's clear that each category presents unique opportunities and challenges for pharmaceutical companies. The decision on where to invest hinges on a company's strategic priorities, expertise, financial resources, and long-term vision. Drawing from the literature and the current state of the pharmaceutical industry, I propose a more nuanced investment strategy that carefully evaluates the strengths and challenges associated with each type of drug.

Drug Type	Development Cost	Development Time	Regulatory Approval Time	Profitability Timeframe	Cost Reduction Compared to Reference	Market Exclusivity
Original Drugs	$2.6 billion	10 to 15 years	1 to 2 years	5 to 10 years after launch	N/A	20 years from filing (shorter effective market exclusivity)
Generic Drugs	$1 to $5 million	1 to 2 years	1 to 2 years	1 to 2 years post-launch	Significant	After patent expiry of original drugs
Biosimilar Drugs	$100 to $250 million	7 to 8 years	1 to 2 years	3 to 5 years after market entry	15-30% lower	After patent expiry of reference biologic

Table 1: Comparative overview of drug types: development, costs, and market exclusivity

For large pharmaceutical companies with substantial R&D capabilities and financial resources, a diversified portfolio that includes original drugs and biosimilars could maximize innovation and market impact. Investing in original drugs is fundamental for addressing unmet medical needs and sustaining the industry's innovation cycle. (DiMasi, 2016) recommends that despite the substantial costs and risks involved in R&D and the regulatory approval process, original drugs can offer significant returns on investment during their market exclusivity period. They also enhance a company's reputation as a leader in innovation potentially increasing physicians' confidence on the medication.

Concurrently, investing in biosimilars could provide a strategic advantage in the growing market for biologic therapies, especially in high-cost areas like oncology and autoimmune diseases. Biosimilars offer a pathway to participate in markets established by biologics, with the potential for substantial revenue generation at a lower development cost compared to original biologics (Blackstone, 2013). This approach allows companies to balance high-risk, high-reward investments in original drugs with the more predictable returns of biosimilars.

For Small to Medium Enterprises (SMEs), specializing in either generics or biosimilars could be a more viable strategy, depending on the company's expertise, market access capabilities, and regulatory experience. Generics require significantly lower investment in development and a shorter regulatory pathway, offering a quicker route to profitability and cash flow generation (Grabowski, 2007). This can be particularly appealing for companies with limited R&D resources but efficient manufacturing and distribution capabilities.

Alternatively, SMEs with expertise in biotechnology might find biosimilars a compelling area for investment. While the development costs and regulatory requirements are higher than for generics, the potential market size and pricing dynamics of biosimilars can offer attractive returns. Companies can leverage their biologic development expertise to create biosimilars that compete in high-value markets, benefiting from the increasing acceptance and use of biosimilars in healthcare systems worldwide.

The optimal investment strategy in the pharmaceutical sector is not one-size-fits-all but should be tailored to a company's strengths, market goals, and risk tolerance. Large pharmaceutical firms might pursue a balanced portfolio approach, capitalizing on their R&D strengths to innovate with original drugs while also capturing value in the biologics market through biosimilars. SMEs may benefit from focusing on generics or biosimilars, aligning their investment with their core competencies and strategic market opportunities. Ultimately, the decision on where to invest should also consider the evolving regulatory structure, market access challenges, and the potential for partnerships and collaborations to mitigate risks and maximize the commercial potential of the chosen drug category.

After receiving approval for each type of drug, the successful commercialization of the medication requires the implementation of several key strategies aimed at optimizing product profitability. Among these strategies, the implementation of effective marketing and sales techniques is crucial for successfully promoting and positioning a drug in the market. It is important for pharmaceutical companies to adapt their strategies to the specific attributes of each drug, as different business models require tailored approaches.

2.2. Pharmaceutical Marketing Strategies

Marketing encompasses a range of activities, institutions, and processes that center around the creation, communication, distribution, and exchange of offerings that deliver value to customers, clients, partners, and society. In the pharmaceutical industry, it involves all activities connected to promoting and selling products or services, including market analysis and advertising, with the goal of optimizing the success and profitability of product introductions.

The formulation and execution of a strategic marketing plan are essential for the commercial success of pharmaceutical products. In an industry characterized by intense competition and stringent regulations, a robust marketing strategy provides pharmaceutical companies with a roadmap to distinguish their products, engage with HCPs effectively and educate patients about the benefits and potential side effects of their medications. Smith (2023) proposes thata strategic approach to marketing enables companies to build lasting brand value, earning trust among HCPs and patients alike, and securing a strong market presence.

Despite the significant investment in R&D, the pharmaceutical industry remains in pursuit of profitable commercial business models. The process of drug discovery and development, requiring advanced technology, skilled personnel, and sophisticated equipment, often incurs costs in the billions. Without significant public funding, except for certain "orphan drugs," pharmaceutical manufacturers rely heavily on product sales for revenue. This financial model underpins the industry's emphasis on marketing over R&D functions (Jacob, 2018).

A decline in drug promotion correlates with decreased sales and profits, leading to reduced funding for R&D and a slowdown new drug on the market. Some pharmaceutical companies have responded by increasing marketing expenditures while scaling back R&D investments. Although these changes may seem minimal, they indicate a deliberate emphasis on innovation and R&D to secure sustainable returns on investment. However, many smaller companies are increasingly adopting a "strong marketing, weak innovation" approach, prioritizing rapid revenue generation over long-term, innovation-led strategies (Jacob, 2018).

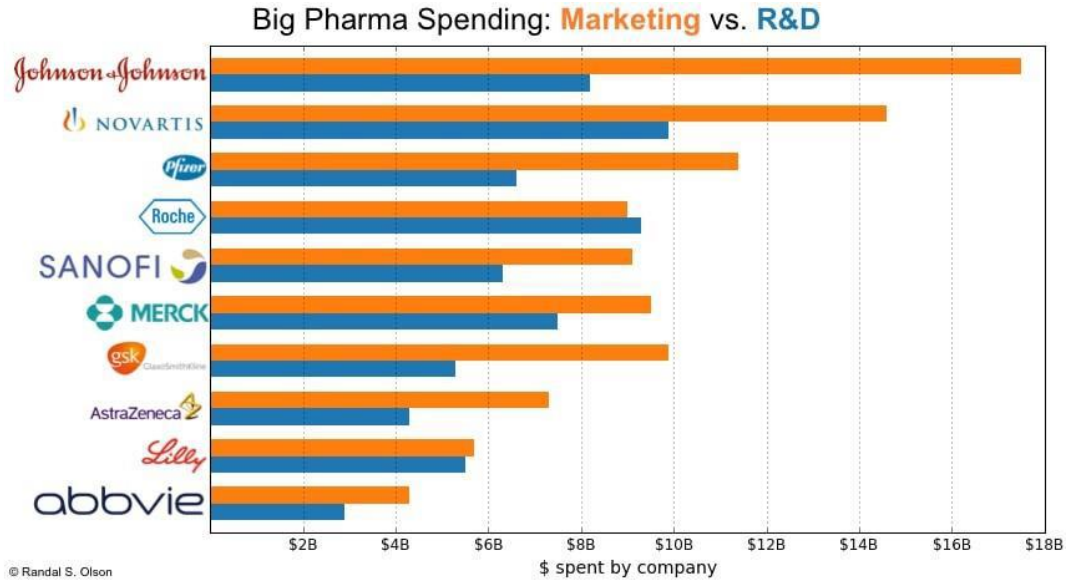

Figure 1: Distribution of revenue allocation between R&D and marketing expenditures among the top 10 pharmaceutical companies in 2013 (Olson, 2017).

The significance of marketing is further illustrated by Olson's analysis, which shows that major pharmaceutical companies invest more in marketing than in R&D (Olson, 2017). This trend is confirmed by Schwartz, who noted substantial marketing investments in the U.S. market by the pharmaceutical industry. From 1997 through 2016, medical marketing expenditures increased significantly, highlighting a shift towards DTC marketing and disease awareness campaigns (Schwartz, 2019).

For a long period, the pharmaceutical industry concentrates substantially on HCPs in its marketing initiatives. Appreciating that physicians are ultimate decision makers when prescribing drugs. A diverse array of tactics, including the distribution of free samples, advertising in medical journals, and the provision of printed product literature are employed with the intent to increase the visibility and acceptability of pharmaceutical products among medical professionals (Marco, 2006; Goyal, 2013). These efforts are underpinned by substantial financial investment, with marketing budgets often surpassing 20% of pharmaceutical companies' sales. This considerable allocation of resources underscores the perceived value and return on investment these marketing strategies offer, creating little incentive for the industry to alter its approach (Seaman, 2008).

A predominant focus of pharmaceutical marketing estimated at 84% is directed toward physicians, highlighting their significant role as gatekeepers in the medication sales process. This targeted approach is not uniform across the globe but is universally

recognized within the pharmaceutical industry, which operates on an international scale despite the unique healthcare landscapes of individual countries (Gonul, 2001; Al-Areefi, 2013; Tahmasebi, 2015; De Laat, 2002).

Modern pharmaceutical marketing strategies transcend traditional product centric approaches, prioritizing the establishment of sustainable relationships over singular transactions. This paradigm shift, from a mass marketing approach to a more targeted strategy, underscores the industry's adaptation to changing consumer behaviours and technological advancements. The transition from image marketing to service marketing, the emphasis on personalization, and the integration of market intelligence into strategic planning are indicative of the industry's response to evolving market dynamics and the increasing importance of patient satisfaction (Purcarea, 2019; Thomas, R.K., 2008).

Pharmaceutical marketing's influence on doctors' prescribing habits has been a topic of ethical scrutiny. There are concerns about the possibility that these strategies could shape prescribing decisions in ways that do not necessarily serve the best interests of patients. The interactions between doctors and the pharmaceutical sector, particularly through sales representatives, play a crucial role in shaping their perspectives and prescribing habits. A close examination of these interactions uncovers the intricate dynamics between healthcare providers and pharmaceutical firms, emphasizing the need for ethical standards and greater transparency in marketing (Khazzaka, 2019; Fickweiler, 2017).

Terama (2019) and Purcarea (2019) recommend the global nature of the pharmaceutical industry necessitates an international perspective on marketing strategies and their implications for sustainable growth. The adaptation of marketing strategies to embrace new technologies and conceptual approaches is necessary for attracting customers and meeting their needs effectively. This strategic evolution reflects a broader trend within healthcare marketing, characterized by a shift towards high-tech solutions and a focus on long-term relationships with consumers .

The pharmaceutical industry's marketing strategies, particularly those targeting HCPs, have undergone significant evolution, driven by the need to adapt to an increasingly complex and competitive market. Ethical considerations, the impact on prescribing behaviours, and the shift towards more personalized and technology-driven marketing

approaches underscore the multifaceted nature of pharmaceutical marketing. As the industry continues to navigate these challenges, the focus remains on building sustainable relationships with HCPs and patients, ensuring ethical practices, and fostering innovation for the betterment of healthcare delivery.

2.2.1. Overview of Pharmaceutical Marketing Strategies

Purcarea (2019) suggest that marketing is essential in assisting HCPs in creating, communicating, and delivering value to their target market. Contemporary marketers prioritize understanding customers over focusing solely on products or services. Their aim is to build long-term relationships rather than just securing one-time transactions. The successful commercialization of pharmaceutical drugs necessitates the implementation of a range of well-thought-out tactics within the overarching marketing strategy. These tactics synergistically work to promote the drug's unique value proposition, foster engagement with HCPs and patients, and navigate the complex regulatory field. Several key tactics are deployed.

In the rapidly evolving pharmaceutical sector, companies are increasingly adopting a multi-faceted approach to drug promotion, engaging with diverse audiences across multiple channels and through various strategies to ensure widespread awareness and adoption of their products. This comprehensive strategy is built on the foundation of multi-channel promotions, leveraging platforms ranging from medical conferences and journals to digital media, ensuring that information reaches HCPs, patients, and caregivers through their preferred channels (Sonawane, 2024).

Central to these efforts is the engagement with thought leaders and Key Opinion Leaders (KOLs) who lend credibility and visibility to the drugs. Through speaking engagements, educational initiatives, and peer-to-peer recommendations, these esteemed professionals are important in fostering trust and showcasing the advantages of the medications to the medical community (Verma, 2024; Patil, 2016).

Patil (2016) discussed that modern pharmaceutical marketing increasingly embraces patients-centred strategies, which encompass support programs offering crucial assistance with affordability, adherence, and side-effect management, significantly improving patient outcomes, and reinforcing the value proposition of the drug. Moreover, Roberts (2024) added that educational materials, ranging from scientific

publications aimed at HCPs to patient friendly brochures, equip stakeholders with the necessary knowledge to make well-informed decisions regarding treatment options.

For Singh (2024),- compliance with regulatory guidelines is paramount in all marketing efforts, ensuring that promotional activities adhere to the highest ethical and legal standards. This is complemented by targeted marketing strategies such as market segmentation and digital engagement, which enable personalized messaging and direct interaction with relevant audiences, fostering an open dialogue and community around the drug.

An other aspects was given by Snyders (2023) suggest that data driven insights are leveraged to refine marketing tactics continually, with companies utilizing analytics to understand audience preferences, market trends, and the competitive environment. These insights, along with real world evidence from post-marketing studies, inform strategic decisions and ensure that marketing strategies remain agile and effective.

Long-term relationship building with HCPs, patients, and advocacy groups is essential for sustaining brand loyalty and market presence. Through dedicated account management, advisory boards, and partnerships with patient advocacy groups, pharmaceutical companies foster a supportive ecosystem around their drugs, facilitating their adoption and ensuring alignment with the evolving healthcare sector (Shoter, 2023; Zadvinskis, 2023; Patil, 2016).

Educational programs and initiatives, such as Continuing Medical Education (CME) and peer-to-peer networks, further enhance understanding and expertise among HCPs, building a community of practice and trust around the drug (Brax, 2017; Ventola, 2014).

Finally, lifecycle management and co-marketing agreements extend the reach and impact of drugs, exploring new indications and formulations to maximize their potential throughout their lifecycle. This approach ensures that they can effectively address the needs of both patients and healthcare professionals in an ever-changing market (Carter, 2007; Sandner, 2008).

Drawing from extensive research, I categorized and consolidated marketing strategies, a methodical categorization and integration enhances both comprehension and their application across the various facets of the industry.

- **Outreach and Engagement:**
  - Multi-channel Promotions
  - Thought Leader Engagement
  - Digital Engagement
  - Long-term Relationship Building
  - Peer-to-Peer Networks
- **Education and Support:**
  - Educational Initiatives
  - KOL Advocacy
  - Patient Support Programs
  - Continuing Medical Education (CME)
  - Patient Advocacy Partnerships
- **Compliance and Targeting:**
  - Regulatory Compliance
  - Market Segmentation
  - Data-driven Insights
  - Key Account Management
  - Advisory Boards Strategic
- **Growth and Partnerships:**
  - Comparative Data Demonstrations
  - Real-world Evidence Initiatives
  - Early Access Programs
  - Co-marketing and Co-promotion
  - Lifecycle Management

Figure 2: Strategies for Modern Pharmaceutical Marketing (own work)

Furthering the discourse on strategic pharmaceutical marketing, I propose a structured approach to the application of these strategies during the commercialization of a drug. The figure 3 have developed serve to elucidate each phase of this process, pinpointing the precise strategies that should be executed to optimize market entry and expansion.

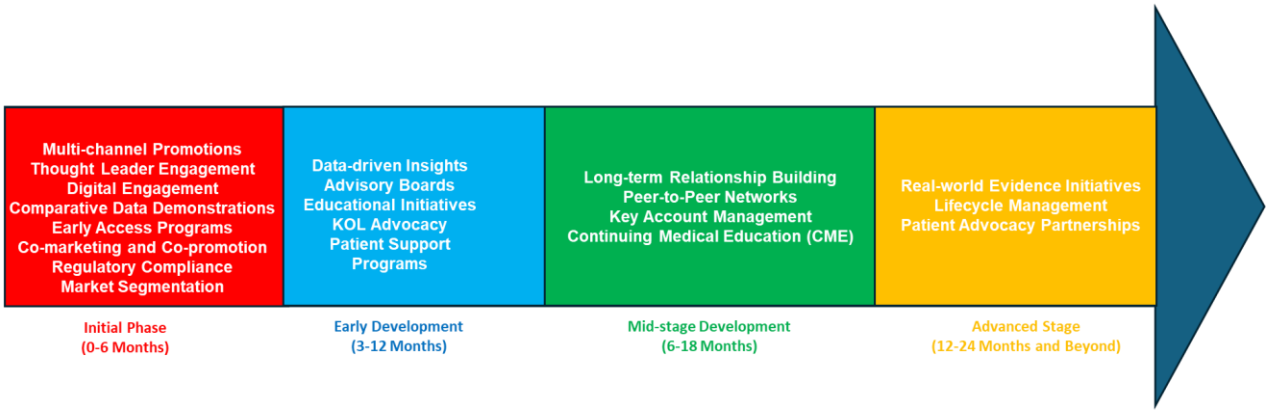

Figure 3: Phases of Pharmaceutical Marketing and Strategy Development (own work)

Each of these tactics contributes to the comprehensive and multifaceted approach required for a successful pharmaceutical drug marketing strategy. By strategically combining these tactics, pharmaceutical companies can effectively navigate the challenges of the industry, engage stakeholders, and ultimately improve patient care through the successful commercialization of innovative therapies.

2.2.2 Targeting and Segmentation Strategies

Devi (2024) and Hasan (2024) explained that targeting and segmentation strategies are fundamental in the pharmaceutical marketing sector, facilitating the delivery of customized, effective, and efficient marketing communications. By segmenting the broad market into smaller, more manageable subsets of consumers with similar needs and preferences, pharmaceutical companies can devise strategies that cater to the specific requirements of different groups, including HCPs, patients, and payers. This approach enhances the efficiency of marketing campaigns and contributes to improved patient care and support through personalized communication efforts.

Ardhana (2024) explores how market segmentation divides the target audience into distinct groups of consumers who share similar needs and priorities, enabling the creation and execution of targeted strategies. In the pharmaceutical sector, key segments typically include:

- **HCPs:** Segmentation within this group might focus on specialization, practice setting, or prescribing behavior. Marketing communications tailored for HCPs usually provide in-depth product information, efficacy evidence, and data on patient benefits to aid HCPs in making well-informed prescribing decisions.
- **Patients:** This segment may be differentiated by disease state, demographics, or stage in the patient journey. Patient-focused strategies typically concentrate on disease education, promoting medication adherence, and offering support services.
- **Payers:** Interested primarily in the cost-effectiveness and overall value of treatments, marketing to payers highlights economic data and health outcomes research to showcase the value of pharmaceutical products.

Crafting targeted marketing efforts and developing strategies that resonate with the unique characteristics of each segment are foudamental. In pharmaceutical marketing, targeting strategies should aim to enhance health outcomes, facilitate patient access to medications, and support HCPs in providing optimal care. Using data analytics and customer insights for personalized communication significantly amplifies the impact of marketing efforts, addressing individuals' specific health needs and preferences. Moreover, employing a multi-channel strategy enables companies to reach target segments through their preferred channels, including digital platforms for

younger demographics or traditional channels for older patients. Finaly providing valuable, educational content to HCPs and patients helps in understanding disease conditions, treatment options, and proper medication usage, fostering trust and supporting informed decision-making (Hasan, 2024).

The strategic use of targeting and segmentation in pharmaceutical marketing is imperative in meeting the varied needs of the healthcare ecosystem. By customizing marketing messages to meet the specific requirements and preferences of each segment, pharmaceutical companies can improve patient care, assist HCPs, and demonstrate value to payers, ensuring a more patient-centred approach to healthcare. This strategic focus on personalized, segmented marketing marks a significant shift in how pharmaceutical companies interact with their audience, optimizing marketing outcomes and contributing to the broader goal of enhanced healthcare delivery and patient outcomes.

2.2.3. Drug promotion tactics

Once a drug receives approval, promoting it becomes a primary goal for pharmaceutical companies. They utilize various strategies to promote drugs, aiming to address diverse needs and target specific populations effectively. Various techniques are employed to maximize the profitability of drug promotions.

2.2.3.1. Direct marketing strategy

The initial strategy involves pharmaceutical companies utilizing medical representatives to engage in direct marketing efforts. This approach, where sales representatives are employed to directly promote pharmaceutical products, continues to be a core element of marketing within the industry. For example, in 2015, the U.S. pharmaceutical sector dedicated an estimated $20.4 billion to detailing and direct marketing activities (Jacob, 2018). Additionally, in 2016, pharmaceutical companies increased their marketing budgets to $20.3 billion, up from $15.6 billion in 1997, for marketing directed to HCPs (Schwartz, 2019).

Between 1997 and 2016, spending on medical marketing, which includes drug promotions, disease awareness initiatives, health services, and laboratory testing, increased from $17.7 billion to $29.9 billion. Pharmaceutical companies greatly intensified their DTC marketing efforts for diseases treated by their medications, with spending on disease awareness campaigns rising from $177 million to $430 million.

DTC advertising for health services saw a sharp rise, growing from $542 million to $2.9 billion, fuelled by significant increases in spending by hospitals, dental centres, cancer treatment facilities, mental health services, addiction clinics, and other medical services. Furthermore, the number of consumer and professional drug promotional materials submitted to the FDA for review rose from 34,182 to 97,252 (Schwartz, 2019).

The substantial commitment of resources to this scale of direct marketing underscores its prevalence and critical role in advertising methodologies. There is ample empirical evidence showing that more interaction with companies and HCPs leads to improved outcomes, e.g., higher prescribing of prescription drugs and more drug use per person (Salmasi, 2016).

In addition to the mentioned strategies, the production and distribution of informational brochures represent a critical direct marketing technique employed by pharmaceutical industries. These printed materials are meticulously designed to educate both HCPs and patients on the benefits, usage, and scientific backing of pharmaceutical products. Brochures are an effective marketing tool due to their ability to present detailed drug information in an easy-to-understand format, helping both doctors and patients make well-informed decisions. A study from Wilson emphasizes the role of brochures in improving patient understanding of their conditions and treatment options, thereby enhancing medication adherence and patient outcomes. The direct distribution of brochures to healthcare facilities and through mail campaigns ensures that detailed product information reaches the target audience efficiently, reinforcing the brand's presence and credibility in the competitive pharmaceutical market (Wilson, 2020).

Direct Marketing Strategy	**Description**
Physician Detailing	In-person meetings with HCPs to provide information and samples.
Patient Education Programs	Educational materials and websites to inform patients about medical conditions and treatments.
Email Marketing	Email campaigns targeting HCPs with updates on medications and clinical trial results.

Digital Advertising	Online ads on websites, social media, and search engines to reach both HCPs and consumers.
Direct Mail	Printed materials, such as brochures, sent to HCPs and patients to provide detailed information.
Telemarketing	Phone calls to HCPs for follow-up discussions and addressing questions or concerns.
Webinars and Online Seminars	Virtual educational events covering disease awareness, treatment options, and medication benefits.
Patient Support Programs	Helplines, nurse counselling, and resources to assist patients with medication adherence.
Interactive Digital Brochures	Digital brochures with multimedia features for engaging HCPs and patients
Social Media Engagement	Active social media presence for sharing healthcare news, educational content, and product updates.
Virtual Conferences and Events	Participation in or hosting virtual medical conferences and events.

Table 2: Summary of direct marketing strategies used by pharmaceutical companies (own work)

2.2.3.2. Publications of scientific article

Promotional literature is critical marketing strategies used by pharmaceutical companies, serving dual function of reaching out to HCPs as well as directly engaging an ever-growing consumer audience. Sullivan (2016) suggest that this dynamic underscore the importance of targeting promotional literature primarily at clinicians, a practice supported by the fact that the FDA received three times more non-internet submissions for promotional approval targeting HCPs than consumers. However, Ventola (2011) explained this trend towards DTC advertisements is growing, presenting a challenge as physicians must allocate consultation time to interpret and explain these advertisements to patients.

Spurlig (2010) added that the value of promotional literature, particularly when published in prestigious medical journals, cannot be overstated. The rigor of peer review and the stature of these publications serve as a benchmark of credibility and reliability, key factors in gaining the trust of HCPs on the medication. The influence of promotional literature on prescribing choices highlights the importance of ensuring that these materials are both reliable and grounded in scientific evidence.

Moreover, high-quality promotional literature facilitates meaningful scientific discussions between sales representatives and healthcare providers. This transition from purely commercial dialogues to evidence-based discussions enhances the relationship between pharmaceutical companies and HCPs. Such interactions are important, as they enable a deeper understanding of a drug's clinical application and its potential benefits for patient care.

2.2.3.3. Medical educations and congress

Some physicians prove challenging to engage through traditional sales representatives. In response, pharmaceutical companies employ medical education as a strategic approach, providing physicians with training opportunities in more accessible environments. Additionally, some physicians attend industry-sponsored talks, accept incentives, and receive support for travel and lodging, factors associated with nonrational prescribing (Wazana, 2000). It's noteworthy that various promotional methods impact physician prescriptions. A meta-analysis of six studies demonstrated that promotional activities lead to higher prescription rates and increased prescribing costs (figure 6) (Brax, 2017).

Scientific congresses play a crucial role in the pharmaceutical industry, meriting substantial investments. These events offer dedicated platforms for product promotion and fostering interactions with HCPs. Within this context, companies leverage sponsor sessions, where KOLs introduce new drugs to their peers, potentially influencing prescription patterns. The impact of such events is amplified by the presence of meticulously designed booths that enhance the company's image and cultivate trust among HCPs. This visibility not only strengthens relationships with practitioners but also elevates the overall prominence of both the company and its product portfolio versus competitors.

2.2.3.4. Role of medico-marketing

The role of medico marketing is an asset in drug promotions and building close relationships with physicians. Although not directly involved in drug promotion, medical affairs departments employ physicians to ensure that promotional activities maintain scientific rigor and adhere to ethical and scientific standards. Medical affairs function as a critical bridge between clinicians and pharmaceutical companies, facilitating peer-to-peer interactions and supporting the exchange of scientific and informational

content. One of their primary roles is to assist the marketing department by preparing and reviewing promotional materials, training medical representatives, responding to drug and therapy-related queries, organizing CME sessions for information sharing, and maintaining relationships with KOLs (Chaudhari, 2017; Singh, 2024).

2.2.3.5. From healthcare to direct-to-consumer advertising

DTC advertising for pharmaceutical products was legalized in 1997. It has significantly influenced the healthcare advertising environment in the United States, presenting a notable contrast to the legal frameworks governing drug advertising in other countries worldwide. Despite ongoing ethical debates and controversy, the United States and New Zealand are the only two nations globally where DTC pharmaceutical advertising is permitted (Abel, 2006; Lazarus, 2017; New Zealand Medical Journal, 2018).

Internationally, the approach to pharmaceutical advertising reflects a cautious stance aimed at protecting consumers and ensuring that healthcare decisions are based on medical necessity rather than marketing influence. For example, in the European Union, regulations prohibit pharmaceutical companies from advertising prescription drugs directly to consumers. This approach is designed to prevent the potential risks associated with uninformed self-medication and to ensure that drug information is mediated by HCPs who can provide appropriate context and advice (European Medicines Agency, 2021).

Similarly, Canada imposes limitations on DTC advertising, allowing only certain types of drug information to be communicated directly to consumers. This regulatory environment emphasizes the role of HCPs as gatekeepers of medical information and treatment decisions, ensuring that patients receive unbiased, scientifically accurate advice regarding their health (Health Canada, 2021).

Heavy DTC advertising exhibits a significant correlation with amplified sales of the promoted drugs. However, this alignment raises concerns as it might not be advantageous for patients from both financial and health perspectives. Between the years 1990 and 1998, approximately 14 million patients sought medical attention for allergy symptoms, a figure that witnessed a sharp ascent to 18 million in 1999. This increase occurred alongside the allocation of over 15% of the $1.85 billion invested in

DTC advertising, specifically targeting prescribed oral antihistamines that year (Chiu, 2005).

In 1999, prescriptions for the top 25 drugs promoted through DTC advertising experienced a notable 34.2% increase, with sales rising by 43% compared to the previous year (Chiu, 2005). The reach of DTC advertising expanded further, growing from $2.3 billion in 2000 to an estimated $7.5 billion by 2005 (Parker, 2003). These trends indicate that advertisements may have influenced individuals who previously did not need the medication to view their conditions as more severe, encouraging them to seek treatment.

If DTC advertising solely encouraged specific patients to seek medical consultations more frequently, its detrimental impact would be open to debate. The more substantial and consequential concern pertaining to DTC advertising revolves around the potential health risks associated with new drugs. Novel medications lack a time-tested track record; their long-term consequences remain unknown. Consequently, numerous patients who could be equally well treated with more economical, established drugs run the risk of compromising their health when opting for newer medications (Elliott, 2004).

According to a report in the Journal of the American Medical Association (JAMA), there has been a significant increase in the budgets dedicated to DTC prescription drug marketing. This increase has been remarkable, soaring from $1.3 billion in 1997 to well over $6 billion in 2016, marking a staggering 361% rise (Schwartz, 2019). Pharmaceutical companies opt for DTC advertising because it leads to a notable uptick in drug sales volume. According to a House Commerce Committee investigation in 2008, for every $1,000 spent on prescription drug advertisements, the industry gained 24 new patients. Furthermore, a research report from 2003 revealed that drugs with advertisements enjoyed nearly seven times higher prescription rates compared to those without such promotions (Kaiser family foundation, 2003).

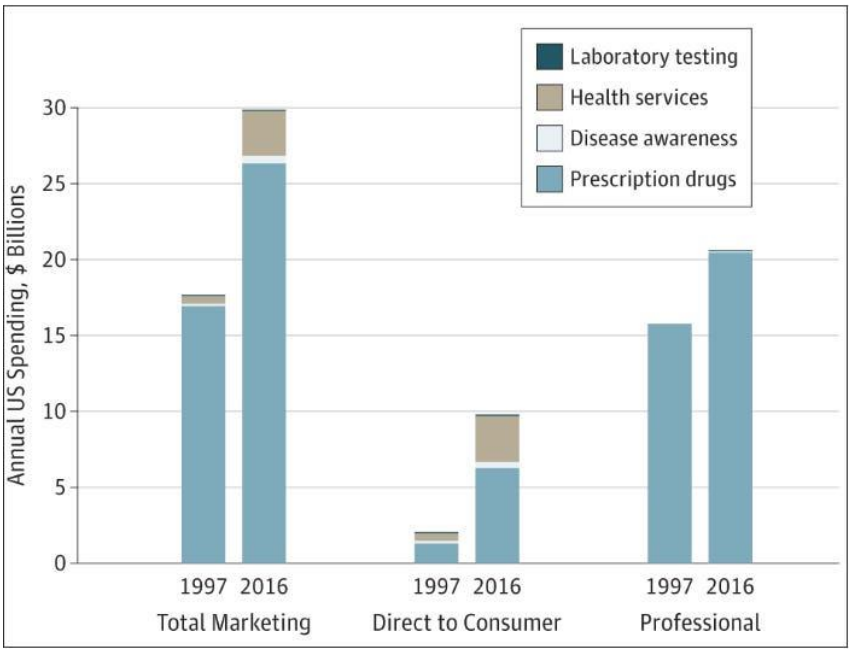

Figure 4: Marketing budgets allocated by pharmaceutical companies, from Schwartz and Global healthcare outlook (2019)

In the years following 2016, the trend of substantial investment in DTC advertising has persisted, reflecting an increasingly digital and consumer-oriented healthcare marketplace. Recent studies highlight the nuanced outcomes of this advertising form, noting both its potential to enhance patient awareness and its implications for healthcare spending and prescription practices.

A significant study published in 2020 by the JAMA Network explored the association between pharmaceutical promotional spending and the clinical benefit of advertised drugs. The study found that a larger proportion of promotional budgets allocated to DTC advertising often correlated with drugs that were rated as having lower clinical benefits (JAMA Network, 2020). This finding underscores the critical need for healthcare consumers and providers to critically assess the clinical value of heavily advertised pharmaceutical products. Moreover, a systematic review in 2020 by BMJ Quality & Safety sought to balance the discourse on DTC advertising by examining its benefits and harms. The review highlighted that while DTC advertising can increase patient engagement and awareness, it also raises concerns regarding inappropriate medication use and increased healthcare costs (BMJ Quality & Safety, 2020).

Additionally, research published by Springer in 2020 delved into the impact of DTC advertising on patient care. This study emphasized how DTC campaigns can influence patient behaviours, including prompting discussions with healthcare providers about

advertised drugs. However, it also warned of the potential risks associated with DTC advertising, including the possibility of overdiagnosis and overtreatment, stressing the importance of informed dialogue between patients and HCPs (Springer, 2020).

In the realm of pharmaceutical marketing, DTC advertising remains a highly debated topic, primarily due to its potential implications on public health, prescription habits, and healthcare costs. These restrictions are often rooted in concerns over the potential for DTC advertising to mislead patients, promote unnecessary medication use, and ultimately compromise patient safety and well-being. The ethical concerns surrounding DTC advertising are multifaceted. They include worries about the over-medicalization of society, the promotion of drugs over lifestyle changes or preventive measures, and the undue influence on patient-doctor relationships. Critics argue that DTC advertising can lead to inappropriate self-diagnosis, increased pressure on healthcare providers to prescribe advertised medications, and a shift in healthcare priorities towards profit over patient care (Frosch, 2003; Donohue, 2007; Hudson 2007).

In countries where DTC advertising of pharmaceutical products is forbidden, pharmaceutical companies are increasingly turning to patient advocacy groups to raise awareness about certain medical conditions, thereby indirectly promoting their medications in those therapeutic areas. This trend has seen a notable rise in recent years, with pharmaceutical companies engaging in strategic partnerships and collaborations with patient advocacy groups to amplify the discourse surrounding specific diseases or medical conditions.

Research indicates a significant increase in the number of patient advocacy groups across various medical domains. For instance, a study by Smith found a 25% increase in patient advocacy groups focused on chronic conditions over the past decade (Smith, 2018). Similarly, Jones reported a doubling in the number of patient advocacy groups dedicated to rare diseases in the last five years (Jones, 2019). These statistics underscore the growing influence and prevalence of patient advocacy groups as key stakeholders in healthcare advocacy and policymaking.

Pharmaceutical companies leverage these partnerships to gain access to patient networks, enhance disease awareness campaigns, and shape public perceptions about specific health issues. By aligning their marketing efforts with the advocacy agendas of patient groups, pharmaceutical companies aim to position themselves as

supporters of patient communities while indirectly promoting their products as viable treatment options. However, this collaborative approach has raised ethical concerns regarding transparency, potential conflicts of interest, and the commodification of patient experiences. Critics argue that such partnerships may blur the lines between advocacy and marketing, potentially compromising the independence and credibility of patient advocacy groups.

2.2.3. The digital marketing revolution

The healthcare industry has seen a dramatic shift towards digital marketing, with leading companies increasingly relying on digital content to establish and maintain dominance in the online space. This moves away from just blogging to employing a variety of digital marketing strategies marks a significant evolution in healthcare content marketing, aiming to achieve tangible results and greatly improve interactions between hospitals, patients, and physicians. Today, digital materials, including online brochures, blogs, health apps and social media posts, are crucial in creating positive perceptions of healthcare brands. To maximize the impact of marketing investments and secure a higher return on investment, medical organizations are encouraged to embrace innovative digital marketing techniques. These methods not only help in accurately presenting service offerings to consumers but also rejuvenate marketing efforts with fresh health marketing concepts (Purcarea, 2019).

As we delve into the digital strategies employed, it's essential to recognize the historical context that frames the current state of digital marketing in healthcare. Mackert (2016) explained since the advent of the internet, there has been a gradual shift towards online platforms for marketing, with the early 2000s marking a significant period of transition from traditional to digital marketing approaches. Later he added that this shift was driven by the growing realization of the digital medium's potential to reach a wider audience more effectively and at a lower cost than conventional methods (Mackert, 2018).

Navigating the digital marketing involves acknowledging the complex regulatory environment that varies by country, especially concerning the promotion of pharmaceutical products on social media (Antheunis, 2013). Such regulations aim to protect healthcare decisions from being unduly influenced by pharmaceutical advertising, ensuring a fair competition among companies regardless of their financial

capacity. Moreover, as social media is considered DTC platform it is why this practice is forbidden in majority of countries.

For digital marketing to succeed, it is critical to have a deep understanding of the audience, create messages that engage them, and choose the right digital platforms for these communications (Moorhead, 2013). As more individuals seek medical information and services online, it is becoming increasingly vital to align marketing strategies with the quality and perception of healthcare services. (Purcarea, 2019).

Digital marketing offers the unique advantage of being thoroughly measurable, allowing healthcare organizations to identify successful strategies and make data-driven improvements continuously. By adopting digital marketing approaches, the healthcare industry can significantly boost patient engagement, achieve a competitive edge, enhance visibility, build a strong reputation, understand consumer needs and expectations, and ensure patients have positive experiences. Ultimately, these strategies contribute to establishing a powerful and dominant presence in the health services market (Purcarea, 2019).

Recent studies underscore the significance of digital marketing in healthcare, revealing its potential to revolutionize patient care and organizational growth. Nnaekwe (2024) investigated the impact of information and communication technology on marketing medical and healthcare products in Nigeria, highlighting digital marketing's role in improving the supply chain and accessibility of healthcare products. This study reflects the broader implications of digital strategies in enhancing the efficiency of healthcare delivery across different regions.

Furthermore, the integration of Artificial Intelligence (AI) in digital marketing presents new avenues for personalizing patient care and optimizing marketing efforts. Hotmangatur (2024) explored the role of AI in enhancing patient satisfaction through targeted marketing strategies, emphasizing AI's transformative potential in the healthcare sector. The application of AI technologies in digital health marketing not only streamlines patient engagement but also offers insights into consumer needs and expectations, paving the way for more effective healthcare solutions.

