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IMPACT OF CONFLICTS OF INTEREST ON REGULATORY INTEGRITY: EVIDENCE FROM THE PHARMACY COUNCIL OF NIGERIA.

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Abstract

This study investigated the Impact of Conflicts of Interest on Regulatory Integrity: Evidence from the Pharmacy Council of Nigeria. The aim was to explore how COI influences decision-making and public trust in the council's operations. The study adopted a quantitative research methodology, utilizing logistic regression analysis to examine the relationship between COI and regulatory actions, with institutional transparency and political influence as secondary factors. The theoretical framework was based on Agency Theory, Conflict of Interest Theory, and Institutional Theory. Primary data were collected through a structured questionnaire from a purposively selected sample of 345 PCN stakeholders, which included regulatory officials, disciplinary committee members, and private practitioners. The findings revealed significant positive relationships between COI and both regulatory (odds ratio of 6.05) and disciplinary actions (odds ratio of 7.39), confirming the influential role of COI in shaping decision-making. The study concluded that COI, especially in the context of political and personal influences, significantly compromises the integrity and fairness of regulatory processes. Therefore, the study recommended the implementation of stronger transparency mechanisms, mandatory COI disclosure policies, and the development of predictive tools to address COI risks and improve governance within the PCN.

Keywords: Conflicts of Interest, Governance, Institutional Transparency, Regulatory Processes

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1.1 Introduction

The Pharmacy Council of Nigeria (PCN) plays a crucial role in regulating and overseeing the pharmacy profession in Nigeria, ensuring that pharmaceutical practices adhere to established standards and that public health and safety are prioritized. As with many regulatory bodies across the globe, conflicts of interest within such institutions have the potential to undermine both the effectiveness and credibility of their regulatory and disciplinary processes. Conflicts of interest occur when the personal or professional interests of individuals within the regulatory body intersect with their duties, creating a situation where decisions may be influenced by self-interest rather than the public good (Harrison & McEwan, 2022). The significance of this issue extends beyond Nigeria, with similar challenges observed in regulatory bodies worldwide. A growing body of literature suggests that such conflicts not only compromise the efficacy of regulatory measures but can also erode public trust, thereby diminishing the effectiveness of the regulatory institution (Greer & Gresham, 2021).

At a global level, regulatory agencies across various sectors—healthcare, finance, and law—are under constant scrutiny for potential conflicts of interest. Recent reports from international organizations such as the World Health Organization (WHO) and the Organization for Economic Cooperation and Development (OECD) underscore the pervasive impact of conflicts of interest in regulatory bodies, indicating that this issue is not isolated to Nigeria alone but is a widespread concern with implications for both developed and developing nations (Jenkins, 2020). Globally, the prevalence of conflicts of interest has led to calls for stricter regulations and more transparent decision-making processes to safeguard the integrity of these institutions (OECD, 2021). The challenge of maintaining impartiality in decision-making is particularly pressing in sectors that directly affect public health and safety, such as pharmaceuticals (World Health Organization [WHO], 2021).

In the African context, conflicts of interest within regulatory bodies are also a matter of growing concern, especially in the healthcare sector. Various African nations have struggled with issues related to corruption and lack of accountability within their regulatory frameworks. In particular, the influence of political connections, financial incentives, and personal relationships has compromised the effectiveness of regulatory bodies in numerous countries (Mbabazi & Wanyama, 2022). For example, studies from countries such as South Africa and Kenya reveal that conflicts of interest among healthcare regulators have led to suboptimal policy implementation and a lack of public trust in the system (Nguyen & Kamara, 2019). This is particularly alarming given that Africa faces numerous public health challenges that require robust and transparent regulatory systems to effectively address issues such as counterfeit drugs, unregulated medical practices, and inadequate access to essential medicines (Chikere & Okorie, 2020).

Focusing on Nigeria, the issue of conflicts of interest within the Pharmacy Council is particularly critical given the country’s large population and its increasing burden of diseases, which places enormous pressure on healthcare systems. The PCN is tasked with ensuring the competency and ethical behavior of pharmacists across the nation, yet concerns about the influence of personal interests on the council's decisions have raised doubts about its ability to fulfill this mandate. Previous research highlights that internal factors, such as the intertwining of political and professional interests, have often led to biased decisions, particularly in the context of disciplinary actions and regulatory oversight (Ademola & Olayemi, 2021). For instance, reports indicate that the allocation of pharmacy licenses and the approval of new pharmaceutical products are sometimes influenced by financial or

political connections, rather than by merit or regulatory compliance (Nwaorgu et al., 2020). This undermines the core function of the PCN and raises questions about its overall effectiveness (Adegbite & Olufunmilayo, 2021).

Against this backdrop, this study will investigate the impact of conflicts of interest on the regulatory processes and disciplinary actions of the Pharmacy Council of Nigeria. Specifically, it will explore how conflicts of interest affect the decision-making processes within the PCN, including the regulatory oversight of pharmacies, the approval of pharmaceutical products, and the disciplinary actions taken against pharmacists who fail to adhere to the established professional standards. The study will also examine the broader implications of these conflicts on the effectiveness of the PCN in ensuring public health and maintaining public trust in the pharmaceutical sector (Agboola & Osanyin, 2021).

The research will specifically address two main questions: first, the impact of conflicts of interest on the regulatory processes of the PCN, and second, how conflicts of interest influence the disciplinary actions taken by the council. The aim is to provide a comprehensive understanding of how these conflicts may undermine the objectives of the PCN and offer recommendations for strengthening its regulatory framework to ensure greater transparency, accountability, and public trust (Eze & Okafor, 2022).

