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Article — Published Version

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Business Ethics and Leadership

Suggested Citation: Nyeleti Mayimele, Nsovo; Hulisani Demana, Patrick; Godfrey Keele, Mothobi (2023) : Pharmacists as Strategic Leaders of Manufacturing Pharmaceutical Companies with Operations in South Africa, Business Ethics and Leadership, ISSN 2520-6311, Academic Research and Publishing UG, Hamburg, Vol. 7, Iss. 4, pp. 200-209, [https://doi.org/10.61093/bel.7\(4\).200-209.2023](https://doi.org/10.61093/bel.7(4).200-209.2023)

This Version is available at:

<https://hdl.handle.net/10419/299546>

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Pharmacists as Strategic Leaders of Manufacturing Pharmaceutical Companies with Operations in South Africa

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Type of manuscript: research paper

Abstract: *The manufacturing sector of the pharmaceutical industry has faced criticism for disparities in access to pharmaceuticals, especially within the context of past incidents and the COVID-19 pandemic. Balancing profitability with the public responsibility to produce affordable, safe and effective medicines is challenging. The World Health Organisation (WHO) recognises the significant role pharmacists play in discovering, manufacturing and dispensing medicines. Pharmacists are responsible for safeguarding pharmaceuticals at all levels of care and where medicines are used. The research aimed to assess the involvement of pharmacists in the strategic leadership of Multinational Pharmaceutical Companies (MPCs) operating in South Africa. The study assessed the presence of pharmacists, recognised as custodians of medicines, in the strategic leadership of pharmaceutical companies operating in South Africa but headquartered globally. A desktop review was done to assess the company profiles, including revenue, size, number of employees and professional backgrounds of the persons in strategic leadership, including board and executive levels. The pharmaceutical companies were headquartered in eleven countries across Asia (3), Africa (1), North America (1), and Europe (6). On average, these companies operated in 86.6 countries (SD ±46.2). The strategic leadership roles within MPCs were comprised of individuals with backgrounds in commerce, sciences, and engineering. Predominantly, professionals with backgrounds in commerce held significant representation in both board membership and executive leadership within these companies. Notably, only 3.2% (33 out of 1023) of leaders possessed a pharmacy qualification, with a mere 27% (9 out of 33) being female. This was the least represented professional background among the strategic leaders, and the likelihood was affected by gender. The pharmacists more likely to hold strategic positions were predominantly male, had additional qualifications, and were situated in specific countries like India and South Africa. Pharmaceutical companies are essential in producing medicines to address global healthcare needs, functioning as healthcare service providers. Strategic leaders in these companies guide the manufacturing sites' strategic goals of the companies. The study's outcomes revealed a restricted presence of pharmacists in leadership roles despite their typical responsibility for manufacturing sites. These pharmacists were often found to have limited authority and were excluded from pivotal decision-making processes, resulting in significant implications for patient welfare.*

Keywords: pharmacists, presence, leadership, manufacturing, companies.

JEL Classification: I11, L65, P46.

Received: 11 September 2023

Accepted: 08 November 2023

Published: 31 December 2023

Funding: There is no funding for this research

Publisher: Academic Research and Publishing UG (i.G.) (Germany)

Founder: Sumy State University and Academic Research and Publishing UG (i.G.) (Germany)

Cite as: Mayimele, N.N., Demana, P.H., & Keele, M.G. (2023). Pharmacists as Strategic Leaders of Manufacturing Pharmaceutical Companies with Operations in South Africa. *Business Ethics and Leadership*, 7(4), 200-209. [http://doi.org/10.61093/bel.7\(4\).200-209.2023](http://doi.org/10.61093/bel.7(4).200-209.2023).



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Introduction

Pharmacists assume various roles relating to the life cycle of medicines. They are ultimately responsible for the entire pharmaceutical supply chain, from sourcing raw materials to manufacturing, storing, distributing, and dispensing medicines to patients and the population (Visacri et al., 2021). In some instances, such as in clinical settings, pharmacists share this responsibility with other professionals, often nurses and medical doctors (Manyama et al., 2020). By their qualification and training, pharmacists are legally custodians of medicines in many countries, including South Africa. While Pharmacists execute their scope in a system and depend on other professions, their role as custodians of medicines at all levels of care is undisputable (Manyama et al., 2020; Cox, 2021; Visacri et al., 2021).