In an age where environmental issues are a major focus, the transition to digital marketing tools signifies a broader commitment to sustainability. By minimizing the use of printed materials, pharmaceutical companies can greatly reduce their carbon

footprint, aligning with the environmentally conscious values of today's consumers. This focus on sustainability not only improves a company's brand image but also showcases its commitment to corporate social responsibility, which is becoming increasingly important to both consumers and stakeholders (Ma, 2023; Herraez, 2020).

The table 3 created offers a detailed overview of various digital marketing strategies in the healthcare industry, highlighting their descriptions and commercial impacts to enhance engagement, understanding, and brand loyalty. It complements my literature review by illustrating the practical applications of these strategies and their potential to revolutionize patient care and organizational growth through innovative digital techniques.

Strategy	Description	Commercial Impact Reason
Digital Brochures and E-books	Interactive digital publications that provide in-depth information on drugs, treatments, and healthcare tips.	**Enhanced Engagement**: Engages readers more deeply than static content, making it easier to explain complex information in an accessible way. Interactive elements can increase time spent with the material, improving recall and brand association.
Interactive Websites	Websites that offer engaging user experiences, such as symptom checkers, treatment planners, or educational games.	**Increased Website Stickiness**: Encourages visitors to spend more time on the website, increasing the likelihood of converting interest into action, whether that's contacting a healthcare provider, signing up for more information, or making a purchase.
Virtual Reality (VR) Experiences	Engaging simulations that depict scenarios connected to the pharmaceutical company's offerings, such as illustrating how a drug works or showing the effects of a particular disease.	**Deepened Understanding**: Provides an immersive learning experience, making complex medical conditions and treatments easier to understand for both HCPs and patients.
Augmented Reality (AR) Applications	Applications that overlay digital information on the real world, such as demonstrating how a medication interacts with the body.	**Interactive Learning**: Enhances the educational value of promotional material by making it interactive and engaging, thereby improving message retention.
Webinars and Virtual Conferences	Online events that discuss various health topics, showcase product launches, or provide continuing medical education.	**Broadened Reach**: Allows the company to connect with a worldwide audience, including HCPs unable to attend physical events, thereby enhancing brand recognition and credibility.
Online Communities and Forums	Platforms where patients, caregivers, and HCPs can share experiences, discuss treatments, and support each other.	**Community Building**: Creates a sense of community and loyalty around the brand, while providing valuable insights into patient needs and preferences.
Video Marketing	Utilizing video content to explain complex medical information, patient testimonials, or behind-the-scenes looks at the pharmaceutical industry.	**Increased Accessibility**: Makes information more accessible and digestible for a wider audience, improving brand perception and information recall.
Email Newsletters	Regularly distributed emails that contain valuable content such as healthcare tips, new research findings, and company updates.	**Personalized Communication**: Keeps the company top-of-mind with personalized content that caters to the interests and needs of the audience, enhancing customer loyalty.

Mobile Apps	Apps designed to provide health tracking, medication reminders, or educational content directly to users' smartphones.	**Convenient Access**: Offers a direct line to consumers and HCPs, providing valuable services or information right at their fingertips, which can improve patient outcomes and brand loyalty.

Table 3: Overview of digital engagement strategies for pharmaceutical companies (own work)

As pharmaceutical companies navigate the digital transformation, the integration of digital tools into marketing strategies presents a unique opportunity to enhance sales, improve patient care, and contribute to a more sustainable future. The strategic use of digital platforms not only meets the evolving expectations of eco-conscious and digitally savvy consumers but also positions brands as leaders in innovation and patient engagement. In this way, digital marketing in the pharmaceutical sector is not just a trend but a fundamental shift towards more responsible, effective, and patient-centric practices.

2.3. Sales Strategies in Pharmaceutical Commercialization

The pharmaceutical industry, characterized by its competitive nature and stringent regulatory environment, necessitates strategic sales approaches for the successful commercialization of products. The evolution from traditional to innovative sales strategies in pharmaceuticals, delves into psychological sales tactics leveraging principles of influence, and examines effective product presentation techniques for engaging HCPs.

The field of pharmaceutical sales has undergone significant transformation. Traditionally, sales strategies heavily relied on face-to-face interactions, where sales representatives met with HCPs to discuss new products, provide samples, and deliver product literature. Komor (2023) explained while these methods remain integral, the digital revolution has introduced innovative strategies, leveraging technology to enhance reach and efficiency. Innovative strategies include digital detailing, virtual conferences, and utilizing customer relationship management (CRM) systems for personalized communication.

The psychological aspects involved in sales tactics are essential to the effectiveness of pharmaceutical sales. By applying key principles of influence such as reciprocity, commitment, social proof, scarcity, and authority, sales efforts can become markedly more effective. For example, the principle of reciprocity can be employed by providing

HCPs with useful information or services. This creates a sense of indebtedness, making them more likely to engage with or consider the pharmaceutical product in return. Likewise, demonstrating endorsements from respected figures or institutions utilizes the principle of authority, enhancing the product's credibility and appeal (Cialdini, 2007; Khan, 2023).

Engaging HCPs and aligning product benefits with patient outcomes are paramount in effective product presentation. Techniques include storytelling, which can make data more relatable and memorable, and utilizing visual aids to succinctly convey complex information. Tailoring the presentation to the specific needs and interests of HCPs, such as focusing on efficacy, safety, or patient quality of life, can make the message more relevant and compelling.

With the ongoing evolution of the pharmaceutical industry, sales strategies need to adjust to stay effective. Combining traditional sales methods with innovative approaches and understanding the psychological underpinnings of influence can enhance the engagement of HCPs. Moreover, effective product presentation and the strategic use of technology can ensure that sales strategies not only reach their intended audience but also resonate with them, ultimately supporting the successful commercialization of pharmaceutical products.

2.3.1. Sales representative, a key role

The core role of sales representatives in pharmaceutical sales strategies is invaluable. The interaction between sales representatives and physicians is crucial, primarily aimed at educating and improving the use of medicines, a responsibility that falls squarely on the shoulders of the sales representatives. Gilbody (2004) stressed that direct interaction offers a significant advantage over indirect sources like magazines, journals, and websites by providing convenient access to drug information, a benefit that cannot be overstated . On the other hand later Leonardo (2018) mentioned that they present an efficient solution for busy physicians by eliminating the need to navigate through extensive literature, as drug research evidence is succinctly delivered during personal meetings. This method not only facilitates easier retention of critical drug information but also serves as an effective mechanism for disseminating information, particularly for newly introduced medications.

Engaging within a professional framework allows physicians to receive more accurate and equitable information, potentially enhancing their prescribing practices. Despite the prevalence of conflicts of interest in these interactions, regular engagements with pharmaceutical representatives have become a staple in the daily routine of many physicians (Greenway, 2017). Sales representatives often visit physicians' offices, offering not just drug information but also free lunches and gifts, positioning themselves as trusted allies rather than mere corporate salespeople. They familiarize themselves with physicians' personal interests, engaging in discussions on various "interesting" topics, thereby naturally weaving in mentions of drugs in a seamless and judicious manner (Kravitz, 2005).

From another angle, the gestures of sales representatives, including small gifts and free lunches, are seen as acts of kindness and friendship, not as unethical incentives. The provision of free drug samples stands out as particularly ethically sound, aligning with patient interests (Greenway, 2017). Handland (2018) added through strategically chosen conversation topics and thoughtful gifts, sales representatives forge a bond with physicians, creating a sense of obligation that encourages prescription decisions in response to this perceived friendship.

Another widespread tactic involves identifying and engaging KOLs within the medical field. The pharmaceutical industry, as per the Open Payments Data of the Physician Payments Sunshine Act, has been known to make significant financial contributions to physicians for speaking and consulting fees, totalling over $9.35 billion to approximately 627,000 physicians in 2018 alone (Handland, 2018). According to Kolodny (2015), these financial incentives, coupled with psychological strategies employed by sales personnel, play a critical role in influencing physician behaviour. The allure of being acknowledged for one's knowledge and expertise, along with the lucrative payments for participation in "Lunch and Learn" sessions and other speaking engagements, cultivates a strong sense of respect and value among physicians, making such invitations difficult to decline. However, Mirkin (2012) suggests that strategic engagement with KOLs, while ostensibly for educational purposes, often serves the marketing objectives of pharmaceutical companies, with scientific evidence tailored to support commercial rather than patient interests. Bowen (2018) suggest that KOLs who are typically high prescribers, are convinced of their own lectures, employing techniques learned from pharmaceutical companies to be more persuasive.

Recently, the role of sales representatives in the pharmaceutical industry has undergone a significant transformation, with a significant emphasis on leveraging technology to enhance sales strategies. Sales representatives are now increasingly reliant on sophisticated tools like CRM systems. These systems enable a more personalized and efficient approach to physician engagement, allowing for the tracking of interactions, preferences, and potential needs of healthcare providers. CRM platforms have become instrumental in allowing sales representatives to tailor their communication and follow-up strategies, guaranteeing that the appropriate message reaches the right physician at the most effective time.

The integration of digital tools, particularly in the post-COVID-19period, has further revolutionized the approach of sales representatives. Virtual detailing and digital platforms have emerged as vital components of the sales strategy, offering continuity in physician engagement amidst restrictions on face-to-face interactions. The accelerated adoption of virtual platforms by pharmaceutical sales teams, noting that digital interactions have not only maintained but, in some instances, enhanced the quality of engagements with HCPs. This shift is reinforced by insights from Hoffman, who emphasized the significance of virtual academic detailing (e-Detailing) as a significant tool during the COVID-19 pandemic, leveraging video-based telehealth to maintain engagement with healthcare providers despite physical distancing restrictions (Hoffman, 2020).

Likewise, Altuntas (2023) illustrated the lasting impact of remote detailing in the pharmaceutical industry through the use of Sales Force Automation (SFA) to improve CRM capabilities and support continuing medical education. These changes reflect the evolving pharma-marketing trends in the post-COVID-19 era, as analysed by Khan (2021), indicate a move towards digital marketing, e-detailing customer relationship management, among others, supporting the necessity for pharmaceutical sales strategies to adapt and innovate in response to the pandemic . Moreover, the examination of telehealth transformation during COVID-19 by Wosik (2020) reveals the rise of virtual care as a key shift in healthcare delivery, underscoring the accelerated adoption of digital platforms and virtual detailing as essential for continuity in physician engagement.

Another strategic advancement in the domain of pharmaceutical sales is the implementation of the coding system. This system categorizes physicians based on their prescribing volume and potential for new product adoption. "A" physicians are high-volume prescribers with significant influence within their networks, making them prime targets for detailed discussions about new medications. Conversely, "D" physicians might have lower prescribing volumes or be less accessible, guiding sales reps to allocate their time and resources more effectively. The efficacy of this stratification, demonstrating that targeted engagement with "A" and "B" category physicians can lead to a more significant impact on prescription behaviours, thereby optimizing sales efforts and resource allocation (Galvez-Torres, 2020).

These technological advancements, coupled with strategic practices like the ABCD coding system, signify a paradigm shift in pharmaceutical sales strategies. Sales representatives are no longer just information providers but are strategic partners equipped with data-driven insights and tools designed to foster meaningful, productive relationships with HCPs.

2.3.2. Sales tactics

Research across various studies has delved into the myriads of factors influencing physician prescription behaviour due to sales tactics, revealing a complex interplay between direct marketing techniques, physician-salesperson relationships, and broader economic and policy considerations. Several authors contributed to a body of evidence that underscores the multifaceted nature of prescription decision-making, where direct interactions between physicians and sales representatives, patient feedback, promotional materials, and the overarching healthcare market environment play important roles (Raich, 1990; Gallan, 2005; Singh, 2008; Kyle et al., 2008; Stros et al., 2015; Alqahtani, 2024; Kurz, 2024).

Author	Purpose of Study	Strategies Used	Key Findings
Raisch, 1990	To create a model for the various methods used to impact prescribing behaviours.	Direct approaches, practice factors, indirect methods, internal processing, psychosocial factors, patient, diagnosis.	Two main categories were identified: direct and indirect approaches influencing prescribing. Patients were also noted as a source of influence in the decision-making process.
Gallan, 2005	To develop a conceptual framework by reviewing the factors that affect prescribing.	Marketing sources: detailing, gifts, samples, promotional items; non-marketing sources: economic factors.	Several key influences on physician prescribing were highlighted, such as peer pressure, financial considerations, pharmaceutical reps, drug samples, and consumer advertising.
Singh, 2008	To propose a model focusing on the network connections between physicians and salespeople.	Relationship strength, promotional activities, new drug launches, cooperative efforts, controlling and moderating variables.	The study found that despite various promotional strategies, including detailing and relationship building, influencing physician prescription patterns remains challenging.
Kyle et al., 2008	To create a qualitative model illustrating how commercial influences interact.	Direct marketing influence: reps, conferences, gifts; indirect influence: journal ads, pharmacists, consumers.	The study revealed that many influences on prescribing are indirect and not always linked to traditional pharmaceutical promotion methods.
Stros et al., 2015	To review literature on pharmaceutical marketing and propose a conceptual model.	Marketing categories: product, price, promotion, distribution policies; control variables: market environment.	The research identified promotion policy as the most impactful factor on prescribing, followed by pricing strategies, with product design being of lesser importance.
Alqahtani et al., 2024	To explore the factors influencing healthcare professionals' intentions toward biosimilars.	Theory of planned behaviour: attitudes, subjective norms.	The study found that intentions to prescribe biosimilars are shaped by attitudes, subjective norms, and perceived control, providing a framework for understanding biosimilar adoption.
Kurz et al., 2024	To examine how physician networks affect prescribing decisions.	Physician networks, peer influence.	The findings suggested that physician networks play a critical role in shaping prescribing behaviours', with peer influence being a significant factor in these decisions.

Table 4: Summary of prescribing models adapted from Murshid, 2017

Sales tactics to get prescriptions are fundamental as viewed in several literatures we have several key factors who can influence it. The model crafted by Murshid in 2017 presents an intricate view of the factors influencing physicians' prescription decisions.

It melds insights from various theoretical perspectives, these trends incorporate frameworks like the Theory of Persuasion, Agency Theory, the Theory of Planned Behaviour, and Social Power Theory. The model focuses on the interplay between marketing strategies, patient attributes, and pharmacist influences, all of which affect a physician's decision to prescribe specific medications. Marketing variables, like drug information and sales, patient-driven elements like drug requests and expectations, and pharmacist's influence through expertise and physician collaboration, are all integral parts of the decision-making process. The model also incorporates drug-specific details and economic assessments, alongside the physician's own prescribing habits and tendencies. Trustworthiness emerges from Social Power Theory as a key element, underlining its role in shaping the physician's prescription behaviour (Murshid, 2017).

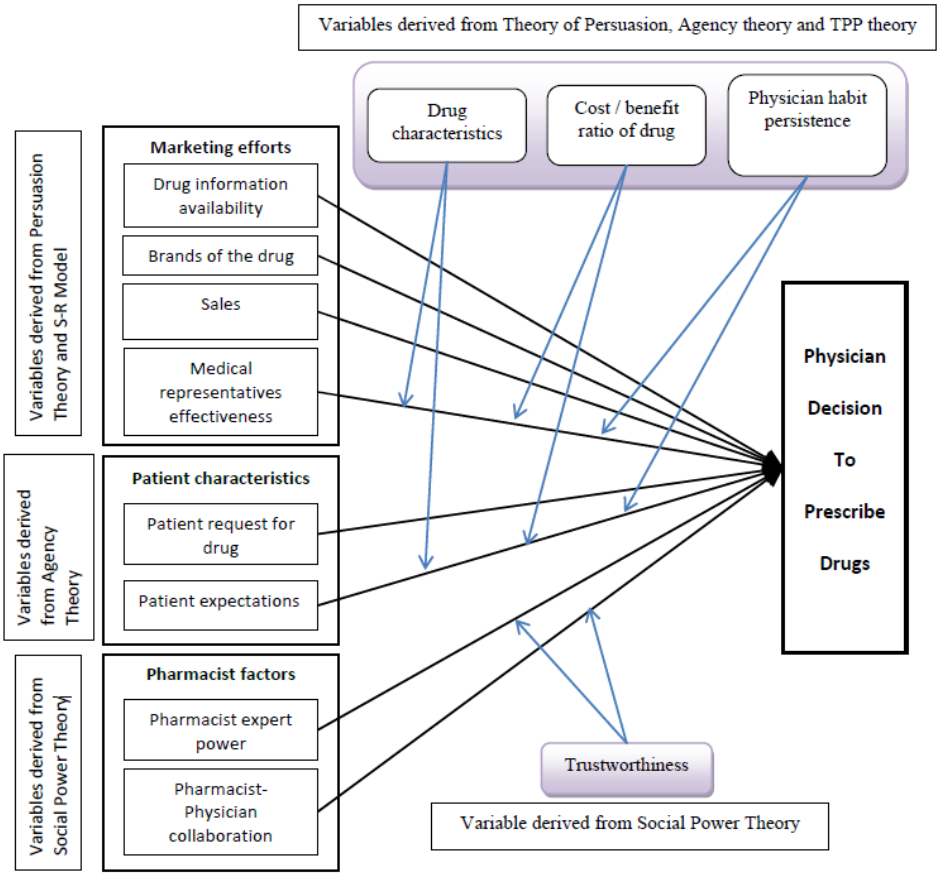

Figure 5: Proposed prescription models by Murshid 2017

2.3.2.1. Psychological strategies

The relationship between personality types and sales tactics has garnered attention in various fields, including the pharmaceutical industry. The concept of the four temperaments sanguine, choleric, melancholic, and phlegmatic, dates back to ancient theories of medicine. Initially associated with Hippocrates and later elaborated by Galen, this framework posits that our behavioural tendencies and emotional reactions are shaped by inherent biological factors. Nowadays, this idea provides a useful tool for customizing sales approaches. Specifically, it underscores the importance of recognizing a client's, such as a doctor's, primary temperament to improve sales dialogue effectiveness (Merenda, 1987).

In pharmaceutical sales and marketing, mastering the art of communication with doctors is necessary. A strategic method involves classifying doctors using the "four temperaments" or "four personality colours" framework. This model aids sales professionals in adjusting their communication styles to better align with the distinct personality types of individual doctors, enhancing engagement and response (Riemann, 2008).

This strategic adaptation underscores the importance of aligning communication tactics with the identified personality traits of medical doctors, aiming to enhance engagement and effectiveness in product presentations and discussions. However, there is a significant gap in the literature concerning direct strategies for effectively engaging medical doctors according to their personality types. Drawing from a broad overview and my professional experience, I've developed a method to effectively encompass the diverse profiles of doctor personalities. This lack of specific literature underscores the innovative nature of the approach, though it also points to the necessity for further research and validation in this area.

Red (Choleric) Doctors:

Traits: Red personality types are often characterized as assertive, ambitious, and driven. They exhibit strong leadership skills, confidence in decision-making and a penchant for taking charge of situations. In the medical context, Red doctors are likely to prioritize efficiency, assertiveness, and directness.

Effective Approach: When engaging with Red doctors, sales professionals should mirror their confidence and decisiveness. This means being goal-oriented, presenting

information concisely, and emphasizing the tangible benefits of the pharmaceutical product. A proactive, results-driven attitude, coupled with clear explanations of how the product can address specific medical challenges, is likely to resonate well with Red doctors.

Yellow (Sanguine) Doctors:

Traits: Yellow personality types are inherently social, outgoing, and enthusiastic. They thrive in social interactions, radiate positivity, and approach life with optimism. Doctors with a Yellow personality excel in building rapport with patients, effectively communicating complex medical information, and creating a warm and inviting clinical atmosphere.

Effective Approach: Sales representatives interacting with yellow doctors should be outgoing, enthusiastic, and approachable. Engaging in friendly conversations, showing genuine interest in the doctor's insights and experiences, and leveraging storytelling to illustrate the product's positive impact on patients can capture the attention and trust of yellow doctors.

Green (Phlegmatic) Doctors:

Traits: The Green personality is marked by qualities such as empathy, patience, and a calm demeanour. Those with a Green personality excel as empathetic listeners, tend to foster harmony, and actively work to maintain peaceful environments. In a medical context, green doctors are likely to prioritize patient care, demonstrating compassion, and creating a supportive and comforting healthcare environment.

Effective Approach: When engaging with green doctors, sales representatives should adopt a calm and patient demeanour. Active listening, demonstrating an understanding of the doctor's concerns and priorities, and emphasizing how the pharmaceutical product contributes to overall patient well-being are essential. Salespeople should focus on how the product can positively impact patients' lives, aligning with green doctors' empathetic and patient-centred mindset.

Blue (Melancholic) Doctors:

Traits: Individuals with a blue personality type are typically analytical, meticulous, and conscientious, valuing precision and thoroughness in their tasks. In the medical

domain, blue doctors are meticulous in diagnosing and treating patients, paying meticulous attention to details, and striving for precision in medical decision-making.

Effective Approach: Sales professionals interacting with blue doctors should showcase a comprehensive understanding of the product's specifications and clinical data. Providing in-depth information, addressing potential questions proactively, and demonstrating how the pharmaceutical product aligns with established medical protocols can strongly resonate with blue doctors' analytical and detail-focused mindset.

Personality Type	Traits	Effective Approach
Red (Choleric)	- Assertive - Ambitious - Driven	- Mirror confidence and decisiveness - Be goal-oriented - Present information concisely - Emphasize tangible benefits of the product - Adopt a proactive, results-driven attitude
Yellow (Sanguine)	- Social - Outgoing - Enthusiastic	- Be outgoing, enthusiastic, and approachable - Engage in friendly conversations - Show genuine interest - Leverage storytelling to illustrate product impact
Green (Phlegmatic)	- Empathetic - Patient - Calm	- Adopt a calm and patient demeanour - Actively listen - Demonstrate understanding - Emphasize patient well-being - Highlight positive impact on patients
Blue (Melancholic)	- Analytical - Detail-oriented - Conscientious	- Showcase comprehensive product knowledge - Provide in-depth information - Address potential questions proactively - Demonstrate alignment with established medical protocols

Table 5: Summary guide for sales representatives to adapt effective approach for each medical doctor's personality profile (adapted for my own work)

By comprehensively understanding and catering to the distinct personality traits of medical professionals according to the "four temperaments" or "four personality colours" model, pharmaceutical sales representatives can enhance their communication effectiveness and build stronger, more productive relationships with doctors across various personality types. This personalized approach not only improves rapport but also increases the likelihood of successful collaborations in the dynamic field of pharmaceutical sales and marketing.

2.3.2.2. Key questions to influence your negotiation

When negotiating with doctors, a deep understanding of their habits and preferences can significantly enhance your ability to influence and guide your negotiation

strategies. Asking the right questions during your conversations can provide invaluable insights and help you tailor your approach effectively (Miles, 2013). Due to the limited literature offering key questions for conversations between sales representatives and HCPs, I have leveraged various sales training experiences and my insights to develop specific questions designed to enhance the strategic sales of pharmaceutical products. This initiative aims to fill the gap in existing resources, providing a tailored approach to improve dialogue and engagement strategies in the pharmaceutical sales process.

Questions	Strategy behind
What patient challenges are you currently facing?	Understanding the specific challenges or unmet needs that doctors are encountering in their practice allows you to tailor your pitch to address those concerns directly.
How does your current treatment approach compare to our product?	By discussing the doctor's current treatment methods, you can position your product as a complementary or superior solution, highlighting its unique benefits and advantages.
Are you satisfied with the treatment outcomes you're seeing?	This question helps identify any gaps in the doctor's current approach and opens the door for you to present your product as a potential solution to improve patient outcomes.
Have you heard about the latest clinical studies in our field?	Bringing up recent clinical studies or research relevant to your product's effectiveness can enhance your credibility and provide evidence to support your claims.
How do you typically evaluate new treatment options?	Understanding the doctor's decision-making process allows you to align your presentation with their evaluation criteria and emphasize how your product meets their standards.
What features or benefits are most important to you in a treatment option?	Tailoring your pitch to highlight the specific features that resonate with the doctor's preferences ensures that you're focusing on aspects that matter most to them.
Have you had experience with similar products before?	Gaining insights into the doctor's past experiences with similar products helps you position your product as a unique and valuable addition to their toolkit.
How do you prefer to receive information about new medical innovations?	Understanding the doctor's preferred communication channels whether it's through in-person meetings, webinars, email, or other methods allows you to engage with them in the way that suits them best.
Can i share success stories or testimonials from other physicians?	Sharing real-world success stories or testimonials from other doctors who have benefited from your product can provide tangible evidence of its positive impact.
Are there any concerns or questions you have about our product?	Opening the door for doctors to express any reservations or questions they may have shown that you value their input and gives you the opportunity to address their concerns directly.

Table 6: Strategic questions for enhancing pharmaceutical sales conversations with HCPs (own work)

In addition to the key strategic questions, implementation of close and open questions would help sales representatives to enhance their conversation. The choice between open and closed questions depends on the depth of information that salespersons are seeking and the level of engagement they want to achieve (Friborg, 2013; Schuman, 1979).

Open questions encourage doctors to provide detailed and expansive responses, which can be particularly useful for gaining insights into their needs, preferences, and challenges (Friborg, 2013). These questions encourage a more in-depth conversation and allow doctors to express their thoughts and opinions freely, fostering a richer dialogue about their professional experiences and views.

Closed questions, on the other hand, are effective for obtaining specific, concise information and can be useful for clarifying details, confirming understanding, and guiding the conversation (Schuman, 1979). They are particularly valuable in situations where time is limited or when seeking to verify specific pieces of information."

In engaging with HCPs, employing precise questioning techniques, such as "Yes or No" questions, can significantly streamline conversations and enhance decision-making processes. This method aligns with strategies recommended by Ury, who underscores the importance of assertiveness in negotiations, allowing parties to efficiently establish their positions and seek mutual agreement (Ury, 2007). Similarly, Fisher in "Getting to Yes: Negotiating Agreement Without Giving In" emphasize the value of clear and direct communication in negotiations, suggesting that simple, focused questions can facilitate understanding and agreement by cutting through complexity and ambiguity. Moreover, negotiation strategies often emphasize getting to "yes" to seal deals and resolve conflicts, he underscores this approach, focusing on principled negotiation. This approach promotes distinguishing between people and the problem, prioritizing interests over positions, exploring multiple options before making decisions, and ensuring that the agreement's outcome is grounded in an objective standard (Fisher, 2011).

Conversely, some negotiation experts suggest that starting with "no" can actually be more beneficial than aiming for a quick "yes". Voss in “Never Split the Difference: Negotiating As If Your Life Depended On It” argue that "no" provides an opportunity to understand the other party's real fears and objections. By addressing these concerns, negotiators can build trust and find solutions that are genuinely satisfactory to all (Voss, 2016). The use of "Yes or No" questions, as supported by these references, is not just a technique for efficient communication but a strategic tool that reflects a deeper understanding of negotiation dynamics and the psychology of decision-making.

In the absence of direct guidance from the existing literature on effective questioning strategies for pharmaceutical sales representatives engaging with HCPs, I developed a table of examples. This table serves as a practical resource to aid salespersons in their interactions. It showcases a selection of both open and closed questions, each accompanied by a strategy for its use and the potential benefits it brings to the conversation. The aim is to provide sales representatives with concrete examples that can help tailor their approach to better meet the needs and preferences of HCPs. Through this tailored approach, the table facilitates more meaningful and productive discussions, ultimately supporting the strategic commercialization of pharmaceutical products. This initiative represents a pioneering effort to bridge a gap in the literature by providing actionable insights based on both theoretical foundations and practical experience in the field

Open questions	Closed questions
1. What patient challenges are you currently facing?	**1. Have you heard about the latest clinical studies in our field?**
Strategy: use this open question early to gain a comprehensive understanding of their challenges and needs. Benefit: gain insights into specific areas where your product can provide value and address their concerns.	Strategy: use this question to introduce a specific topic and gauge their awareness of recent research. Benefit: confirm their knowledge level and tailor your discussion to their familiarity with the subject.
2. How does your current treatment approach compare to our product?	**2. Do you have specific criteria you use when evaluating new treatment options?**
Strategy: pose this question to explore their existing strategies and create an opportunity to highlight your product's unique features. Benefit: understand their current methods and present your product as a valuable addition or alternative.	Strategy: ask this question to understand their decision-making process and criteria. Benefit: gather information on their evaluation factors and tailor your presentation accordingly.
3. Are you satisfied with the treatment outcomes you're seeing?	**3. Can I share success stories or testimonials from other physicians?**
Strategy: employ this question to uncover any dissatisfaction and open the door for discussing potential improvements. Benefit: identify areas where your product can make a positive impact and enhance patient outcomes.	Strategy: use this question to seek permission before sharing relevant examples. Benefit: offer tangible evidence of your product's benefits and engage them with relatable stories.

Table 7: Effective questioning techniques for pharmaceutical sales: a guide to open and closed questions (own work)

Finding the optimal balance between open and closed questions is imperative for effective communication. Initiating the dialogue with open-ended inquiries is a strategic move to build a connection and gather broad insights. As the interaction advances, integrating closed questions becomes essential for clarifying specifics, verifying mutual comprehension, and steering the discussion towards targeted areas of focus.

2.3.2.3. Successful negotiations tools

Negotiation is a foundational element of success in the pharmaceutical industry, playing a crucial role in securing critical agreements, partnerships, and favourable outcomes. When engaging in negotiations with medical professionals, particularly doctors, it's essential to employ a well-rounded approach that goes beyond a mere enumeration of strategies.

One of this approach is mirroring techniques. Mirroring is a powerful psychological technique that involves subtly mimicking the behaviour, speech patterns, and body language of the person you're communicating with. This approach can foster a sense of rapport and connection, helping the other person feel more at ease and understood (Mehrabian, 1971). Based on literature finding of the mirroring techniques I adopted in the use with interaction of HCPs.

- **Tone and Pace of Speech:** Pay attention to the doctor's tone, pace, and rhythm of speech. Try to match it without appearing obvious or forced. This helps create a sense of familiarity and resonance.
- **Body Language:** Observe the doctor's body language, gestures, and posture. Reflect these in a subtle manner. If they lean forward, you can lean forward as well. If they use certain hand gestures, you can use similar ones during the conversation.
- **Keywords and Phrases:** Listen closely to the words and phrases the doctor uses. Incorporate these terms naturally into your responses. This demonstrates active listening and alignment with their communication style.
- **Emotional Tone:** Reflect the doctor's emotional tone. If they express enthusiasm or concern, mirror these emotions to show empathy and understanding.

- **Content and Topics:** Follow the doctor's lead in terms of topics of interest. If they mention specific medical conditions or treatment approaches, engage in those discussions and show your knowledge in those areas.

Effective negotiation is essential in the pharmaceutical industry to secure agreements, partnerships, and successful outcomes. Combining mirroring techniques with effective negotiation strategies can lead to more productive and mutually beneficial conversations with doctors. These approaches enhance communication, build trust, and increase the likelihood of successful outcomes in the pharmaceutical industry (Moore, 2004; Cialdini, 2007). Effective communication and rapport-building rely on a multifaceted approach, crucial among which are active listening and empathy (Rogers, 1957; Goleman, 1995), enabling pharmaceutical professionals to fully grasp the concerns and perspectives of doctors. Tailored communication, clear messaging, and educational content are essential for delivering information effectively (Kotler, 2016). Building credibility through transparency and ethical practices lays the groundwork for trust and collaboration (Trevino, 2016), while long-term relationship-building, both in person and digitally, fosters trust and collaboration (Uzzi, 2005). Cultural sensitivity remains vital when working with diverse stakeholders (Hooker, 2003), reinforcing the importance of integrating these strategies for professionals to establish productive and enduring connections within the pharmaceutical industry.

The literature reveals a gap in specific strategies tailored for pharmaceutical sales professionals; most available publications focus on general sales tactics, leaving professionals to adapt these strategies to their unique sector. My overview aims to bridge this gap, providing insights that enable a clearer understanding and application of effective strategies to optimize the commercialization of pharmaceutical products.

Strategy	Description
Active Listening	Pay close attention to the doctor's words, tone, and emotions. Respond with empathy and paraphrase their statements.
Empathetic Communication	Express genuine empathy and understanding for the challenges and concerns the doctor may be facing.
Positive Framing	Present information and proposals in a positive light, focusing on benefits and opportunities.
Storytelling	Share relevant stories or case studies that illustrate the positive impact of your product on patients' lives.
Personalization	Tailor your communication to the doctor's individual preferences and needs. Use their name, refer to past interactions.
Questioning	Ask open-ended questions to encourage the doctor to share their thoughts and insights.

Empowerment	Give the doctor a sense of ownership and control by involving them in decision-making and problem-solving.
Value-Based Messaging	Focus on the unique value your product brings to the doctor's practice and patients. Highlight alignment with their goals.
Building Credibility	Share relevant credentials, industry awards, or affiliations to establish your credibility and expertise.
Using Analogies	Use relatable analogies to explain complex medical concepts or the mechanism of action of your product.
Mirroring Language Style	Adjust your language style to match the doctor's communication style. Use technical terms appropriately.
Consistency and Reliability	Demonstrate consistency in your interactions and communication. Be reliable in delivering promised information.
Positive Feedback Loop	Provide positive feedback and acknowledgment when the doctor shares insights or perspectives.
Building on Shared Interests	Identify shared interests or goals and incorporate them into the conversation.
Pausing and Silence	Use strategic pauses and moments of silence to give the doctor space to process information.
Adapting to Nonverbal Cues	Pay attention to the doctor's body language and nonverbal cues and adjust your approach accordingly.
Showing Gratitude	Express appreciation for the doctor's time and insights to reinforce a positive relationship.
Consensus Building	Emphasize points of agreement and shared objectives to create a sense of alignment.
Simplicity in Communication	Present complex information in a simple and clear manner to ensure understanding and engagement.
Transparency	Be transparent about the benefits and potential limitations of your product to build trust and credibility.

Table 8: Effective communication strategies for pharmaceutical sales representatives (own work)

In the dynamic field of pharmaceutical sales, the art of negotiation transcends mere transactional interactions, evolving into a nuanced dialogue that significantly impacts patient care and medical practice advancement. This dialogue is enriched by a tapestry of strategic communication techniques, each designed to foster understanding, build trust, and create mutually beneficial partnerships between sales professionals and medical practitioners. The table provided offers a comprehensive summary of these strategies, acting as a fundamental guide for sales professionals aiming to enhance their approach and maximize their commercial effectiveness.

The strategies delineated in the table are grounded in principles of active listening, empathetic communication, and the strategic presentation of information. These techniques aim to not only convey the value of pharmaceutical products but also to genuinely address and align with the needs and concerns of healthcare providers. From employing positive framing and storytelling to share the transformative potential of treatments, to personalizing communication and leveraging the power of analogies

to demystify complex concepts, each strategy is a pivotal component of a successful negotiation repertoire.

Moreover, the table underscores the importance of empowering doctors through collaborative problem-solving, establishing credibility through transparency, and fostering rapport through shared interests and values. It highlights the significance of adaptability adjusting communication styles, responding to nonverbal cues, and maintaining consistency and reliability to navigate the intricacies of professional interactions effectively.

By incorporating these strategies, sales professionals are better positioned to improve their negotiation results while also making a positive impact on the healthcare sector. The table provides a structured overview, inviting readers to delve into each strategy's nuances, thereby empowering them to tailor their approaches to meet the evolving scene of healthcare negotiations.

2.4. Building Relationships with HCPs

Establishing strong relationships with healthcare professionals is a key strategy. Interactions between physicians and the pharmaceutical industry, including the acceptance of gifts from sales representatives, have been shown to influence prescribing behaviour and may result in irrational prescribing of the company’s medications. Therefore, it is necessary to implement policies and provide education on the implications of these interactions (Fickweiler, 2017). In order to get this close relationships with HCPs, assessing salespersons' ability to identify customers' needs and deliver appropriate responses should be a key factor in revising performance evaluations (Blackshear, 1994). Sales representative seems key strategy for authors as they are the first contact of HCPs. By implementing motivational strategies, pharmaceutical firms can enhance their performance. The authors identified three essential dimensions of motivational strategy critical for achieving exceptional sales performance in the pharmaceutical industry: financial incentives, regular meetings with sales representatives, and involving them in the quota-setting process.