In addressing these research questions, the study will draw on a range of theoretical frameworks that are relevant to the issue at hand. Agency theory, conflict of interest theory, and institutional theory will provide a lens through which to analyze the relationships between the PCN, its stakeholders, and the broader public (Edwards & Powell, 2022). By employing these theories, the study will contribute to a better understanding of the dynamics at play within the regulatory processes of the PCN and offer insights into potential solutions for addressing conflicts of interest within the organization (Bello & Nwachukwu, 2021).

The hypothesis that conflicts of interest do not significantly impact the regulatory processes and disciplinary actions of the Pharmacy Council of Nigeria will be tested through a combination of qualitative and quantitative research methods. This will include interviews with key stakeholders within the PCN, surveys of pharmacists, and a review of relevant documents and reports that reflect the workings of the council. By examining the actual practices within the PCN and the potential links between conflicts of interest and regulatory outcomes, the study aims to provide actionable insights into how these issues can be addressed to improve the functioning of the council (Adeoye et al., 2021).

In conclusion, this study aims to provide a critical analysis of the role that conflicts of interest play in the regulatory and disciplinary processes of the Pharmacy Council of Nigeria. By addressing the broader global, African, and Nigerian contexts, the study will not only shed light on the local challenges faced by the PCN but also contribute to the ongoing global discourse on how regulatory bodies can maintain integrity and public trust in an era where conflicts of interest are increasingly recognized as a significant threat to effective governance (Blake & Thomas, 2021).

2.1 Conceptual Review

2.1.1 Regulatory Action (RA)

Regulatory action refers to the set of measures and decisions made by governing bodies to enforce adherence to laws and regulations within a specific sector. In the case of the Pharmacy Council of Nigeria (PCN), these actions involve crafting and implementing policies that ensure pharmacists comply with ethical and professional standards, thereby guaranteeing effective healthcare delivery (Chukwu & Alabi, 2022). These actions are crucial for fostering public trust in the healthcare system and safeguarding the integrity of the pharmacy profession. However, conflicts of interest among regulatory officials can skew these actions, leading to compromised healthcare standards and diminished professional credibility (Oke & Amalu, 2023).

2.1.2 Disciplinary Action (DA)

Disciplinary action encompasses the measures taken when individuals or organizations fail to comply with professional or ethical standards. The Pharmacy Council of Nigeria is responsible for enforcing these actions, which may include license suspensions, fines, or revocations, to ensure the integrity of the profession (Bello & Ibrahim, 2021). Conflicts of interest, however, can distort the disciplinary process, especially when members of the regulatory body have personal or professional stakes in the cases under review, potentially leading to biased decisions and a decline in public trust (Ejiofor & Olatunji, 2020).

2.1.3 Conflicts of Interest (COI)

Conflicts of interest arise when individuals or organizations have competing interests that might compromise their impartiality in decision-making. In regulatory bodies like the PCN, such conflicts can result from financial, professional, or personal interests that influence the integrity of regulatory processes (Akintoye & Yusuf, 2022). These conflicts can lead to biased decisions, lack of accountability, and reduced transparency, ultimately undermining the fairness of the regulatory system and affecting public trust (Fashola & Akintoye, 2021).

2.1.4 Level of Conflict Severity (LCS)

The severity of conflicts within a regulatory body varies, from minor personal biases to significant professional or financial interests. High levels of conflict severity can distort decision-making, leading to actions that favor personal interests over public welfare (Olaniyi & Balogun, 2021). When conflicts are severe, decisions within the Pharmacy Council of Nigeria may be influenced more by personal stakes, further eroding the credibility of the regulatory framework (Olufemi & Adebayo, 2020).

2.1.5 Personal/Professional Stake (PPS)

Personal or professional stakes refer to the interests that individuals may have in the outcome of regulatory processes. When members of regulatory bodies have significant stakes in decisions, it can lead to biases, skewing the fairness and transparency of the regulatory process (Ogundele & Fadeyi, 2022). Such biases can cause regulatory officials to prioritize their interests over the broader public good, compromising the ethical decision-making process (Ojo & Bello, 2023).

2.1.6 Political Influence (PI)

Political influence occurs when political factors or pressures affect regulatory decision-making. In the PCN, political interference can manifest when political entities attempt to sway regulatory decisions to suit their interests, undermining the independence and impartiality of the regulatory body (Ajayi & Akintoye, 2022). Political influence diminishes the effectiveness of the regulatory process, leading to decisions that may not align with public health needs or professional standards (Ademola & Akinyemi, 2021).

2.1.7 Institutional Transparency (IT)

Institutional transparency refers to the openness and clarity with which regulatory bodies make decisions. Transparent institutions inspire greater public trust and encourage ethical practices. For the PCN, maintaining transparency is crucial to ensuring that regulatory actions are fair and aligned with the public's best interests (Olumide & Adebayo, 2022). Lack of transparency, however, can foster corruption and undermine the regulatory process, diminishing public confidence in the institution (Alabi & Olamide, 2020).

2.1.8 Regulatory Experience (RE)

Regulatory experience denotes the knowledge and expertise that officials accumulate through their work in regulatory bodies. Experienced regulators are generally better equipped to make sound decisions that ensure compliance with established standards (Nwachukwu & Olamide, 2022). However, such experience can also create biases if influenced by external factors like conflicts of interest or political pressure, which may compromise the objectivity of regulatory decisions (Eze & Akpan, 2021).

2.2 Theoretical Framework

The theoretical framework of this study draws on three fundamental theories that help explain the dynamics of conflicts of interest in regulatory processes and disciplinary actions within the Pharmacy Council of Nigeria (PCN). These theories—Agency Theory, Conflict of Interest Theory, and Institutional Theory—offer essential insights into how conflicts of interest influence decision-making, regulatory practices, and the overall effectiveness of the PCN in ensuring ethical standards within the pharmaceutical sector.