The World Health Organisation (WHO) recognised the role and necessity for the presence of pharmacists within the healthcare system. It thereby urged pharmacists globally to ensure quality and access to medicines at all stages of healthcare (WHO, 1997). Member states of the United Nations (UN) were urged to use pharmacists' expertise at all healthcare system levels, including strategic Leadership (WHO, 1997). The pharmaceutical industry has been criticised for inequalities concerning access to medicines in the past and recently during the COVID-19 pandemic (Puaschunder & Beerbaum, 2020). The factors that drive these inequalities are unknown. However, MPCs must balance profitability and produce effective medicines for various diseases at affordable costs (Lazonick et al., 2019).

The pharmaceutical industry is regulated in South Africa and many other countries. As organisations that manufacture medicines, these MPCs are often registered as pharmacies or health facilities (Deep et al., 2019). This requires the MPCs to have a responsible pharmacist in South Africa or an authorised/qualified person in other countries. The legislation in many countries allows pharmacists to be held professionally accountable where medicines of substandard quality and efficacy are made available to the public (Cox, 2021).

Literature Review

While the presence of pharmacists in the strategic leadership of pharmaceutical companies may be desirable as they are in-industry experts, it is not clear whether the pharmacists themselves want to lead. Jacobs et al. (2017) undertook a research study at the University of Buffalo in the United States of America (USA) to identify the motives driving pharmacy students to pursue a Doctor of Pharmacy with a Master of Business Administration (PharmD/MBA) degree. Their investigation also inquired into the anticipated impact of this dual degree on the student's career paths. All respondents, constituting 100% (N= 23), indicated that they pursued the dual degree to enhance their employability (Jacobs et al., 2017). Most of the students, 91%, were attracted by the prospects of career progression and acquiring a diverse skill set, while 72% sought better-paying job opportunities. A significant outcome of the study highlights the strong belief among dual PharmD/MBA students in the value of the MBA, with these students endorsing and recommending the MBA path to other pharmacists. The study's important revelation is the evident interest among pharmacists in management roles (Jacobs et al., 2017). Notably, the limitation of a small sample size, with only 23 respondents, raised concerns about the generalisability of the study (Jacobs et al., 2017). Nevertheless, Davies et al. (2013) conducted a comparable study in the United Kingdom (UK). They discovered the positive impact of integrating a business module into the Master of Pharmacy (MPharm) program at Liverpool John Moores University (LJMU) (Davies et al., 2013).

One of the essential things required for the optimal functioning of the healthcare system is the presence of healthcare professionals who exhibit quality leadership skills. Hargett et al. (2017) utilised a concept mapping approach to construct a framework for delineating effective leadership within the healthcare domain, specifically among medical practitioners in the United States of America (USA). The study defines healthcare leadership as the competency of a healthcare professional to influence another qualified individual ethically and effectively, both within and outside the healthcare field, for the betterment of individual patients and the broader populations served by the healthcare system (Hargett et al., 2017; Shanafelt & Noseworthy, 2017).

The study revealed a lack of intentional training for medical students and registrars to handle the personal and professional leadership challenges they experienced. This led to creating a healthcare leadership model,

drawing from literature reviews, focus groups, and card-sorting methods in the study conducted by Hargett et al. (2017). The study's findings emphasised patient-centeredness as a fundamental principle in healthcare leadership. Effective communication was deemed essential across all competencies within the developed model. Emotional intelligence emerged as a pivotal competency holding the entire model together. The model highlighted competencies such as selfless service, integrity, critical thinking, and teamwork as integral to healthcare leadership. Additionally, this model was identified as beneficial for instructing leadership skills among medical practitioners (Hargett et al., 2017; Shanafelt & Noseworthy, 2017).

While the developed model described holds significance for educating medical practitioners, it is important to note the study's limitations. The research was conducted within a single institution, involving only 19 participants in focus groups, and just 92 out of 200 recruited participants responded to the card-sorting aspect. This limitation affects the credibility of the findings. Moreover, Penner (2016) argues that financial and economic understanding, conflict management, and negotiation skills are crucial for healthcare leadership, aspects not fully integrated into the model (Penner, 2016). Consequently, the model designed in this article might confine medical practitioners to leadership at technical levels rather than encompassing strategic leadership. Medical practitioners educated using this model might still require other professionals like accountants and lawyers to lead within their industry. Although this study focuses on medical practitioners, the aims and considerations are relevant to this manuscript's research.