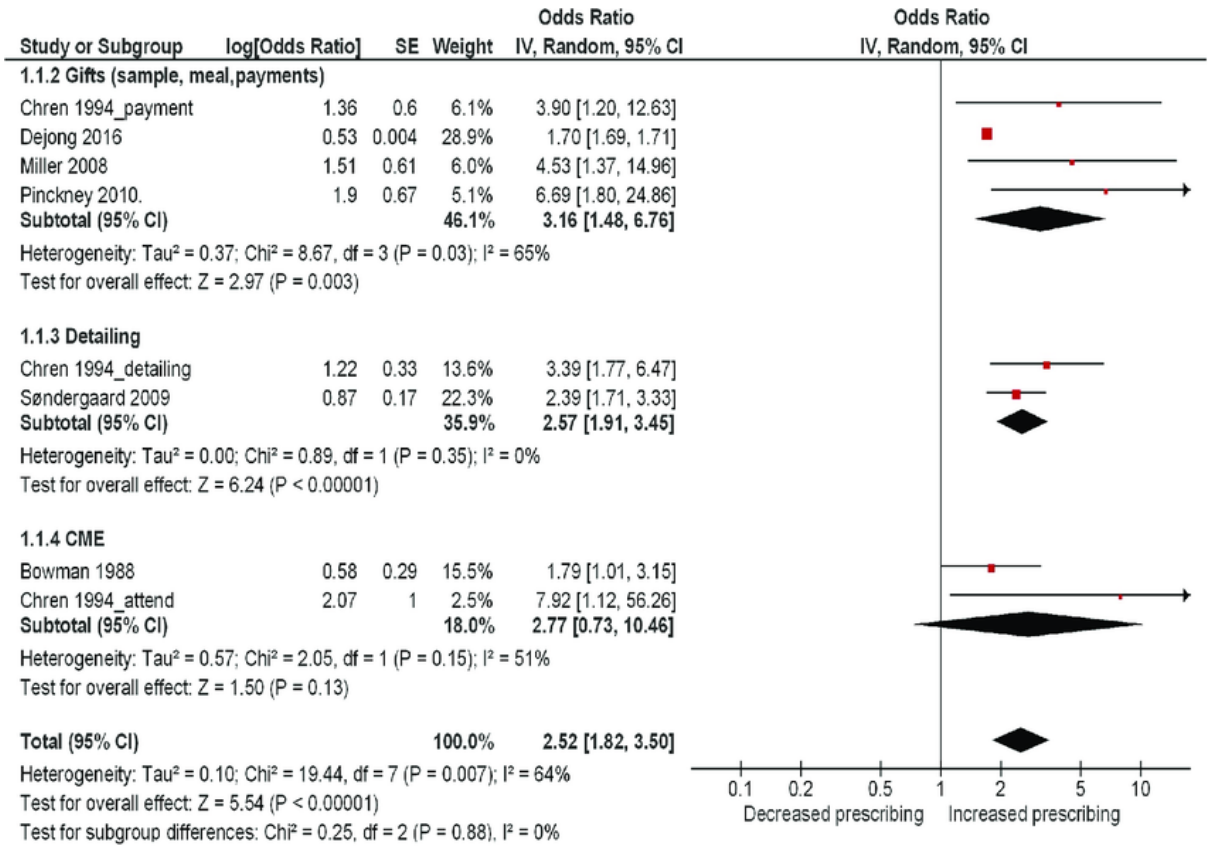

Figure 6 Forest plot for changes in physician prescribing behaviour stratified by type of exposure (Brax, 2017)

This forest plot from Brax (2017) provides a visual summary of a meta-analysis investigating the impact of pharmaceutical industry interactions on physicians' prescribing behaviours. The analysis aggregates results from different studies which are categorized by the type of interaction: gifts, detailing, and industry-funded CME. Each study reports an odds ratio (OR), a measure of association between exposure and effect, where an OR greater than 1 indicates an increased likelihood of higher prescribing rates associated with industry interactions.

The combined results of the studies indicate that when doctors have interactions with the pharmaceutical industry like receiving gifts, getting detailed product information, or attending sponsored educational events they're more than twice as likely to prescribe more drugs or prescribe in a less cost-effective or lower-quality manner. Specifically, the odds are 2.52 times higher, which is a notable increase. Different types of industry interactions were looked at, and all showed that they tend to lead to more prescriptions, though the impact varied depending on the type of interaction.

The plot indicates heterogeneity among the studies, which means there is variability in the results that cannot be attributed to chance alone. Despite this, the test for overall effect is significant, reinforcing the association between industry interactions and prescribing behaviours. However, the quality of the evidence was considered moderate due to potential bias and inconsistency. Sensitivity analysis, which excluded studies with a high risk of bias, did not significantly alter the results, demonstrating the robustness of the findings (Brax, 2017).

According to Jacob (2018) multiple studies have consistently shown that strategies such as giving gifts, incentives, and sponsoring medical events influence prescription patterns. Extensive evidence strongly suggests that drug promotion influences physician prescribing behavior, as demonstrated by numerous studies over the years. As promotional strategies extend beyond traditional medical representatives, the impact of pharmaceutical promotion has grown, raising ethical concerns in certain instances.

Shaarani's research investigated the attitudes and behaviours of physicians in Lebanon towards accepting promotional gifts from pharmaceutical companies and their engagement with company representatives. The cross-sectional study took place between December 2019 and January 2020, surveying 5936 physicians via an email-based questionnaire. Results showed that a significant majority (70.4%) of the 268 respondents admitted to accepting gifts. Common gifts included medication samples and stationary items. A notable 84.9% of respondents believed that such gifts influenced prescription behaviours, yet ethical concerns were mixed only 40.0% of gift-accepting physicians viewed the practice as unethical, additionally, many physicians were uncertain about the ethical guidelines outlined in the Lebanese Code of Medical Ethics concerning the acceptance of such gifts.

The results from the table 9 reflect a complex perspective among physicians regarding the role of pharmaceutical company gifts in their professional practices. The high mean scores suggest a strong consensus that gifts are primarily intended to influence prescription behaviours and that these promotional strategies are viewed critically by the medical community. Despite recognizing the influence of gifts on their peers, there is a notable discrepancy in physicians' self-assessment, with a lower average score indicating that fewer physicians admit to being personally influenced.

The data also reveal a significant acknowledgment among physicians that the sponsorship of CME programs by pharmaceutical companies is viewed sceptically, suggesting an understanding of the promotional motives behind such sponsorships. Additionally, the high mean scores related to the inappropriateness of accepting gifts and the need for public disclosure indicate a strong ethical stance and a demand for transparency in these interactions. The study underscores the pervasive influence of promotional gifts on prescription practices and highlights a need for clearer ethical guidelines in Lebanon (Shaarani, 2024).

Constructs	Mean±SD
Construct 1	
Pharmaceutical companies give gifts to physicians to influence their prescriptions	4.65±0.45
Construct 2	
Pharmaceutical companies give gifts to physicians as a form of professional recognition	3.36±0.37
Construct 3	
In general, most physicians are influenced in their prescription behaviour by the gifts they receive from pharmaceutical companies	4.12±0.65
Construct 4	
I am influenced in my prescription behaviour by the gifts I receive from pharmaceutical companies	2.43±0.20
Construct 5	
Pharmaceutical companies sponsor CME programmes as a promotional gimmick	4.65±0.56
Construct 6	
It is inappropriate to accept gifts from pharmaceutical companies	4.04±0.60
Construct 7	
The extent of the gift relationship between pharmaceutical companies and physicians should be made public	4.31±0.44

Table 9: Physicians' perspectives on receiving gifts from pharmaceutical companies from Shaarani, 2024

The pharmaceutical industry's promotional efforts have a subtle yet significant influence on physicians' prescribing behaviours. In 2002, drug companies allocated $15.63 billion to promotions, which included gifts like free office supplies, event sponsorships, and awards for doctors (Parker, 2003). Israel (2003) noted that this expenditure equated to each physician receiving between $8,000 and $13,000 in promotional materials annually. In a study by Orlowski and Wateska (1992) on prescription habits, while doctors claimed that attending fully paid seminars at "popular sunbelt vacation sites" did not affect their clinical judgment, the researchers observed a marked increase in the prescription of two specific drugs after these events, compared to the national average. This suggests that, despite physicians' perceptions, these promotional activities do have a subconscious impact on their prescribing patterns.

A 10-year investigation of internists across seven university hospitals, originally published in 1990 and referenced by Israel in 2003, showed that regular engagement with pharmaceutical sales representatives had a measurable effect on doctors' prescribing habits (Israel, 2003). Similarly, a 2001 study by Parker and Pettijohn confirmed this pattern, noting that physicians who had frequent contact with drug representatives were 13 times more likely to advocate for a specific medication to be added to an insurance provider's approved drug list (Parker, 2003). Recent research reinforces these findings. A systematic review conducted by Fabbri in 2020 examined the influence of pharmaceutical company information on the volume, quality, and cost of prescriptions, concluding that such exposure often resulted in more frequent prescribing, increased costs, or both (Fabbri, 2020).

Ideally, physicians aim to provide the best available care at an optimal cost. Despite these intentions, studies indicate that promotional activities influence their prescribing behaviour. When influenced subconsciously, physicians may prescribe a promoted drug that comes at a higher cost, even if more affordable alternatives are available, leading to higher treatment costs for patients. Nonetheless, patients theoretically still receive quality care.

A systematic review by Spurling (2010), which included 58 studies on drug promotion and its impact on prescribing behaviour. Studies have found that exposure to pharmaceutical industry promotions is linked to more frequent prescribing, higher prescription costs, and lower prescribing quality. Given the lack of demonstrated benefits from these promotional activities, the review recommended limiting such practices. This restriction could potentially allow more time for physician-patient interactions and reduce the use of costlier drugs, which are sometimes prescribed to offset the expenses associated with drug promotion. Both financial incentives (such as honoraria, gifts, speakers' fees, meals, travel, lodging, and educational or research grants) and non-financial inducements (like deference, recognition, enhanced reputation, and publication opportunities) can influence the decisions healthcare providers make on behalf of their patients (Robertson, 2012; Sah, 2013).

Patwardhan explores the complex interactions between physicians and pharmaceutical sales representatives, highlighting the ethical challenges and potential conflicts of interest. Despite measures like the Sunshine Act and self-regulation

guidelines aiming to increase transparency and protect patients, problems persist. Patwardhan notes that even small gifts from pharmaceutical sales representatives are linked to higher prescribing rates, pointing to the nuanced relationships and psychological tactics used by salespersons (Patwardhan, 2016).

A key contribution to this discussion is a study by Hadland (2018), which investigates the relationship between industry payments to paediatricians and their subsequent prescribing behaviours. The study highlights how financial interactions with the pharmaceutical industry can influence the prescribing patterns of paediatricians, often leading to increased use of promoted medications. Their findings indicate a correlation between receiving pharmaceutical industry payments and a higher rate of prescribing brand-name medications, suggesting that financial incentives may drive the preference for more costly drugs over generics, highlighting the tangible influence of pharmaceutical sales practices on clinical decisions.

Additionally, a systematic review by Brax examines the impact of pharmaceutical marketing on prescribing behaviour across various medical specialties. The review supports the idea that interactions with pharmaceutical representatives often result in increased prescription rates and a preference for marketed drugs, irrespective of their cost-effectiveness or clinical necessity (Brax, 2017). Yeh further explores the ethical implications of these interactions, raising concerns about their influence on medical professionalism and the potential conflict between patient care and commercial interests. They argue for enhanced transparency and stricter guidelines to govern pharmaceutical sales practices, emphasizing the importance of maintaining the primacy of patient welfare in clinical decision-making (Yeh, 2019).

The study by Saito (2023) examined changes in the relationships between Japanese physicians and pharmaceutical representatives (PRs) from 2008 to 2021. The findings showed that while the majority of physicians (78.8%) continued to meet face-to-face with PRs, a smaller percentage accepted meals outside the workplace (4.5%). PRs were generally regarded as important contributors to continuing medical education (66.1%) and as reliable sources of information about new drugs (74.2%). Despite mixed views, most physicians believed that receiving gifts like stationery and meals did not affect their prescribing behaviour, with 89.7% and 75.8%, respectively, holding this belief. Notably, factors associated with a more favourable attitude toward

accepting gifts from PRs included being male, specializing in orthopaedics, having frequent interactions with PRs, valuing the informational content provided by PRs, and lacking institutional restrictions on meetings with PRs.

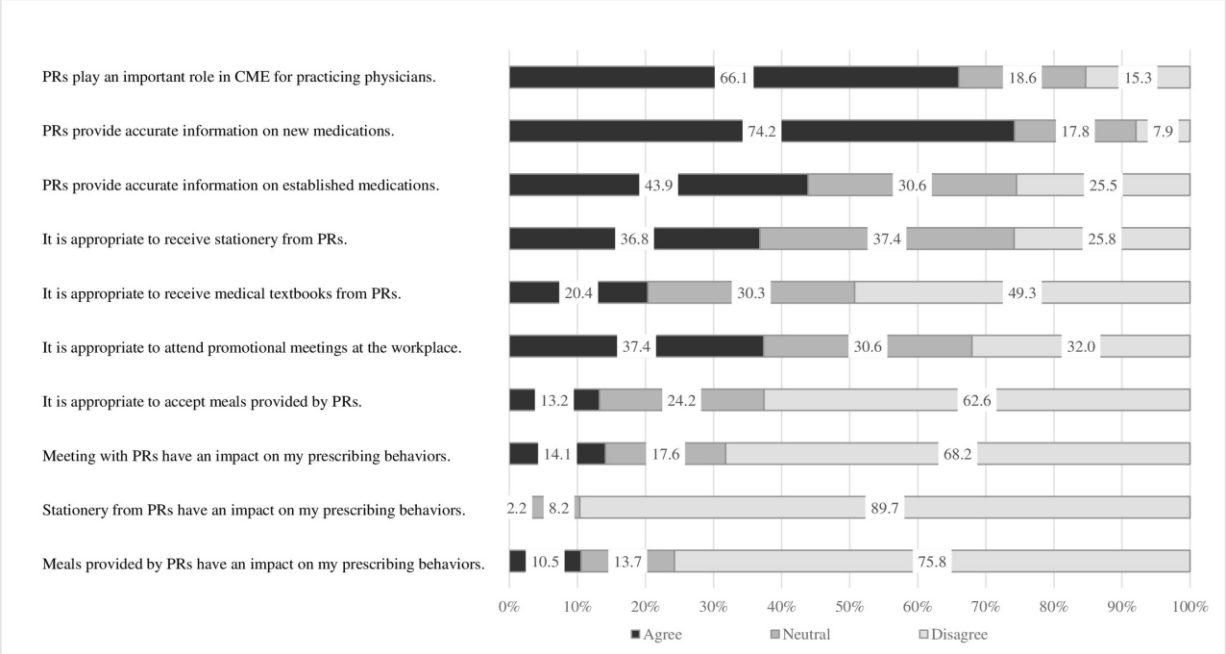

Figure 7: Attitudes toward relationship with pharmaceutical representatives (PR) from Saito 2023

Hailu's study examines the impact of pharmaceutical marketing strategies on physicians' prescribing behaviours in Dessie, Ethiopia. Utilizing a mixed methods approach across both public and private hospitals, the research found that a significant portion of physicians (55.9%) admitted to being influenced by pharmaceutical companies' marketing mix strategies. This highlights the pervasive effect of promotional tactics on prescribing decisions in the region. These strategies, including promotion, product, place, and price, were found to affect their prescribing decisions to varying extents. The study highlights that specific factors such as physician specialty and work environment significantly affect these outcomes, suggesting targeted marketing strategies are notably effective. Further, qualitative insights reinforce the pervasive role of these marketing strategies in shaping medical practice, emphasizing the need for stricter regulations to ensure ethical prescribing behaviours (Hailu, 2021).

No.	Description	SD[a] N (%)	D[a] N (%)	N[a] N (%)	A[a] N (%)	SA[a] N (%)	Mean ± SD
1	Participating in company-sponsored continual medical education	13 (9.6)	13(9.6)	18 (13.1)	62 (45.6)	30 (22.1)	3.61 ± 1.20
2	Information from medical representative	7(5.1)	12 (8.8)	17 (12.6)	58 (42.6)	42 (30.9)	3.85 ± 1.11
3	Frequent visits of medical representative	5 (3.7)	19 (14)	25 (18.4)	58 (42.6)	29 (21.3)	3.64 ± 1.08
4	Sales calls made by pharmaceutical companies	7 (5.1)	33 (24.3)	45 (33.1)	40 (29.4)	11 (8.1)	3.11 ± 1.03
5	Free drug samples given by pharmaceutical company	15 (11)	16 (11.8)	24 (17.7)	63 (46.3)	18 (13.2)	3.39 ± 1.18
6	Information from promotional drug brochures	8 (5.9)	20 (14.7)	31 (22.8)	54 (39.7)	23 (16.9)	3.47 ± 1.11
7	Different gifts from pharmaceutical company	22 (16.2)	22 (16.2)	28 (20.5)	50 (36.8)	14 (10.3)	3.09 ± 1.26
8	Participating pharmaceutical company-sponsored entertainments/recreational event	16 (11.8)	23 (16.9)	23 (16.9)	53 (39)	21 (15.4)	3.29 ± 1.25
9	Sponsorship for travel in conference	11 (8.1)	21(15.4)	32 (23.5)	44 (32.4)	28 (20.6)	3.42 ± 1.20
10	Subscription of journals with direct mail	11 (8.1)	21(15.4)	22 (16.2)	56 (41.2)	26 (19.1)	3.48 ± 1.19
11	Invitation to visit a pharmaceutical manufacturing plant	11 (8.1)	20 (14.7)	23 (16.9)	51 (37.5)	31 (22.8)	3.52 ± 1.22
12	Personal relationship to company	21 (15.4)	35 (25.7)	46 (33.9)	26 (19.1)	8 (5.9)	2.74 ± 1.11
13	Participating to product launch meeting	5 (3.7)	20 (14.7)	31 (22.8)	62 (45.6)	18 (13.2)	3.50 ± 1.01
14	Public relation of pharmaceutical company	9(6.6)	23 (16.9)	36 (26.5)	42 (30.9)	26 (19.1)	3.39 ± 1.16

[a]Responses ranged from strongly disagree (1) to strongly agree (5)

Table 10: Physicians' Perceived Influence of Promotional Strategies on Prescribing Behaviour in Hospitals of Dessie, Ethiopia (n = 136) (from Hailu, 2021)

In Hailu's investigation into pharmaceutical marketing influences on prescribing behaviours, findings demonstrated a nuanced response from physicians. The study delineated 14 marketing strategies, such as continued medical education and informational materials from representatives. Notably, strategies involving direct educational engagement and personal invitations to company facilities were perceived as more influential, with mean responses indicating a moderate to strong agreement regarding their impact on prescribing practices. Conversely, less direct marketing efforts such as gifts or personal relationships with companies were deemed less persuasive. These insights suggest that educational and experiential marketing strategies might be more effective in influencing prescribing behaviours (Hailu, 2021).

Noor studied how doctors in Pakistan respond to payment offers from drug companies. They found that doctors might accept, reject, avoid, or be undecided about these offers. Some doctors refuse because they already work with different companies or don't know the new company. This research shows the complicated nature of doctor-drug company relationships and suggests we need ways to deal with unethical behaviour in these situations (Noor, 2024).

In addition, the advent of digital marketing and online platforms has introduced new complexities into the relationship between pharmaceutical companies and HCPs. A study by Wazana assesses the evolving field of digital pharmaceutical promotions and their potential to subtly influence prescribing habits through online engagements (Wazana, 2020).

Karri in his studies assessed factors influencing physicians' prescription behaviours. The table presents a systematic ranking of visit attributes that influence physician prescription, as perceived by medical representatives in select cities of Andhra Pradesh. The data encompasses responses from 411 medical representatives, ensuring no missing input, to ascertain the mean importance of each attribute and their respective ranks. Regular visits emerged as the top influencer with the highest mean score, indicating a significant role in prescription behaviour, while attributes such as Personality, Marketing Knowledge, and Detailing Style were considered less impactful, falling into lower ranks. This rank ordering sheds light on the attributes that medical representatives believe are most effective in influencing physicians' prescription practices (Karri, 2023).

SNO	Visit Attributes	N Valid	Missing	Mean	Rank
1	Regular visit	411	0	4.75	1
2	MR Personality	411	0	4.42	8
3	Marketing Knowledge	411	0	4.57	7
4	Detailing style	411	0	4.27	10
5	Communication	411	0	4.59	6
6	Educational Level	411	0	4.73	3
7	Persuasiveness	411	0	4.07	12
8	Professionalism	411	0	4.74	2
9	Patience	411	0	4.70	5
10	Quick response	411	0	4.38	9
11	Good Attire	411	0	4.72	4
12	Attractive & informative visual aid	411	0	4.23	11

Figure 8: factors influencing physicians' prescription behaviours (Karri, 2023)

A systematic review and meta-analysis, adapting findings from the Brax paper along with recent studies, reveals a clear influence of physician interactions with pharmaceutical companies on prescribing practices. The analysis shows that pharmaceutical detailing, the provision of free samples, sponsored meals, and educational incentives are all linked to an increased propensity to prescribe promoted medications, often regardless of clinical guidelines. Specifically, detailing has been strongly associated with heightened prescriptions of new and branded drugs, indicating a direct impact on physician prescribing habits. Similarly, receiving free samples consistently leads to a preference for those medications over alternatives. Sponsored meals and educational grants also subtly but significantly steer prescribing behaviours towards favoured drugs. This pattern underscores the potential conflicts of interest where pharmaceutical marketing strategies might sway clinical decision-making (Brax, 2017).

Exposure Type	Study Name	Outcomes	Statistical Results
Detailing	Becker, 1972	Investigated physician prescribing behaviors and appropriateness	Found a significant connection with an increase in new drug prescriptions and a decline in prescription quality ($p<0.01$)
Detailing	Orlowski, 1992	Examined changes in physician prescribing before and after expense-paid trips	Showed a significant rise in prescribing promoted drugs after attending symposiums ($p<0.001$)
Detailing	Mizik, 2004	Analyzed the number of new prescriptions issued monthly for three drugs after marketing efforts	Detailing was significantly associated with an increase in new prescriptions, particularly for Drug A ($p<0.05$)
Detailing	Muijrers, 2005	Evaluated prescribing quality based on guideline adherence	Negative correlation observed between detailing and guideline adherence in prescribing ($p<0.05$)
Detailing	Søndergaard, 2009	Assessed the impact of representative visits on dispensing of promoted drugs	The first visit from a drug representative significantly increased preference for the promoted drug (OR=3.29)

Industry-sponsored CME	Bowman, 1988	Measured shifts in prescribing rates for drugs discussed in courses	Significant increase in prescribing of course-related drugs post-attendance (from 31.4% to 50.1%, $p<0.05$)
Industry-sponsored CME	Chren, 1994	Analyzed the impact on formulary requests for specific drugs	Found increased odds of formulary requests for the drugs of the sponsoring company (ORs 3.4 to 7.9)
Receiving Free Samples	Peay, 1988	Evaluated preference for prescribing Temazepam versus alternative medications	Found that free samples led to increased prescribing of Temazepam ($p<0.001$)
Receiving Free Samples	Symm, 2006	Investigated prescription behavior when free samples were available	Physicians were significantly more likely to prescribe medications for which free samples were provided ($p<0.0001$)
Receiving Free Samples	Miller, 2008	Examined percentage of generic prescriptions for uninsured or Medicaid patients	Found that the absence of free samples led to higher rates of generic prescribing (OR=4.54)
Industry Meal	Dejong, 2016	Compared rates of prescribing promoted drugs to alternatives	Physicians who received sponsored meals showed increased prescribing of promoted drugs (ORs 1.18 to 2.18)
Industry Payments for Gifts	Yeh, 2016	Studied the relationship between payments and statin prescribing	Payments of $1000 were associated with a slight rise in brand-name statin prescriptions; payments for training led to a significant increase ($p<.001$ and $p=.004$, respectively)
Multiple Industry Interactions	Haynes, 1982	Assessed rational prescribing through case history evaluations	A negative relationship was found between interactions with the industry and rationality in prescribing ($p<0.001$)
Multiple Industry Interactions	Lieb & Scheurich, 2014	Investigated changes in drug prescribing due to commercial exposure	Analyzed shifts in prescribing patterns across various products, indicating influence from industry interactions
Detailing and Industry Payments	Brax et al., 2017	Explored how physician-pharmaceutical company relationships affect clinical decisions	Found a clear link between interactions with pharmaceutical companies and changes in prescribing behaviors

Table 10: Association between physician-pharmaceutical companies' interactions and prescription impacts (adapted from Brax, 2017)

The comprehensive analysis across various studies underscores a critical concern in healthcare: the significant influence of pharmaceutical companies on prescribing behaviours. Developing relationships with doctors can be strategically beneficial for pharmaceutical sales, especially in a competitive market with similar brand-name drugs. Establishing strong connections with HCPs not only influences prescribing behaviours but can also be a decisive factor when doctors choose between competing medications. This approach, while advantageous for sales, emphasizes the need for maintaining ethical standards to ensure that decisions are ultimately in the best interest of patient care.

2.5. Impact on Patient Outcomes

The pharmaceutical industry is at a essential crossroads where the strategies for commercialization, ethical considerations, and patient-centred approaches converge, significantly impacting patient outcomes. In its quest to refine drug commercialization strategies, the industry is tasked with embracing a comprehensive approach that marries patient-centric commercialization strategies with stringent adherence to ethical marketing and sales practices, while maintaining an unwavering dedication to ensuring patient safety and optimal outcomes.

According to Epstein (2011), throughout the drug development to market journey, there's a noticeable shift towards prioritizing patient health outcomes. This shift is characterized by innovative commercial strategies, a dedication to ethical standards, and an unwavering commitment to patient safety and empowerment. Navigating the intricate sector of pharmaceutical commercialization demands this holistic approach, underscoring the importance of balancing commercial success with a focus on the health and well-being of patients. This narrative emphasizes the need for the pharmaceutical industry to continuously evolve and adapt its strategies to not only meet the regulatory and commercial milestones but to ensure that the end goal of improving patient health outcomes remains at the forefront of its endeavours.

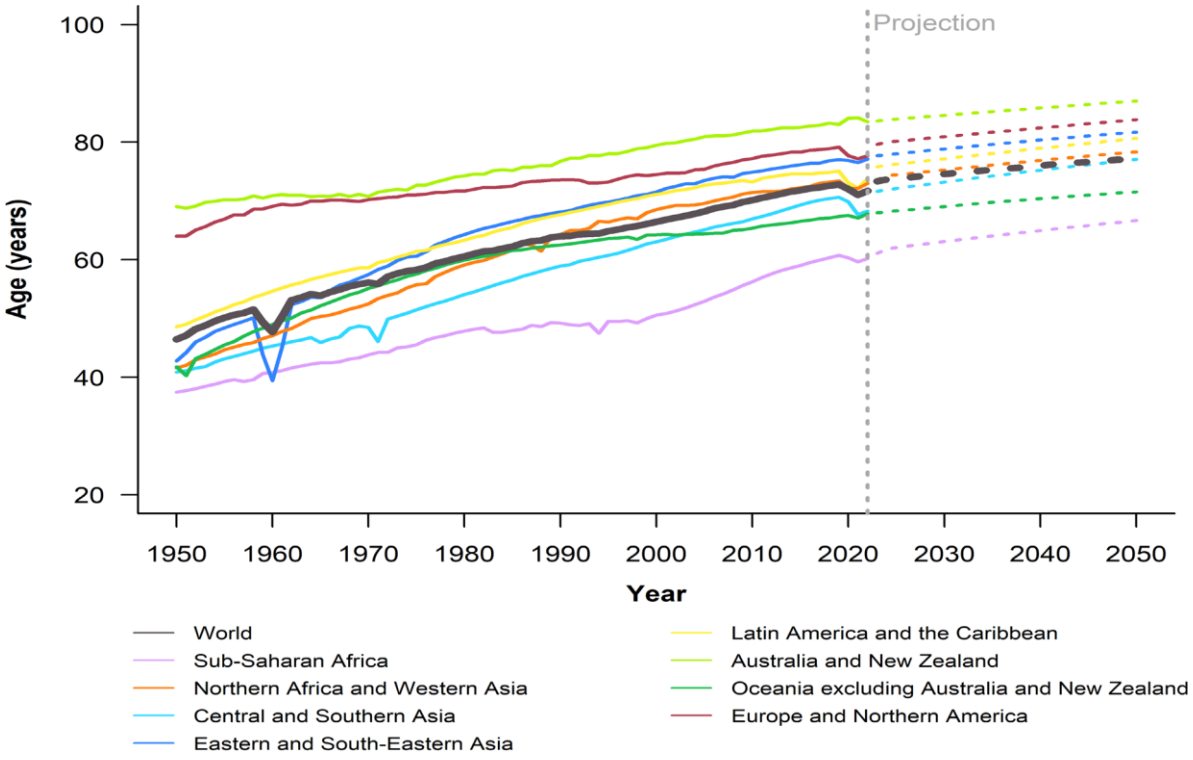

Figure 9: United Nations, Department of Economic and Social Affairs, Population Division. (2022). World Population Prospects 2022: Summary of Results.

The rise in global life expectancy since 1950 marks a significant achievement of medical advancements in enhancing patient outcomes, as highlighted in the World Population Prospects 2022 report (United Nations, Department of Economic and Social Affairs, Population Division, 2022). This continuous upswing, despite the disparities that exist between regions and the historical setbacks faced during the HIV epidemic and post-Soviet Union era in Eastern Europe, speaks volumes about the enduring impact of innovations in healthcare.

Projections indicate a narrowing in the gap of life expectancy, with an anticipated global average reaching 77.2 years by 2050, although a 31.8-year disparity is expected to persist (United Nations, Department of Economic and Social Affairs, Population Division, 2022). The data underscores the challenge inherent in further mortality reduction as populations achieve lower mortality rates, necessitating a greater emphasis on equitable access to advanced medical treatments and healthcare services.

While regions like Australia, Hong Kong and Macao (China), and Japan have achieved impressive life expectancies of 85 years or more, other areas such as the Central

African Republic, Chad, Lesotho, and Nigeria face ongoing challenges, with life expectancy still below 54 years (United Nations, Department of Economic and Social Affairs, Population Division, 2022). The overall rise in life expectancy, fuelled by medical advancements, reflects both human innovation and determination. However, it also highlights the pressing need to address the health disparities that persist between nations.

2.5.1. Influence of commercialization on patient health

Commercialization strategies within the pharmaceutical industry have a profound impact on patient outcomes, both directly and indirectly. Direct effects are observed in the increased accessibility and efficacy of medications, leading to improved health outcomes. Indirectly, these strategies support educational initiatives and empower patients, thereby fostering a deeper understanding of their conditions and treatments. A foundational study by Porter (2006) underscores the significance of these strategies in extending the reach and adoption of medical treatments, thus enhancing patient access to innovative therapies and catalysing further innovation in patient care.

In addition to Porter contributions, further studies have expanded our understanding of the commercialization's impact on healthcare, Yango (2023) highlighted the ethical concerns that arise from prioritizing profit over patient health, examining how commercial interests can sometimes lead to compromised patient care. This study serves as a critical reminder of the need for ethical vigilance in the face of commercial pressures.

Ebeling (2023) explored the implications of big data in healthcare, discussing the potential for both positive advancements and ethical pitfalls. The commercialization of health data raises important questions about patient privacy and the potential for bias in healthcare delivery .

Mühürdaroğlu (2023) explored the impact of commercialization on medical practice, focusing on the issues of medicalization and the evolving role of patients. The study highlights the critical need to balance commercial interests with patient well-being, stressing the importance of maintaining patient-centered approaches despite the pressures of commercial influence.

2.5.2. The rise of patient-centricity and advocacy in pharma

The evolution towards patient-centricity in pharmaceutical commercialization underlines the intrinsic connection between such approaches and better patient outcomes. This transition involves tailoring marketing and sales strategies to prioritize the patient's needs and preferences throughout the healthcare delivery process. For instance, digital tools have become essential in providing patients with detailed insights into their treatment plans, thus significantly enhancing adherence and understanding. Barello stresses the importance of empowering patients to make informed decisions, which positively impacts health outcomes (Barello, 2012).

Pharmaceutical companies are increasingly centring their strategies around patient engagement and disease awareness. This shift is largely due to the stringent regulations in many countries that prohibit direct product promotion to consumers, with the United States and New Zealand being notable exceptions. Instead of promoting products directly, companies focus on educating about diseases, thereby fostering an environment where patients feel understood and are encouraged to discuss their conditions openly with physicians. This method not only improves awareness of treatment options but also supports ethical marketing standards, ensuring that discussions about drugs are informed and patient-driven rather than product-focused (Cohen, 2023; Knowles, 2023).

2.5.3. Ethical compliance and regulatory adherence in patient care enhancement

Ethical considerations in marketing and sales strategies are paramount, affecting patient safety and health. Ethical marketing practices ensure that the information conveyed to HCPs and patients is accurate, comprehensive, and transparent, highlighting the responsible promotion of drugs. This balance between commercial objectives and patient welfare is critical for facilitating informed healthcare decisions. Brody's work further illuminates the adverse effects of aggressive sales tactics, advocating for ethical practices that prioritize patient well-being above all (Brody, 2005).

Years later Bisht (2024) explained that in the realm of patient safety, pharmaceutical companies are dedicated to adhering to rigorous safety standards. This includes the deployment of pharmacovigilance systems to monitor adverse effects and the creation

of educational materials focused on disease awareness and medication management. The significance of such initiatives in empowering patients to effectively manage their health, demonstrating the industry's commitment to ensuring patient safety and enhancing health outcomes.

The practice of distributing free samples is another area where pharmaceutical companies engage directly with HCPs and patients. While this practice is seen to familiarize doctors and patients with new treatments, it is tightly regulated to ensure it does not lead to undue influence or compromise patient safety. Regulations vary by country, with some allowing limited distribution of samples to healthcare providers under strict conditions. For instance, in the European Union, the distribution of free samples is explained by detailed guidelines that limit the quantity and require explicit requests from HCPs (European Medicines Agency, 2021). The distribution of free samples also used as a mechanism for enhancing drug accessibility for patients who may not have insurance coverage or sufficient financial resources to afford them.

Maintaining regulatory compliance and collaborating with patient advocacy groups are important for upholding the safety and effectiveness of pharmaceutical products. Regulatory authorities monitor the entire commercialization process, from clinical trials through to market approval, to ensure drugs adhere to established safety and efficacy guidelines. Mattingly (2017) emphasizes the significance of incorporating patient input throughout drug development and commercialization, advocating for patient needs and preferences to create a more responsive healthcare system.

2.5.4. Digital technologies: Bridging gaps in patient care

Technological innovations and active community participation are critical in advancing patient outcomes. Digital platforms, including social media and patient forums, play a key role in disseminating health information, educating patients, and fostering support networks.

According to Sawesi (2016), these digital avenues empower patients by providing them with essential information, a space for sharing personal health experiences and providing a supportive network, all of which significantly bolster patient empowerment and involvement. The digital ecosystem, especially through social media and online forums, has emerged as a sanctuary for patients seeking solace and reassurance from peers facing similar health challenges. Such interactions can profoundly influence the

dialogue between patients and their healthcare provider. As noted by the Baowidan (2023), dynamic of peer influence on healthcare decisions spotlights the necessity of crafting well-informed patient communities, hinged on the exchange of accurate information and shared experiences. Nonetheless, this dynamic also brings to light the crucial role of HCPs in navigating these patient discussions, ensuring that treatment decisions are grounded in evidence-based medical guidance.

The enhancement of patient outcomes post-commercialization in the pharmaceutical industry requires a multifaceted approach that incorporates patient-centric initiatives, ethical marketing, adherence to safety standards, and robust community engagement. By focusing on these elements, pharmaceutical companies can succeed in commercializing their products while significantly improving patient health and well-being. The evolution towards more patient-centric strategies marks an important shift in the industry, responding to regulatory and societal expectations and ensuring that ethical practices are at the forefront of pharmaceutical endeavours.

2.6. Ethical Considerations in Commercialization

Information is typically categorized as "promotional," "non-promotional," or "scientific". Promotional content includes ads and sales materials for specific products and might reach patients or healthcare workers through various campaigns. Non-promotional content generally shares knowledge about diseases without tying it to any product. Scientific content covers research findings shared by R&D organizations, such as through scientific conferences or journals. However, the key concern for patient care is the accuracy and scientific grounding of information, rather than these categories. Healthcare providers get information about medicines from numerous sources, including clinical trial summaries and scientific literature (Francer, 2014).

The ethical environment in the commercialization of pharmaceuticals is both complex and critical, acting as the backbone of the industry's integrity from research to market presence. The pharmaceutical drug development process, from clinical trials to commercialization, requires thorough ethical oversight at each stage. This involves a comprehensive system of checks and balances, including ethical review boards and regulatory bodies like the EMA and FDA, to proactively identify and resolve ethical concerns (Sekar, 2021).

Historically, the pharmaceutical industry's commercial strategies have raised ethical concerns, particularly regarding the promotion of drugs. Practices such as extravagant gifts to physicians, sponsored vacations, and other incentives were strategies employed to foster relationships with medical professionals and, by extension, influence prescription patterns. These practices, often perceived as corrupt, not only distorted the essence of ethical medical practice but also created an uneven playing field for smaller startups and biotech firms that lacked the financial muscle to compete on such terms (Lolk, 2020).

In response to these malpractices, regulatory authorities have tightened regulations governing the commercialization of pharmaceutical products. The aim is to curb any form of undue influence on medical practitioners' prescribing behaviours, ensuring that pharmaceutical companies engage in ethical marketing practices. This regulatory shift underscores the significance of striking a balance between commercial success and ethical integrity (Tierney, 2013).

Regulatory frameworks play a significant role in enforcing ethical standards. In the European Union, for example, comprehensive legal requirements govern medicine advertising, implemented nationally to ensure responsible promotion. The United States controls labelling and advertising through the FDA, highlighting the global variance in regulatory approaches. Despite these regulations, challenges persist in ensuring compliance, especially in emerging markets where enforcement mechanisms may be weaker. Judicial and regulatory enforcement actions, including financial penalties and settlements, serve as deterrents against unethical practices, although their effectiveness varies by jurisdiction (Francer, 2014).

The industry also relies on codes of practice to guide ethical behaviour. These codes, both international and national, are intended to ensure ethical and professional conduct, establishing clear standards for interactions with HCPs, and govern pharmaceutical marketing and communications. The International Federation of Pharmaceutical Manufacturers and Associations (IFPMA) Code of Practice, for instance, outlines baseline communication standards that member companies must adhere to, reflecting a commitment to ethical conduct beyond legal requirements. This multi-tiered self-regulatory framework emphasizes the importance of compliance with

regulations, patient-first principles, and the ethical implications of interactions with HCPs and patients (Francer, 2014).