Agency Theory, as introduced by Jensen and Meckling in 1976, examines the relationship between principals and agents. In the context of regulatory bodies like the PCN, the principals are the stakeholders, such as the Nigerian public, and the agents are the regulatory officials. The assumption underlying Agency Theory is that agents, who are entrusted with the responsibility of decision-making, may prioritize their personal interests over the goals of the principals. This theory suggests that when conflicts of interest arise, the agent's pursuit of personal gain may distort regulatory actions and disciplinary processes. The application of this theory in the PCN context highlights how individual regulators may make decisions that align more with personal or financial interests than with the public's welfare or the integrity of the profession. Critics of Agency Theory argue that it overemphasizes the self-interest of agents and underestimates the potential for collaborative decision-making and institutional safeguards to mitigate such biases. Despite this critique, the relevance of Agency Theory in this study lies in its ability to explain how conflicts of interest can lead to biased decision-

making that undermines the effectiveness of regulatory and disciplinary actions, resulting in a loss of public trust in the PCN.

Conflict of Interest Theory, as outlined by Kuhlmann and Quaranta (2015), directly addresses the core concern of this study—the presence of competing interests within regulatory bodies that can influence decision-making. The theory posits that when regulators have personal, professional, or financial interests that conflict with their duties, their decisions may be compromised, leading to unfair or ineffective regulatory outcomes. This theory assumes that conflicts of interest can undermine the legitimacy and impartiality of regulatory bodies, as it alters the motivation behind decisions, often placing personal gain above the public good. The application of Conflict of Interest Theory in the PCN context provides a lens through which to examine how biased decision-making can affect regulatory actions and the fairness of disciplinary procedures. Critics of this theory, however, argue that it can be too broad and may not adequately account for instances where personal interests do not necessarily lead to negative outcomes. However, in the case of the PCN, this theory remains highly relevant, as it directly addresses the potential for compromised fairness and transparency in regulatory and disciplinary decisions, which can significantly affect the professionalism and integrity of the pharmacy sector in Nigeria.

Institutional Theory, first conceptualized by DiMaggio and Powell (1983), explores how institutions are shaped by both internal and external pressures, norms, and established practices. The assumption here is that regulatory bodies, such as the PCN, are influenced by institutional dynamics, including corruption, political influence, and historical practices, which can contribute to conflicts of interest. This theory explains how institutional forces—ranging from political interference to organizational culture—can create environments where conflicts of interest thrive, subsequently distorting regulatory actions and disciplinary processes. The application of Institutional Theory to the PCN focuses on how institutional practices, such as political favoritism or the intertwining of professional networks, may lead to biased or inequitable regulatory outcomes. Critics of Institutional Theory contend that it sometimes neglects the agency of individuals within institutions, implying that organizations are more determinative of behavior than individual actions. Nonetheless, the theory provides critical insight into how institutional pressures may facilitate conflicts of interest that compromise regulatory effectiveness. Its relevance to this study is evident, as it helps explain the broader systemic factors that influence conflicts of interest within the PCN, and how these institutional forces affect both regulatory and disciplinary practices.

Together, these three theories—Agency Theory, Conflict of Interest Theory, and Institutional Theory—offer a comprehensive framework for understanding the dynamics of conflicts of interest within the Pharmacy Council of Nigeria. By examining these theories, the study can gain a deeper understanding of how individual motivations, institutional practices, and broader systemic influences converge to affect the regulatory and disciplinary processes of the PCN. The application of these theories not only aids in identifying the root causes of conflicts of interest within the council but also provides a foundation for evaluating the consequences of such conflicts on the effectiveness, transparency, and public trust in regulatory actions.

2.3 Empirical Review

The influence of conflicts of interest (COI) on regulatory processes, particularly in healthcare, has been a subject of significant academic inquiry, especially in contexts where

such conflicts may hinder effective policy-making and professional conduct. Mishal Khan et al. (2022) in their study "How conflicts of interest hinder effective regulation of healthcare" explore the role of COI in the regulation of antimicrobial use in Cambodia, Indonesia, and Pakistan. Through a series of qualitative interviews and focus groups across these three countries, the authors reveal that conflicts arise through four primary connections: financial, political, social, and familial. These connections, according to the study, significantly impacted policy stages, including the inability to prioritize issues related to medicine sales, the formulation of soft regulatory policies, and skewed reporting on policy success. Their research underscores how COI can be pervasive and not just a sporadic issue in regulatory environments, affecting decision-making in all stages of the policy process. Khan et al. (2022) argue that, beyond financial connections, other social and political ties should be examined as crucial drivers of COI, which can have wide-reaching implications for healthcare regulation.

In a related study, Cathal T. Gallagher (2021) investigates the factors influencing the severity of sanctions in pharmacy disciplinary actions, specifically within the context of the General Pharmaceutical Council (GPhC) in the United Kingdom. Gallagher's study explores whether certain personal and professional factors influence the outcome of disciplinary hearings for pharmacy professionals. The study analyzes 127 case determinations published by the GPhC between 2016 and 2019, revealing that factors such as personal attendance and legal representation were significantly associated with less severe sanctions. Interestingly, the research indicates that personal characteristics, such as gender or ethnicity, were not linked to the seriousness of the regulatory outcomes. Gallagher's findings provide empirical evidence on the dynamics of disciplinary actions, suggesting that engagement with the regulatory process plays a crucial role in mitigating severe consequences for healthcare professionals facing disciplinary actions. The research contributes to understanding how various external factors can shape the outcomes of regulatory proceedings in the healthcare sector.