The requirement for a responsible pharmacist in an MPC is clear at a technical level, where pharmacists are often production managers or involved in quality control, quality assurance, regulatory affairs or other roles (Deep et al., 2019). In 2017, a study was conducted to investigate the competency framework required for a responsible pharmacist in the manufacturing sector of the pharmaceutical industry in South Africa (Dockrat, 2017). It was found that responsible pharmacists felt that some MPCs were not giving them the importance and authority required by the regulator, the South African Pharmacy Council (SAPC). Responsible pharmacists (RPs) felt they were given the role of RP merely for tokenism so that the MPCs that employ them could comply with legislation. Furthermore, the RPs felt that their power was limited and were excluded from decision-making processes that had dire consequences for the company and users of its products (Dockrat, 2017).

Within the context of this paper, strategic leadership refers to establishing an organisation's direction and capacity towards its vision and goals (Preedy et al., 2011). The people who form part of the strategic leadership of any company are essential as they provide the company's strategic objectives. Pharmacists, as custodians of medicines and healthcare workers, are best suited to provide strategic direction for MPCs as they are experts within the industry. If one is to critically analyse the role of a pharmacist as described by WHO. In that case, the pharmacist's role is not limited to the pharmaceutical aspects of an MPC but rather all levels of decision-making where medicines are involved (WHO, 1997). This study assessed the presence of pharmacists in strategic Leadership of listed MPCs that have operations in South Africa.

Materials and Methods

The study was conducted over three (3) months as part of a 4-phased larger project. A list of the MPCs operating in South Africa was obtained, as recorded by the SAPC, for 2021. The SAPC reported 264 MPCs on the register for medicines manufacturers. The list was then checked for accuracy, duplications and errors. It was found that some of the companies appeared twice, and in some instances, one (1) company would have more than one (1) subsidiary registered as a single entity. Therefore, the list was cleaned, and 254 companies remained to form the study population.

From the list of 254, a search was done to find out if the MPCs on the list were publicly trading shares on any stock exchange. It was necessary to study MPCs with a listing status due to the availability of information about the companies as a requirement for listing on a stock exchange. The sample eventually comprised 49 MPCs, with shares publicly traded on stock exchanges in South Africa and worldwide. Because the resultant population was 49, a calculation was done to determine the minimum number of necessary samples to meet the desired statistical constraints (Naing et al., 2006).

$$n = \frac{(N * Z^2 * p * (1 - p))}{[N * Z^2 * p * (1 - p) + (N - 1) * E^2]} \quad (1)$$

The computed sample size was 44. This means that 44 or more MPCs were needed to have a confidence level of 95% that the real value is within $\pm 5\%$ of the surveyed value.

Data Collection. The Google search engine was used to find the relevant websites and annual reports of the MPCs. The respective company websites and annual reports were studied to obtain information regarding the professional backgrounds of the persons in strategic leadership. A form was used to record company information such as the name of the MPC, country of listing, primary function of the MPC, size of the company, and the composition of the board leadership and executive management, among other entries. The data were collected using the form and then transferred to an Excel® spreadsheet.

The professional background refers to the foundation qualifications a person may have, i.e. the professional foundation of the person being studied. Furthermore, the data collection process recorded the revenue, country of listing, function, sector of operations, and number of employees. The professional backgrounds of the persons in leadership positions were categorised into commerce, engineering, law, management, medical, pharmacy, sciences, and social sciences. The commerce category represents people with a finance background, including those who studied courses such as accounting and economics. Those in the management category are people who studied management sciences such as marketing and have a Bachelor of Business Administration. While some persons pursued a Master of Business Administration (MBA) in addition to their foundation qualifications, this did not warrant their inclusion in this category.

The engineering category included persons who studied industrial, mechanical, electrical, or other forms of engineering. The law category comprised persons who studied law or had degrees in the law fraternity. The medical category included persons with qualifications in health sciences such as medicine, nursing, physiotherapy or other professions registered with the Health Professions Council of South Africa (HPCSA), excluding psychologists. The category for sciences included those with qualifications in foundation sciences such as chemistry and physiology. The social sciences category included persons who studied social sciences such as psychology and political sciences. The pharmacy category included persons who could register or be identified as a pharmacist within a country, such as a Bachelor of Pharmacy, a Doctor of Pharmacy or pharmaceutical sciences.