The ethical considerations extend beyond marketing practices to encompass the all-drug development and commercialization process. For instance, the burgeoning field of psychedelic medicine, as explored by Aday, illustrates the nuanced ethical challenges encountered in commercializing psilocybin for therapeutic use. The study highlights the delicate balance between commercial viability and ethical responsibility, emphasizing the need for rigorous ethical oversight in emerging pharmaceutical sectors (Aday, 2023).

2.6.1. The evolution of ethics in pharma

The evolution of ethics in pharmaceutical marketing is a testament to the sector's ongoing journey towards greater transparency, accountability, and a patient-centred approach. This evolutionary path is marked by legislative milestones and the establishment of ethical guidelines, reflecting a global shift towards standardizing practices that prioritize patient health and ethical interactions between the pharmaceutical industry and HCPs. The development of these regulations and codes, while varying in scope and timing across different countries, shares a common goal: to reduce the influence of commercial interests on medical practice and uphold patient welfare.

The Food, Drug, and Cosmetic Act of 1938: Marks one of the earliest significant regulatory milestones in the context of pharmaceutical regulation in the United States. This legislation was introduced to guarantee the safety, effectiveness, and accurate labelling of drugs. While it primarily focused on drug safety, it laid the groundwork for future regulations and oversight of pharmaceutical marketing practices (United States Congress, 1938).

The Kefauver Harris Amendment, 1962: This amendment marked a foundational shift towards ensuring drug efficacy and safety, setting a precedent for further regulation of pharmaceutical marketing practices.

Creation of the IFPMA, 1968: Established to represent the research-based pharmaceutical industry worldwide, facilitating global cooperation on pharmaceutical innovation and ethical standards.

- **Introduction of the IFPMA Code of Pharmaceutical Marketing Practices, 1981:** Marked a significant advancement in the self-regulation of pharmaceutical marketing, setting out ethical principles and standards for the industry.
- **2006 IFPMA Update:** This revision streamlined the language of the code and broadened regulations regarding interactions with HCPs. It strengthened compliance protocols and created a global Code Compliance Network (CCN) to oversee adherence. Significant updates included stricter guidelines for company-sponsored events and gifts, aiming to maintain a focus on educational or scientific purposes during interactions. The update also sought to increase transparency and public awareness of the pharmaceutical industry's self-regulation efforts.
- **2012 IFPMA Update:** Further expanding the code, the 2012 update renamed it to "The IFPMA Code of Practice" to reflect a broader scope beyond marketing, covering clinical research transparency, relationships with patient organizations, and employee training on conduct. It introduced 'Guiding Principles' to aid in interpreting the code across various situations and emphasized transparency in clinical research and ethical engagements with HCPs and patient organizations.
- **Beyond IFPMA 2012:** After these updates, national codes in Europe, the US, Canada, and Australia were revised to harmonize with the IFPMA's extended global regulations. These updates frequently included new areas such as digital media communication. Moreover, the international pharmaceutical industry endorsed the 2014 'Consensus Framework for Ethical Collaboration,' alongside HCPs and patient organizations, underscoring unified principles for ethical cooperation.

The Prescription Drug Marketing Act (PDMA) of 1987: Following earlier efforts, the PDMA of 1987 addressed specific unethical marketing practices. By imposing stricter controls over drug sampling and distribution, it aimed to eliminate the diversion of pharmaceuticals into unauthorized channels, thereby ensuring that drugs reaching patients were safe and legitimately distributed. The Act also instituted guidelines for the distribution of free samples to physicians, curbing the previously unregulated practice of using samples as incentives (United States Congress, 1988).

The Hatch-Waxman Act of 1984: Also known as the Drug Price Competition and Patent Term Restoration Act, this legislation in the United States facilitated the approval of generic drugs while also providing incentives for innovation. This act significantly impacted pharmaceutical marketing strategies, as companies sought to maintain market share in the face of generic competition.

Pharmaceutical Research and Manufacturers of America (PhRMA) Code on Interactions with HCPs, 2002: The PhRMA Code significantly impacted how pharmaceutical companies engaged with HCPs. It explicitly prohibited extravagant gifts and entertainment, such as expensive dinners and tickets to entertainment events, which were once common practices. This voluntary code emphasized information over persuasion, urging companies to focus their interactions with HCPs on educational and scientific information that could support patient care (Pharmaceutical Research and Manufacturers of America, 2002).

EFPIA Code of Practice, 2004: Reflecting similar initiatives in the United States, the EFPIA Code of Practice, implemented in Europe in 2004, aimed to promote the ethical and responsible marketing of medicines. It targeted similar practices to the PhRMA Code, focusing on ensuring that any gifts or incentives offered to HCPs had a genuine educational value and were of minimal monetary value, thus preventing undue influence on prescribing practices (European Federation of Pharmaceutical Industries and Associations, 2004).

The Sunshine Act, 2010: The Physician Payments Sunshine Act, introduced in 2010 under the Affordable Care Act, significantly increased transparency around financial interactions between healthcare providers and pharmaceutical companies in the United States. This law requires companies to report payments and gifts given to physicians and teaching hospitals, aiming to expose potential conflicts of interest and help patients make more informed healthcare choices (Centres for Medicare & Medicaid Services, 2010).

The Physician Payment Sunshine Act Implementation, 2013: Although the Sunshine Act was passed in 2010, its 2013 implementation represented a significant step in improving transparency regarding financial relationships between pharmaceutical companies and healthcare providers in the United States.

The General Data Protection Regulation (GDPR) Implementation, 2018: Although not specific to the pharmaceutical industry, the implementation of GDPR in the European Union in 2018 had implications for pharmaceutical marketing practices, particularly concerning data privacy and the use of personal information for targeted marketing.

The evolution of ethical guidelines in pharmaceutical marketing is a dynamic and ongoing process, adapting to new technologies, marketing practices, and societal expectations. These regulations and codes of conduct are important in maintaining the balance between effective drug promotion and the safeguarding of patient welfare and professional integrity within healthcare. As the industry moves forward, it is imperative that these ethical standards evolve in tandem with emerging marketing strategies to continue protecting patients and ensuring that healthcare decisions are made in their best interest. As the digital age advances, new platforms for pharmaceutical marketing emerge, presenting fresh challenges to the ethical framework developed over the past decades. Social media, online advertising, and digital influencer campaigns have opened new frontiers for pharmaceutical marketing, necessitating continuous updates to ethical guidelines and regulations to address these modern avenues of influence.

2.6.2. Global variance in ethical practices and cultural perspectives

The ethical environment in pharmaceutical marketing and sales practices varies significantly between countries and continents, largely due to differences in regulatory frameworks, industry codes of practice, and enforcement mechanisms. For instance, the European Union has developed a comprehensive legal framework for regulating the advertising of medicines, which is enforced individually by member states. In contrast, the United States relies on the FDA to oversee labelling and advertising through specific legislation. Countries such as Canada and Australia also have distinct regulatory systems, though similar detailed frameworks are less consistently applied in emerging markets (Francer, 2014).

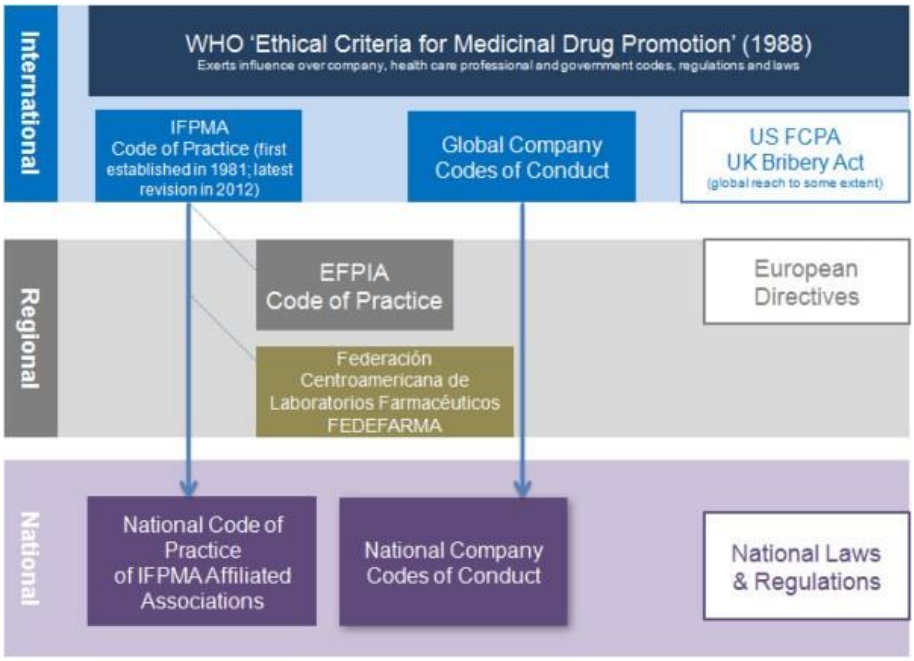

Figure 10: Overview of various codes and regulatory frameworks governing international pharmaceutical companies (Francer, 2014)

A critical component of pharmaceutical ethics involves adhering to industry codes of practice, which complement existing laws and regulations. These codes, particularly those associated with organizations like the IFPMA, apply globally to member companies, even in regions lacking specific legal or regulatory guidelines. For instance, the IFPMA Code of Practice establishes fundamental communication standards that member companies must uphold. These standards promote ethical conduct, prioritize patient welfare, and ensure compliance with regulations. National codes of practice usually mirror these international standards but may include additional or more specific requirements (Francer, 2014).

Interestingly, international and national codes of practice encompass a broad spectrum of activities ranging from interactions with HCPs to advertising and promotional information. However, a notable difference exists in the prohibition of DTC advertising for prescription-only medicines in European and certain other national codes. This stands in contrast to practices in countries like the U.S., where DTC advertising is allowed. Furthermore, the scope and implementation of these codes can vary significantly, influenced by local laws, healthcare system requirements, and corporate cultures (Francer, 2014).

In many developing nations, the control systems for advertising prescription medicines such as legal systems, regulatory agencies, and pharmaceutical industry codes that are common in developed countries may not be as established or may not exist. This disparity often leaves domestic manufacturers in these regions subject to different standards than international pharmaceutical companies, which adhere to global standards like the IFPMA Code. Despite the more stringent regulations, international companies view these ethical advertising practices as advantageous, not a burden (Vlassov, 2001).

Cultural differences also play a role in how concerns and complaints are addressed, with formal complaint mechanisms being underutilized in some societies. Yet, multinational pharmaceutical companies are held to a uniform set of standards worldwide. In regions like China, India, Latin America, and Africa, where international companies are increasingly active, the adherence and implementation of these standards vary. For instance, in China, international pharmaceutical companies, though a smaller market share, are increasing their investment and follow a code of practice aligned with the IFPMA Code, but legal controls are more prominent. In India, national companies predominate and follow local codes, but international companies and some Indian companies with international operations adhere to standards like the IFPMA Code. South Africa and Mexico exemplify proactive steps toward unified and collaborative regulation efforts, including the establishment of enforcement authorities and transparency guidelines (Francer, 2014).

In examining the regulatory field for pharmaceutical advertising across different jurisdictions, the study conducted by Zerde emerges as an essential resource. Their research, titled "Regulatory Framework for Advertising of Medicinal Products in the Republic of North Macedonia and the European Union," presents a thorough comparative analysis, highlighting the discrepancies and commonalities in regulatory practices between the Republic of North Macedonia and the European Union. This examination provides insightful perspectives on the complexities of pharmaceutical advertising regulations and their implications for ethical marketing practices within the healthcare sector (Zerde 2024).

Zerde delves into various aspects of the regulatory frameworks, including the pre-approval requirements for advertising, the extent and nature of transparency and

disclosure obligations, the restrictions surrounding DTC advertising, and the ethical guidelines governing pharmaceutical marketing. Their analysis reveals significant differences between the European Union's stringent regulatory measures, designed to ensure high levels of transparency and protect patient interests, and North Macedonia's relatively less restrictive approach, particularly regarding DTC advertising. Furthermore, the study discusses the impact of these advertising regulations on HCPs, emphasizing the potential for undue influence on prescribing behaviours and the ethical dilemmas that may arise as a result. They argue that these regulatory disparities underscore the need for harmonized advertising standards that prioritize patient health, support ethical marketing practices, and facilitate informed healthcare decision-making (Zerde, 2024).

These examples highlight significant progress in emerging markets towards regulating pharmaceutical advertising, suggesting a potential model for both developing and developed countries to enhance ethical advertising practices.

The ethical considerations in pharmaceutical practices are multifaceted and vary significantly across countries. Each country is directed towards a code of practice outlined and summarized in the appendix. Numerous multinational corporations are subject to a comprehensive system of international and national codes governing the advertising of prescription medicines. By examining these diverse ethical frameworks, we can gain a deeper understanding of the global environment of pharmaceutical ethics and the ongoing efforts to address ethical dilemmas in healthcare. Through comparative analysis, it becomes evident that while there is a shared goal of promoting health and well-being, the approaches to achieving this goal differ markedly, reflecting the complex interplay between cultural values, regulatory systems, and technological innovations in the field of pharmaceutical ethics.

2.6.3. Regulatory Compliance and Its Role in Ethical Commercialization

Regulatory authorities are vital in ensuring that pharmaceutical companies maintain ethical standards in their commercialization endeavours. The work of Kesselheim emphasizes the importance of stringent regulatory oversight in maintaining the balance between commercial interests and patient safety, highlighting the FDA's role in the United States as a case in point. Regulatory compliance is central to maintaining

ethical standards in the commercialization of pharmaceutical drugs. It ensures that marketing practices do not compromise patient safety or the therapeutic efficacy of drugs (Kesselheim, 2011). Carpenter offers valuable insights into how regulatory frameworks can prevent unethical practices in industries, including pharmaceuticals, by limiting the influence of special interests (Carpenter, 2014).

The dissemination of information by pharmaceutical companies about prescription medications is governed through a multifaceted system comprising four primary control mechanisms: industry-established codes of practice, company-specific internal guidelines, formal legal and regulatory frameworks (as outlined in Table 12). The objective underlying each of these controls is to maintain high ethical standards in communications without hindering the effective transmission of information that can benefit healthcare providers and, by extension, their patients (Francer, 2014).

	IFPMA affiliated industry codes of practice	Independent local industry codes of practice	Professional bodies' codes of practice	Regulatory authority activities	Legal actions	Company standards
Description	National codes incorporate and expand on the IFPMA Code	National codes, developed independently	International or national medical, pharmacy, and nursing bodies have professional behavior codes. Employers may also have codes of conduct	Regulatory authority interprets and applies law and regulations. Can include pre-approval and post-hoc enforcement	Possible breaches of laws and regulation pursued through court action	Companies have codes of conduct and internal compliance and audit organizations to enforce them
Applicability	International pharmaceutical member companies wherever they operate. Includes local companies in a few countries	Local companies that belong to the sponsoring trade association or have agreed to comply with the Code	Applied nationally by the professional body	All sectors within the scope of the legislation. Applied nationally	All sectors within the scope of the legislation. Applied nationally	All countries where the company does business
Comment	National codes are often detailed and are subject to national laws and regulations. Some countries embrace code based actions more readily than others	Variable in scope and application	Professional codes may include requirements concerning interactions with commercial organizations	Some regulatory authorities are more active than others	Actions may be brought by government bodies or competitor companies. Some countries resort to legal action more readily than others	Internal standards are usually broader in scope than external codes and legislation

Table 11: Comparative overview of governance in pharmaceutical sector (Francer, 2014)

Pharmaceutical communications are regulated through a combination of international and national laws, regulations, and industry codes of practice. These frameworks aim to ensure ethical interactions with HCPs and prevent misconduct, such as bribery and corruption, highlighted by acts like the U.S. Foreign Corrupt Practices Act and the UK Bribery Act. Regulatory bodies, such as the FDA, enforce specific advertising laws, which vary by country but share the goal of deterring improper pharmaceutical marketing practices. While judicial and regulatory enforcement mechanisms serve as deterrents, they can be resource-intensive and less prevalent in developing countries. Members of the IFPMA adhere to global ethical standards, including the IFPMA Code

of Practice, ensuring responsible communication practices even in markets lacking stringent legal regulations. This layered regulatory approach underscores the pharmaceutical industry's commitment to maintaining high ethical standards in its communications across different regulatory environments (Francer, 2014).

2.6.3.1. Code of practice

The promotion of prescription medications is regulated through a mix of international and national guidelines known as codes of practice. These guidelines are designed to ensure that pharmaceutical companies communicate responsibly with HCPs. Since 2002, there's been a push towards stricter communication standards, leading to regular updates of these codes. The PhRMA and the IFPMA are key organizations in this area. PhRMA updated its guidelines in 2002, focusing on U.S. companies, while IFPMA revised its global code in 2006 and 2012, setting basic communication standards for its members, including both companies and national trade associations (Pharmaceutical Research and Manufacturers of America, 2009; IFPMA code of practices 2012).

This system creates layers of regulations, where national guidelines must align with the global standards set by IFPMA, and companies can also have their own more detailed guidelines. These rules include mechanisms for handling complaints about potential violations. However, the reach of these codes mainly applies to international pharmaceutical companies and often do not extend to other healthcare stakeholders like domestic drug makers or medical device suppliers. HCPs have their own codes, focusing more on patient care than on interactions with the industry. Despite these efforts, the enforcement and detail of these regulations can vary by country (IFPMA code of practices 2012).

The promotion and sale of prescription drugs are controlled by a mix of codes of practice, laws, and regulations. These frameworks define the permissible claims companies can make about their products and oversee their interactions with key stakeholders, including HCPs, medical institutions, patient groups, and others (Francer, 2014). The main areas covered by these regulations at both international and national levels can be summarized and organized into a simplified table for clearer understanding.

Area of Coverage	Description
Ethical and Professional Behaviour	Fundamental requirements for ethical conduct, prioritizing patient welfare, and compliance with existing regulations.
Interactions with HCPs	Standards governing the relationship between companies and HCPs.
Sponsorship and Support	Regulations on sponsoring HCPs for meetings and continuing medical education.
Meeting Venues and Locations	Acceptability criteria for the venues and locations of professional meetings.
Fees for Service	Guidelines on compensating HCPs for their engagement.
Promotional Aids and Samples	Rules on providing promotional materials and product samples.
Hospitality	Limitations on hospitality offered to HCPs.
Promotional Information	Standards ensuring promotional information is accurate, balanced, and substantiated.
Advertisements	Essential information required in advertisements, including prescribing information.
Promotion of Unlicensed Products	Prohibition against promoting products and uses that are not officially licensed.
Electronic Communications	Guidelines for digital and electronic communications.
Interactions with Patient Organizations	Standards for engaging with patient groups.
Clinical Research and Transparency	Requirements for transparency in clinical research.
Company Procedures and Responsibilities	Company obligations including approval processes, staff training, and certification arrangements.
Complaints Handling and Enforcement	Procedures for handling complaints and enforcing code adherence.
Additional Coverage in European and Some National Codes	
Direct to Consumer Advertising	Prohibition against direct advertising to consumers for prescription-only medicines.
Representative Requirements	Specific standards for pharmaceutical representatives.
Public Listings	Obligations for disclosing support and interaction with HCPs or patient groups.
Donations and Grants	Guidelines on providing donations and grants.
Non-interventional Studies	Regulations concerning observational studies.
Market Research Activities	Standards for conducting market research.
Educational and Support Services	Guidelines for providing therapy reviews, nurse services, and other support services.
Additional Coverage in Individual Codes	
Non-promotional Information	Standards for providing medical information that is not promotional.
Information for Patients and the Public	Guidelines on disease awareness activities and non-promotional patient information.
Media Interactions	Standards for interactions with the media, including press releases.
Digital Media Standards	Specific requirements for websites and social media platforms.

Table 12: Overview of Regulatory Standards and Ethical Guidelines in Pharmaceutical Practices (adapted from Francer, 2014)

2.6.3.2. Product claims and HCP relations

The marketing of pharmaceutical products raises significant ethical considerations. Sales representatives must undergo thorough training and possess substantial medical and technical knowledge to convey product information accurately and responsibly. Exaggeration of product capabilities is prohibited. Moreover, the marketing of pharmaceuticals carries inherent risks in the relationships between pharmaceutical companies, sales representatives, pharmacists, and physicians (Noordin, 2012).

The advertising and communication standards for prescription medicines are rooted in principles of truthfulness, accuracy, and ethical behaviour, as outlined in both national legislation and industry codes like the IFPMA Code. These standards, originating with the UK's first industry code in 1958, dictate that promotional claims align with approved prescribing information and be substantiated upon challenge.

DTC advertising of prescription drugs is largely banned, with the United States and New Zealand as notable exceptions. The IFPMA Code, while setting global standards, does not cover DTC advertising to avoid conflicting with local laws. Promoting medicines before regulatory approval is universally prohibited, though distinctions between promotional and non-promotional information can be complex.

Interactions between pharmaceutical companies and HCPs are regulated to ensure they contribute positively to patient care without undue influence. This includes compliance with anti-bribery laws like the US FCPA and the UK Bribery Act. Support for HCPs to attend conferences is permitted under certain conditions, emphasizing the educational value over promotional interests. However, practices vary by country, with some restrictions on direct sponsorship or the provision of promotional aids, reflecting a shift towards more professional relationships based on educational sharing rather than gift-giving.

Sample distribution to HCPs is generally allowed to enhance patient care but is subject to restrictions varying by country. Overall, these regulations and codes of practice aim to balance the beneficial exchange of medical information with the need to maintain ethical standards in the promotion and selling of prescription medicines.

2.6.3.3. Code of practice sanctions and measures taken by companies

When companies do not adhere to ethical standards set by codes of practice in the pharmaceutical industry, they face a variety of sanctions, consistent with local laws. These can range from fines and requirements to halt non-compliant activities to public disclosure of the violations, if permitted by law. Severe violations may lead to a company's suspension or expulsion from the local trade association that enforces the code. The system's effectiveness relies on companies' genuine commitment to ethical behaviour, supported by robust internal controls that ensure adherence to these standards (Francer, 2014).

Sanction or requirement	Comments
Requirement to cease non-compliant activity	A universal requirement. Often associated with a written undertaking not to repeat the non-compliant or similar activities, claims etc. The company may be required to recover and destroy offending material. Repetition may result in severe penalties.
Publication of the outcome or public reprimand	Undertaken if local legal considerations allow. May consist of detailed reports or more concise summaries. Offending company is usually identified. In some countries, serious offences may be publicised in the medical press.
Monetary penalties	The amount is usually graded according to the number and/or seriousness of the offences, generally from thousands to hundreds of thousands of dollars.
Additional pre-screening requirements	In countries where pre-screening is optional.
Requirement for a formal audit of company procedures	This is particularly useful if a company's procedures or training may be the cause of a serious or repeated shortcoming.
Suspension or expulsion from membership of the local trade association	Expulsion may mean that the code regulatory system will not apply to the company and external legal and regulatory controls will therefore take effect routinely. Suspension may mean that the company is still required to comply with the national association code.
Issue a corrective communication	This provision is particularly useful if recipients of the material may have been misled. It will be at the expense of the company.

Table 13: Summary of code of practice sanctions and provisions (Francer, 2014)

To avoid all this sanctions, pharmaceutical companies operating on a global scale, have developed comprehensive internal codes of conduct and standards that govern their sales and advertising activities. These internal policies not only align with national codes and the IFPMA international code but often exceed these guidelines in detail and scope, covering a wider range of activities. Many of these internal codes are publicly available, accessible through company websites or the IFPMA website.

Before being deployed, promotional materials and activities undergo rigorous approval processes within companies. These processes involve designated individuals from the company specialized in regulatory affairs, especially in Europe and other regions, who review the materials to ensure they comply with all relevant laws, regulations, and codes. This review process underscores the responsibility these professionals have to patient welfare, adhering not only to legal standards but also to the ethical guidelines of their professional bodies. It's recognized that legality and ethics do not always align; something can be legal but not ethical, and vice versa.

Individual company initiatives have led to new standards and increased transparency, particularly in engagements with HCPs in the US and Europe. Such initiatives often

set precedents that are adopted industry-wide, such as the European Disclosure Code, which mandates the disclosure of transactions between companies and HCPs.

2.6.4. Navigating Ethical Challenges in Pharmaceutical Marketing and Sales Strategies

2.6.4.1. The Ethical Balancing Act: Profit, Patient Safety, and Prescribing Practices

The ethical scrutiny of pharmaceutical marketing and sales strategies has grown, driven by concerns that commercial interests might sometimes overshadow patient safety and health outcomes. Brody offers a seminal perspective that highlights the ethical dilemmas confronting the pharmaceutical industry. He argues that the pursuit of profit can lead to marketing practices that may not always align with the best interest of patient health, suggesting a critical re-evaluation of these strategies through an ethical lens (Brody, 2007).

Fugh-Berman extend this critique by examining how pharmaceutical marketing can significantly influence physician prescribing habits. They argue that marketing strategies often blur the distinction between informational content and persuasive intent, leading to a prescribing bias that might not serve the patient's best interests. This complex nexus of commercial interests versus patient health outcomes forms an ethical debate in pharmaceutical marketing and sales (Fugh-Berman, 2007).

Ventola further delves into this tension by critically analysing DTC advertising, identifying it as a double-edged sword. While DTC advertising has the potential to raise awareness about medical conditions and treatments, it also poses risks such as over-prescription or the promotion of medications that may not be suitable, thereby compromising patient safety. The challenge lies in balancing the therapeutic benefits of increased patient engagement with the dangers of commercialized healthcare driven by profit motives (Ventola, 2011).

Yango delves into the ethical challenges faced by medical sales representatives, who must navigate the fine line between meeting sales targets and adhering to ethical marketing standards. Their work illuminates the ethical dilemmas inherent in

pharmaceutical sales, emphasizing the need for salespersons to align their practices with high ethical standards (Yango, 2023).

2.6.4.2. Regulatory Oversight and the Future of Ethical Pharmaceutical Marketing

The discussion around ethical pharmaceutical marketing does not end with identifying the problems. It extends into the realm of potential solutions and future considerations. Ventola suggests that stricter regulatory oversight of DTC practices could help ensure that advertisements provide a balanced view of the risks and benefits of pharmaceutical products, addressing some of the ethical concerns raised (Ventola, 2011).

Gade offers a comprehensive review of sales and marketing strategies within the pharmaceutical industry, emphasizing the imperative role of regulatory frameworks and ethical standards in shaping these practices. This analysis highlights the importance of key opinion leaders in influencing marketing strategies, underscoring the delicate balance between commercial objectives and ethical imperatives (Gade, 2023).

Santoro and Gorrie discuss ethical guidelines governing interactions between the pharmaceutical industry and HCPs. They advocate for transparent and ethical engagement that prioritizes patient care without compromising the integrity of medical practice. The key, they argue, is finding a balance where ethical considerations support, rather than undermine, the commercial viability of pharmaceutical products (Santoro, 2005).

Looking to the future, Chae explores the ethical and legal challenges posed by the integration of AI in healthcare. By examining practices in South Korea and offering comparative insights from other countries, this study sheds light on the broader ethical dilemmas surrounding patient privacy, data security, and the reliability of AI-driven diagnoses and treatments. This forward-looking perspective underscores the evolving nature of ethical considerations in pharmaceutical marketing and healthcare more broadly (Chae, 2023).

The commercialization of pharmaceutical drugs is a complex interplay of innovation, marketing, and sales strategies, all of which are underpinned by a critical ethical framework. This ethical framework ensures that the commercial strategies employed by pharmaceutical companies not only comply with regulatory standards but also prioritize patient outcomes and uphold high ethical standards. The ethical challenges in this domain are multifaceted, ranging from marketing practices to regulatory compliance, and from fostering relationships with HCPs to ensuring that the commercial interests do not compromise ethical standards. In conclusion, the commercialization of pharmaceuticals is inextricably linked to a robust ethical framework that guides every step of the drug lifecycle. From the initial stages of drug development to marketing and beyond, ethical considerations serve as the cornerstone of the pharmaceutical industry's efforts to maintain public trust and deliver safe, effective treatments. The dynamic nature of ethical standards, reflective of societal values and technological advancements, necessitates continuous vigilance and adaptability by all stakeholders in the pharmaceutical ecosystem.

The analysis of the literature underscores critical issues faced by pharmaceutical companies. These include the growing complexity of drug commercialization, escalating R&D costs, regulatory hurdles, the ethical implications of marketing strategies, and the imperative to build strong, trust-based relationships with HCPs. Furthermore, the industry is grappling with the integration of digital innovation, patient-centric approaches, and personalized medicine all of which require a shift from traditional business models to more adaptive, strategic frameworks.

Several theoretical perspectives reviewed offer insights into addressing these challenges. Strategic business planning emphasizes the alignment of internal capabilities with market opportunities, while ethical marketing frameworks provide guidance for fostering trust and transparency. Relationship management theories highlight the importance of HCP in ensuring successful drug commercialization. Together, these frameworks form a foundation for addressing the multifaceted challenges of the pharmaceutical sector.

Pharmaceutical companies dedicate as seen in the literature review significant portions of their budgets to commercial strategies, this thesis aims to identify which tactics are most effective, allowing companies to save resources by investing only in

strategies and tactics that resonate with and are appreciated by medical professionals. This approach ensures the optimization of commercial efforts while maintaining focus on both ethical standards and patient outcomes.

To synthesize these insights and provide a structured pathway for exploration, this thesis is guided by the central research question mentioned in introduction to understand strategic business plan with effective marketing and sales strategies. Moreover, as the ultimate decision to prescribe drugs lies with HCPs, the literature underscores the importance of fostering these relationships as a key component of successful commercialization strategies. Several authors explained to foster strong relationships impact directly sales revenue. Only few authors went more in deep to understand what is working or not with strategies implemented to increase this relationship.

The aim of the thesis and research question is to confirm or not firstly what authors said moreover add global view of all aspects of commercial strategies that englobe, sales tactics, marketing strategies and HCPs relationships. This study establishes a clear linkage between industry challenges and academic insights. It positions the research to bridge the gap between theory and practice, offering actionable strategies for companies navigating the evolving pharmaceutical sector. This research question not only directs the methodological approach but also serves as a lens through which the findings and recommendations will be interpreted, ensuring alignment with both theoretical constructs and real-world imperatives.

3. Methodology

The vital importance of pharmaceutical commercialization necessitates a deep understanding of the factors and strategies that drive the successful market entry and adoption of new drugs. Current literature, however, often overlooks the intricate details of these elements, which limits our ability to enhance these strategies for better patient outcomes and overall market success.

After initially gaining insights from the literature and exploring relevant areas, I conducted interviews with senior managers from pharmaceutical companies and HCPs. These interviews were structured as open discussions, providing me with first-hand impressions of real cases and situations, and helping me to understand the challenges faced in the field. Based on the feedback from the first interview, I refined the content and structure of subsequent questions to ensure they were comprehensive and logically ordered. This process was crucial for validating the relevance and clarity of the questionnaire items and for determining whether additional questions were needed. Interviews helped me also to understand the need and what I need to assess secondary with my global survey for medical doctors.

The survey designed target medical doctors for collecting quantitative data. Data was analysed in relation to the research questions to gain a better understanding of current practices and to propose optimizations for commercial strategies in my analysis.

3.1. Research Design

The research employs a mixed-methods approach, integrating both qualitative and quantitative data. This methodology enables a holistic understanding of the dynamic interactions among marketing, sales strategies, and HCPs relationships, all of which influence patient outcomes. By combining these methods, the study aims to provide nuanced insights that can inform more effective optimization of the commercial strategies in the pharmaceutical industry.

3.1.1. Interviews

To gain a comprehensive understanding of the strategic components for the successful commercialization of pharmaceutical drugs, I conducted five in-depth interviews with key stakeholders in the pharmaceutical industry. These stakeholders included a sales director, a marketing director, a market access director, and two medical doctors. This

diverse selection aimed to obtain a well-rounded perspective on the commercialization process and gather valuable insights pertinent to my research.

The interviewees were chosen based on their extensive expertise and experience in the pharmaceutical industry. The selection process was deliberate, encompassing three critical areas significant for drug commercialization: sales, marketing, and market access. According to the literature review, these departments collaborate closely to formulate comprehensive business plans for drug commercialization. The selected individuals were senior professionals with whom I had previously worked or connected via LinkedIn, ensuring their depth of knowledge and relevance to my research.

The interviews were tailored to each participant's area of expertise. The sales director focused on effective sales strategies and their implementation, while the marketing director concentrated on integrating marketing strategies into business plans. The market access director addressed issues related to market access and regulatory considerations. The two medical doctors, one a general practitioner and the other a specialized healthcare provider in pulmonary disease, provided insights into HCPs' perspectives on drug commercialization and patient outcomes.

Each interview lasted approximately one hour, with two conducted virtually and three face-to-face. This mixed approach facilitated flexibility and depth in the discussions. The strategic selection of interviewees enabled me to draw meaningful connections and formulate informed conclusions directly addressing my research question.

These interviews provided a foundational understanding of the challenges and strategies involved in pharmaceutical drug commercialization. The insights gathered helped refine the subsequent survey design and informed the overall analysis of current practices, leading to optimized recommendations for commercial strategies aimed at enhancing patient outcomes.

The targeted approach in selecting interview participants and customizing questions based on their roles ensured that the data collected was comprehensive and relevant. This methodology enriched the qualitative aspect of my research and set the stage for a robust quantitative analysis through the subsequent survey, ultimately contributing to the development of effective and ethical commercialization strategies in the pharmaceutical industry.

3.1.2. Survey

In the quantitative phase of my research, my primary objective was to accurately measure and quantify key variables that are important in gaining a comprehensive understanding of the pharmaceutical commercialization sector. To achieve this, I employed a structured survey using Google Forms as my primary data collection method. The survey was distributed to a diverse group of physicians worldwide, with whom I had established physical or virtual contact, as well as those with whom I had no prior contact.

The survey was available for a duration of approximately five months. It was carefully designed to encompass various dimensions related to pharmaceutical commercialization, covering a broad spectrum of relevant aspects. The aim was to collect quantifiable data that would enable a thorough analysis of this intricate subject. By reaching out to and gathering responses from a broad cross-section of doctors, my objective was to conduct a comprehensive analysis of the data and derive valuable insights. This approach allowed me to delve deeply into the nuances of pharmaceutical commercialization and provide a thorough examination of the subject matter.

I structured my survey into 5 sections:

Survey Introduction

- Demographic information
- Awareness of new products and professional development
- Prescription patterns and sales representatives' relationships
- Marketing materials and events
- Collaborative initiatives to improve patients' outcomes.

In the introduction section, I establish the foundation for my survey by emphasizing the importance of privacy and confidentiality. This sets the tone for participants, ensuring their trust and willingness to provide candid responses. Analysing this section involves assessing participant engagement and understanding their initial perceptions of the survey's purpose, thereby gauging their willingness to collaborate effectively.

Section 1: Demographic information

Gathering demographic data is essential to categorize participants based on factors such as age, specialization, and practice setting. This section lays the groundwork for demographic analysis. By examining the demographics of HCPs, I can identify potential trends or patterns that may influence their responses to subsequent questions. For instance, I might analyse whether age or specialization correlates with preferences or attitudes regarding pharmaceutical product commercialization.

Section 2: Awareness of new products and professional development

This section delves into HCPs' awareness of new pharmaceutical products and their primary sources of information. Analysis involves evaluating the effectiveness of different information sources. I can identify which sources are considered most influential in keeping HCPs informed about new products. This information can help pharmaceutical companies tailor their marketing strategies to target the most effective channels.

Understanding professionals' engagement in continuous education and their perception of its importance is crucial. Analysis of this section focuses on assessing how ongoing education impacts HCPs' decision-making processes. I can analyse whether those who engage in continuous education are more receptive to pharmaceutical company presentations and whether they perceive ongoing education as vital to staying updated on pharmaceutical advancements.

Section 3: Prescription patterns and sales representatives’ relationships

Investigating the influence of sales representatives on prescription patterns is central to this section. Analysing the data involves assessing the extent to which sales representatives influence prescription decisions. I can also identify preferred types of interactions and scheduling methods with sales representatives. This information aids in understanding how pharmaceutical companies can tailor their approaches to foster positive relationships with HCPs.

Section 4: Marketing materials and events

This section explores preferences for marketing materials and their impact on prescription choices. Analysis focuses on evaluating the effectiveness of marketing materials in influencing prescription decisions. I can assess whether certain types of materials or events are more influential and whether HCPs use marketing materials to inform patients. This data informs marketing and sales strategy development.

Section 5: Collaborative Initiatives to Improve Patients Outcomes

In this final section, the analysis centres on identifying HCPs' opinions on effective collaboration between pharmaceutical companies and professionals. I can gauge the extent to which patient preferences influence prescription decisions and whether situations arise where patients express preferences for specific brands. This information informs strategies to maximize patient outcomes while adhering to ethical standards.

Each section of the survey provides valuable insights into the complex interactions between pharmaceutical commercialization, marketing and sales strategies, HCPs relationships, and patient outcomes. Through careful analysis of the responses, I can draw meaningful conclusions that contribute to my thesis's overarching research question.

The formulation of questions for my survey was a methodical process that encompassed several important stages. First and foremost, I embarked on an extensive literature review to immerse myself in the existing body of knowledge surrounding pharmaceutical commercialization, marketing and sales strategies, HCPs relationships, and patient outcomes. This comprehensive review not only enhanced my understanding but also enabled me to identify gaps in the literature where my survey could make a meaningful contribution.