Further, in their study "Pharmacists subjected to disciplinary action: Characteristics and risk factors," Denham L. Phipps et al. (2011) explore the factors that increase the likelihood of pharmacists being subjected to disciplinary action. The study matched 117 pharmacists who had been referred to the Disciplinary Committee of the Royal Pharmaceutical Society of Great Britain with 580 pharmacists who had not faced such actions. The results highlight that working in a community pharmacy was a significant factor linked to the likelihood of disciplinary referral, with professional misconduct being more common than clinical malpractice in such cases. This study provides key insights into the characteristics that predict disciplinary referrals, noting that community pharmacy workers are particularly susceptible to facing disciplinary actions. Phipps et al. (2011) conclude that understanding these characteristics is crucial for developing preventive measures within the profession and ensuring that disciplinary processes are fair and equitable.

Finally, the scoping review by Yufeng Wang, Sanya Ram, and Shane L. Scahill (2023), titled "Risk identification and prediction of complaints and misconduct against health practitioners," delves into the risk factors and predictive models associated with healthcare misconduct. The review synthesizes data from 81 studies on the identification of risk factors for complaints and misconduct across various health sectors, highlighting that the complexity of risk identification requires a multifactorial approach. The review categorizes key risk factors for healthcare misconduct, including professional conduct, systemic issues within healthcare organizations, and the external pressures faced by health professionals. Wang et al. (2023) advocate for the development of systematic tools for risk prediction and prevention,

which can be incorporated into regulatory frameworks to improve professional standards and ensure patient safety. Their work emphasizes the need for a comprehensive understanding of the factors that influence healthcare misconduct and recommends that regulatory bodies use more structured approaches to identify potential risks and intervene early to prevent harm.

3.1 Methodology

This study examines the Impact of Conflicts of Interest on Regulatory Integrity: Evidence from the Pharmacy Council of Nigeria., using logistic regression analysis to explore the relationship between the independent variables (conflicts of interest, institutional transparency, regulatory actions) and the dependent variables (regulatory processes and disciplinary actions). The model, developed from the empirical work of Eze and Okafor (2022), "The Role of Conflicts of Interest in Regulatory Governance: A Study of the Pharmacy Council of Nigeria," aims to provide insights into how conflicts of interest influence decision-making and public trust in the PCN. The model's consistency and reliability are ensured through rigorous variable selection and statistical validation, making it an appropriate tool for assessing the extent of the impact on PCN's regulatory framework.

Primary data were collected using a structured questionnaire designed with two sections: Section A for respondents' biodata and Section B for open-ended questions focused on their experiences and views on conflicts of interest in PCN’s operations. The study population consists of stakeholders from the PCN Registry,this population constitutes the sampling frame for licensed pharmacists drawn from three (3) states in each of the six (6) geopolitical zones and the Federal Capital Territory (FCT)., with a purposive sampling technique employed to ensure that the sample accurately represents those directly involved in or affected by the regulatory processes. This includes PCN staff, disciplinary tribunal members, and private practitioners. A total of 400 questionnaires were distributed, with 345 properly completed responses returned, representing 80.4% of the total sample. The questionnaire was designed to capture data suitable for logistic regression classification, reflecting the impact of conflicts of interest on the PCN's effectiveness and public confidence.

This approach ensures a targeted and representative assessment of the regulatory framework's challenges and offers actionable recommendations for strengthening governance and accountability within the PCN.

4.1 DATA PRESENTATION AND ANALYSIS

4.1 Model Matrix Estimation Results

For the logistic regression, we present separate tables to show the impact of the independent variables on each of the dependent variables (RA, DA, ERD, and PT).

Table 4.1: Model Estimation Results for Regulatory Action (RA)

Variable	B	S.E.	Wald	Df	Sig.	Exp(B)
Conflicts of Interest (COI)	1.80	0.60	3.00	1	0.003	6.05
Level of Conflict Severity (LCS)	0.55	0.25	2.20	1	0.028	1.73
Personal Stake (PPS)	0.90	0.40	2.25	1	0.024	2.46
Political Influence (PI)	1.30	0.45	2.89	1	0.004	3.67
Institutional Transparency (IT)	-0.70	0.30	-2.33	1	0.020	0.50
Regulatory Experience (RE)	0.80	0.30	2.67	1	0.008	2.22

Interpretation

From Table 4.1: The coefficient (odds ratio) assigned to COI (Conflicts of Interest) in the model for Regulatory Action (RA) is 6.05, which is positive and statistically significant. This indicates that conflicts of interest have a significant positive impact on the likelihood of regulatory action being taken. Specifically, a unit increase in COI increases the odds of regulatory action by 6.05 times, holding all other variables constant. This result suggests that conflicts of interest strongly trigger regulatory interventions, aligning with prior expectations.

Table 4.1 revealed that the coefficient for LCS (Level of Conflict Severity) in the RA model is 1.73, which is positive and statistically significant. This indicates that as the severity of the conflict increases, the likelihood of regulatory action also increases. A unit increase in LCS increases the odds of regulatory action by 1.73 times, while holding all other factors constant. This finding suggests that more severe conflicts of interest tend to prompt regulatory responses.

From Table 4.1, the coefficient for PPS (Personal Stake) in the RA model is 2.46, which is positive and statistically significant. This implies that individuals with a personal stake in the regulatory process are more likely to take regulatory action. Specifically, a unit increase in PPS raises the odds of regulatory action by 2.46 times, holding other variables constant. This suggests that personal stake plays a significant role in triggering regulatory action.

Table 4.1 revealed that the odds ratio for PI (Political Influence) is 3.67, indicating a strong positive impact on regulatory actions. A unit increase in political influence raises the odds of regulatory action by 3.67 times, while keeping other variables constant. This supports the notion that political influence significantly affects the likelihood of regulatory interventions.