It was necessary to include people whose qualifications allowed for registration as this study is aimed at studying the professional presence of pharmacists. Qualifications not included in the categories listed above were classified as other. Those qualifications collectively categorised as other included persons who studied theology, archaeology, and informatics. The profiles of the pharmacists in the leadership positions of these MPCs were further studied to gain the pharmacists' biographical backgrounds. The individual pharmacists were checked to see which company they were affiliated with. The gender of each pharmacist was further recorded along with their position within the MPC. Pharmacists who had additional qualifications were identified, and those qualifications were recorded.

Results and Discussion

Size and Geographical Footprint of the MPCs. The listed MPCs in the sample had a geographical reach of presence within 2 to 200 countries. The workforce of these companies ranged between 200 and 311269 employees, with the companies' revenue ranging between \$ 130,000 and \$ 82 600,000 per annum.

Table 1. Size of the MPCs

Variable	Mean	SD	Median	IQR
Countries	86.6	46.2	80	56-100
Revenue (1000 USD)	17302.5	20520.8	4700	1069-30120
Employees	44366.6	54107.4	25000	5761-74000

Source: Compiled by the authors

Professional Background of the Persons in the Strategic Leadership of the MPCs. The persons in the strategic Leadership of the MPCs that were studied came from diverse professional backgrounds. The represented professions included commerce, engineering, legal, management sciences, medical professions, and social sciences.

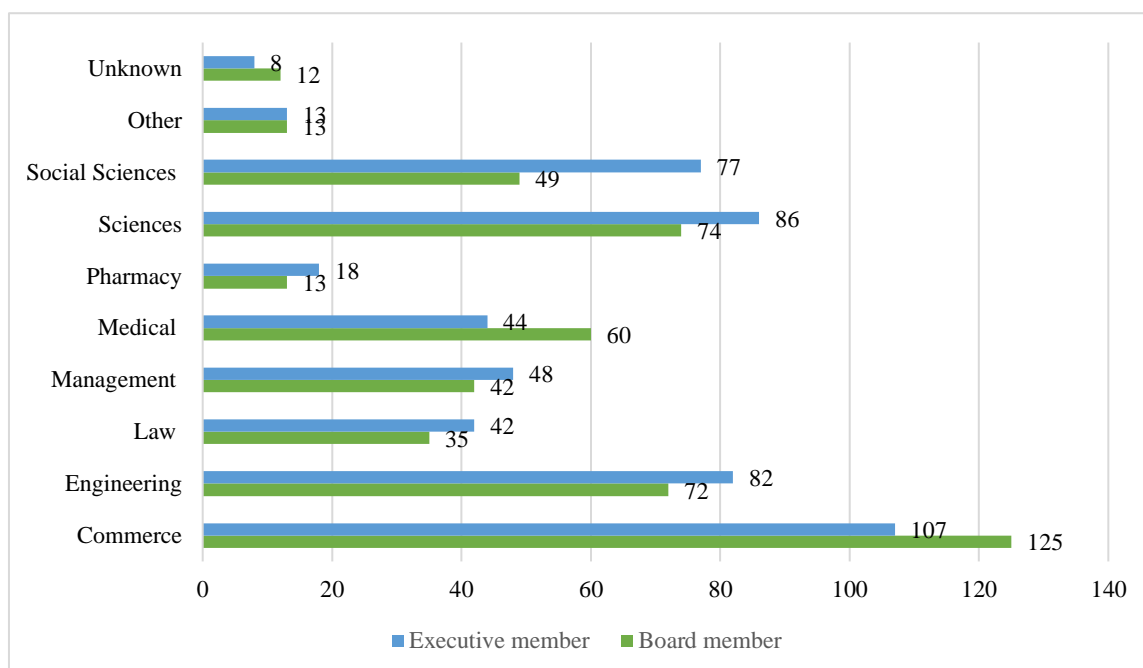


Figure 1. Professional Background of the Persons in the Strategic Leadership of the MPCs