In addition to the literature review, I actively engaged with experts in the pharmaceutical, healthcare management, and marketing domains, seeking their insights and recommendations to shape the survey questions. Furthermore, I sought direct input from physicians to better comprehend their practices and preferences, ensuring the survey's relevance to real-world medical experiences. Drawing upon my review of existing publications and surveys, I adapted established questions to align

with the specific objectives of my research. This approach allowed me to build on the foundations of previous studies while tailoring the questions to suit my research goals more precisely.

Pilot testing was a key step in the survey development process. By involving a diverse group, including physicians, scientists, and Pharm D experts, I was able to identify any potential ambiguities or issues with question wording. This iterative testing phase ensured that the survey questions were clear, accurate, and effective in capturing the intended data. Ethical considerations played a paramount role throughout survey development. I diligently crafted questions and survey procedures to adhere to ethical standards, prioritizing participant privacy and data confidentiality. The importance of anonymity and data protection was emphasized to participants.

3.2. Data Collection Methods

To maximize participant engagement, I employed both digital and physical methods of data collection. Initially, I sent emails to medical doctors worldwide, whose contact information I gathered from various forums and websites of hospitals and private clinics, totalling around 4,000 email addresses. However, due to concerns about spam and viruses, this method proved less effective.

To enhance response rates, I targeted a more reliable list of 300 medical doctors with whom I had established professional relationships. This approach yielded better results as the recipients were familiar with me.

Additionally, I created a flyer with a QR code linking to the survey and distributed it physically to doctors during meetings and conferences. This method provided a tangible way to encourage participation.

Furthermore, I leveraged LinkedIn direct messages to reach out to my professional connections, which proved more successful than email communications. I also shared the survey link in various Facebook groups for medical doctors, aiming to reach a broader audience.

This diverse group of physicians represented a wide spectrum of medical professionals, ensuring a well-rounded and inclusive dataset. The international reach of the survey allowed for a global perspective and enabled sub-analysis comparisons between different continents.

3.3. Sampling Strategy

For the sampling strategy and determination of sample size in my research, I aimed to achieve a sample of at least 100 doctors to minimize biases and ensure the reliability of the data. The target population for my research included medical doctors from various geographical locations and specialties, necessitating a well-thought-out sampling approach.

To maximize participant engagement, I employed a combination of convenience sampling and snowball sampling. This approach enabled me to expand my participant pool through the assistance of medical doctors who facilitated further connections by sharing the survey with their peers.

To ensure the representativeness of the sample, the selection of doctors was stratified by geographical location and medical specialty. This stratification allowed for a balanced dataset that could facilitate sub-analysis, if necessary.

To determine the appropriate sample size, I aimed for a confidence level of 95% and a margin of error of ±5%. Given the target of 100 responses, the initial pool of 4,000 potential participants was calculated to achieve this goal, considering typical response rates for online surveys.

From the 4,000 emails sent, I anticipated that a portion would not reach the recipients due to incorrect email addresses or spam filters. Based on similar studies, I estimated that about 70% of emails would successfully reach the intended recipients. Therefore, the expected number of successfully delivered emails was approximately 2,800.

Based on literature, the response rates for surveys targeting physicians can vary significantly. According to studies, response rates typically range from 6% to 35%, with higher rates achieved through mixed methods and personalized approaches (Brtnikova et al., 2018; Beebe et al., 2007).

Of the successfully delivered emails, I initially estimated a 2-3% response rate, which would yield 56-84responses. However, to more accurately reach the target of 100 responses, I factored in the higher response rates from my professional contacts. For the 300 doctors with whom I had existing relationships, I anticipated a higher response rate of approximately 20%, which would yield around 60 responses.

Additionally, I used LinkedIn direct messages to reach out to my professional connections, expecting a response rate of around 10% from this approach. Assuming I sent 80 direct messages on LinkedIn, I anticipated receiving approximately 8 responses from this method.

Combining these approaches:

From the general pool of 2,800 emails with an estimated 2% response rate, I expected around 56 responses.

From the 300 professional contacts with a 20% response rate, I expected around 60 responses.

From 80 LinkedIn direct messages with a 10% response rate, I expected around 8 responses.

In total, this would provide approximately 124 responses, exceeding the target of 100 responses and ensuring a robust and reliable dataset for analysis.

By employing a multi-faceted sampling strategy and ensuring a diverse and representative sample, I aimed to gather comprehensive data on the commercialization of pharmaceutical drugs. The robust sampling approach, combined with careful survey design and distribution, enabled the collection of valuable insights that contribute to the development of effective and ethical commercialization strategies in the pharmaceutical industry.

3.4. Data Analysis

To comprehensively address the research questions and derive insightful conclusions, I employed a rigorous combination of quantitative and qualitative analysis techniques. This mixed-methods approach enabled a holistic understanding of the multifaceted factors influencing pharmaceutical drug commercialization and their subsequent impact on patient outcomes.

3.4.1 Qualitative Analysis Techniques

The qualitative data gathered from in-depth interviews with key stakeholders offered valuable, contextual insights that enriched the quantitative findings. The qualitative analysis was conducted using thematic analysis technique.

Thematic analysis was employed to systematically identify, analyse, and report patterns (themes) within the interview data. Transcriptions of the interviews were meticulously coded to extract key themes related to strategic business planning, marketing integration, sales strategies, relationships with HCPs, and ethical considerations. This method allowed for the identification of recurring ideas and concepts, providing a nuanced understanding of the challenges and best practices in pharmaceutical drug commercialization.

The coding process was essential for organizing the data systematically, facilitating the identification of patterns and themes, and ensuring a comprehensive analysis of the qualitative data. In order to have better understanding I choosed 5 key thematics:

Collaborative Strategies in Drug Commercialization:

- Focused on the cross-functional integration of departments within pharmaceutical companies to develop and execute comprehensive business plans.
- Emphasized the importance of early collaboration and strong relationships with HCPs and payers.

Balancing Revenue Generation with Patient Access and Ethical Standards:

- Explored strategies to balance financial performance with ensuring patient access to medications and adhering to ethical marketing practices.
- Addressed the importance of strategic pricing, transparency, and compliance with ethical guidelines.

Market Access and Reimbursement Strategies:

- Investigated the processes for securing health authority and payer approvals to ensure drug accessibility and reimbursement.
- Considered the therapeutic and economic value of drugs and the challenges of navigating regulatory requirements.

Marketing and Sales Strategies:

- Analyzed the effective use of digital and traditional marketing channels, targeted campaigns, partnerships with key opinion leaders, and educational initiatives.
- Highlighted the role of understanding market environments and customer demographics.

HCPs Relationships:

- Examined the impact of building and maintaining strong relationships with HCPs on drug adoption and patient outcomes.
- Identified strategies for early engagement and continuous education of HCPs.

3.4.2. Quantitative Analysis Techniques

Quantitative data collected from the survey administered to medical doctors was subjected to robust statistical analysis to uncover patterns, relationships, and trends that are signigicant to the research questions.

3.4.2.1. Descriptive Statistics

Descriptive statistics were the first step in analysing the survey data, offering a comprehensive summary of the key characteristics of the dataset. This involved calculating measures such as means, medians, standard deviations, and frequencies to offer a comprehensive overview of demographic characteristics, levels of awareness regarding new pharmaceutical products, prescription patterns, and the perceived impact of marketing materials and events. These statistical measures done in the excel allowed for a clear and concise presentation of the data, laying the groundwork for further analysis.

3.4.2.2. Correlation analysis for effective marketing strategies

To optimize the efficiency of marketing efforts in the pharmaceutical sector, a correlation analysis was performed to understand the relationships and potential synergies between different marketing strategies. This analysis involved computing the correlation coefficients to identify how strongly various strategies are related and whether their combination could result in a synergistic effect on overall marketing effectiveness. The statistical analysis for this correlation study was performed using Python, with the assistance of ChatGPT coding. This setup allowed for the efficient handling of large datasets and the accurate computation of correlation metrics,

ensuring robust and reliable results. The use of Python facilitated a more streamlined and precise analysis, enabling the identification of statistically significant relationships between marketing strategies. This approach ensured that the findings were not only based on theoretical assumptions but were backed by empirical data, providing a solid foundation for developing more effective marketing strategies in the pharmaceutical industry.

3.4.2.3. ANOVA and Tukey HSD tests

The Analysis of Variance (ANOVA) was conducted to test the effectiveness of various marketing strategies implemented by pharmaceutical companies. This statistical method compared the means of ten different marketing strategies to determine if there were statistically significant differences among them. The process involved setting up a null hypothesis that all strategies are equally effective, and an alternative hypothesis suggesting variability in effectiveness. The ANOVA helped quantify the differences between and within groups, calculating measures such as the Total Sum of Squares, Mean Squares, and the F-statistic. This method provided a robust framework for identifying which marketing strategies differed significantly in terms of their impact, laying the foundation for subsequent post-hoc analysis to pinpoint specific differences. Following the ANOVA, a Tukey HSD (Honestly Significant Difference) post-hoc test was performed. This test identified specific pairs of marketing strategies that significantly differed from each other, providing a detailed insight into which strategies were more effective. This sequential approach using ANOVA followed by Tukey HSD ensured a comprehensive analysis of the data, highlighting significant contrasts in strategy effectiveness. All statistical analyses were performed using Python with the assistance of ChatGPT coding, leveraging its capabilities for precise and efficient computation.

3.4.2.4. Chi-Square test analysis for prescription patterns

To investigate the relationship between doctors' demographic profiles and their engagement with marketing strategies, Chi-Square Tests were conducted. This statistical method is appropriate for examining associations between categorical variables and was applied to analyse variables such as doctors' continent of practice, practice setting, and age, which were cross tabulated with their participation in and influence from various marketing presentations. Each analysis computed the Chi-Square statistic and corresponding p-value to determine the significance of the

associations, with a p-value greater than 0.05 indicating no statistically significant association. This suggests that factors like continent, practice setting, and age do not significantly influence doctors' participation in or impact from these marketing strategies. Additional Chi-Square tests were also performed to assess the influence of sales representatives based on gender, continent of practice, medical specialty, and age, with results summarized in table format. This approach provided a detailed and objective assessment of the effectiveness of marketing strategies across different demographic groups, informing strategic decisions on how pharmaceutical companies should tailor their marketing and sales approaches to be universally effective across diverse doctor profiles. These statistical analyses were conducted using Python with the assistance of ChatGPT coding, enhancing the accuracy and efficiency of data analysis.

3.4.2. Integration of Quantitative and Qualitative Data for Mixed-Methods Approaches with Data Triangulation

The integration of quantitative and qualitative data was essential for providing a comprehensive understanding of the research problem. By leveraging the strengths of both approaches, I was able to validate findings and gain deeper insights through several key integration techniques.

To assess and refine strategies for improving relationships with HCPs, I employed a data triangulation methodology that integrated findings from the survey, interviews, and personal experiences within the pharmaceutical industry. This approach aimed to validate and enhance the reliability of the insights by corroborating data across these diverse sources.

By synthesizing the information from these sources, I was able to create a robust set of data. I analysed the survey results to identify broad trends, used the qualitative data from interviews to add depth to these findings, and compared these insights with my own experiences to check for consistency and real-world applicability. This triangulated approach not only supported the findings with multiple forms of evidence but also highlighted the complex interplay of factors that influence HCP engagement, leading to more informed and effective strategic recommendations.

3.5. Ethical Considerations

In conducting my research, I adhered to strict ethical guidelines to ensure the integrity and respect of all participants. At the beginning of each interview, I transparently communicated the purpose of the study and the specific objectives of the interview. Participants were fully informed about the research aims and the use of the information gathered. For the quantitative research, respondents were informed prior to completing the questionnaire about the nature of the study, how their information would be used, and their rights, including the right to withdraw at any time. A consent statement was included at the start of the form, emphasizing the ethical use of their responses and ensuring that their information would not be used for advertising purposes. The statement also reassured participants that they would receive the study results.

The survey did not require respondents to provide their names or email addresses. Instead, they were asked only about their specialty and country to conduct the analysis, ensuring a high level of privacy and anonymity. Explicit assurance was given regarding the protection of participants' privacy.

The use of Google Forms provided a secure platform for collecting responses. The responses were stored in a protected mode, ensuring that data remained confidential and secure. I managed the collected data with utmost care, maintaining it in a protected environment to prevent unauthorized access. These steps were important in ensuring that all aspects of the research were conducted ethically, respecting participants' rights and maintaining the integrity of the data collected.

4. Findings

4.1. Results from interviews: qualitative data analysis

Based on five interviews, I selected five key themes to analyse the qualitative data. This approach allows for a focused and structured examination of the most pertinent aspects revealed during the interviews. By concentrating on these key themes, I can provide a comprehensive understanding of the recurring patterns, insights, and challenges shared by the interviewees. This thematic analysis ensures that the findings are both manageable and meaningful, highlighting critical areas that can inform future strategies and decisions in the relevant field.

4.1.1. Theme 1: Collaborative Strategies in Drug Commercialization

Collaborative strategies in drug commercialization involve cross-functional integration within pharmaceutical companies. This includes market access, sales, and marketing departments working together to develop and execute comprehensive business plans for new drug launches. Such collaboration also extends to fostering strong relationships with HCPs and payers to secure favourable market access, pricing, and reimbursement. The aim is to bridge the gap between scientific development and commercial strategy, maximizing patient access to new therapies while balancing revenue generation and ethical considerations.

The interviews with pharmaceutical company employees and medical doctors reveal the significance of collaboration across departments and with external stakeholders in the successful commercialization of pharmaceutical drugs. These collaborative efforts are crucial for aligning product characteristics with market needs, securing reimbursement, and ultimately enhancing patient outcomes.

- Market Access Director: "The development process for a new drug involves early collaboration across departments. We outline the Target Product Profile (TPP) that delves into product characteristics based on scientific data. Market access looks at pricing potentials and access barriers while sales and marketing focus on the patient profile."
- Sales Director: "Strong relationships with HCPs are fundamental for the adoption of new pharmaceutical drugs. These relationships can significantly

impact prescribing habits and patient outcomes. To build and maintain these relationships, we engage HCPs early in the product development process."

- Marketing Director: "Developing and executing strategic business plans for drug commercialization involves several key steps... Cross-functional collaboration is essential as input from R&D, regulatory, market access, and commercial teams is integrated into the plan."
- Market Access Director: "We engage healthcare providers early, turning them into advocates for our drug, which is especially important when negotiating with payers."
- Marketing Director: "We identify and collaborate with KOLs who can champion our products within the medical community. By involving HCPs in advisory boards, speaker programs, and clinical studies, we build trust and ensure their buy-in."

According to the interview, collaborative strategies involve cross-functional integration and strong stakeholder relationships to align drug characteristics with market needs, secure reimbursement, and enhance patient outcomes.

4.1.2. Theme 2: Balancing Revenue Generation with Patient Access and Ethical Standards

Balancing revenue generation with patient access and ethical standards is a strategic approach that ensures commercial objectives do not compromise patient access to essential medications or ethical standards. This involves setting competitive yet sustainable pricing, securing reimbursement from payers, and implementing marketing strategies that prioritize patient safety and well-being. Companies aim for financial performance while maintaining transparency, accuracy, and high ethical standards in all operations.

The interviews highlight the delicate balance pharmaceutical companies must maintain between generating revenue and ensuring that their products are accessible and ethically marketed. Interviewees from both pharmaceutical companies and the medical field emphasize the importance of adhering to ethical guidelines and prioritizing patient outcomes in commercial strategies.

- Market Access Director: "Balancing revenue and patient access involves strategic pricing and maximizing patient reach. Payers calculate the cost

implications based on drug pricing and patient numbers. Initially, we aim for broader access and competitive pricing to maximize market uptake but must sometimes adjust these factors to meet regulatory or payer demands."

- Sales Director: "Balancing sales targets with patient safety and well-being involves adhering to strict ethical guidelines and compliance standards. We prioritize transparency and accuracy in our marketing materials and provide comprehensive training to our sales force on ethical practices."
- Medical Doctor 2: "Pricing and reimbursement policies greatly influence prescription decisions. There are instances where the ideal medication for a patient's condition is beyond their financial reach due to lack of insurance coverage or inadequate reimbursement levels."
- Marketing Director: "Ensuring compliance involves rigorous internal controls, regular training, and close collaboration with regulatory affairs teams. All marketing materials are reviewed for accuracy and adherence to regulatory standards before dissemination."
- Sales Director: "We emphasize transparency and honesty in our communications, avoiding any misleading claims. Ethical considerations are integrated into our performance metrics, and we hold our teams accountable for maintaining the highest standards."
- Medical Doctor 1: "When evaluating new drugs, I rely heavily on clinical trial data and post-market surveillance reports. Balancing these with cost and patient preferences involves discussing options with patients, considering their financial situations and lifestyle, and sometimes choosing between equally effective treatments based on what is most feasible for the patient."

Balancing revenue generation with patient access and ethical standards involves strategic pricing, ensuring payer reimbursement, and adhering to ethical guidelines to prioritize patient safety and well-being.

4.1.3. Theme 3: Importance of Market Access and Reimbursement Strategies

Market access and reimbursement strategies are critical components of pharmaceutical drug commercialization. These strategies involve securing the approval of health authorities and payers to ensure that new drugs are accessible to patients and reimbursed by insurance providers. Effective market access strategies

consider the therapeutic and economic value of a drug, justify its pricing, and address potential barriers to entry in different markets. Collaboration with healthcare providers and leveraging pharmacoeconomic data are essential to navigating the complexities of market access and reimbursement.

The interviews underscore the key role that market access and reimbursement strategies play in the commercialization process. Insights from pharmaceutical company employees highlight how these strategies are developed, and the challenges encountered in ensuring that new drugs gain the necessary approvals and are reimbursed appropriately, which in turn affects patient access and outcomes.

- Market Access Director: "Market access began to focus more on the pharmacoeconomic benefits such as justifying reimbursements for new drugs over existing alternatives. It has become as critical as the risk-benefit analysis especially in top markets where reimbursement decisions are heavily influenced by both therapeutic value and economic considerations."
- Sales Director: "Pricing and reimbursement policies greatly impact patient access to medications. High prices can limit access, especially in markets with lower reimbursement rates. In some regions, only a small percentage of the drug cost is reimbursed, which can be a significant barrier for patients."
- Marketing Director: "Regulatory challenges vary significantly across different markets, including differences in approval processes, pricing regulations, and promotional restrictions. To navigate these complexities, we have dedicated regulatory affairs teams with deep knowledge of local requirements."
- Market Access Director: "The challenges include establishing a significant therapeutic advantage in a competitive market. We address these challenges by focusing on strong clinical data against placebos or competitors, which is crucial for market access."
- Sales Director: "Our strategy involves using clinical champions and leveraging scientific committees that payers trust. The knowledge transfer from providers who are well-versed in the drug's benefits through scientifically robust dossiers aids in securing favorable reimbursement decisions."
- Marketing Director: "We ensure compliance by maintaining open communication with regulatory authorities, staying updated on regulatory

changes, and conducting thorough reviews of our marketing materials and strategies."

Market access and reimbursement strategies involve securing health authority and payer approvals to ensure drug accessibility and reimbursement, balancing therapeutic and economic value.

4.1.4 Theme 4: Effective Marketing and Sales Strategies

Effective marketing and sales strategies in pharmaceutical drug commercialization involve a comprehensive understanding of the market environment, customer demographics, and unmet medical needs. These strategies are designed to align with patient needs and outcomes, leveraging both digital and traditional marketing channels. Key components include targeted marketing campaigns, partnerships with KOLs, educational initiatives, and real-world evidence to continuously refine the approach. The ultimate goal is to ensure that the sales and marketing efforts not only drive revenue but also enhance patient access and adherence to new therapies.

The interviews provide insights into how pharmaceutical companies develop and execute marketing and sales strategies that effectively promote new drugs. These strategies are integral to successful drug commercialization and are carefully crafted to address the needs of HCPs and patients while maintaining high ethical standards.

- Sales Director: "Successful commercialization of pharmaceutical drugs hinges on several key factors including thorough market evaluation, understanding customer demographics, and ensuring the product meets a genuine medical need. We look at product-market fit, customer emotions, market shares, and factors like age and sex."
- Marketing Director: "Effective marketing strategies often involve a mix of digital and traditional approaches tailored to each market's unique characteristics. Digital marketing, including social media, targeted online ads, and educational webinars, has become increasingly important."
- Medical Doctor 1: "The primary role of marketing and sales in my experience is to inform about the latest innovations. Medical journals are a key source of this information where updates about new drugs are regularly published. This method provides a reliable and scholarly approach to understanding drug developments."

- Sales Director: "We target HCPs based on several criteria including their specialty, influence in the medical community, prescribing habits, and experience with the therapeutic area."
- Marketing Director: "For instance, in launching Drug Y in multiple markets, we used a combination of digital campaigns and in-person events. We hosted webinars featuring KOLs to discuss the drug's benefits and clinical data, complemented by targeted social media campaigns that increased awareness among both HCPs and patients."
- Medical Doctor 1: "I stay updated by regularly reading the latest recommendations from scholarly societies. Medical sales representatives also influence my prescription decisions when they present their products. Additionally, the cost of medications plays a role in my prescription choices."

Effective marketing and sales strategies involve understanding the market, targeting campaigns, partnering with KOLs, and leveraging digital and traditional channels to enhance patient access and adherence.

4.1.5. Theme 5: Influence of HCPs Relationships

The influence of HCPs on pharmaceutical drug commercialization is substantial. Building and maintaining strong relationships is critical for the adoption and utilization of new drugs. These relationships impact prescribing behaviours, enhance drug advocacy, and improve patient outcomes. Effective strategies include early engagement with HCPs, continuous education, and collaboration on clinical trials and advisory boards. Trust and credibility established through these relationships are essential for successful drug launches and sustained market presence.

Interviewees emphasized the key role of HCPs relationships in the successful commercialization of pharmaceutical drugs. Insights from pharmaceutical representatives and medical doctors highlight how these relationships are nurtured and the significant impact they have on drug adoption and patient care.

- Sales Director: "Strong relationships with HCPs are crucial for the adoption of new pharmaceutical drugs. These relationships can significantly impact prescribing habits and patient outcomes. To build and maintain these relationships, we engage HCPs early in the product development process."

- Marketing Director: "We identify and collaborate with KOLs who can support our products within the medical community. By involving HCPs in advisory boards, speaker programs, and clinical studies, we build trust and ensure their buy-in."
- Medical Doctor 1: "Building a good understanding of their products encourages me to use them. The ongoing follow-up can sometimes be challenging for certain patients. Effective communication and support from pharmaceutical representatives can greatly facilitate the management and outcomes of treatments."
- Sales Director: "By involving physicians in advisory boards and educational initiatives, we were able to ensure they fully understood the drug's benefits and appropriate usage. Their endorsement and proactive patient management led to improved patient adherence and outcomes."
- Global Marketing Director: "By involving HCPs in advisory boards, speaker programs, and clinical studies, we build trust and ensure their buy-in."
- Medical Doctor 2: "Relationships with pharmaceutical representatives are important as they provide timely updates on new treatments and drug innovations. Positive experiences often stem from interactions where representatives provide detailed unbiased data that can be verified through independent research."

Relationships with HCPs are imperative for drug adoption, impacting prescribing behaviours and patient outcomes through early engagement and continuous education.

4.1.6. Coding analysis

The coding analysis involves defining distinct categories for each identified theme, ensuring a structured and comprehensive understanding of the data.

4.1.6.1. Collaborative Strategies

Pharmaceutical companies emphasize early and cross-departmental collaboration to align scientific development with commercial strategy. This approach involves integrating efforts from market access, sales, and marketing teams, as well as engaging HCPs early to build advocacy.

Coding Categories:

Early Collaboration (EC)

Cross-Departmental Integration (CDI)

Supporting Quotes:

EC: "The development process for a new drug involves early collaboration across departments." (Market Access Director)

EC: "We engage healthcare providers early, turning them into advocates for our drug which is essential when negotiating with payers." (Market Access Director)

EC: "Early collaboration across departments ensures that the commercial team understands the scientific aspects and vice versa." (Medical Doctor 2)

CDI: "Market access looks at pricing potentials and access barriers while sales and marketing focus on the patient profile." (Market Access Director)

CDI: "Developing and executing strategic business plans for drug commercialization involves several key steps... Cross-functional collaboration is crucial." (Global Marketing Director)

CDI: "Successful launches depend on aligning efforts across regulatory, market access, and commercial teams." (Medical Doctor 1)

4.1.6.2. Marketing and Sales Strategies

Effective marketing and sales strategies require a thorough understanding of the market, targeting specific audiences through a mix of digital and traditional channels, and providing ongoing education to HCPs about new treatments.

Coding Categories:

Targeted Marketing (TM)

Educational Initiatives (EI)

Supporting Quotes:

TM: "Successful commercialization of pharmaceutical drugs hinges on several key factors including thorough market evaluation, understanding customer demographics, and ensuring the product meets a genuine medical need." (Sales Director)

TM: "Effective marketing strategies often involve a mix of digital and traditional approaches tailored to each market's unique characteristics." (Global Marketing Director)

TM: "Understanding the local market and patient needs is critical for developing effective sales strategies." (Medical Doctor 2)

EI: "We hosted webinars featuring KOLs to discuss the drug's benefits and clinical data." (Global Marketing Director)

EI: "Ongoing education for HCPs helps them stay updated on new treatments and their benefits." (Medical Doctor 1)

EI: "Educational initiatives such as seminars and workshops are essential for informing doctors about new drugs." (Sales Director)

4.1.6.3. HCPs Relationships

Building strong relationships with HCPs is essential for drug adoption. This involves early engagement, involving them in advisory boards and educational initiatives, and providing consistent support to establish trust and improve patient outcomes.

Coding Categories:

Engaging HCPs (HCE)

Building Trust (BT)

Supporting Quotes:

HCE: "Strong relationships with HCPs are necessary for the adoption of new pharmaceutical drugs." (Sales Director)

HCE: "By involving cardiologists in advisory boards and educational initiatives, we were able to ensure they fully understood the drug's benefits and appropriate usage." (Sales Director)

HCE: "Engaging HCPs early in the product development process builds a foundation of trust and support." (Medical Doctor 2)

BT: "By involving HCPs in advisory boards, speaker programs, and clinical studies, we build trust and ensure their buy-in." (Global Marketing Director)

BT: "Effective communication and support from pharmaceutical representatives can greatly facilitate the management and outcomes of treatments." (Medical Doctor 1)

BT: "Trust between HCPs and pharmaceutical companies is built through transparency and consistent support." (Sales Director)

4.1.6.4. Patient Access and Ethical Standards

Balancing revenue generation with patient access requires strategic pricing and adherence to ethical marketing practices. Pharmaceutical companies must ensure their products are accessible while maintaining transparency and compliance with ethical guidelines.

Coding Categories:

Strategic Pricing (SP)

Ethical Marketing (EM)

Supporting Quotes:

SP: "Balancing revenue and patient access involves strategic pricing and maximizing patient reach." (Market Access Director)

SP: "Pricing and reimbursement policies greatly influence prescription decisions." (Medical Doctor 1)

SP: "Setting prices that balance accessibility with the need to recoup R&D investments is essential." (Global Marketing Director)

EM: "Balancing sales targets with patient safety and well-being involves adhering to strict ethical guidelines and compliance standards." (Sales Director)

EM: "We emphasize transparency and honesty in our communications, avoiding any misleading claims." (Sales Director)

EM: "Ensuring compliance involves rigorous internal controls and regular training on ethical marketing practices." (Global Marketing Director)

4.1.6.5. Challenges in Commercialization

Pharmaceutical companies face significant challenges such as regulatory hurdles and market competition. Navigating these challenges requires a deep understanding of regulatory requirements and developing strategies to differentiate products in a competitive market.

Coding Categories:

Regulatory Hurdles (RH)

Market Competition (MC)

Supporting Quotes:

RH: "Regulatory approvals can be time-consuming and complex." (Sales Director)

RH: "Navigating regulatory hurdles requires a deep understanding of local regulations and a proactive approach." (Medical Doctor 1)

RH: "Compliance with regulatory standards is critical, but it can also delay market entry." (Market Access Director)

MC: "Competition from other drugs and generics can limit market penetration." (Sales Director)

MC: "Establishing a significant therapeutic advantage is crucial in a competitive market." (Market Access Director)

MC: "Market competition requires continuous innovation and effective differentiation strategies." (Global Marketing Director)

Theme	Code	Supporting Quote
Collaborative Strategies	EC	"The development process for a new drug involves early collaboration across departments." (Market Access Director)
		"We engage healthcare providers early, turning them into advocates for our drug which is essential when negotiating with payers." (Market Access Director)
		"Early collaboration across departments ensures that the commercial team understands the scientific aspects and vice versa." (Medical Doctor 2)
Collaborative Strategies	CDI	"Market access looks at pricing potentials and access barriers while sales and marketing focus on the patient profile." (Market Access Director)
		"Developing and executing strategic business plans for drug commercialization involves several key steps... Cross-functional collaboration is crucial." (Global Marketing Director)
		"Successful launches depend on aligning efforts across regulatory, market access, and commercial teams." (Medical Doctor 1)
Marketing and Sales Strategies	TM	"Successful commercialization of pharmaceutical drugs hinges on several key factors including thorough market evaluation, understanding customer demographics, and ensuring the product meets a genuine medical need." (Sales Director)
		"Effective marketing strategies often involve a mix of digital and traditional approaches tailored to each market's unique characteristics." (Global Marketing Director)
		"Understanding the local market and patient needs is critical for developing effective sales strategies." (Medical Doctor 2)
Marketing and Sales Strategies	EI	"We hosted webinars featuring KOLs to discuss the drug's benefits and clinical data." (Global Marketing Director)
		"Ongoing education for HCPs helps them stay updated on new treatments and their benefits." (Medical Doctor 1)
		"Educational initiatives such as seminars and workshops are essential for informing doctors about new drugs." (Sales Director)
HCPs Relationships	HCE	"Strong relationships with HCPs are necessary for the adoption of new pharmaceutical drugs." (Sales Director)
		"By involving cardiologists in advisory boards and educational initiatives, we were able to ensure they fully understood the drug's benefits and appropriate usage." (Sales Director)
		"Engaging HCPs early in the product development process builds a foundation of trust and support." (Medical Doctor 2)
HCPs Relationships	BT	"By involving HCPs in advisory boards, speaker programs, and clinical studies, we build trust and ensure their buy-in." (Global Marketing Director)
		"Effective communication and support from pharmaceutical representatives can greatly facilitate the management and outcomes of treatments." (Medical Doctor 1)
		"Trust between HCPs and pharmaceutical companies is built through transparency and consistent support." (Sales Director)
Patient Access and Ethical Standards	SP	"Balancing revenue and patient access involve strategic pricing and maximizing patient reach." (Market Access Director)
		"Pricing and reimbursement policies greatly influence prescription decisions." (Medical Doctor 1)
		"Setting prices that balance accessibility with the need to recoup R&D investments is essential." (Global Marketing Director)
Patient Access and Ethical Standards	EM	"Balancing sales targets with patient safety and well-being involves adhering to strict ethical guidelines and compliance standards." (Sales Director)
		"We emphasize transparency and honesty in our communications, avoiding any misleading claims." (Sales Director)
		"Ensuring compliance involves rigorous internal controls and regular training on ethical marketing practices." (Global Marketing Director)
	RH	"Regulatory approvals can be time-consuming and complex." (Sales Director)

Theme	Code	Supporting Quote
Challenges in Commercialization		"Navigating regulatory hurdles requires a deep understanding of local regulations and a proactive approach." (Medical Doctor 1)
		"Compliance with regulatory standards is critical, but it can also delay market entry." (Market Access Director)
Challenges in Commercialization	MC	"Competition from other drugs and generics can limit market penetration." (Sales Director)
		"Establishing a significant therapeutic advantage is crucial in a competitive market." (Market Access Director)
		"Market competition requires continuous innovation and effective differentiation strategies." (Global Marketing Director)

Table 14: Thematic coding and supporting quotes from interviews

Pharmaceutical companies can optimize their strategies for drug commercialization by fostering early and cross-departmental collaboration, implementing targeted marketing and educational initiatives, building strong relationships with HCPs, balancing strategic pricing with ethical marketing practices, and navigating regulatory and market challenges effectively.

4.2. Quantitative data results from the survey

The survey received a total of 105 responses, thus achieving and even exceeding the target of 100 participants. These respondents represented a diverse group of medical professionals from various geographical locations and specialties, adding valuable depth to the study. The success in reaching the target number of respondents was important for ensuring the reliability and robustness of the data collected.

The email outreach campaign also contributed substantially to the response rate. From the 4,000 emails sent, it was anticipated that approximately 70% (or 2,800 emails) would successfully reach their intended recipients. From these successfully delivered emails, 50 doctors responded, reflecting a response rate of 1.79%. Although this method faced challenges such as incorrect email addresses and spam filters, it still played a vital role in reaching a broader audience. In addition, 300 emails were sent to doctors with whom I had previous professional interactions, resulting in 47 responses. This higher response rate of approximately 15.67% highlights the importance of leveraging existing professional networks.

Furthermore, the use of LinkedIn as a direct outreach tool was another successful strategy. From 80 direct messages sent via LinkedIn, 8 doctors responded, yielding a

response rate of 10%. This method proved effective in engaging my professional connections on the platform, illustrating the value of social media in professional surveys.

Despite the survey's success, there were some limitations, particularly related to the time constraints faced by doctors. Medical professionals often have demanding schedules, leaving them with limited time to participate in surveys, especially from unfamiliar sources. This time constraint may have contributed to the relatively low response rates from the broad email outreach and LinkedIn messages. Consequently, the survey may not have captured the full range of perspectives within the medical community, potentially leading to a selection bias where those who responded were more inclined to participate due to their interest or availability, rather than representing the entire target population comprehensively. Moreover, the survey was completely in English that can also affect the participations of HCPs if they do not understand questions.

Geographically, the survey achieved a global reach with respondents from diverse regions. The distribution included 8 doctors from Africa, 6 from America, 12 from Asia, 77 from Europe, and 1 from Oceania. This global participation, covering 22 countries, ensured a comprehensive and inclusive dataset. The international representation provided a rich variety of perspectives and insights into the commercialization of pharmaceutical drugs, allowing for sub-analysis comparisons across different continents.

Overall, the combination of personalized outreach, broad email campaigns, and strategic use of professional networks on LinkedIn culminated in a successful data collection effort. The survey’s ability to attract responses from a wide range of medical professionals across various specialties and regions underscores the effectiveness of a multifaceted approach. This diverse and representative sample is critical in ensuring the validity and reliability of the study’s findings, which aim to shed light on the commercialization practices in the pharmaceutical industry and their impact on medical professionals worldwide.

4.2.1. Demographic Data

The demographic data of the survey participants showcases a diverse and comprehensive representation of medical professionals from various regions,

specialties, age groups, genders, practice settings, and medical practice areas. This diversity is essential for ensuring the robustness and validity of the study's findings.

- Geographic Distribution

The participants hailed from multiple continents, providing a global perspective on the commercialization of pharmaceutical drugs. The continents represented include Africa, America, Asia, Europe, and Oceania. Specifically, respondents were from Algeria, Ghana, Madagascar, Morocco, Nigeria, the USA, India, Pakistan, Tajikistan, Turkey, UAE, Oman, France, Germany, Italy, Norway, Romania, Slovenia, Spain, Sweden, Switzerland, and the Solomon Islands. Notably, 58% of the participants were Swiss doctors, which reflects the ease of access and daily interactions I have with them due to my location in Switzerland.

- Medical Specialties

The survey included a wide range of medical specialties, ensuring that the insights gathered are relevant to various fields within the healthcare sector. These specialties included General Practitioners, Cardiologists, Nephrologists, Psychiatrists, Dermatologists, Emergency Medicine Specialists, Gynecologists, Plastic Surgeons, Ophthalmologists, Surgeons, Pathologists, Pneumologists, Endocrinologists, Public Health Specialists, Pediatricians, Anesthesiologists, Gastroenterologists, Geneticists, Internal Medicine Specialists, Neurologists, Rheumatologists and Pediatricians.

This distribution shows a significant representation from Gynecology (27.62%) and General Practitioners (17.14%), followed by Rheumatology (11.43%) and Cardiology (5.71%). The variety of specialties represented in the survey provides a comprehensive perspective on the commercialization of pharmaceutical drugs across different fields in the medical profession.

- Age and Gender Distribution

Participants ranged in age from 25 to 75 years, which includes both early-career and seasoned professionals. This range allows the study to capture insights from various stages of medical careers. The age distribution is as follows: 24.8% of the participants were aged 25-35, 28.6% were aged 36-45, 25.7% were aged 46-55, 18.1% were aged 56-65, and 2.9% were aged 66-75.

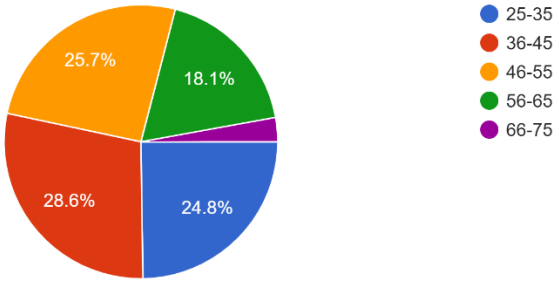

Figure 11: Age representation of survey participants

Both male and female doctors participated, ensuring gender diversity and balanced representation. Specifically, 52.4% of the participants were female, and 47.6% were male. This balanced gender representation is important for obtaining a comprehensive understanding of the perspectives across the medical profession.