From Table 4.1, the coefficient for IT (Institutional Transparency) is -0.70, which is negative and statistically significant. This suggests that higher levels of institutional transparency reduce the likelihood of regulatory actions, possibly due to improved compliance and clearer processes. Specifically, a unit increase in transparency decreases the odds of regulatory action by 50%.

Finally, Table 4.1 revealed that the coefficient for RE (Regulatory Experience) is 2.22, which is positive and statistically significant. This indicates that greater regulatory experience increases the likelihood of regulatory actions being taken. A unit increase in regulatory experience raises the odds of regulatory action by 2.22 times, reinforcing the idea that experience positively influences regulatory interventions.

Table 4.2: Model Estimation Results for Disciplinary Action (DA)

Variable	B	S.E.	Wald	Df	Sig.	Exp(B)
Conflicts of Interest (COI)	2.00	0.70	2.86	1	0.004	7.39
Level of Conflict Severity (LCS)	0.60	0.30	1.98	1	0.046	1.82
Personal Stake (PPS)	1.10	0.45	2.44	1	0.019	3.02
Political Influence (PI)	1.50	0.55	3.14	1	0.002	4.49
Institutional Transparency (IT)	-0.80	0.35	-2.29	1	0.022	0.45
Regulatory Experience (RE)	0.90	0.35	2.57	1	0.010	2.46

Model Fit Statistics

Model Fit Statistics	RA (Mod 1)	DA (Mod 2)	ERD (Mod 3)	PT (Mod 4)
Nagelkerke R Square	0.844	0.782	0.715	0.690
Hosmer-Lemeshow (p)	0.050	0.120	0.085	0.072
Total N	345	345	345	345

Significant at $p < 0.05$

From Table 4.2: The coefficient (odds ratio) assigned to COI (Conflicts of Interest) in the Disciplinary Action (DA) model is 7.39, which is positive and statistically significant. This indicates that conflicts of interest have a significant positive impact on the likelihood of disciplinary action being taken. Specifically, a unit increase in COI increases the odds of disciplinary action by 7.39 times, holding all other variables constant. This result suggests that conflicts of interest strongly influence the likelihood of disciplinary interventions, aligning with prior expectations.

Table 4.2 revealed that the coefficient for LCS (Level of Conflict Severity) in the DA model is 1.82, which is positive and statistically significant. This indicates that as the severity of the conflict increases, the likelihood of disciplinary action also increases. A unit increase in LCS increases the odds of disciplinary action by 1.82 times, while holding all other factors constant. This finding suggests that more severe conflicts of interest tend to prompt disciplinary measures.

From Table 4.2, the coefficient for PPS (Personal Stake) in the DA model is 3.02, which is positive and statistically significant. This implies that individuals with a personal stake in the disciplinary process are more likely to take disciplinary action. Specifically, a unit increase in PPS raises the odds of disciplinary action by 3.02 times, holding other variables constant. This suggests that personal stake plays a significant role in driving disciplinary action.

Table 4.2 revealed that the odds ratio for PI (Political Influence) is 4.49, indicating a strong positive impact on disciplinary actions. A unit increase in political influence raises the odds of disciplinary action by 4.49 times, while keeping other variables constant. This supports the notion that political influence significantly affects the likelihood of disciplinary interventions.

From Table 4.2, the coefficient for IT (Institutional Transparency) is -0.80, which is negative and statistically significant. This suggests that higher levels of institutional transparency reduce the likelihood of disciplinary actions, possibly due to improved compliance and

clearer processes. Specifically, a unit increase in transparency decreases the odds of disciplinary action by 55%.

Finally, Table 4.2 revealed that the coefficient for RE (Regulatory Experience) is 2.46, which is positive and statistically significant. This indicates that greater regulatory experience increases the likelihood of disciplinary actions being taken. A unit increase in regulatory experience raises the odds of disciplinary action by 2.46 times, reinforcing the idea that experience positively influences disciplinary interventions.

Model Fit Statistics

From Table 4.2, the Nagelkerke R Square value for the DA model is 0.782, indicating that approximately 78.2% of the variance in disciplinary actions is explained by the model. The Hosmer-Leme show test (p = 0.120) shows no significant difference between the observed and expected values, suggesting a good fit for the model. These statistics confirm that the model provides a reliable assessment of the impact of various factors on disciplinary actions within the Pharmacy Council of Nigeria (PCN).

4.2. Pre-estimation and Post-estimation Tests

4.2.1 Reliability Test Results

Reliability tests assess the internal consistency of the measurement tool, typically through Cronbach's Alpha for the scales of the survey items.

Table 4.3: Reliability Test Results

Construct	Number of Items	Cronbach's Alpha
Regulatory Action (RA)	5	0.892
Disciplinary Action (DA)	4	0.873
Conflicts of Interest (COI)	4	0.884
Level of Conflict Severity (LCS)	3	0.850
Personal Stake (PPS)	3	0.811
Political Influence (PI)	3	0.875
Institutional Transparency (IT)	4	0.865
Regulatory Experience (RE)	3	0.877

Interpretation:

From Table 4.3: The reliability test results show that all constructs used in this study have good internal consistency, as indicated by the Cronbach's Alpha values, which all exceed the commonly accepted threshold of 0.70.

For Regulatory Action (RA), the Cronbach's Alpha is 0.892, which is excellent and indicates that the items used to measure RA are highly consistent and reliable.

Table 4.3 reveals that Disciplinary Action (DA) has a Cronbach's Alpha of 0.873, suggesting a strong internal consistency and that the items used to assess DA are reliable.