Source: Compiled by the authors

498 people were board members of the MPCs that were studied. The professions that were prominent among the board members were commerce at 25,1% (125; n=498), sciences at 14,9% (74; n=498) and engineering at 14,5% (72; n=498). The profession with the lowest representation was pharmacy at 3,0% (15; n=498). The legal profession was 7,0% (35; n=498), while medical professionals were 12,0% (60; n=498). The executive leadership of the MPCs that were studied was made up of 525 people. People with a professional background in commerce had the highest representation as they were 20,4% (107; n=525) of the sample. The persons with a science background comprised 16,4% (86; n=525). This sample was followed by people from the engineering professions, who represented 15,6% (82; n=525) of the sample.

The professions represented in positions of strategic leadership (both executive and board) of the MPCs included commerce at 22,7% (232; n=1023), sciences at 15,6% (160; n=1023), engineering at 15,1% (154; n=1023). Persons with a medical background comprised 10,2% (104; n=1023), and those with a legal background comprised 7,5% (77; n=1023). People who had studied management sciences were 8,8% (90; n=1023), and social sciences were 12,3% (126; n=1023). A pharmacy qualification was found in 3,2% (33; n=1023) of board and executive members combined.

Country of Listing. Most of the pharmaceutical companies were listed in the United States of America (USA) (16), followed by India (10) and the United Kingdom (UK) (6). Three (3) manufacturing companies were found to be listed in South Africa (SA) (Table 2):

Table 2. Geographical Location of MPCs and Pharmacists in the Strategic Leadership of MPCs

Continent	Country	Number of MPCs	Pharmacists as executives	Pharmacists in the board	Total	%
Africa	South Africa (SA)	3	3	1	4	12,1%
America	United States of America (USA)	16	5	2	7	21,2%
Europe	Denmark	2	0	1	1	3,0%
	France	3	3	2	5	15,2%
	Germany	2	0	0	0	0,0%
	Ireland	1	0	0	0	0,0%
	United Kingdom (UK)	6	0	2	2	6,1%
	Switzerland	3	2	1	3	9,1%
Asia	China	1	0	0	0	0,0%
	India	10	4	5	9	27,3%
	Japan	2	1	1	2	6,1%
Total		49	18	15	33	

Source: Compiled by the authors

Pharmacists in the Strategic Leadership of the MPCs. The number of pharmacists found in the strategic leadership of the MPCs, at the board and executive levels, was 3.2% (33; n=1023). The pharmacists at the board level were 3,0% (15; n=498) and 3,4% (18; n=525) at the executive level (see Table 2). The association between the number of pharmacists in strategic leadership and the number of people in strategic leadership was found not to be statistically significant (P= 0.7152; Chi-Squared test). There were 33 pharmacists. Of the 33, nine (9) were female, while a majority of 24 pharmacists were male. Four (4) (n=18) females held positions at executive level. The remainder of the positions, 14 (n=18), were held by males. There were 15 pharmacists observed as board members of the MPCs. Five (5) (n=15) of them were females, while 10 (n=15) were males.

Table 3. Summary of Findings from the Pharmacists' Profiles

	Pharmacists at executive level	Pharmacists at board level	Total
Gender			
Female	4	5	9
Male	14	10	24
Qualifications			
Business-related	4	4	8
PHD	3	5	8
Other	7	3	11
None	4	3	7
Location of company			
Africa	3	1	4
America	5	2	7
Europe	5	6	11
Asia	5	6	11

Source: Compiled by the authors

The pharmacists in strategic leadership had a variety of additional qualifications. However, the additional qualifications of interest were those with a doctorate (PhD) and those that were business-related. This is because of the objectives of this study. It is noteworthy that some pharmacists have both a PhD and business-related additional qualifications. There were eight business-related additional qualifications observed amongst the pharmacists (8). These included qualifications in business administration and commerce. Eight (8) of the 33 (24,2%) pharmacists had these qualifications. There were four (4) pharmacists among the board members who had additional business-related qualifications. Similarly, another four (4) pharmacists were observed among the pharmacists at the executive level. A doctoral degree is usually the path to advancement for pharmacists who want to be involved in research or advance their skills through the National Qualifications Framework (NQF). Eight (8) pharmacists had a doctoral degree. Three (3) of these were pharmacists at the executive level. In comparison, five (5) were at board level.