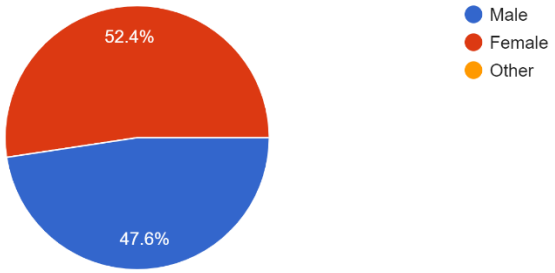

Figure 12: Gender distribution of survey participants

- Practice Settings

The medical professionals worked in diverse practice settings such as hospitals, private clinics/cabinets, laboratories. This variety reflects the different environments in which doctors operate and the diverse contexts of medical practice. Approximately 43% of the respondents worked in hospitals, 46% in private clinics or cabinets, and 11% were considered as in mixed between public and private practice, retired, or consultant positions.

- Medical Practice Areas

The survey respondents represented a wide range of medical practice areas, reflecting the geographical diversity and varied patient demographics they serve. Specifically, the majority of the participants, 76.2%, practiced in urban areas. This significant proportion suggests that most of the respondents operate in densely populated regions, where they encounter a broad spectrum of medical cases and have access to advanced medical facilities and resources.

Conversely, 5.7% of the respondents practiced in rural areas. Practicing in rural settings often presents unique challenges, such as limited access to specialized medical services and resources. This small yet critical representation is essential for understanding the distinct needs and experiences of healthcare providers in less populated and resource-constrained environments.

Additionally, 18.1% of the respondents practiced in mixed (urban and rural) areas. These medical professionals demonstrate versatility and adaptability, as they cater to diverse patient populations across different geographical settings. Their inclusion provides valuable insights into the dynamics of serving both urban and rural communities, highlighting the need for flexible and comprehensive healthcare strategies.

This diverse distribution of practice areas among the survey participants ensures that the findings of the study are applicable to a wide range of healthcare settings. By capturing the experiences and perspectives of medical professionals from urban, rural, and mixed areas, the study offers a robust and nuanced understanding of the commercialization of pharmaceutical drugs across various environments. This comprehensive representation is essential for developing effective and inclusive strategies that address the needs of different medical practice settings.

4.2.2. Effectiveness of marketing strategies

The results indicate that the current efforts by sales representatives are insufficient to effectively engage a significant number of medical doctors. In contrast, marketing strategies play a critical role in maximizing the benefits during these visits. This analysis assesses the efficiency of five distinct marketing strategies using a scoring system from 1 (not effective) to 5 (very effective). The data is summarized in a table,

showing the count and percentage of each score received. This scientific approach aims to identify the most effective marketing strategy based on the evaluated scores.

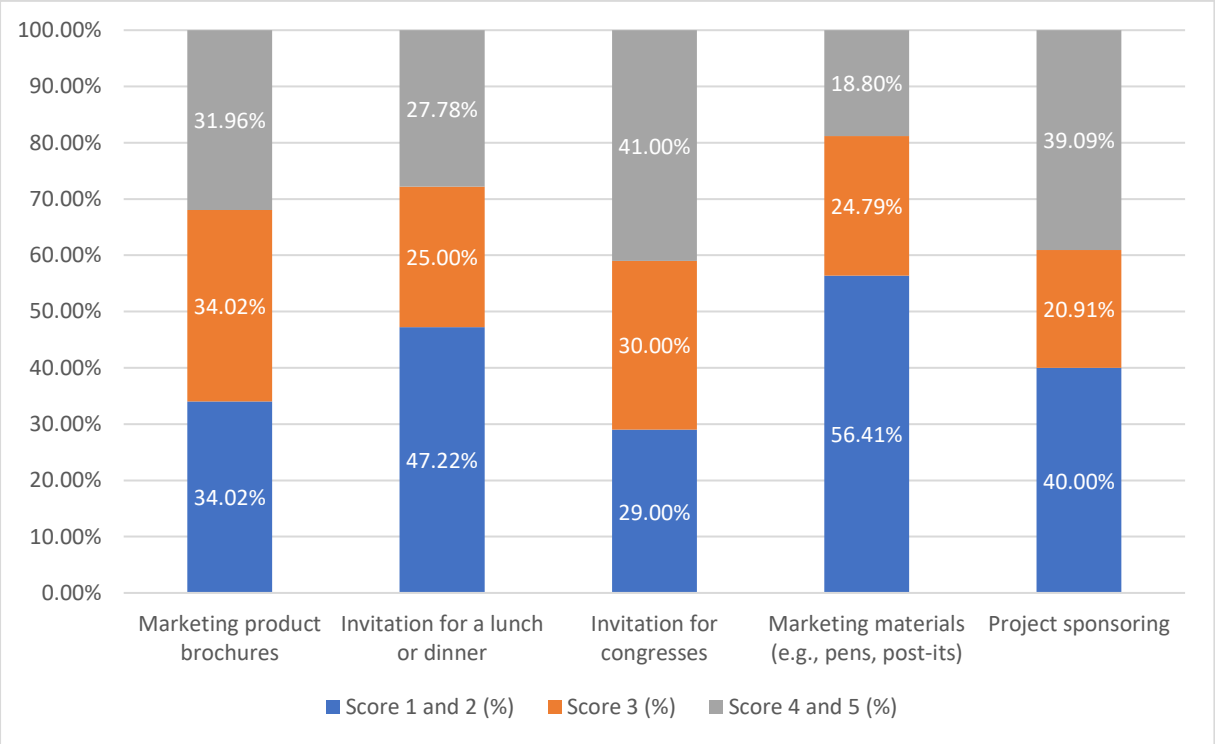

Figure 13: Effective marketing strategy

The analysis reveals that the "Invitation for Congresses" strategy is the most efficient among the evaluated strategies. This strategy received 18.00% of its scores as very effective (5) and 23.00% as effective (4), totalling 41.00% high scores. The medium scores (3) accounted for 30.00%, while the low scores (1 and 2) combined for 29.00%. The high percentage of effective and very effective scores, along with the lower percentage of ineffective scores, suggests that engaging potential clients through professional gatherings and congresses is a highly effective marketing approach.

"Project Sponsoring" also demonstrates strong efficiency. It received 19.09% of its scores as very effective (5) and 20.00% as effective (4), resulting in 39.09% high scores. The medium scores (3) accounted for 20.91%, and the low scores (1 and 2) combined for 40.00%. This balanced distribution, with a notable portion of high scores, indicates that sponsoring projects can be a relatively good marketing strategy, capable of generating considerable promotional impact.

The "Marketing Product Brochures" strategy has a balanced distribution of scores. It received 9.28% of its scores as very effective (5) and 22.68% as effective (4), totalling

31.96% high scores. The medium scores (3) accounted for 34.02%, and the low scores (1 and 2) combined for 34.02%. This strategy shows a relatively high percentage of medium scores, suggesting a consistent but not outstanding impact.

The "Invitation for a Lunch or Dinner" strategy shows moderate efficiency. It received 9.26% of its scores as very effective (5) and 18.52% as effective (4), resulting in 27.78% high scores. The medium scores (3) accounted for 25.00%, and the low scores (1 and 2) combined for 47.22%. The significant portion of low scores suggests it may not be the most efficient strategy despite having a comparable percentage of medium scores.

In contrast, "Marketing Materials (e.g., pens, post-its)" appears to be the least efficient strategy among those evaluated. It received 5.13% of its scores as very effective (5) and 13.68% as effective (4), totalling 18.80% high scores. The medium scores (3) accounted for 24.79%, and the low scores (1 and 2) combined for 56.41%. The high percentage of low scores indicates that such promotional items may not have a significant impact on potential clients compared to other strategies.

In conclusion, the analysis highlights the superior efficiency of engaging clients through congresses and professional gatherings, while indicating that traditional promotional items have the least impact.

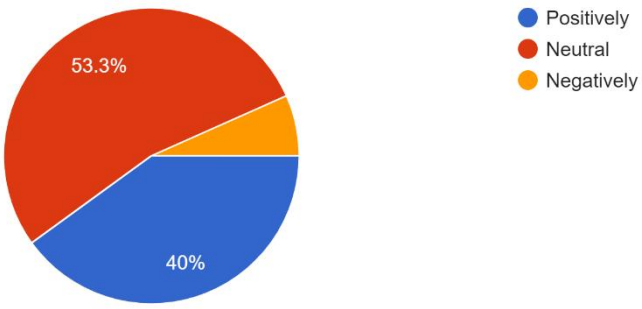

Figure 14: impact of perception of pharmaceutical products by being invited to events (Dinner, lunch...)

This finding is further supported by the figure 14. According to the chart, 40% of respondents view these invitations positively, indicating that a significant portion of the audience has a favourable response to such events. Conversely, a majority of 53.3% of respondents remain neutral, suggesting that these invitations neither positively nor

negatively influence their perception of pharmaceutical products. A small fraction, 6.7%, reported a negative impact, showing that only a minimal number of individuals have an adverse reaction to these invitations. Overall, the data suggests that while most people remain neutral, there is a notable positive reception to event invitations, with very few experiencing negative effects.

Marketing Strategy	Marketing Product Brochures	Invitation for Lunch or Dinner	Invitation for Congresses	Marketing Materials	Sponsoring of Your Project
Marketing Product Brochures	1.000	0.149	0.378	0.810	0.261
Invitation for Lunch or Dinner	0.149	1.000	0.874	0.375	1.000
Invitation for Congresses	0.378	0.874	1.000	0.879	1.000
Marketing Materials (e.g., pens, post-its)	0.810	0.375	0.879	1.000	0.874
Sponsoring of Your Project	0.261	1.000	1.000	0.874	1.000

Table 15: correlation analysis of marketing strategies

To gain a better understanding of the overall impact and to maximize the efficiency of marketing efforts, it is essential to combine multiple strategies. The correlation analysis presented offers valuable insights into the relationships between different marketing strategies. This analysis highlights that some strategies, such as "Invitation for Lunch or Dinner," "Invitation for Congresses," and "Sponsoring of Projects," are frequently used together and can create a synergistic effect. For example, the strong positive correlations between "Invitation for Congresses" and "Sponsoring of Projects" (1.000), as well as between "Invitation for Lunch or Dinner" and both "Invitation for Congresses" and "Sponsoring of Projects" (0.874 and 1.000 respectively), suggest that these strategies, when combined, can enhance overall engagement and effectiveness.

Furthermore, "Marketing Product Brochures" display varying degrees of correlation with other strategies, from a weak positive relationship with "Invitation for Lunch or Dinner" (0.149) to a strong one with "Marketing Materials" (0.810). This indicates that while brochures are commonly paired with tangible marketing materials, they are less often used in conjunction with direct social engagements like lunches or dinners.

The analysis underscores that combining certain marketing strategies can significantly enhance the effectiveness of each, particularly in contexts where direct engagement and substantial sponsorship are involved. By strategically integrating these approaches, companies can better tailor their marketing efforts to meet the complex and varied demands of the medical sector. The correlation data thus provides a robust foundation for refining marketing tactics to ensure higher engagement and impact on medical professionals. Therefore, focusing on these strategic combinations could offer the best return on investment, driving deeper engagement and yielding more substantial results in your marketing campaigns targeting the medical sector.

Medical congresses and conferences provide a significant advantage for efficiently reaching doctors during critical product launches. Based on feedback from doctors, I have pinpointed the five most common strategies that pharmaceutical companies use to keep medical professionals informed about new products with scoring from 1 (not effective) to 5 (very effective). These include medical journals, online medical platforms, interactions with colleagues/peers, pharmaceutical sales representatives, and conferences or congresses. This information helps to understand which strategies are most effective for engaging medical doctors.

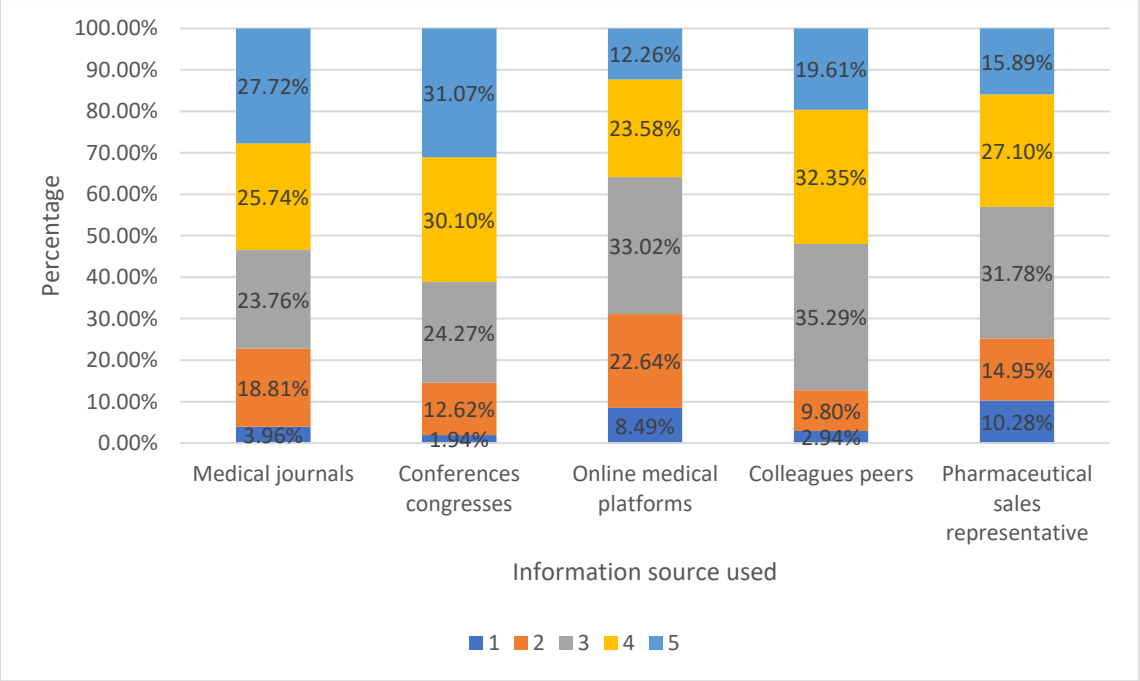

Figure 15: Effectiveness ratings and percentages of information sources among medical professionals

In assessing the effectiveness of various information sources available to medical professionals, the analysis shows a distinct preference for certain traditional and interpersonal methods over newer platforms. Medical Journals and Conferences or Congresses are rated the highest in effectiveness. Specifically, Conferences or Congresses lead slightly, with over 61% of responses rating them as highly effective, valued for their dynamic and interactive nature that provides direct access to cutting-edge research and valuable networking opportunities. Medical Journals closely follow, with more than 53% of participants rating them in the top two effectiveness categories, underscoring their reliability and the trusted, peer-reviewed information they offer.

Feedback from Colleagues/Peers also ranks highly, with around 52% of responses in the top effectiveness categories, highlighting the significant role of experiential sharing and peer recommendations in the medical community. This underscores a strong preference for firsthand experiences and practical advice, reflecting the trusted nature of information shared among peers.

Pharmaceutical Sales Representatives are not the most reliable source for doctors seeking information. Approximatively 43% view them as effective or highly effective but around 35% as less or not effective. This varied perception might reflect inconsistencies in the representatives' ability to convey information effectively or

issues with their credibility due to concerns about commercial bias compared to more academic or peer-reviewed sources.

Online Medical Platforms, despite being a modern source of information, show a mixed pattern of effectiveness. About 36% of responses rate them as effective or very effective, but nearly 31% view them as less effective or not effective, and 33% are neutral. This distribution suggests that there are notable issues with the quality, relevance, or user experience offered by these platforms, indicating a need for substantial improvements.

Overall, this ranking from reveals clear preferences and areas for improvement. This insight should guide pharmaceutical companies and educational providers in refining their strategies for information dissemination, emphasizing enhancing the engagement and quality of online and direct representative interactions while leveraging the established trust in traditional academic sources.

To further test the effectiveness of the marketing strategies following the survey data an ANOVA (Analysis of Variance) was conducted. ANOVA is a statistical method used to compare the means of three or more groups to determine if there is a statistically significant difference among them. In this case I considered 10 variables:

- Marketing product brochures
- Invitation for a lunch or dinner
- Invitation for congress
- Marketing materials
- Sponsoring of the project
- Medical journal
- Conferences
- Online medical platforms
- Peers influence
- Pharmaceutical Sales Representatives

I defined two hypotheses:

- Null Hypothesis (H0): All marketing strategies have the same mean effectiveness rating.

- Alternative Hypothesis (H1): At least one marketing strategy has a different mean effectiveness rating.

Results:

- Total Sum of Squares (SST): 1612.98
- Between-Group Sum of Squares (SSB): 157.23
- Within-Group Sum of Squares (SSW): 1455.75
- Degrees of Freedom Between (dfb): 9
- Degrees of Freedom Within (dfw): 1040
- Mean Square Between (MSB): 17.47
- Mean Square Within (MSW): 1.40
- F-statistic: 12.48

The Total Sum of Squares (SST) represents the overall variability in the effectiveness ratings. The Between-Group Sum of Squares (SSB) captures the variability caused by differences between the mean effectiveness ratings of various marketing strategies, while the Within-Group Sum of Squares (SSW) reflects the variability within each marketing strategy group.

The degrees of freedom between groups (dfb) are determined by subtracting one from the number of groups, which equals 9. The degrees of freedom within groups (dfw) are calculated by subtracting the number of groups from the total number of observations, yielding 1040.

The Mean Square Between (MSB) is calculated by dividing the Between-Group Sum of Squares by the degrees of freedom (SSB/dfb), giving 17.47. Similarly, the Mean Square Within (MSW) is obtained by dividing the Within-Group Sum of Squares by its degrees of freedom (SSW/dfw), yielding 1.40. The F-statistic is then calculated as the ratio of the Mean Square Between to the Mean Square Within (MSB/MSW), resulting in a value of 12.48.

Interpretation:

The resulting F-statistic of 12.48, along with a very low p-value (5.94x10^-19), indicates that we reject the null hypothesis. As F-statistic is significantly high, this suggests that there are statistically significant differences in the mean effectiveness

ratings among the different marketing strategies. In other words, not all marketing strategies are equally effective; some have significantly different effectiveness ratings.

To identify which specific pairs of marketing strategies have significantly different mean effectiveness ratings, a Tukey HSD (Honestly Significant Difference) test was conducted. This post-hoc analysis allows for multiple comparisons between groups while controlling the family-wise error rate.

The Tukey HSD results revealed several significant differences between pairs of marketing strategies. Significant differences were found between the following pairs:

- Pharmaceutical Sales Representatives vs. Marketing product brochures
- Pharmaceutical Sales Representatives vs. Invitation for a lunch or dinner
- Pharmaceutical Sales Representatives vs. Marketing materials
- Pharmaceutical Sales Representatives vs. Conferences or congresses
- Pharmaceutical Sales Representatives vs. Online medical platforms
- Pharmaceutical Sales Representatives vs. Peers influence
- Pharmaceutical Sales Representatives vs. Medical journal
- Invitation for congress vs. Medical journal
- Marketing product brochures vs. Conferences or congresses
- Invitation for a lunch or dinner vs. Conferences or congresses
- Marketing materials vs. Conferences or congresses
- Sponsoring of your project vs. Conferences or congresses
- Invitation for congress vs. Peers influence

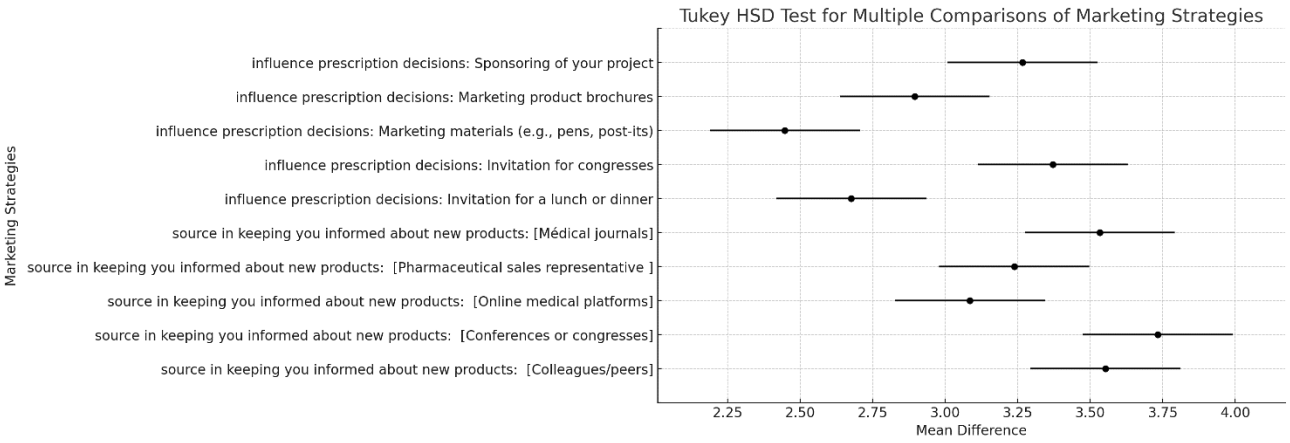

Figure 16: Tukey HSD Test for Multiple Comparisons of Marketing Strategies

Results showed that the most effective marketing strategy was conferences followed closely by peers and journals, while the least effective strategies included lunch and dinners and marketing materials (pens, post it). The results suggest that HCPs respond more positively to convectional academic channels and face to face interactions. This is visually supported by the bar chart below, which clearly shows marketing materials, lunch/dinner events, and congress invitations as having the least effectiveness ratings. The results clearly show that the pharmaceutical companies might benefit from prioritizing more direct and personalized marketing approaches, conference presentations and journal advertisements. However, it's crucial to maintain a balanced marketing mix, as different HCPs may have varying preferences. These insights can guide pharmaceutical companies in optimizing their marketing strategies to more effectively reach and influence HCPs, ultimately impacting prescription behaviors and product adoption.

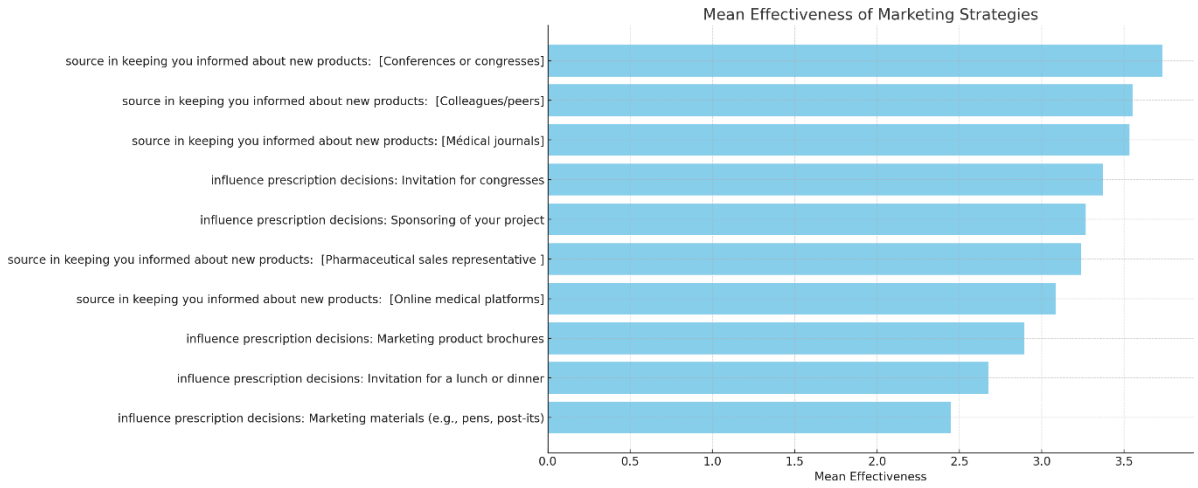

Figure 17: Mean Effectiveness of Different Marketing Strategies

4.2.2.1. Marketing materials

Creating effective tools for sales representatives is important, as these resources can enhance their presentations during meetings with doctors, where marketing plays a significant role.

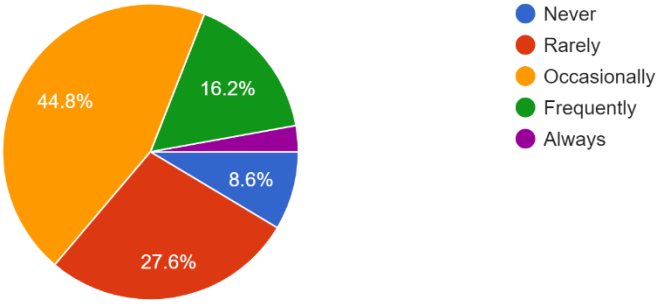

Figure 18: Frequency of Utilization of Pharmaceutical Brochures by Doctors When Considering New Products

The pie chart reveals that a substantial 63.9% of respondents refer to printed or digital brochures provided by pharmaceutical companies at least occasionally when considering a new product. This includes 44.8% who do so occasionally, 16.2% frequently, and 2.9% always.

This data underscores the importance of creating effective sales tools, as these materials significantly aid sales representatives in their presentations to doctors. Given that most doctors engage with these brochures, it is evident that these marketing materials play a key role in influencing their decisions regarding new products. Therefore, pharmaceutical companies should prioritize the development and distribution of high-quality brochures to support their sales strategies effectively.

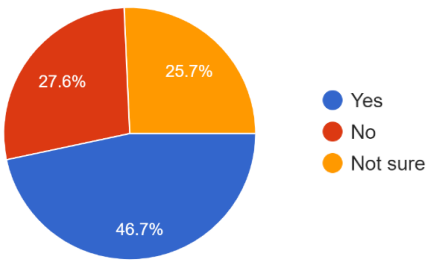

Figure 19: prescription habits changes based on promotional materials

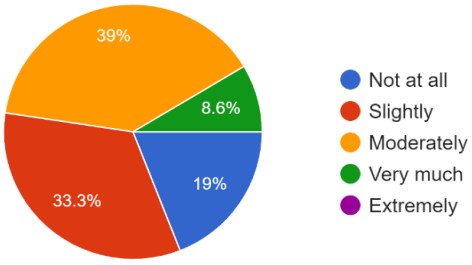

Figure 20: Marketing brochures influence for similar products

According to Figure 19, a substantial percentage of respondents, nearly half, report that promotional materials directly influence their prescribing behaviours. This underscores the critical role of marketing materials in shaping doctors' prescription habits, which is particularly important when introducing new products. Furthermore, as

shown in Figure 20, only 19% of doctors believe that marketing materials do not influence their decisions between competing products. This means that an overwhelming 81% of doctors are likely to be swayed in their prescribing decisions by marketing efforts, highlighting the need for well-strategized marketing in the pharmaceutical industry.

Marketing materials are impacting a lot of prescriptions but what are preferences of marketing materials from doctor in order to target their need and avoid budget loss for pharmaceutical companies?

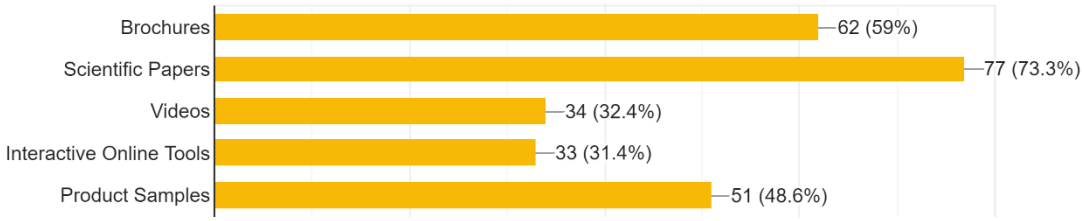

Figure 20: most helpful and understanding marketing materials according to phyisicans

The provided bar chart illustrates the types of marketing materials that medical professionals find most informative and helpful for understanding pharmaceutical products. Scientific Papers are the most favoured type of marketing material, with 73.3% of respondents finding them most helpful. This preference indicates that medical professionals highly value detailed, research-based information that provides thorough insights into the products. Brochures are also popular, selected by 59% of the respondents. This suggests that while professionals appreciate concise, readily accessible summaries of products, they do not rely on them as heavily as on more detailed scientific papers. Product Samples are considered informative by nearly half of the respondents. Samples allow doctors to directly assess the product, providing practical experience beyond theoretical knowledge. Interactive Online Tools and Videos, chosen by about a third of the respondents, highlight a growing interest in dynamic and engaging forms of information, which can offer interactive learning experiences or visual demonstrations of product use.

The data underscores the importance of investing in high-quality scientific content and educational resources that resonate with a medically knowledgeable audience. The

effectiveness of brochures suggests that these should not be neglected, as they serve as a quick reference and an initial touchpoint in the marketing funnel. There's a clear opportunity to enhance marketing impact through multimedia and interactive tools that cater to different learning preferences and technological engagement trends among medical professionals.

Additionally, the significant preference (56.2 %) for a mix of both digital and paper documents, emphasizes the need for a hybrid approach in marketing strategies to accommodate diverse professional preferences and maximize the accessibility and impact of marketing materials.

4.2.2.2. Marketing communications channels

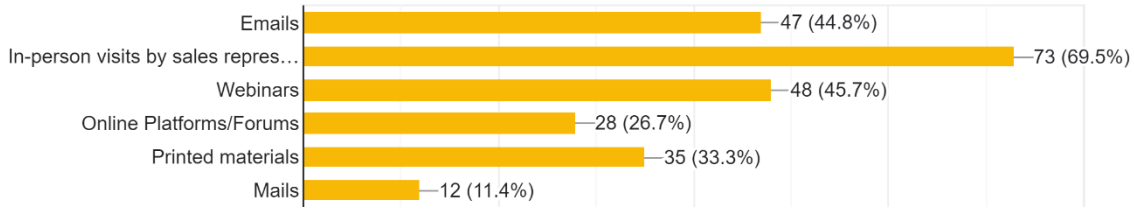

Figure 21: preferred communication channel to receive information about pharmaceutical products

According to Figure 21, in-person visits by sales representatives are the preferred method for receiving information, with 69.5% approval. This indicates that personal interaction is key in the pharmaceutical industry, emphasizing the role of direct communication and personalized engagement in presenting complex product details and fostering relationships. However, as shown in Figure 15, physicians tend to favour congresses, medical journals, or peer information when assessing the effectiveness of information sources. In these instances, the value of a personal touch and direct interaction from sales representatives is particularly evident, especially important for building relationships and effectively communicating intricate product specifics.

Emails also hold significant appeal, with 44.8% of respondents favouring this method. The popularity of emails highlights their convenience and the flexibility they offer professionals to engage with content asynchronously at their own pace. Similarly, webinars, preferred by 45.7% of respondents, indicate a strong interest in dynamic and interactive learning experiences that can be accessed remotely, combining convenience with educational value.

This transition highlights the need for pharmaceutical companies to adapt by utilizing a mix of personal and digital marketing strategies to meet the diverse preferences of healthcare providers effectively. Combining the immediacy and personalized approach of face-to-face interactions with the scalable, resource-efficient benefits of digital channels could optimize outreach and enhance the impact of communication efforts in the pharmaceutical sector.

4.2.3. Sales Impact and Prescription Patterns

4.2.3.1. Sales representatives relations with medical doctors

While pharmaceutical sales representatives are not universally regarded as the most effective source of information for medical doctors, they still play an essential role in the healthcare environment. The survey data provides a nuanced view of the impact these representatives have on the prescription decisions made by HCPs.

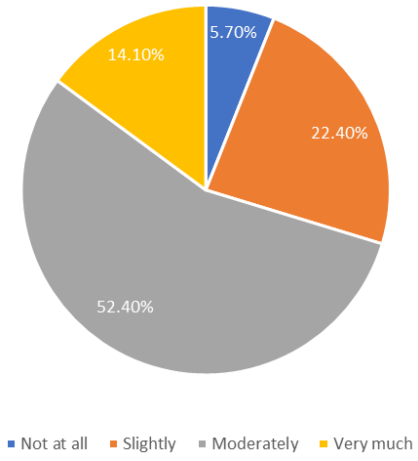

Figure 22: Sales representatives percentage of prescription impact

Most of the respondents, 52.4%, acknowledge that sales representatives have a moderate influence on their decision-making processes. This suggests that while sales representatives are indeed a factor in shaping prescription behaviours, they are generally seen as one of several information sources rather than the primary one. Medical professionals often supplement the information received from sales representatives with other, possibly more trusted sources such as medical journals, clinical studies, and peer consultations.

Meanwhile, 22.4% of medical professionals regard the influence of these representatives as only slight, suggesting a cautious approach to the promotional

information provided, often backed by a preference for more empirical and peer-validated data. This level of influence reflects a degree of scepticism about the commercial motives behind the information shared by sales representatives.

On the other end of the spectrum, 14.1% of respondents believe that pharmaceutical sales representatives are very influential, indicating a significant reliance on the information they provide. This group likely values the direct communication and detailed product knowledge offered by representatives, especially in fields where drug innovations are rapidly evolving.

However, a smaller segment, representing 5.7% of the survey participants, views the influence of sales representatives as negligible, signifying no impact on their prescription decisions. This perspective might be attributed to a strong inclination towards independent research and authoritative, non-commercial sources of information.

These findings underscore the need for pharmaceutical companies to consider these diverse perspectives in their engagement strategies. Enhancing the training and ethical standards of pharmaceutical sales representatives could improve their perceived value and trustworthiness. By providing them with comprehensive, evidence-based knowledge and emphasizing ethical communication practices, pharmaceutical companies can elevate the role of sales representatives from mere promoters to respected advisors, aligning their contributions more closely with the informational needs and ethical expectations of the medical community. This strategic approach not only aids in building trust but also ensures that the influence of sales representatives aligns positively with the professional standards and patient-centric values of healthcare providers.

Understanding the preferences of medical professionals is crucial, which is why the survey included a question about their preferred type of interaction during visits from pharmaceutical sales representatives. Most physicians indicated that they prefer quick updates on new products (73.3%) and the provision of scientific literature (58.1%). These preferences align with findings from the literature review, which shows that physicians often lack the time to thoroughly explore new products or delve deeply into scientific literature. Providing concise updates and relevant scientific materials is essential for maintaining strategic engagement with these busy professionals.

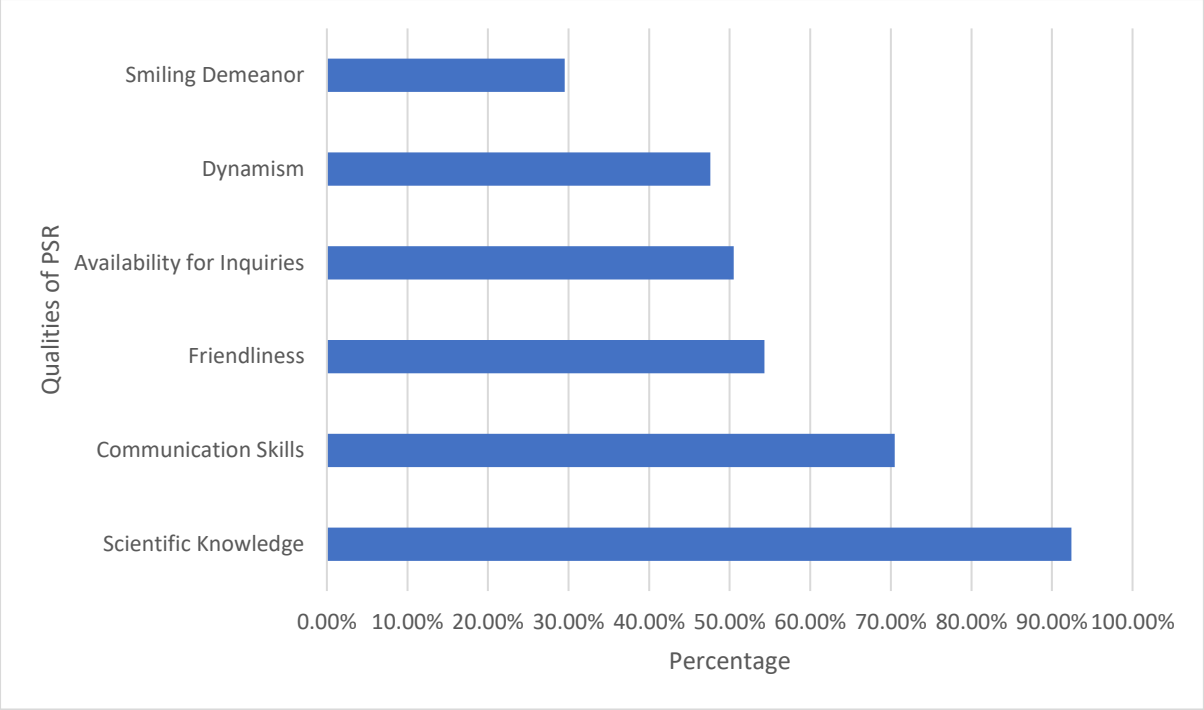

Figure 23: Physician preferences for qualities in Pharmaceutical Sales Representatives (in percentage)

The profile of pharmaceutical sales representatives is fundamental in shaping the interactions and perceptions of medical professionals. Survey results highlight the key qualities that physicians value in these representatives. A significant 92.4% of respondents emphasize the importance of scientific knowledge, underscoring the preference for representatives who are well-versed in the technical and clinical aspects of the products they promote. This suggests that representatives with a strong grasp of scientific information are better positioned to engage effectively with HCPs and influence their prescribing behaviours.

Communication skills are also highly regarded, with 70.5% of physicians appreciating this trait. The ability to convey information clearly and succinctly is crucial in interactions that often occur within the limited timeframes typical of medical settings.

Friendliness is valued by 54.3% of the respondents, indicating that interpersonal skills are important for building trust and rapport. Similarly, availability for inquiries, valued by 50.5% of physicians, highlights the need for representatives to be accessible and responsive to the doctors' needs for follow-up information and support.