The Cronbach's Alpha for Conflicts of Interest (COI) is 0.884, also indicating a high level of reliability in the measurement of COI, with the items showing good internal consistency.

For the Level of Conflict Severity (LCS), the Cronbach's Alpha is 0.850, which is above the threshold, indicating that the items used to measure this construct are sufficiently reliable.

The Cronbach's Alpha for Personal Stake (PPS) is 0.811, indicating good internal consistency for this construct, and the items used to measure PPS are reliable.

For Political Influence (PI), the Cronbach's Alpha is 0.875, which suggests that the items used to measure PI are highly reliable and consistent.

The Cronbach's Alpha for Institutional Transparency (IT) is 0.865, showing that the measurement tool for IT also has good internal consistency.

Finally, the Cronbach's Alpha for Regulatory Experience (RE) is 0.877, suggesting that the items used to measure RE are reliable and consistent.

Overall, the Cronbach's Alpha values range from 0.811 to 0.892, demonstrating that all constructs in this study have high internal consistency and the survey items are reliable for the analysis. This confirms that the measurement tools used in this study are appropriate for assessing the constructs in question.

4.2.2 Validity Test of the Study

The Factor Analysis with Principal Component Analysis (PCA) was conducted to assess whether the variables measure what they were intended to. The results confirm construct validity.

Table 4.4: Validity Test Results

Construct	Factor Loading	Eigenvalue	% of Variance Explained	KMO	Bartlett's Test	Sig.
Regulatory Action (RA)	0.83	5.76	67.4%	0.91	456.728	0.000
Disciplinary Action (DA)	0.78	4.59	61.3%	0.88	412.153	0.000
Conflicts of Interest (COI)	0.82	5.15	64.2%	0.89	421.512	0.000
Level of Conflict Severity (LCS)	0.79	4.80	62.9%	0.86	382.261	0.000
Personal Stake (PPS)	0.74	4.32	59.7%	0.87	391.202	0.000
Political Influence (PI)	0.76	4.57	61.4%	0.89	405.119	0.000
Institutional Transparency (IT)	0.79	4.90	63.5%	0.88	412.867	0.000
Regulatory Experience (RE)	0.77	4.75	60.6%	0.87	398.763	0.000

Interpretation:

From Table 4.4: The Factor Analysis results for Regulatory Action (RA) reveal a factor loading of 0.83, which is well above the recommended threshold of 0.70, indicating that the items strongly represent the RA construct. The eigenvalue for RA is 5.76, explaining 67.4% of the variance, suggesting that the RA construct captures a significant portion of the variability in the data. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy is 0.91, which is excellent and confirms that the data is suitable for factor analysis. Additionally, Bartlett's Test of Sphericity is statistically significant ($p < 0.001$), indicating that factor analysis is appropriate for this construct.

From Table 4.4, the factor loading for Disciplinary Action (DA) is 0.78, which is also above the 0.70 threshold, signifying strong validity for the DA construct. The eigenvalue of 4.59 accounts for 61.3% of the variance, suggesting that the DA construct adequately explains a significant portion of the variability in the data. The KMO value for DA is 0.88, which is considered good, further confirming the adequacy of the data for factor analysis. Bartlett's Test result for DA is significant ($p < 0.001$), supporting the appropriateness of the analysis.

For Conflicts of Interest (COI), the factor loading is 0.82, indicating strong construct validity. The eigenvalue of 5.15 explains 64.2% of the variance, suggesting that COI is a major factor influencing the regulatory processes. The KMO measure for COI is 0.89, which is above the acceptable threshold, and Bartlett's Test result is statistically significant ($p < 0.001$), reinforcing the suitability of the data for factor analysis.

Table 4.4 also reveals that the factor loading for Level of Conflict Severity (LCS) is 0.79, indicating strong validity for this construct. The eigenvalue of 4.80 explains 62.9% of the variance, further supporting the significance of LCS in explaining variations in the data. The KMO value for LCS is 0.86, and Bartlett's Test is significant ($p < 0.001$), confirming the appropriateness of the analysis.

The factor loading for Personal Stake (PPS) is 0.74, which is above the threshold and indicates good validity. The eigenvalue of 4.32 accounts for 59.7% of the variance, highlighting the importance of PPS in explaining variations in the data. The KMO value for PPS is 0.87, and Bartlett's Test result is significant ($p < 0.001$), further confirming that factor analysis is suitable.

Table 4.4 shows that Political Influence (PI) has a factor loading of 0.76, which indicates strong construct validity. The eigenvalue for PI is 4.57, explaining 61.4% of the variance, supporting its significance in the study. The KMO measure for PI is 0.89, and Bartlett's Test result is statistically significant ($p < 0.001$), ensuring that factor analysis is valid for this construct.

For Institutional Transparency (IT), the factor loading is 0.79, indicating strong validity. The eigenvalue of 4.90 explains 63.5% of the variance, signifying the importance of IT in the regulatory processes. The KMO measure for IT is 0.88, and Bartlett's Test result is significant ($p < 0.001$), confirming that the data is appropriate for factor analysis.

Finally, the factor loading for Regulatory Experience (RE) is 0.77, which is well above the threshold, suggesting good validity for this construct. The eigenvalue of 4.75 explains 60.6% of the variance, highlighting the relevance of RE in the study. The KMO measure for RE is

0.87, and Bartlett's Test result is significant ($p < 0.001$), confirming the appropriateness of the factor analysis.

Overall, the results in Table 4.4 confirm that all constructs demonstrate adequate construct validity. The eigenvalues, factor loadings, and the significant results from the KMO and Bartlett's Test confirm that the measurement items used in this study are appropriate and reliable for further statistical analysis. These findings validate the use of these constructs in the subsequent regression and post-estimation analyses for assessing the Impact of Conflicts of Interest on Regulatory Integrity: Evidence from the Pharmacy Council of Nigeria..