The Geographical Location of the MPCs with Pharmacists at Strategic Leadership. The MPCs that were studied were headquartered on four continents, i.e., Africa, North America, Europe, and Asia (see Table 2). The country with the highest number of pharmacists in strategic Leadership is India, where nine (9) pharmacists in strategic leadership positions were observed. 27.3% (9; n=33) of the pharmacists observed in the strategic Leadership of the MPCs were in companies that were headquartered in India.

This was followed by the USA, where seven (7; n=33) pharmacists were observed. This was 21,2% of the sample. France and Switzerland had 15,2% (5; n=33) and 9,1% (3; n=33), respectively. The United Kingdom and Japan had 6,1% (2; n=33). South Africa had 12% (4; n=33).

Regression Model for the Number of MPCs in a Country and the Presence of Pharmacists in the Strategic Leadership of MPCs. A linear regression model was used for the analysis of the presence of pharmacists in the strategic Leadership of MPCs. The number of pharmacists in a country was plotted on the x-axis, while the total number of pharmacists in the strategic leadership of the country was plotted on the y-axis. The relationship between the number of MPCs in a country and the number of pharmacists in the strategic Leadership of the MPCs in that country was found to be statistically significant (p-value <0.05).

$$\text{Equation: } Y=0.5076*X+0.7388 \quad (2)$$

Regression Model for the number of MPCs in a Country and the Presence of Pharmacists at the Executive Level of the MPCs. The presence of pharmacists in the strategic Leadership of MPCs was analysed using a linear regression model. The relationship between the number of MPCs in a country and the number of

pharmacists at the executive level of strategic Leadership of the MPCs in that country was found to be statistically significant (p-value <0.05).

$$\text{Equation: } Y=0.3065*X+0.2710 \quad (3)$$

Regression Model for the Number of MPCs in a Country and the Presence of Pharmacists at the Board Level of the MPCs. The linear regression model used to analyse the presence of pharmacists at the board level of the strategic Leadership of MPCs showed that the relationship was statistically significant (p-value <0.05).

$$\text{Equation: } Y=0.2011*X+0.4678 \quad (4)$$

Comparison of the Presence of Pharmacists in Strategic Leadership with the Number of MPCs in a Country. It was established when data were collected that some countries have more MPCs than others and, therefore, are likely to have more board members and executive leaders.