Other important qualities include dynamism, appreciated by 47.6% of the respondents, which relates to the energy and enthusiasm that representatives bring to their

interactions. A smiling demeanour, though valued by 29.5% of respondents, still plays a role in creating a positive and engaging exchange.

These findings illustrate that while technical knowledge remains paramount, the overall effectiveness of a pharmaceutical sales representative is significantly enhanced by interpersonal and communication skills. This holistic approach to the sales representative's role not only facilitates the dissemination of product knowledge but also fosters professional relationships that are critical to successful pharmaceutical practice.

4.2.3.2. Prescribing decisions

Sales representatives face considerable challenges in meeting their objectives, primarily due to the preferences and time constraints of medical doctors. Approximately 75% of doctors prefer scheduled visits, which provides a structured opportunity for representatives to present their products. However, the frequency of these visits varies, with many doctors accepting visits occasionally or annually, highlighting the limited opportunities representatives have to influence prescribing habits. Furthermore, the duration of these meetings is typically brief, with the majority of doctors allotting only 10 to 15 minutes per visit (52%). This time constraint underscores the importance of effective communication and precise, impactful presentations by sales representatives. Given the short window, representatives must efficiently convey the benefits and differentiating factors of their products to persuade doctors amidst their busy schedules.

This dynamic necessitates that sales representative be exceptionally well-prepared, with a clear understanding of the product and the specific needs of the medical professional they are engaging with. The ability to quickly establish rapport and trust, combined with the provision of concise, relevant information, is necessary in maximizing the impact of each visit.

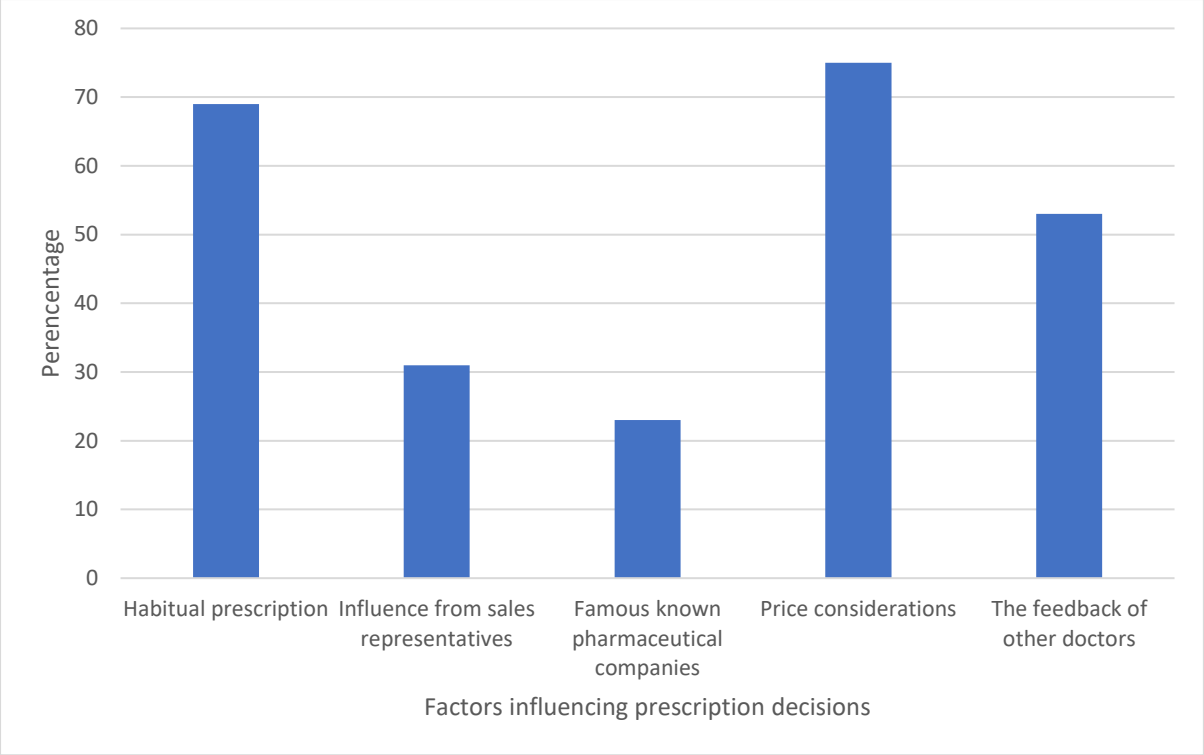

Figure 24: Factors influencing prescription decisions of medical doctors

In analysing the factors influencing physicians' prescription decisions price considerations hold the most significant sway, with 71.4% of doctors emphasizing this aspect. This highlights the key role of cost in healthcare, where physicians are increasingly mindful of the economic implications of their prescribing decisions. This priority reflects the ongoing challenge within the healthcare industry to balance clinical benefits against financial constraints, urging pharmaceutical companies to consider pricing strategies that can improve accessibility and foster broader adoption of new drugs. Furthermore, a significant 68% of physicians frequently or always recommend biosimilars or generic alternatives over branded originals, indicating a trend towards cost-effective prescribing practices, while 23% do so occasionally. This trend underscores a shift towards more economically sustainable healthcare solutions.

Following closely, habitual prescription influences 65.7% of respondents. This suggests a strong inclination towards established medical practices, indicating that many physicians prefer sticking with familiar treatments unless compelling evidence or incentives prompt a change. This reliance on routine underscores the importance of traditional and well-established therapies in clinical settings, presenting a barrier to the introduction of newer, possibly superior, medical alternatives.

Feedback from other doctors is also a significant factor, affecting 50.5% of the surveyed group. This reliance on peer insights underscores the collaborative nature of medical practice, where endorsements and experiences shared among peers can greatly influence individual prescribing habits. It highlights the role of professional networks and community knowledge in shaping medical decisions, reinforcing the need for pharmaceutical companies to engage not only with individual doctors but also with broader medical communities.

Influence from sales representatives was noted by 29.5% of physicians, indicating that while direct interaction with pharmaceutical representatives remains a vital component of promotional strategies, it is less influential compared to economic and peer-driven factors. This result points to the evolving role of sales representatives, who must now deliver value beyond traditional sales pitches, focusing more on providing substantial, evidence-based information and fostering trustworthy relationships.

Lastly, the reputation of known pharmaceutical companies was considered by 21.9% of participants. This underscores the importance of a pharmaceutical company's market standing and history in influencing prescribing behaviours. Brand strength and the perceived reliability of a company can sway decision-making, suggesting that established pharmaceutical brands might have an advantage in leveraging their legacy of trust and efficacy to influence physician prescriptions.

These findings illustrate a complex interplay of economic, habitual, peer-influenced, and informational factors that pharmaceutical companies must strategically navigate to effectively promote their products. The insights call for a nuanced approach that addresses the multifactorial priorities of the medical profession, emphasizing the need for competitive pricing, robust peer endorsements, and credible, informative interactions facilitated by sales representatives.

When commercializing a pharmaceutical drug, it is essential to raise awareness among doctors, as familiarity with new products can significantly increase sales. My survey among medical professionals revealed a robust engagement with medical conferences and congresses, critical platforms for the latest industry advancements.

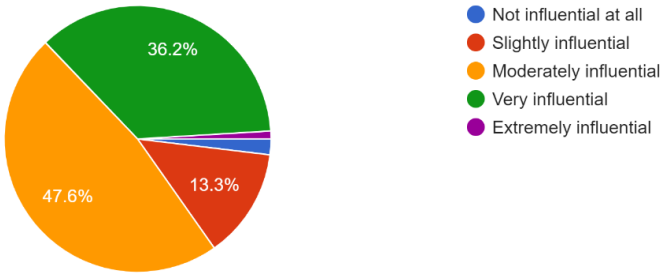

Figure 25: pharmaceutical company presentations/workshops on the influence of prescribing decisions

The data presented in Figure 25 illustrates the influence of pharmaceutical company presentations or workshops on doctors' prescribing decisions. The high percentage (85.8%) of respondents who find pharmaceutical company presentations at least moderately influential indicates that these events play a crucial role in shaping prescribing behaviours. This finding suggests that pharmaceutical companies can effectively use these presentations and workshops as a strategic tool to enhance their sales efforts. By framing these events within a scientific context and leveraging peer influence, companies can significantly impact doctors' prescribing decisions.

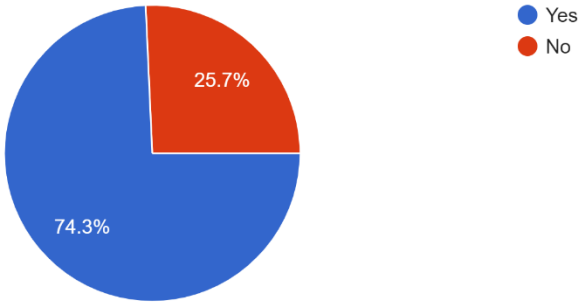

Figure 26: attendees rate of physicians of presentations or workshop in the past year

In addition to understanding the influence of these presentations, it is important to consider the attendance rates. The accompanying pie chart shows the responses to the question: "Have you attended pharmaceutical company presentations or workshops in the past year?" Out of 105 responses, the results are as follows:

- Yes (74.3%): A significant majority of respondents have attended these events in the past year. This high attendance rate indicates that these presentations are a common and accessible resource for many doctors.

- No (25.7%): A quarter of the respondents have not attended such events in the past year. While this is a smaller proportion, it still represents a noteworthy segment of doctors who may not be reached through these presentations.

The data clearly shows that pharmaceutical company presentations and workshops are a highly influential and widely attended method for impacting doctors' prescribing decisions. With 74.3% of doctors attending these events and 85.8% finding them at least moderately influential, these presentations are validated as a potent strategy for pharmaceutical companies. This approach combines scientific credibility with peer influence, making it a valuable investment for companies aiming to maximize their reach and impact within the medical community.

In addition, the Chi-Square Test results provide further insights into the relationship between doctors' profiles and their participation in these events:

- Continent vs. Attendance at Presentations: Chi2 = 7.45, p-value = 0.114
- Practice Setting vs. Attendance at Presentations: Chi2 = 4.85, p-value = 0.435
- Age vs. Attendance at Presentations: Chi2 = 2.92, p-value = 0.572
- Continent vs. Influence of Presentations: Chi2 = 12.45, p-value = 0.712
- Practice Setting vs. Influence of Presentations: Chi2 = 15.46, p-value = 0.749
- Age vs. Influence of Presentations: Chi2 = 13.69, p-value = 0.622

For all the variables tested, the p-values are greater than 0.05. This indicates that there is no statistically significant association between doctors' profiles (continent, practice setting, age) and their participation in presentations or the influence of these presentations on their prescription decisions.

4.2.3.3. Factors influencing prescription strategies

To understand sales strategies to implement and whether sales representatives influence doctors' prescription decisions, I conducted Chi-Square tests. This test is appropriate for examining the association between categorical variables. Specifically, I investigated whether there are significant differences based on doctors' gender, continent of practice, medical specialty, and age.

Variable	Chi-Square Statistic	p-value	Conclusion
Gender	0.416	0.937	No significant association
Continent	10.132	0.604	No significant association
Medical Specialty	108.425	0.131	No significant association
Age	14.251	0.285	No significant association

Table 16: Chi-square tests sales representative impact

The results suggest that sales representatives do not differentially influence specific groups of doctors based on gender, location, specialty, or age. Therefore, pharmaceutical companies should adopt a uniform approach when engaging with doctors. This means that marketing strategies and sales representative interactions should be designed to be equally effective across all categories of doctors. Instead of tailoring strategies based on demographic or professional characteristics, companies should focus on universally effective techniques that appeal to all doctors.

By ensuring that their approach is inclusive and consistent, pharmaceutical companies can maximize their influence on prescription decisions across a broad range of doctors. This uniform strategy can help in building stronger relationships with the medical community and ensuring that all doctors feel equally valued and respected, regardless of their demographic or professional background.

Furthermore, I conducted additional Chi-Square tests to understand the prescription choices of doctors according to their profile. The table below summarizes the results:

Factor	Variable	Chi-Square Statistic	p-value	Interpretation
Famous Known Pharmaceutical Company Products	Age	2.873	0.579	No significant association.
Famous Known Pharmaceutical Company Products	Continent	3.506	0.477	No significant association.
Famous Known Pharmaceutical Company Products	Gender	1.449	0.229	No significant association.
Famous Known Pharmaceutical Company Products	Practice setting	3.991	0.991	No significant association.
Habitual Prescription	Age	4.251	0.373	No significant association.
Habitual Prescription	Continent	16.431	0.002	Significant association.

Habitual Prescription	Gender	1.910	0.167	No significant association.
Habitual Prescription	Practice setting	18.106	0.154	No significant association.
Influence from Sales Representatives	Age	7.027	0.134	No significant association.
Influence from Sales Representatives	Continent	3.673	0.452	No significant association.
Influence from Sales Representatives	Gender	0.554	0.457	No significant association.
Influence from Sales Representatives	Practice setting	17.317	0.185	No significant association.
Influence of Branded Material (Pens, Post-its)	Age	7.339	0.119	No significant association.
Influence of Branded Material (Pens, Post-its)	Continent	3.000	0.558	No significant association.
Influence of Branded Material (Pens, Post-its)	Gender	0.000	1.000	No significant association.
Influence of Branded Material (Pens, Post-its)	Practice setting	1.128	0.999	No significant association.
Price Considerations	Age	0.511	0.972	No significant association.
Price Considerations	Continent	2.333	0.675	No significant association.
Price Considerations	Gender	0.100	0.752	No significant association.
Price Considerations	Practice setting	9.280	0.751	No significant association.
The Feedback of Other Doctors	Age	1.562	0.816	No significant association.
The Feedback of Other Doctors	Continent	6.812	0.146	No significant association.
The Feedback of Other Doctors	Gender	0.000	1.000	No significant association.
The Feedback of Other Doctors	Practice setting	12.014	0.527	No significant association.

Table 17: Chi-Square tests to understand the prescription choices of doctors according to their profile

Based on the Chi-Square tests, the only factor showing statistically significant differences is habitual prescription practices according to the continent of practice. To further explore this, I created a bar chart and percentage distribution to illustrate how habitual prescription practices vary across different continents. In Africa, 75% of doctors habitually prescribe certain medications, while 25% do not. In America, 33.3% of doctors habitually prescribe certain medications, while 66.7% do not. In Asia, 25% of doctors habitually prescribe certain medications, while 75% do not. In Europe,

74.4% of doctors habitually prescribe certain medications, while 25.6% do not. In Oceania, 0% of doctors habitually prescribe certain medications, while 100% do not.

The interpretation of these results reveals that Africa and Europe exhibit a high prevalence of habitual prescription practices. Conversely, America and Asia show a lower prevalence of habitual prescription practices. Notably, Oceania reports no habitual prescription practices. This finding indicates that habitual prescription practices are significantly more common in Africa and Europe compared to America, Asia, and Oceania.

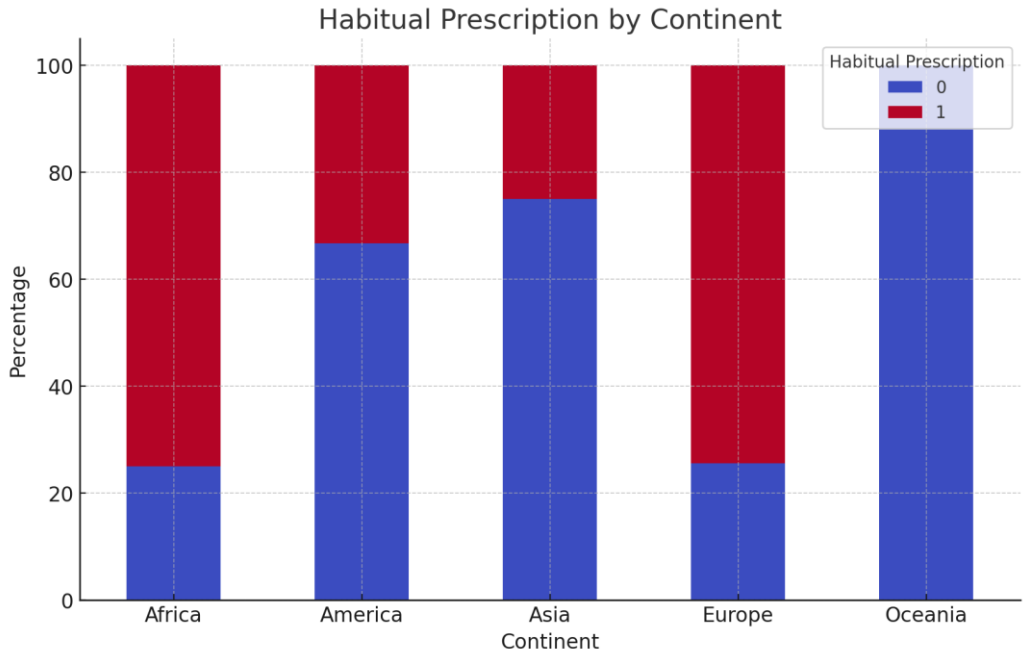

Figure 27: habitual prescription by continents

Given the high prevalence of habitual prescription practices in Europe and Africa, pharmaceutical companies should adopt strategies that emphasize consistency and reliability. Highlighting long-term efficacy and safety data can reassure doctors who prefer to stick to familiar medications. For example, companies could focus on messages such as, "Our product has consistently delivered reliable results over many years, making it a trusted choice for your habitual prescriptions."

Additionally, leveraging peer influence and endorsements from respected local practitioners can be effective. Providing testimonials and endorsements from respected local practitioners can be particularly persuasive. Companies might emphasize, "Join the many doctors in your region who trust our product for their

habitual prescriptions." Offering CME programs that include data and case studies about the effectiveness of the product can further reinforce its place in habitual prescription routines. Statements like, "Stay informed and confident in your prescribing practices by participating in our accredited CME programs," can be impactful.

Strengthening relationships with KOLs in Europe and Africa can also help influence broader prescribing habits. KOLs can advocate for the product based on their positive experiences, with messages such as, "Dr. X has seen great success with our product in habitual prescriptions, enhancing patient outcomes."

In regions with lower prevalence of habitual prescription practices, such as America and Asia, pharmaceutical companies should emphasize the innovative aspects and new clinical data of their products. Doctors in these regions may be more open to trying new medications. Key messages could include, "Discover the innovative benefits of our latest product, backed by recent clinical trials." Addressing specific pain points and unmet medical needs can also be persuasive. For instance, "Our product addresses the specific needs of your patients, offering unique benefits that enhance care," can appeal to doctors looking for new solutions.

Additionally, developing comprehensive patient support programs to assist with adherence, monitoring, and follow-up can make it easier for doctors to transition to the new product. Emphasizing this support with messages like, "Our patient support program ensures seamless integration of our product into your practice, with dedicated assistance for both doctors and patients," can help in adopting new medications.

It is important to consider potential biases in this analysis, particularly due to the unequal distribution of participants across different continents. This uneven representation may affect the generalizability of the findings. Future research should aim for a more balanced sample to validate these results further. Ensuring a representative sample will help in drawing more accurate and generalizable conclusions about the influence of sales representatives and habitual prescription practices across different regions.

4.2.4. Methods to increase relationships with HCPs

To improve relationships with HCPs, strategies are recommended based on survey results.

Employ Sales Representatives: Direct information delivery is preferred by 69.5% of HCPs, who favour receiving information directly from sales representatives. The action plan is to hire and train more sales representatives to meet this preference.

Scientific trained Sales Representatives: The appreciation for scientific knowledge among sales representatives is high, with 92.4% of doctors valuing this aspect. Therefore, providing comprehensive scientific training for sales representatives is essential to gaining trust and improving relationships.

Scheduled Visits: Scheduled visits are preferred by 74.3% of doctors. Implementing a system for scheduling visits in advance will help align with doctors' preferences.

Providing the Right Materials: A significant 73.3% of doctors prefer receiving scientific papers to save time. Consequently, supplying scientific papers and relevant research directly to doctors during visits will be beneficial.

Mix of Marketing Materials: There is a preference for a mix of both digital and paper materials, with 56.2% of doctors favoring this approach. Ensuring a balanced mix of digital and printed marketing materials will cater to this preference.

Optimal Visit Duration: Doctors have indicated that they prefer visits lasting 10-15 minutes, with 52.4% supporting this duration. To respect doctors' time, it is essential to schedule concise and efficient visits.

Content of Visits: Quick updates on new products are favored by 73.3% of doctors. Focusing on delivering essential and clear information about new products will meet this need.

Workshops: Participation in workshops is high, with 74.3% of doctors having attended them. Organizing regular workshops will increase visibility and contacts.

Congress Invitations: Inviting doctors to congresses is seen as an effective marketing strategy by 41% of doctors. Invitations to relevant congresses can direct enhance relationships.

Booths at National and International Congresses: Attendance at medical congresses is significant, with 84.7% of doctors participated last year. Ensuring a presence at congresses with an informative and engaging booth is essential for engagement.

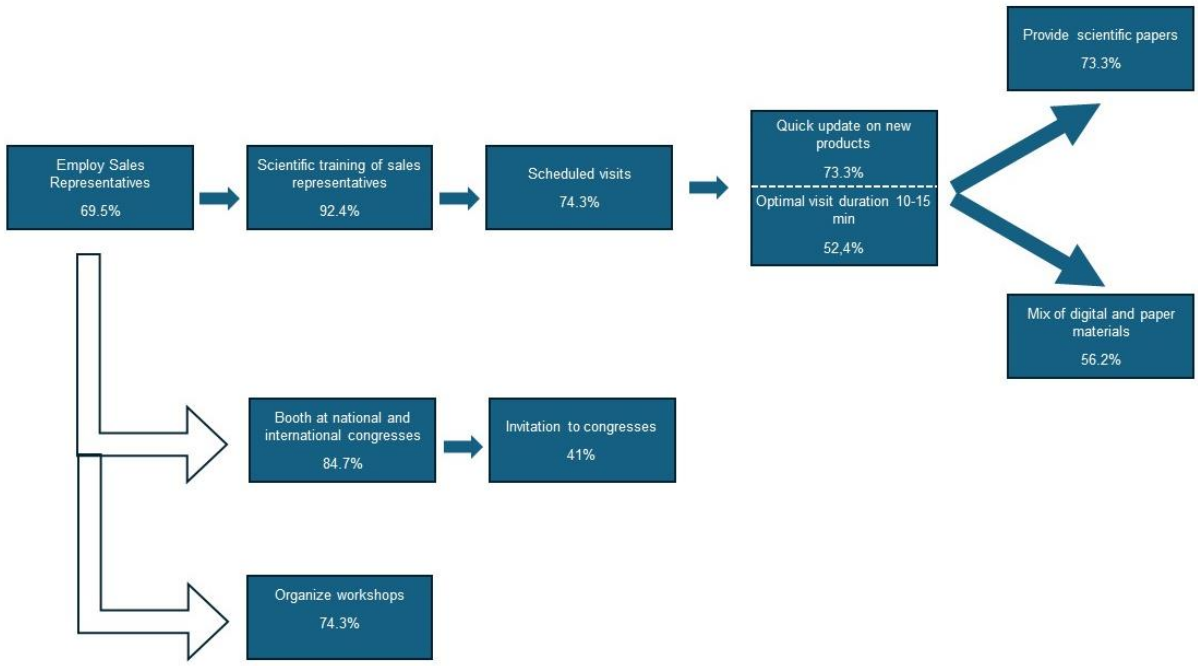

Figure 28: Strategies for enhancing relations with HCPs

In addition to my survey findings, I employed mix methos with triangulation strategies incorporating my findings in the survey results and also my diverse interviews.

4.2.4.1. Effective Sales Representative Training

Thorough training for sales representatives ensures they possess deep knowledge about the latest products and can effectively communicate their benefits. This approach aligns with the preferences of HCPs, as evidenced by survey data showing that 92.4% of medical doctors value interactions with scientifically knowledgeable representatives. Insights from the Sales Director highlight that well-informed representatives are perceived as more credible and trustworthy. Interviews with HCPs

reinforce the importance of knowledgeable representatives in establishing trust-based relationships.

4.2.4.2. Providing Valuable Information during the visits

The survey indicates that 73.3% of HCPs appreciate receiving up-to-date scientific papers during visits, favouring evidence-based practices. Medical Doctor 1 emphasized the importance of receiving scientific papers from sales representatives to stay informed about the latest research and treatments. Additionally, the preference for a mix of digital and paper materials, supported by 56.2% of doctors, caters to various informational needs and contexts. Medical Doctor 2 noted the effectiveness of this approach, facilitating easy access to digital content while providing physical documents for deeper reading and sharing with their patients. This combination of materials during visits meets the diverse preferences of HCPs, enhancing engagement and information delivery.

4.2.4.3. Engaging through Conferences and Workshops

Engagement through participation in national and international congresses and workshops is a key strategy, with 84.7% of doctors attending congresses last year and 74.3% participating in workshops. The Market Access Director pointed out that booths at these events provide opportunities to interact with many HCPs, showcasing new products and research. Workshops enable in-depth discussions and hands-on experiencesfor deep engagement, as noted by the Sales Director. Although only 41% of doctors consider invitations to congresses as an effective strategy, the Marketing Director mentioned that such invitations enhance knowledge and strengthen relationships. These findings from interviews and survey data underscore the critical role of conferences and workshops in fostering professional relationships and promoting continuous education among HCPs.

By triangulating quantitative and qualitative data, we gain a comprehensive understanding of the methods for increasing relationships with doctors. The integration of training, regular communication, mixed media dissemination, active participation in conferences and workshops, and invitations to high-impact events are validated by multiple data sources. This robust approach ensures the strategies not only drive engagement but also build trust and credibility, ultimately enhancing relationships with HCPs.

4.2.5. Patients' outcome

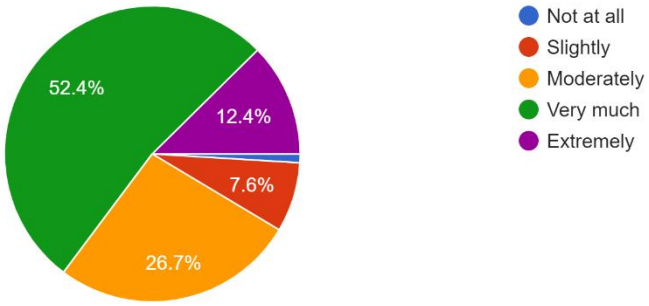

Figure 29: Patients preferences and feedback influencing the prescription decisions

The pie chart from figure 29 illustrates the degree to which patient preferences and feedback influence healthcare providers' prescription decisions. A majority, 52.4%, report that patient preferences very much influence their prescribing behaviour, indicating a significant shift towards patient-centred care where feedback and preferences directly affect treatment choices. Another 26.7% of respondents state that patient preferences moderately influence their decisions, suggesting a balanced approach where patient input is important but weighed against clinical judgment and other factors. Meanwhile, 12.4% of the providers feel that patient preferences slightly influence their decisions, likely reflecting a prioritization of medical guidelines over patient feedback. A small fraction, 7.6%, indicate that patient preferences do not influence their prescription decisions at all, highlighting a strict adherence to clinical protocols regardless of patient input.

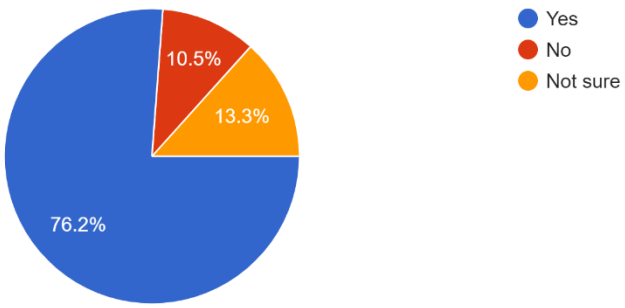

Figure 30: Situations where patients express preferences for specific brands name

The second pie chart (figure 30) delves into whether HCPs have encountered patients expressing a preference for specific brands over generics or biosimilars. A significant 76.2% of respondents confirm they have faced such situations, underscored the strong brand recognition and trust some patients hold towards specific pharmaceutical products. Conversely, 13.3% have not noticed such preferences, which might suggest either a patient base that is less influenced by branding or a clinical environment where generics are strongly advocated. The remaining 10.5% are not sure, reflecting either less direct interaction with patients regarding their medication choices or a lack of clarity in patient communication about brand preferences.

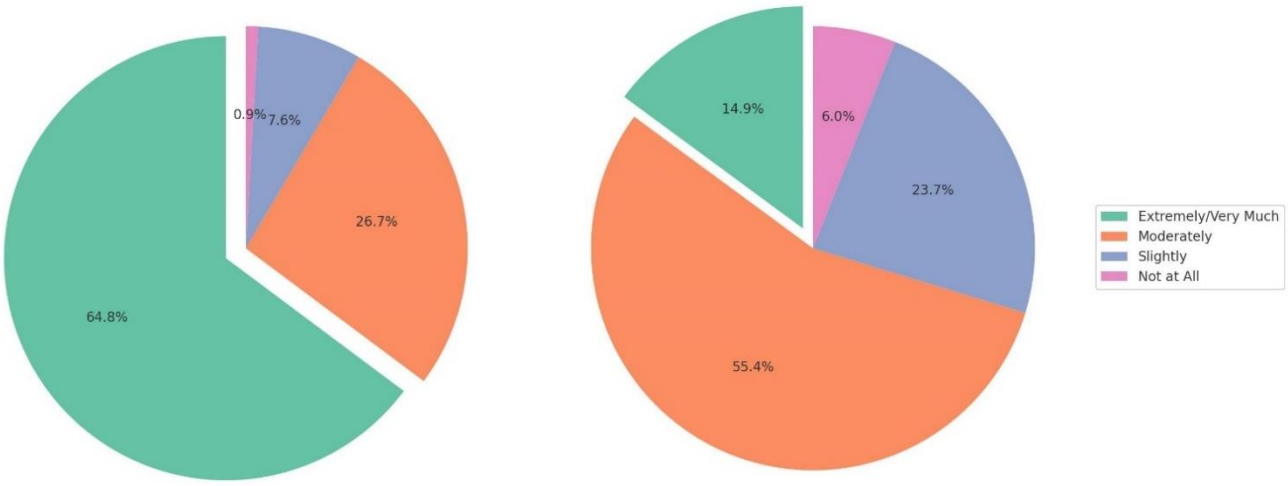

Figure 31: influence of patient's vs sales representatives on prescriptions

This further analysis explores how healthcare providers prioritize patient needs versus industry relationships when making clinical decisions, which is important for understanding the dynamics of patient-centred care and pharmaceutical marketing strategies. The chart reflects that a significant majority (64.8%) of healthcare providers are heavily influenced by patient preferences either extremely or very much conversely (14.1 %) are influenced very much by sales representatives.

This analysis reveals a clear preference for prioritizing patient needs over pharmaceutical industry relationships among healthcare providers. It underscores the importance of maintaining a focus on patient outcomes and the ethical considerations in managing interactions with the pharmaceutical industry. These findings could have significant implications for how pharmaceutical companies approach their marketing strategies and how healthcare systems might further encourage a patient-first approach in clinical settings.

In response, pharmaceutical companies could deepen their engagement by forming stronger partnerships with patient associations. This collaboration would facilitate a deeper understanding of patient needs and preferences, thereby supporting more informed treatment options and enhancing brand loyalty. By implementing a patient-centric approach, these companies can tailor their strategies and operations to prioritize and effectively address patient requirements. This approach ensures that patient feedback directly influences product development, marketing, and customer support, leading to greater patient satisfaction and engagement. Such efforts can improve health outcomes and foster loyalty, which are necessary for building trust and achieving long-term success in the competitive pharmaceutical market.

5. Recommendations and Conclusions

This study aimed to explore the strategies for pharmaceutical drug commercialization, focusing on how pharmaceutical companies can develop and execute strategic business plans that incorporate effective marketing and sales strategies, foster strong relationships with HCPs, and maximize patient outcomes while adhering to high ethical standards.

Throughout my thesis, it has become evident that fostering teamwork within companies is essential for success. Collaboration between departments such as sales, marketing, market access, and, when necessary, medical for training of sales teams and regulatory teams to adhere ethical strategies significantly enhance product optimization. Some companies still operate with a disconnect between their sales and marketing departments. However, my findings underscore the indispensable nature of this collaboration. Sales teams, being on the front lines, possess valuable insights into market needs and customer feedback. Therefore, it is essential for marketing strategies to be informed and adapted based on this real-time input from sales personnel. By bridging the gap between sales and marketing, companies can create more effective and responsive strategies, ultimately leading to better market performance and product success.

In the initial stages of launching a new product, as highlighted by the market access director during my interview, it is imperative to establish a pricing strategy. This strategy involves analysing the potential patient population to approximate how many individuals could benefit from the product. A core component of this strategy is securing approval from health authorities and gaining acceptance for insurance coverage. Additionally, my findings underscore that price considerations are the primary factor influencing prescription decisions of HCPs. Without reimbursement, the challenges of promoting the product increase significantly, which can deter patient access to the benefits of the drug thereby negatively affecting sales.

It is why, pricing strategy is a critical element in crafting an effective commercialization plan. Setting the price too high can restrict patient access, undermining the drug's market penetration and public health impact. Conversely, pricing the drug too low may result in financial losses, as the revenue generated may not suffice to cover the initial investment before the entry of generic competitors. Thus, a balanced pricing strategy

not only supports the recovery of investment in a timely manner but also ensures that the product remains accessible to those in need, optimizing overall market strategy and patient health outcomes.

Devi in his article stressed this point, effective market analysis, branding, and ongoing market strategies are also significant components of the commercialization process, as they help identify target patient populations, understand competition, and establish a strong brand identity is essential for promoting the drug. Engagement with healthcare payers and optimization of distribution channels and supply chain further enhance market access and patient reach, while regulatory compliance and pharmacovigilance maintain safety standards (Devi, 2024).

Once the product is marketed, the formulation and execution of a strategic marketing plan are paramount for the commercial success of pharmaceutical drugs. A well-crafted marketing strategy not only builds lasting brand value but also earns trust among HCPs and patients, thereby securing a robust market presence (Smith, 2023). Various strategies are discussed in the literature, raising the critical question of how to determine their effectiveness. Introducing a new product into the market requires the implementation of multiple strategies, with marketing playing an essential role. Numerous authors have discussed this topic within the literature review; however, determining the most effective marketing strategies remains a challenge. The pharmaceutical industry invests heavily in marketing, but not all strategies yield equal returns. An effective marketing strategy is fundamental to prevent budget losses on tools and tactics that fail to resonate with healthcare providers.

In my thesis, I have explored various pharmaceutical marketing strategies, aiming to identify those most effective in engaging HCPs. Through a literature review coupled with my empirical research, it has become clear that certain strategies stand out for their efficacy and importance.

The findings from the qualitative and quantitative analyses reveal several critical insights. Firstly, traditional methods such as face-to-face presentations and workshops are highly influential, with 85.8% of doctors finding them at least moderately impactful. This underscores the enduring value of personal interaction in the pharmaceutical industry, despite the rise of digital marketing channels. The study also found no significant association between doctors' demographic variables (gender, continent,

medical specialty, and age) and their participation in these presentations or the influence these presentations have on their prescription decisions. This suggests that the effectiveness of these strategies is universal, transcending demographic boundaries and highlighting the importance of a consistent approach in engaging HCPs.

Educational and professional gatherings such as congresses and conferences are highlighted in both literature and my findings as particularly effective. Johnson notes that these events are essential for educating HCPs and fostering networks that are pivotal in the pharmaceutical field (Johnson, 2023). My research supports this, showing that "Invitation for Congresses" was one of the highest-rated strategies, with 41.00% of responses rating it as effective or very effective. Given these insights, I recommend that pharmaceutical companies should not only continue but expand their presence at such gatherings. High-quality, informative presentations that are aligned with the latest medical research can significantly enhance product visibility and trust.

Project sponsoring is another strategy that has shown considerable effectiveness. Goyal discusses the benefits of this approach in building long-term relationships within the medical community by supporting initiatives that align with broader healthcare goals (Goyal, 2013). My data aligns with this perspective, indicating that 39.09% of participants found project sponsoring to be highly effective. This suggests that pharmaceutical companies should carefully select projects that both enhance their brand and provide genuine value to the healthcare community, thus positioning themselves as partners in advancing healthcare.

The shift towards digital marketing is also significant. Smith points out the growing importance of digital platforms in reaching and engaging HCPs (Smith, 2023). While my findings did not rate digital marketing strategies as the most effective individually, the correlation analysis indicated that they are integral to a comprehensive marketing approach to use in addition to other strategies. Therefore, embracing digital transformation by developing targeted online content, virtual conferences, and interactive digital resources accessible on demand can greatly enhance engagement with HCPs.

Several authors assess effectiveness of various strategies in their countries. For example, in Saito’s study physicians recognize pharmaceutical representatives as

important educational resources, particularly for new medications, there is a strong consensus that promotional gifts and meals have minimal influence on their prescribing behaviours (Saito, 2023). For Hailu's in Ethiopia showed that majority of doctors are influenced by marketing strategies with also involving direct educational engagement and personal invitations to company facilities were perceived as more influential (Hailu, 2021). For Karri in a study done in India the regular visits of sales representatives are the most efficient strategy (Karri, 2023). However, this approach may not be suitable for every country due to cultural differences. To maintain and enhance these relationships, alternative approaches such as CME sessions, workshops, or webinars could be employed to ensure more frequent and productive interactions.