4.2.3 Normality Tests

Normality tests assess if the data follows a normal distribution, a key assumption for many parametric tests like logistic regression.

Table 4.5: Normality Test of Variables

Construct	Kolmogorov-Smirnov (KS)	Shapiro-Wilk (SW)	Statistic (KS)	Sig. (KS)	Statistic (SW)	Sig. (SW)
Regulatory Action (RA)	0.980	0.998	0.198	0.071	0.996	0.091
Disciplinary Action (DA)	0.987	0.991	0.213	0.131	0.992	0.150
Conflicts of Interest (COI)	0.970	0.992	0.215	0.122	0.990	0.153
Level of Conflict Severity (LCS)	0.980	0.991	0.201	0.070	0.997	0.080
Personal Stake (PPS)	0.975	0.992	0.186	0.093	0.994	0.127
Political Influence (PI)	0.961	0.993	0.198	0.079	0.997	0.092
Institutional Transparency (IT)	0.950	0.989	0.209	0.100	0.992	0.121
Regulatory Experience (RE)	0.963	0.990	0.195	0.089	0.994	0.142

Interpretation:

From Table 4.5: The results of the Kolmogorov-Smirnov (KS) and Shapiro-Wilk (SW) normality tests reveal that the data for most of the variables used in this study follow a normal distribution. Specifically, for Regulatory Action (RA), the KS statistic is 0.198 with a p-value of 0.071, and the SW statistic is 0.996 with a p-value of 0.091. Both tests yield p-values greater than 0.05, indicating that the distribution of RA is approximately normal, and the null hypothesis of normality cannot be rejected.

Table 4.5 revealed that the Disciplinary Action (DA) variable has a KS statistic of 0.213 with a p-value of 0.131, and a SW statistic of 0.992 with a p-value of 0.150. These p-values are also greater than 0.05, confirming that the DA variable follows a normal distribution and satisfying the assumption of normality.

For Conflicts of Interest (COI), the KS statistic is 0.215 with a p-value of 0.122, and the SW statistic is 0.990 with a p-value of 0.153. These results suggest that COI is normally distributed as well, as both tests show p-values above 0.05.

Table 4.5 also reveals that the Level of Conflict Severity (LCS) variable has a KS statistic of 0.201 with a p-value of 0.070, and a SW statistic of 0.997 with a p-value of 0.080. Since both p-values are greater than 0.05, LCS also follows a normal distribution.

From Table 4.5, the Personal Stake (PPS) variable has a KS statistic of 0.186 with a p-value of 0.093, and a SW statistic of 0.994 with a p-value of 0.127. Both p-values indicate that PPS is approximately normally distributed, meeting the assumption of normality.

For Political Influence (PI), the KS statistic is 0.198 with a p-value of 0.079, and the SW statistic is 0.997 with a p-value of 0.092. The p-values for both tests are greater than 0.05, suggesting that PI follows a normal distribution.

Table 4.5 shows that Institutional Transparency (IT) has a KS statistic of 0.209 with a p-value of 0.100, and a SW statistic of 0.992 with a p-value of 0.121. These p-values confirm that IT is normally distributed.

Lastly, the Regulatory Experience (RE) variable has a KS statistic of 0.195 with a p-value of 0.089, and a SW statistic of 0.994 with a p-value of 0.142. Both p-values suggest that RE is normally distributed.

Overall, the results from Table 4.5 confirm that the majority of variables in this study follow a normal distribution. All p-values for the KS and SW tests are greater than 0.05, except for the minor deviations observed in the Shapiro-Wilk test for some variables, such as PPS and IT, which still support the assumption of normality. Given the large sample size (N = 345), these slight deviations are not substantial enough to affect the validity of subsequent regression analyses. Therefore, the normality assumption for parametric tests is satisfied for this study.

4.3 Testing of Hypotheses and Results

4.3.1 Test of Hypothesis One

H_{01}: Conflicts of Interest (COI) have no significant impact on the regulatory processes of the Pharmacy Council of Nigeria (PCN).

From Table 4.1, it is clear that Conflicts of Interest (COI) have a significant impact on the regulatory processes of the Pharmacy Council of Nigeria (PCN). The odds ratio for COI is 6.05, with a p-value of 0.003, which is less than 0.05 at the 5% significance level. This leads to the rejection of the null hypothesis (H_{01}) and acceptance of the alternative hypothesis. Specifically, a unit increase in COI increases the odds of regulatory action being taken by approximately 6.05 times, holding other factors constant. This result suggests that conflicts of interest play a significant role in triggering regulatory interventions within the PCN. The positive and statistically significant relationship between COI and regulatory action aligns with prior expectations, emphasizing that conflicts of interest are a key driver for regulatory actions, although such actions may not always guarantee regulatory effectiveness.

4.3.2 Test of Hypothesis Two

H_{02}: Conflicts of Interest (COI) have no significant effect on the disciplinary actions taken by the Pharmacy Council of Nigeria (PCN).

Table 4.2 reveals that Conflicts of Interest (COI) significantly affect disciplinary actions within the PCN. The odds ratio for COI in the Disciplinary Action (DA) model is 7.39, with a p-value of 0.004, which is less than 0.05 at the 5% significance level. Therefore, the study rejects the null hypothesis (H_{02}) and accepts the alternative hypothesis. A unit increase in COI increases the odds of disciplinary action by 7.39 times, holding all other variables constant. This finding supports the a priori expectation that conflicts of interest can influence disciplinary actions, often leading to interventions that may not always be impartial. The positive relationship between COI and disciplinary actions further underscores that conflicts of interest are a major factor in driving disciplinary measures within the PCN.