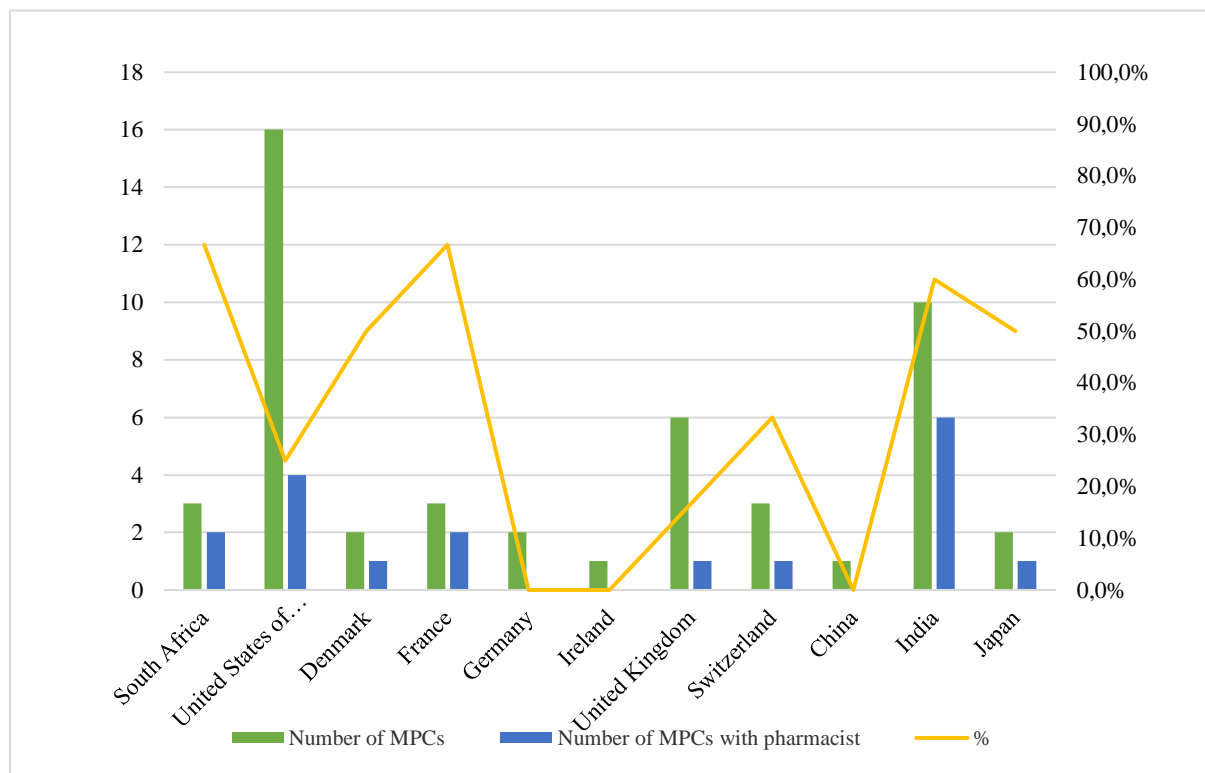


Figure 2. Comparison of the Presence of Pharmacists in Strategic Leadership with the Number of MPCs in a Country

Source: Compiled by the authors

Figure 2 is the number of MPCs in a country in comparison with the presence of pharmacists observed in the respective MPCs of the country. Furthermore, the percentage of pharmacists in relation to the number of pharmacists observed globally is indicated. The number of MPCs were the highest in the USA (16; n=49) and followed by India (10; n=49). However, only four (4) (n=49) of the MPCs in USA had a pharmacist present in their strategic leadership. In India six (6) MPCs with the presence of a pharmacist in strategic leadership were observed. The UK had six (6) MPCs in the sample of 49. Only one of the MPCs in the UK reported to have pharmacists in the strategic Leadership of those MPCs. The Pearson Correlation Coefficient was determined. There was a strong positive correlation between the number of MPCs in a country and the number of pharmacists in the strategic Leadership of the MPCs. The value of $R = 0.7841$ (Pearson Correlation Coefficient).

Discussion

This study aimed to identify pharmacists' presence within the strategic Leadership of listed MPCs operating within South Africa. The findings revealed that the presence of people with a pharmacy degree was in the minority. The board members of an organisation should possess a combination of skills and expertise, such as financial, legal and industry-specific knowledge required to help the organisation thrive (Hlobo, Moloi & Marx, 2022; Kor & Misangyi, 2008). In this case, there was a limited presence of pharmacists, who are industry-specific experts.

Kor and Misangyi (2008) found that management groups with members who have a history of working for multiple companies in an industry have a higher chance of being connected to potential alliance partners, as opposed to teams whose members have worked for just a few companies in the same industry (Kor & Misangyi, 2008). Executives who have worked for numerous companies will likely have more opportunities to form associations with partners, either directly with their former employers or indirectly through their previous business associations with suppliers and customers. Additionally, they may have more relationships to rely on when evaluating the trustworthiness and dedication of potential partners. Due to their extensive experience, they are likely to be more recognised within the industry and can provide leads back to the main company (Kor & Misangyi, 2008). Pharmacists, as in-industry experts, have this advantage by being in the strategic leadership of MPCs. Pharmacists tend to have close associations within the industry and typically have links with various companies.

For a company to perform optimally for the benefit of the stakeholders, the strategic leaders must exhibit integrity and ethical behaviour, have a reputable standing in their respective fields, and have a proven record of making prudent decisions (Duggin, 2006). Because serving on a board can be a significant commitment, individuals should be available and willing to devote the required time to fulfil their duties. In some cases, boards may prioritise diversity of perspectives and backgrounds when selecting members. The selection process often entails nomination by existing board members or stakeholders and a formal evaluation of qualifications and suitability for the position, which may include interviews (Amorelli & García-Sánchez, 2021; Gomez & Bernet, 2019). From the companies studied, it was evident that the strategic leadership of these companies are not diverse. There was a limited presence of pharmacists and persons from a medical background. While MPCs are in the healthcare field, they are businesses that will incorporate persons with legal, finance and social sciences backgrounds in their leadership, as required of any large corporation. However, the limited presence of in-industry experts showed the limited diversity in the strategic leadership. This would limit the health and patient perspective that should be offered by the presence of healthcare professionals through the theory of institutional logic as described by Tan and Wang (2011) and Thornton, Ocasio and Lounsbury (2012).