The existing literature does not comprehensively assess the efficacy of all possible pharmaceutical marketing strategies in global level. For example, Marco and Goyal stressed diverse array of tactics, including the distribution of free samples, advertising in medical journals, and the provision of printed product literature but without going in deep of efficiency (Marco, 2006; Goyal, 2013). By developing my survey, I aimed to bridge this gap, providing valuable insights into the world of drug commercialization strategies. I evaluated various strategies employed by different companies to gain clarity on their effectiveness. By understanding the effectiveness of these marketing strategies, materials, and communication channels, I am now positioned to draw informed conclusions that can significantly impact the field of pharmaceutical marketing. This analysis highlights a clear paradigm shift toward educational and relationship-driven approaches over traditional promotional tactics, reflecting a broader transformation within the healthcare sector toward evidence-based and patient-centred care.

The data indicates that conferences, peer interactions, and medical journals are the most influential sources for keeping HCPs informed. These channels are preferred for their credibility and capacity to support continuous learning and professional development. This strong preference underscores the necessity for pharmaceutical marketing to pivot toward more substantive, research-oriented content that adheres to the high standards of medical professionals today.

Conversely, traditional marketing strategies such as invitations for meals and promotional giveaways are seen as less effective. This trend suggests a growing scepticism toward overtly commercial tactics among HCPs, who increasingly value authentic, value-added interactions. This shift is a clear directive for the pharmaceutical industry to reassess its marketing approaches, ensuring they align more closely with the ethical considerations and professional expectations prevalent in today's medical field.

To effectively employ educational and relationship-driven approaches, marketing materials play an important role. The diversity in the effectiveness of various types of marketing materials reflects the varied communication needs within the healthcare community. Scientific papers and brochures are particularly valued, indicating a strong preference for detailed and research-based information. Meanwhile, the roles of videos, interactive online tools, and product samples highlight the necessity for a multifaceted approach that accommodates different learning styles and technological engagements. These findings are also confirmed throw literature where Sonawane in rapidly evolving pharmaceutical sector suggest the use of multi-channel promotions, moreover Roberts in his article confirm the use of more educational materials, ranging from scientific publications aimed at healthcare professionals to patient friendly brochures, empower stakeholders with the knowledge needed to make informed treatment decisions (Sonawane, 2024; Roberts, 2024). According to my findings, habitual prescribing is identified by 69% of physicians as a significant factor influencing their prescription decisions, ranking just after price considerations. This underscores the importance of strategies aimed at altering these habits. Nearly half of the physician’s report that promotional materials directly impact their prescribing behaviours, highlighting the effectiveness of these strategies in influencing prescription practices.

Furthermore, the strong preference for in-person interactions emphasizes the enduring importance of personal connections in pharmaceutical sales strategies, while the popularity of digital platforms such as webinars and emails illustrate an increasing acceptance of digital communication methods. This dual preference underscores the need for a hybrid communication strategy that combines the personal touch of face-to-face interactions with the scalability and convenience of digital channels.

The integration of multiple marketing strategies is critical. Marco advocates for an integrated marketing approach, noting that combining various strategies can lead to synergistic effects (Marco 2006). My findings support this, showing strong positive correlations between different strategies like "Invitation for Congresses" and "Sponsoring of Projects." Therefore, it is evident that pharmaceutical companies should deploy a mix of direct engagement, educational initiatives, and digital marketing to effectively engage HCPs at multiple touchpoints.

Given these findings, pharmaceutical companies are advised to enhance their support for professional development events and increase contributions to scientific research publications. Such efforts would not only build credibility but also establish a robust presence within the professional networks that influence prescribing behaviours. Additionally, companies should minimize traditional promotional activities in favour of strategies that provide tangible educational value or practical utility to HCPs. It is confirmed by several authors where for them educational programs and initiatives, such as CME and peer-to-peer networks, further enhance understanding and expertise among healthcare professionals, building a community of practice and trust around the drug and highlighting the benefits of the drugs within the medical community (Brax, 2017; Ventola, 2014; Verma, 2024; Patil, 2016).

In-depth analysis reveals that fostering strong relationships with HCPs is instrumental in optimizing commercial strategies. It's not merely about disseminating information; it's about engaging in a meaningful dialogue where feedback from HCPs on products can be integrated continuously. For instance, establishing advisory boards and soliciting regular feedback about marketing materials can significantly aid pharmaceutical companies in tailoring their approaches to better support HCPs in their clinical practices. These interactions facilitate a two-way exchange where pharmaceutical companies not only inform but also listen, learn, and adapt based on the insights provided by medical practitioners.

Moreover, pharmaceutical industries should pivot from viewing HCPs merely as clients to seeing them as collaborative partners in the journey of medical advancement. Enhancing the knowledge of HCPs, providing them with valuable insights, and training them on the latest advancements can foster a deeper understanding of the company’s policies and products. Such educational initiatives empower physicians, making them

more likely to consider and prescribe new products as they understand their benefits and positioning better.

The competition in pharmaceuticals is fierce, and often, when HCPs are faced with multiple similar products, their choice might lean towards a company that demonstrates greater effort in engagement and provides superior support and information. Therefore, maintaining close, ethical relationships with medical doctors is not merely a strategy for better marketing but a crucial step in securing market share against competitors. These relationships, built on trust and ongoing dialogue, ensure that pharmaceutical companies can effectively navigate the competitive field while adhering to ethical standards that prioritize patient well-being above all.

Reflecting on the thorough exploration in my thesis of various factors that influence healthcare practices, it becomes clear that enhancing patient outcomes transcends the direct effectiveness of medications. The comprehensive approach I have taken emphasizes not only marketing strategies but also the integration of ethical considerations, patient-centred care, and educational initiatives, which together play a key role in enhancing healthcare delivery and improving patient outcomes.

To enhance patient outcomes, pharmaceutical companies must prioritize transparency and education in their interactions with HCPs. By offering detailed, research-based information on drugs, including their benefits and potential side effects, pharmaceutical companies can assist HCPs in making more informed prescribing decisions. This approach helps ensure that patients receive the medications best suited to their specific health needs, ultimately enhancing therapeutic outcomes.

The significance of transparency extends into building and maintaining trust-based relationships with healthcare providers. During interviews, HCPs expressed a clear preference for openness, particularly about potential side effects and drug pricing. They indicated that this transparency is essential as it directly influences the trust they place in pharmaceutical companies. Hiding critical information can lead to scepticism and could deteriorate professional relationships, which might negatively impact patient care. Transparent practices, therefore, are not merely ethical imperatives but foundational to fostering long-term trust and collaboration, which are essential for the effective delivery of healthcare and the improvement of patient outcomes. Such

relationships enable a more open exchange of information, which can lead to better patient care strategies and enhanced safety profiles for pharmaceutical products.

My research findings highlight the critical role of sales representatives in promoting pharmaceutical drugs, a point strongly supported by the literature. Munos emphasizes the importance of well-informed sales representatives in the pharmaceutical industry (Munos, 2009), aligning with industry perspectives that stress the value of personal interactions in drug promotion. Sales representatives frequently serve as the main source of information for HCPs, and their expertise and trustworthiness can significantly impact physicians' prescribing decisions.

The preference for human interaction over online medical tools among healthcare HCPs suggests that while digital tools offer convenience, they cannot fully replace the nuanced communication and trust established through face-to-face interactions. This insight is particularly relevant in today's digital age, where many companies are looking to cut costs by reducing the number of sales representatives. However, my findings indicate that such strategies might undermine the effectiveness of drug promotion efforts. Instead, pharmaceutical companies should focus on enhancing the quality of their sales teams through comprehensive training programs.

Training should not only focus on scientific knowledge but also on communication skills. As indicated in the findings, HCPs highly value sales representatives who can competently discuss the scientific aspects of drugs and articulate their benefits and potential side effects clearly. This dual capability ensures that sales representatives can engage effectively with physicians, who often base their prescribing decisions on both the clinical data presented and their interactions with the representative.

To further refine the profile of an ideal sales representative, my research incorporated aspects of sales tactics from the literature review, emphasizing the importance of psychological tactics and strategic questioning to influence negotiations. These elements are critical in ensuring that representatives are not only well-informed but are also skilled in navigating complex discussions, which can significantly impact successful outcomes in drug promotion. My thesis suggests that implementing a well-defined profile for sales representatives that includes both scientific acumen and communication skills could greatly benefit pharmaceutical companies. By aligning representative training with these identified preferences of HCPs, companies can

enhance the effectiveness of their sales strategies and improve the overall impact of their promotional activities.

Additionally, the Chi-Square tests revealed no significant differences in the influence of sales representatives on prescription decisions based on demographic variables, indicating that a uniform approach in engaging doctors might be more effective than a tailored one based on these demographics. This finding supports the adoption of universally effective techniques to maximize influence and build stronger relationships within the medical community.

In addition to sales representatives, the implementation of patient education programs as part of the marketing strategy can significantly impact patient outcomes. By ensuring that patients are well-informed about their medications, pharmaceutical companies can improve adherence to treatment regimens and reduce the likelihood of adverse effects resulting from improper use of medications.

Emphasizing patient-centric strategies in marketing, such as support programs that help with affordability, adherence, and side-effect management, significantly improves patient outcomes and reinforces the value proposition of the drug (Patil, 2016). Maintaining high ethical standards in marketing ensures that the health and well-being of patients are always placed above commercial interests. This approach not only fosters trust among healthcare providers but also safeguards the integrity of the treatments provided to patients, ultimately contributing to better health outcomes. The rise of patient-centricity and advocacy in pharma reflects a broader trend towards more personalized and effective healthcare solutions (Jayasekara, 2024). As seen in my findings healthcare providers prioritize patient needs versus industry relationships when making clinical decisions, the patients' preferences are the most important.

This study provides several key managerial implications for pharmaceutical companies aiming to optimize their commercialization strategies. These recommendations are designed to offer practical guidance for addressing challenges in marketing, sales, HCP engagement, and ethical compliance.

Pharmaceutical companies should prioritize cost-effective marketing strategies by focusing on methods that deliver measurable value and are appreciated by HCPs. Utilizing data-driven approaches to assess the effectiveness of various tactics can help refine resource allocation, ensuring investments are directed toward high-impact

activities. Managers especially responsible for marketing should collaborate closely with other departments as seen in my qualitative data to better understand sales representative and HCPs needs. Cross-functional collaboration is essential for successful commercialization. Marketing, sales, and medical affairs teams must work together to ensure consistency in messaging and alignment of strategies. Coordinated efforts strengthen relationships with HCPs and enhance overall credibility.

In addition to these recommendations, managers must be mindful of the role of sales representatives, as they reflect the company's image. Beyond annual medical training, representatives should undergo development programs that include diverse communication skills training. This ensures that they can maintain a high level of professionalism when interacting with HCPs, further strengthening the company's reputation and fostering trust-based relationships.

Building strong, trust-based relationships with HCPs is essential. Managers in sales, medical or marketing should adopt personalized approaches to engagement, recognizing the diverse needs of HCPs based on their specialties, geographic regions, and healthcare systems. Tailored educational programs, workshops, and scientific engagements are effective tools to enhance these relationships. Ethical practices should remain central to all commercialization efforts. Managers must ensure that promotional activities and materials comply with regulatory standards and industry codes of conduct. Transparent communication about product benefits and risks is essential to maintaining credibility and trust among stakeholders. They need to train their employees in the field to do not affect ethical practices.

The integration of digital technologies offers significant potential for scalable and efficient engagement. Managers should be flexible with new technologies, explore virtual platforms such as webinars, online training modules, and digital campaigns to reach broader audiences. Combining traditional methods with digital tools enhances accessibility and effectiveness, particularly in remote or underserved regions.

Commercial strategies should be aligned with the specific characteristics of each drug type. For example, high-cost specialty drugs may require targeted engagement with specialists, while generic drugs often benefit from broad awareness campaigns that highlight affordability. Understanding the unique market dynamics of different drug categories enables managers to tailor their strategies effectively.

Managers should also consider regional and cultural differences when developing strategies. Adapting approaches to align with local healthcare systems, cultural practices, and regulatory environments ensures greater relevance and impact. Expanding efforts to include diverse regions, particularly emerging markets, presents opportunities for growth. A patient-centric approach should underpin all strategies. Managers must ensure that every aspect of commercialization contributes to better patient outcomes. This includes designing support programs to improve medication adherence, providing accessible educational resources, and using patient feedback to refine strategies.

Finally, they should implement systems to monitor and measure the long-term impact of their strategies. Collecting feedback from HCPs and tracking patient outcomes over time provides valuable insights, enabling the continuous refinement of approaches to remain competitive in a rapidly evolving market.

Despite the comprehensive nature of this study, several limitations must be recognized. The use of self-reported data from surveys and interviews may lead to bias, as respondents might provide answers, they believe are socially acceptable, rather than accurately reflecting their true behaviours and opinions. Moreover, the cross-sectional nature of the study restricts the ability to establish causal relationships between the variables. Future longitudinal research would be valuable in assessing the long-term effects of different marketing strategies on prescribing behaviours.

Moreover, the study focused predominantly on the perspectives of HCPs and pharmaceutical sales representatives within specific geographical regions. Future research could broaden its focus by incorporating a more diverse range of participants from different regions and healthcare systems, which would improve the generalizability of the results. Additionally, employing a larger sample of physicians, with balanced representation from each continent, would aid in reaching more definitive conclusions.

In addition to these limitations, it is important to acknowledge that different types of drugs, such as generics, biosimilars, specialty medications, and OTC products, often require personalized marketing and commercialization strategies. For instance, marketing strategies for high-cost specialty drugs might focus on targeted outreach to HCPs managing rare diseases or complex conditions, emphasizing patient-specific

benefits and clinical efficacy. In contrast, generic drugs often rely on cost-based competition and broad awareness campaigns to highlight affordability. This study does not fully account for these nuanced differences, and future research could explore how commercialization strategies vary depending on the type of drug being promoted. A more personalized approach that aligns marketing efforts with the unique characteristics of each drug type would provide more precise insights for pharmaceutical companies.

In addition to these limitations, the study did not account for the potential influence of external factors such as healthcare policies, economic fluctuations, that may have impacted the participants' responses and the overall findings. Including these contextual elements in future research would provide a more comprehensive understanding of the dynamics involved. From my thesis suggestions every company must adapt their strategy accordingly to different external factors.

Finally, the study's timeframe may have limited the ability to capture changes in attitudes or performance over time, particularly given the rapid evolution of digital marketing strategies and healthcare technologies. Maybe in futures all suggested elements with developing artificial intelligence tools, HCPs and patients using better technologies will be completely in another level and new solutions could be proposed.

However, it is important to underscore that the strategies developed and discussed in my thesis, including those drawn from various interviews, are designed not to push for massive, indiscriminate prescriptions but to foster a responsible, ethical promotion aligned with the best interests of patients. The ethical considerations are paramount, as discussed, ensuring that the promotion and adoption of pharmaceutical products are grounded in genuine patient need and safety.

The future of pharmaceutical commercialization lies at the intersection of sustainability and digital transformation. As the industry continues to evolve, there is a need for business models that not only deliver financial performance but also contribute positively to society and the environment. This holistic approach will address immediate challenges and position pharmaceutical companies for long-term success in an increasingly competitive and regulated global market. Moreover, the ethical and legal challenges posed by emerging technologies such as AI must be addressed. Ensuring patient privacy, data security, and the reliability of AI-driven diagnoses and

treatments will be critical in maintaining public trust and delivering safe, effective treatments. Bhatt discusses the transformative potential of AI in the pharmaceutical industry, emphasizing the need for robust ethical and regulatory frameworks to guide its implementation (Bhatt, 2023).

Building on the comprehensive insights derived from my project, the future of strategic planning in the pharmaceutical industry must incorporate several forward-looking recommendations to ensure continued success and improvement in patient health outcomes.

First, pharmaceutical companies should deepen their commitments to educational initiatives for HCPs. Providing detailed, up-to-date scientific information about drugs and enhancing the educational foundation of HCPs are crucial for supporting informed prescribing practices, which are directly linked to better patient outcomes. Transparency in all aspects of interactions with HCPs, particularly regarding drug pricing and potential side effects, is also essential. This transparency is vital for building trust, a cornerstone of effective partnerships between pharmaceutical companies and the medical community, influencing the willingness of HCPs to adopt new therapies.

Additionally, the integration of digital innovations should be optimized to complement traditional interactions. Leveraging tools such as AI and machine learning can enhance decision-making in drug development and personalized medicine, offering significant benefits in patient care. Digital platforms can also provide continuous medical education and patient monitoring, contributing to more personalized and timely healthcare solutions.

Maintaining high ethical standards in all operations, especially in marketing and patient engagement, is critical. Pharmaceutical companies must ensure that commercial interests do not compromise patient care, striving to exceed basic regulatory compliance to genuinely prioritize patient well-being.

Furthermore, fostering robust collaborative relationships with HCPs is essential. Engaging through collaborative research and feedback mechanisms such as advisory boards can help tailor drug development to meet specific patient needs, enhancing the effectiveness of therapeutic solutions. Adopting patient-centric approaches by integrating patient feedback into drug development and marketing processes and

engaging with patient advocacy groups can lead to more patient-friendly and effective healthcare solutions.

Lastly, the pharmaceutical industry must continuously monitor the effectiveness of its strategies and adapt based on feedback and changing market conditions. This dynamic approach ensures that strategies remain relevant and aligned with the goal of enhancing patient outcomes.

In conclusion, the future of pharmaceutical commercialization lies in a balanced approach that combines effective marketing strategies with strong ethical practices, patient-centric approaches, and continuous education for HCPs. By adhering to these principles, pharmaceutical companies can ensure that their commercial activities not only drive business success but also significantly contribute to better health outcomes for patients. This strategic alignment not only meets the immediate commercial goals of pharmaceutical firms but also contributes to the broader objective of advancing healthcare outcomes in a meaningful way.

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7. Appendix

Ethics overview across several countries

Country(ies)	IFPMA-affiliated responsible organization	IFPMA-linked national codes (further information at http://www.ifpma.org) Additional laws, regulations, codes, and guidelines usually apply in each country. In some cases these codes also apply to companies and/or sectors not affiliated to IFPMA
Global		
All countries (Applies to international pharmaceutical companies' activities in countries not listed below)	International Federation of Pharmaceutical Manufacturers and Associations	IFPMA Code of Practice
Regional		
Europe	European Federation of Pharmaceutical Industries and Associations	EFPIA Code on the Promotion of Prescription Only Medicines to, and Interactions with, HCPs
		EFPIA Code of Practice on Relationships between the Pharmaceutical Industry and Patient Organizations
		EFPIA Code on Disclosure of Transfers of Value from Pharmaceutical Companies to HCPs and Healthcare Organisations
Central America	Federación Centroamericana de Laboratorios Farmacéuticos (FEDEFARMA)	Code of Good Practices for the Promotion of Medicines
National		
Argentina	Cámara Argentina de Especialidades Medicinales (CAEMe)	Código de Ética CAEMe
Australia	Medicines Australia	Medicines Australia Code of Conduct
Austria	Association of the Austrian	Pharmig code of conduct and code of procedure of the COC committees of experts of the 1st and 2nd instance
	Pharmaceutical Industry (PHARMIG)	
Belarus	AIPM	AIPM Code of Marketing Practice in the Republic of Belarus
	Association of International Pharmaceutical Manufacturers	
Belgium	Pharma.be	Code of Deontology
Brazil	Interfarma	Código de Conduta
Canada	Rx&D	Code of Ethical Practices
Chile	Cámara de la Industria Farmacéutica de Chile (CIF)	Código FIIM de buenas prácticas para la promociónde los medicamentos
China	R&D-based Pharmaceutical Association in China (RDPAC)	Code of Pharmaceutical Marketing Practices
Colombia	Asociación de Laboratorios Farmacéuticos de Investigación y Desarrollo (AFIDRO)	Código de ética

Czech Republic	Asociace inovativního farmaceutického průmyslu (International Association of Pharmaceutical Industries)	Etický Kodex
Denmark	Lägemiddelindustriforeningen (LIF)	Lif's ethical rules for dialogue and negotiations with decision-makers
Ecuador	Industria Farmacéutica de Investigación e Innovación (IFI)	Código de Ética IFI
Finland	Pharma Industry Finland (PIF)	PIF Code of Ethics
France	Les entreprises du médicament (LEEM)	Dispositions Déontologiques Professionnelles
Germany	Verband Forschender Arzneimittelhersteller e.V. (VFA) (German Association of Research-Based Pharmaceutical Companies)	FSA Code of Conduct on the Collaboration with HCPs
		FSA Code of Conduct on the Collaboration with Patient Organizations
Guatemala	Fedefarma: La Federación Centroamericana de Laboratorios Farmacéuticos	Code of Good Practices for the Promotion of Medicines
Hungary	MAGYOSZ Hungarian Pharmaceutical Manufacturers Association	Code of Ethics for Pharmaceutical Communication
India	Organisation of Pharmaceutical Producers of India (OPPI)	OPPI Code of Pharmaceutical Marketing Practices
Hong Kong	Hong Kong Association of the Pharmaceutical Industry (HKAPI)	Code of pharmaceutical marketing practices
Indonesia	International Pharmaceutical Manufacturer Group (IPMG)	IPMG code of Pharmaceutical Marketing Practices
Ireland	Irish Pharmaceutical Healthcare Association (IPHA)	Code of Marketing Practice for the Pharmaceutical Industry
Italy	FARMINDUSTRIA Associazione delle Imprese del Farmaco	Codice deontologico Farmindustria (code of professional conduct)
Japan	Japan Pharmaceutical Manufacturers Association (JPMA)	JPMA Promotion Code for Prescription Drugs
Korea	Korean Research-based Pharmaceutical Industry Association (KRPIA)	KRPIA Fair Competition Code and its working guideline
Malaysia	Pharmaceutical Association of Malaysia (PhAMA)	PhAMA Code of Conduct
Netherlands	NEFARMA vereiniging innovatieve geneesmiddelen Nederland	Code of conduct for pharmaceutical advertising
Norway	Legemiddelindustriforeningen (LMI)	Rules for marketing of medicinal products. Recommended guidelines between the Norwegian Federation of Organizations of Disabled people (FFO) and the Norwegian association of pharmaceutical manufacturers (LMI) for contact and cooperation between patient organizations and the pharmaceutical industry
Peru	ALAFARPE Asociación Nacional de Laboratorios Farmacéuticos	Código IFPMA de prácticas de marketing farmacéutico
Philippines	Pharmaceutical and Healthcare Association of the Philippines (PHAP)	PHAP Code of Pharmaceutical Marketing Practices
Portugal		Código Deontológico para as Práticas Promocionais da Indústria Farmacêutica e para as Interacções com os Profissionais de Saúde

	Associação Portuguesa da Indústria Farmacêutica (APIFARMA)	Código de Conduta para as Relações entre a Indústria Farmacêutica e as Associações de Doentes
Russia	Association of International Pharmaceuticals Manufacturers (AIPM)	Code of Marketing Practices of the Association of International Pharmaceutical Manufacturers (AIPM)
Singapore	Singapore Association of Pharmaceutical Industries (SAPI)	SAPI Code of Marketing Practices
South Africa	Marketing Code Authority	Code of Marketing Practice for the Marketing and promotion of medicines, medical devices and in vitro diagnostics
Spain	FARMAINDUSTRIA: The National Association of the Pharmaceutical Industry in Spain	Spanish Code of Good Practices for the Promotion of Medicines and Interaction with HCPs
		Spanish Code of Practice on Relationships between the Pharmaceutical Industry and Patient Organizations
Sweden	Läkemedelsindustriföreningen (LIF)	Ethical rules for the pharmaceutical industry in Sweden
Switzerland	Interpharma	Code of Conduct of the Pharmaceutical Industry in Switzerland (Pharma Code)
	Scienceindustries Switzerland: Business Association Chemistry Pharma Biotech	
Taiwan	International Research-Based Pharmaceutical Manufacturers Association (IRPMA)	IRPMA Code of Practices
Thailand	Pharmaceutical Research and Manufacturers Association (PReMA)	PREMA Code of Sales and Marketing Practices
Turkey	Association of Research-Based Pharmaceutical Companies (AIFD)	Code on Good Promotion Practices for Medicinal Products to, and Interactions with, HCPs
United Kingdom	Association of the British Pharmaceutical Industry (ABPI)	Code of Practice for the Pharmaceutical Industry
United States	Pharmaceutical Research and Manufacturers of America (PhRMA)	Code on Interactions with HCPs
		Principles on Conduct of Clinical Trials and Communication of Clinical Trial Results
		PhRMA Guiding Principles on Direct to Consumer Advertisements About Prescription Medicines
		PhRMA Principles on Interactions with Patient Organizations

Interview questions

Market Access Director:

1. How do you define market access and what role does it play in the commercialization of a pharmaceutical drug?
2. How do you work with other departments within your company, such as sales and marketing, to develop a comprehensive business plan for a new drug?
3. What types of data and research do you rely on to make decisions regarding market access strategies for a new drug?
4. What are the key challenges you face when developing market access strategies for a new drug, and how do you overcome these challenges?
5. How do you work with healthcare providers and payers to ensure that a new drug is covered and reimbursed appropriately?
6. How do you balance the need to generate revenue with the need to ensure patient access to a new drug?
7. What types of pricing strategies do you consider when developing a market access plan, and how do you determine the appropriate price for a new drug?
8. How do you assess the potential market size and demand for a new drug, and how does this impact your market access strategy?
9. What are your thoughts on the future of market access in the pharmaceutical industry, and how do you see this evolving in the coming years?
10. How do you measure the success of a market access plan for a new drug, and what metrics do you use to evaluate its effectiveness?

Sales Director:

1. What do you think are the main factors that contribute to the successful commercialization of pharmaceutical drugs in the market? How do you ensure that your sales and marketing strategies align with patient needs and outcomes?
2. How do you determine which healthcare professionals to target with your sales and marketing efforts for a particular pharmaceutical drug? Are there specific criteria that you use to identify potential target audiences?
3. From your experience, how do healthcare professional relationships impact the adoption and use of new pharmaceutical drugs in patient care? How do you build and maintain relationships with healthcare professionals to increase adoption and usage rates of your products?
4. Can you describe any specific examples where strong collaborations or relationships with healthcare professionals have positively impacted patient outcomes? What specific factors or activities contributed to this positive impact?

5. What are the major challenges or barriers that pharmaceutical companies face in achieving successful commercialization of their products? How do these challenges impact patient outcomes and the effectiveness of the treatment?
6. How do you balance the need to achieve sales targets with the responsibility to ensure patient safety and well-being? Are there specific strategies or approaches that you use to ensure that your sales efforts are ethical and patient-centred?
7. From your perspective, how do pricing and reimbursement policies impact patient access to necessary medications, and what are the potential consequences of these policies for patient outcomes?
8. What approaches or strategies do you employ to ensure that your sales and marketing efforts are in compliance with regulatory guidelines and ethical standards? How do you ensure that your commercialization efforts align with patient needs and outcomes?
9. What do you think are the key ethical considerations that should guide pharmaceutical sales and marketing efforts? How do you ensure that your sales and marketing efforts are ethical and patient-centred?
10. Based on your experience, what recommendations or suggestions do you have for pharmaceutical companies to improve their sales and marketing strategies in a way that prioritizes patient outcomes and safety?

Marketing Director:

1. How do pharmaceutical companies typically develop and execute strategic business plans for drug commercialization? Can you provide examples of successful strategies you've implemented?
2. What marketing strategies have proven most effective in promoting new pharmaceutical drugs in diverse markets?
3. How do you ensure your sales force is adequately trained and equipped to promote new drugs effectively? What metrics do you use to measure their performance?
4. What strategies do you use to foster strong relationships with healthcare professionals and ensure their buy-in for new pharmaceutical products?
5. How do you ensure that your commercialization strategies are focused on maximizing patient outcomes?
6. What strategies do you use to educate patients about new drugs and their benefits?
7. How do you balance aggressive marketing and sales tactics with the need to adhere to high ethical standards in the pharmaceutical industry?
8. What are the key regulatory challenges you face in different markets, and how do you ensure compliance across all regions?
9. What emerging trends or innovations do you see as having the most significant impact on pharmaceutical drug commercialization in the next 5-10 years?
10. How do you measure the success of a commercialization plan for a new drug, and what metrics do you use to evaluate its effectiveness?

Medical Doctors:

1. How do you keep yourself informed about new drugs on the market, and what factors influence your decision to adopt a new drug in your practice?
2. From your experience, what role do marketing and sales strategies play in influencing your prescribing behaviour? Can you give examples of effective strategies that have influenced your decision-making?
3. How important are the relationships you maintain with pharmaceutical representatives, and how do these relationships influence your prescription decisions? Can you give examples of positive or negative experiences?
4. Have you observed any difficulties or obstacles in adopting new medications? If so, what are these challenges and what impact do they have on patient outcomes?
5. Can you describe instances where a close relationship with a pharmaceutical company or its representatives has positively impacted patient outcomes? How has this collaboration contributed to improving patient care?
6. What factors do you consider when evaluating the efficacy and safety of a new drug? How do you balance these factors against other considerations such as cost and patient preferences?
7. How do pricing and reimbursement policies influence your prescription decisions? Have these policies ever prevented you from providing optimal care to your patients?
8. Can you give examples of patient advocacy initiatives or programs that have influenced your prescription decisions and improved outcomes for patients? How important is the patient's perspective in your decision-making process?
9. How do you find the balance between evidence-based medicine and the influence of the industry when prescribing pharmaceutical drugs? What strategies do you use to ensure patient-centred care while staying informed of industry innovations?
10. Based on your experience, what recommendations would you make to pharmaceutical companies to improve their communication and collaboration with healthcare professionals to enhance patient outcomes?

Survey

Survey for Doctorate Business administration Thesis

"We want to emphasize that this survey is conducted with the utmost respect for your privacy. Your responses will be kept confidential and anonymous throughout the entire process."

Dear Doctors,

I'm Hasan DONAT, a Doctorate student at Geneva Business School, researching pharmaceutical drug commercialization. Your participation in this survey is crucial for my study and global medical insights. Your responses will remain completely confidential.

This survey connects academic research with real-world medical experiences and aims to improve patient outcomes. If you're interested in my research, please reach out. Let's collaborate to enhance the pharmaceutical industry's future.

The survey will take around 5 minutes.

Your expertise is vital for shaping healthcare's future. Together, we can advance pharmaceutical practices and prioritize patients.

Thank you for your consideration.

Contact : hdonat@gbsge.com

Hasan DONAT
Doctorate Student, Geneva Business School

1. Demographic information

Country of Practice *

Votre réponse

Medical Speciality *

Votre réponse

Age *

- 25-35
- 36-45
- 46-55
- 56-65
- 66-75
- Autre :

Gender *

- Male
- Female
- Other

Practice setting *

- Private clinic/Cabinet
- Hospital
- Autre :

Medical practice *

- Urban
- Rural
- Mixed (urban and rural)

2. Awareness of New Products and professional development

a. How often do you attend medical conferences or congresses? *

- ◯ Never
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Always

b. Rate the effectiveness of each information source in keeping you informed about new products (1 is "Not Effective" and 5 is "Very Effective") *

	1	2	3	4	5
Medical Journals	◯	◯	◯	◯	◯
Conferences or congresses	◯	◯	◯	◯	◯
Online medical platforms	◯	◯	◯	◯	◯
Colleagues/peers	◯	◯	◯	◯	◯
Pharmaceutical sales representative	◯	◯	◯	◯	◯

c. In your opinion, how important is ongoing education for staying updated on advancements in pharmaceuticals? *

- ◯ Not Important
- ◯ Slightly Important
- ◯ Moderately Important
- ◯ Very Important
- ◯ Extremely Important

d. Have you attended pharmaceutical company presentations or workshops in the past year? *

- ◯ Yes
- ◯ No

e. How influential are pharmaceutical company presentations or workshops in shaping your understanding of a product and influencing your prescription decisions? *

- ◯ Not Influential at all
- ◯ Slightly Influential
- ◯ Moderately Influential
- ◯ Very Influential
- ◯ Extremely Influential

3. Prescriptions patterns and sales reps relationships

a. To which extent do you consider the influence of sales representatives in your prescription decisions? *

- ○ Not at all
- ○ Slightly
- ○ Moderately
- ○ Very much
- ○ Extremely

b. What type of interaction do you prefer during visits from pharmaceutical sales representatives? (Select all that apply) *

- ☐ Detailed product presentations
- ☐ Quick updates on new products
- ☐ Q&A sessions
- ☐ Provision of scientific literature
- ☐ Interactive demonstrations
- ☐ Autre : _____

c. How do you prefer to schedule these visits? *

- ○ Scheduled appointments
- ○ Drop-in visits
- ○ Virtual/Online meetings
- ○ Autre : _____

d. How often do you accept visits from the same pharmaceutical sales representatives during the year ? *

- ○ Rarely or Never
- ○ Occasionally
- ○ Monthly
- ○ Bi-monthly
- ○ Quarterly
- ○ Semi-annually
- ○ Annually
- ○ Only for new products
- ○ Autre : _____

e. What is the optimal duration for a meeting with sales representatives? *

- ○ 5 min
- ○ 10 min
- ○ 15 min
- ○ 20 min
- ○ 30 min
- ○ 45 min
- ○ Autre : _____

f. When prescribing a commercial name for a pharmaceutical product, what factors influence your decision? *

- ☐ Habitual prescription
- ☐ Influence from sales representatives
- ☐ Famous known pharmaceutical company products
- ☐ Price considerations
- ☐ The feedback of other doctors
- ☐ Influence of branded material (Pens, post-it)
- ☐ Autre : _____

g. In your prescription habits, do you actively encourage the use of generic or biosimilar products over the original brand? *

- ○ Always
- ○ Frequently
- ○ Occasionally
- ○ Rarely
- ○ Never

h. If you promote the use of generic or biosimilar products, what are the primary reasons for your choice? *

- ☐ Cost-effectiveness
- ☐ Comparable efficacy to the original product
- ☐ Patient preference
- ☐ Clinical guidelines
- ☐ Autre : _____

i. What qualities do you appreciate in a sales representative? (Select all that apply) *

- ☐ Scientific knowledge
- ☐ Friendliness
- ☐ Smiling demeanor
- ☐ Dynamism
- ☐ Communication skills
- ☐ Availability for inquiries
- ☐ Autre : _____

6. Marketing Materials and events

a. What type of marketing materials do you find most informative and helpful in understanding pharmaceutical products? (Select all that apply) *

- [ ] Brochures
- [ ] Scientific Papers
- [ ] Videos
- [ ] Interactive Online Tools
- [ ] Product Samples
- [ ] Autre :

b. How often do you refer to printed or digital brochures provided by pharmaceutical companies when considering a new product? *

- ◯ Never
- ◯ Rarely
- ◯ Occasionally
- ◯ Frequently
- ◯ Always

c. What type of marketing materials are you preferring? *

- ◯ Paper documents (i.e. brochures)
- ◯ Digital documents
- ◯ Mix of both

d. For similar products marketing brochures can influence your prescription? *

- ◯ Not at all
- ◯ Slightly
- ◯ Moderately
- ◯ Very much
- ◯ Extremely

e. Are you using marketing materials to present the drug to your patients? *

- ◯ Rarely or Never
- ◯ Occasionally
- ◯ Regularly
- ◯ Frequently

f. Patients brochures is it helpful for your practice? *

- ◯ Not at all
- ◯ Slightly
- ◯ Moderately
- ◯ Very much
- ◯ Extremely

g. Do you believe that promotional materials provided by pharmaceutical companies have a significant impact on your prescription choices? *

- ◯ Strongly disagree
- ◯ Disagree
- ◯ Neutral
- ◯ Agree
- ◯ Strongly agree

h. Have you ever changed your prescription habits based on information received from promotional materials? *

- ◯ Yes
- ◯ No
- ◯ Not sure

i. Through which communication channels do you prefer to receive information about pharmaceutical products? *

- ☐ Emails
- ☐ In-person visits by sales representatives
- ☐ Webinars
- ☐ Online Platforms/Forums
- ☐ Printed materials
- ☐ Mails
- ☐ Autre : _____

j. Do you find promotional items, such as branded pens and post-its, provided by pharmaceutical representatives effective in creating awareness about their products? *

- ◯ Very effective
- ◯ Somewhat effective
- ◯ Neutral
- ◯ Not very effective
- ◯ Not effective at all

k. Which types of promotional items do you find most appealing or useful? (Select all that apply) *

- ☐ Branded pens
- ☐ Post-its
- ☐ USB drives
- ☐ Desk accessories
- ☐ Calendar
- ☐ Autre : _____

l. How do invitations to events, such as dinners or lunches, impact your perception of pharmaceutical products? *

- ◯ Positively
- ◯ Neutral
- ◯ Negatively

m. On a scale of 1 to 5, please rate the effectiveness of the following marketing strategies in influencing your prescription decisions, where 1 is "Not Effective" and 5 is "Very Effective": *

	1 (not effective)	2	3	4	5 (very effective)
Marketing product brochures	◯	◯	◯	◯	◯
Invitation for a lunch or dinner	◯	◯	◯	◯	◯
Invitation for congresses	◯	◯	◯	◯	◯
Marketing materials (e.g., pens, post-its)	◯	◯	◯	◯	◯
Sponsoring of your project	◯	◯	◯	◯	◯

7. Collaborative Initiatives

a. In your opinion, how can pharmaceutical companies collaborate more effectively with healthcare professionals to improve patient outcomes?

Votre réponse

b. To what extent do patient preferences and feedback influence your prescription decisions? *

- ◯ Not at all
- ◯ Slightly
- ◯ Moderately
- ◯ Very much
- ◯ Extremely

c. Have you encountered situations where patients express preferences for specific brands over generic or biosimilar products? *

- ◯ Yes
- ◯ No
- ◯ Not sure

Additional Comments: Please share any additional thoughts or comments regarding pharmaceutical commercialization, marketing, or sales strategies that you believe are relevant to improving patient outcomes.

Votre réponse