Any company's strategic leadership team members are vital as they dictate the company's strategic mandate. Strategic Leadership expands beyond the organisation's regular operational activities and addresses complex, interrelated, real-life challenges within the work environment. Mayimele, Demana, and Keele (2023) conducted a qualitative study that had board members of MPCs as key informants in South Africa. The study found few pharmacists in strategic leadership positions in listed medicine product companies (MPCs) in South Africa (Mayimele et al., 2023). However, the respondents of the study, who are in strategic leadership positions, valued the presence of pharmacists. To be in a strategic leadership position in an MPC, the respondents indicated that one needs specific skills and experience beyond what a Bachelor of Pharmacy (BPharm) degree can offer. The respondents described how boards of directors are essential for large companies that are listed and traded publicly (Mayimele et al., 2023).

The role of boards of companies varies across industries, but it typically includes determining the strategy for the organisation. The study further found that the industry offers pharmacists opportunities to enter strategic leadership positions (Mayimele et al., 2023). According to the respondents, all candidates have equal opportunity to be considered for these positions. In addition, a pharmacist with the necessary experience and skills would be even more attractive to become a board member or be considered for a position in strategic leadership. Pharmacists have a variety of skills mix, which, in addition to being product experts, includes expertise in pharmacovigilance, antimicrobial stewardship, comprehensive medication analysis, and disease state management by following a patient-centred approach. Expanded pharmacist roles are delivered through pharmaceutical care services to provide optimal patient outcomes (Sakeena et al., 2019; Mayimele et al., 2023).

Within the context of pharmaceutical manufacturing, a pharmacist has a broad insight into the pharmaceutical sciences, which ensures a holistic approach to quality assurance, including good manufacturing practice, thereby validating the various stages of pharmaceutical production and the testing of products before their release (Okereke et al., 2021). Pharmaceutical companies often have clearly defined career pathways that articulate the performance, technical competencies, and professional experience required for each role and level of seniority (Sciacchitano & Bartolazzi, 2021). This enabling environment allows pharmacists to transition to roles of increasing responsibility and accountability. Career pathing for pharmacists, however, does not necessarily imply translation into executive management positions.

Conclusion

MPCs have positions that can only be occupied by pharmacists at technical levels. The study confirmed a limited presence of pharmacists in the strategic Leadership of the MPCs that have operations in South Africa, although they may be located in other countries. Women were even less likely to have an opportunity to lead in the MPCs. At an international level, several gaps exist within the legislative framework, which is silent on the requirement for a health professional or pharmacist at the strategic leadership level of an MPC. Pharmacists' ability to lead a strategic MPC remains a mystery that could be further explored. However, pharmacists are experts within the pharmaceutical industry who are often referred to as custodians of medicines. Their absence in strategic leadership roles limits their influence on the strategic mandates of the MPCs and, thereby, the pharmaceutical industry as a whole.

Author Contributions: Conceptualization: Nsovo Mayimele, Patrick Demana, Mothobi Keele; methodology: Nsovo Mayimele, Patrick Demana, Mothobi Keele; software: Nsovo Mayimele, Patrick Demana, Mothobi Keele; validation: Nsovo Mayimele, Patrick Demana, Mothobi Keele; formal analysis: Nsovo Mayimele, Patrick Demana, Mothobi Keele; investigation: Nsovo Mayimele, Patrick Demana, Mothobi Keele; resources: Nsovo Mayimele, Patrick Demana, Mothobi Keele; data curation: Nsovo Mayimele, Patrick Demana, Mothobi Keele; writing-original draft preparation: Nsovo Mayimele; writing-review and editing: Patrick Demana; visualization: Patrick Demana; supervision: Patrick Demana and Mothobi Keele; project administration: Nsovo Mayimele; funding acquisition: Nsovo Mayimele.

Conflicts of Interest: Authors declare no conflict of interest.

Data Availability Statement: Not applicable.

Informed Consent Statement: Not applicable.

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