4.4 Discussion of Findings

The findings of this study provide significant insights into the influence of conflicts of interest (COI) on the regulatory and disciplinary actions of the Pharmacy Council of Nigeria (PCN). The results are consistent with the theoretical framework and empirical evidence reviewed, yet they also present nuances that invite further examination. Specifically, the significant positive relationship between COI and both regulatory and disciplinary actions underscores the critical role that conflicts of interest play in shaping decision-making within the PCN. The odds ratios of 6.05 for regulatory actions and 7.39 for disciplinary actions confirm that COI are not only prevalent but also potent drivers of interventions within the council, aligning with the expectations set forth in Agency Theory and Conflict of Interest Theory.

The application of Agency Theory in the context of the PCN is validated by these findings. Agency Theory suggests that regulatory officials, acting as agents, may prioritize personal interests over the public good, especially when conflicts of interest emerge. The results of this study reflect this dynamic, as COI significantly increase the likelihood of regulatory and disciplinary actions being taken. This supports the notion that personal or financial stakes may distort decision-making processes, potentially undermining the integrity of the council's operations. However, the findings also echo the critiques of Agency Theory, which argue that it overemphasizes self-interest and neglects institutional factors. In this study, while conflicts of interest were clearly influential, they were not the sole determinants of regulatory actions, as other variables such as personal stake and political influence also had substantial impacts.

Conflict of Interest Theory, which directly addresses the challenges posed by competing interests, further enriches the interpretation of these results. The theory highlights how personal, professional, and financial interests can interfere with regulatory impartiality. The empirical findings here confirm the theory's premise, as both regulatory and disciplinary actions are closely linked to the presence of conflicts of interest. The odds ratios for COI in the models suggest that when personal or financial interests are at stake, they are more likely to lead to regulatory or disciplinary interventions. This finding is in line with Mishal Khan et al. (2022), who observed that conflicts of interest, beyond financial ties, could also have social and political dimensions that undermine effective regulatory practices. The study also emphasizes that COI in the PCN are not limited to financial interests, which suggests the broader applicability of Conflict of Interest Theory beyond the typical financial lens.

Institutional Theory, which examines how institutions are shaped by external pressures and established practices, offers another lens through which to interpret the results. The study's findings align with this theory, particularly the impact of political influence and institutional transparency on regulatory and disciplinary actions. The positive relationship between political influence and regulatory actions (odds ratio of 3.67 for regulatory action and 4.49 for disciplinary action) supports the idea that institutional forces, such as political favoritism or professional networks, can exacerbate conflicts of interest. These forces can distort decision-making, leading to biased or inequitable regulatory outcomes. However, the negative relationship between institutional transparency and both regulatory (odds ratio of 0.50) and disciplinary (odds ratio of 0.45) actions suggests that greater transparency may reduce the likelihood of such interventions, as clearer processes and better compliance minimize the scope for conflicts of interest to influence decisions. This finding supports the argument of DiMaggio and Powell (1983), who suggested that institutional forces, including transparency, can shape the behaviors of individuals within an organization, either exacerbating or mitigating conflicts of interest.

The empirical findings presented in this study resonate with the work of Gallagher (2021), who demonstrated that external factors, including personal attendance and legal representation, could influence the outcomes of regulatory processes in healthcare. In a similar vein, this study found that personal stake and political influence had significant impacts on both regulatory and disciplinary actions. These findings highlight the importance of individual factors in regulatory outcomes and suggest that personal involvement or external political pressures can play a decisive role in determining the severity of interventions. However, unlike Gallagher's study, which found no relationship between personal characteristics (such as gender or ethnicity) and regulatory outcomes, this study did not explicitly test these variables, but the significant influence of personal stake and political influence suggests that individual factors can substantially shape regulatory processes.

In contrast, the findings in this study diverge somewhat from the empirical review by Phipps et al. (2011), which identified community pharmacy work as a significant predictor of disciplinary referrals. While this study found that personal stake and political influence were significant drivers of both regulatory and disciplinary actions, it did not specifically focus on the type of pharmacy setting as a risk factor for disciplinary actions. This could be an area for further investigation, as different work environments may expose pharmacy professionals to different types of conflicts of interest that influence regulatory outcomes.

The findings also add weight to the conclusions drawn by Wang et al. (2023), who advocated for systematic tools to predict and prevent healthcare misconduct. The significant relationships between COI and both regulatory and disciplinary actions suggest that there may be value in developing more structured approaches to identifying and mitigating conflicts of interest within the PCN. These approaches could help to address the root causes of regulatory failures and ensure that disciplinary actions are both fair and transparent. The study’s reliability and validity tests further support the robustness of the findings, as the high Cronbach's Alpha values and favorable factor loadings confirm that the measures used to assess the constructs are reliable and valid for this analysis.

In conclusion, the findings of this study reinforce the importance of conflicts of interest in shaping regulatory and disciplinary actions within the Pharmacy Council of Nigeria. The significant positive relationships between COI and both regulatory and disciplinary outcomes align with the theoretical frameworks used in this study and confirm the pervasive role of

conflicts of interest in healthcare regulation. These results are consistent with the empirical evidence reviewed, particularly regarding the influence of personal stake and political factors. However, they also highlight areas where the existing literature may need to be expanded, particularly in terms of the role of institutional transparency and the development of predictive tools to mitigate conflicts of interest in regulatory frameworks. The study's findings not only provide insight into the current dynamics within the PCN but also suggest potential avenues for improving the effectiveness and integrity of regulatory and disciplinary practices in Nigeria's pharmacy sector.

5.1 Conclusion

This study examined the impact of conflicts of interest (COI) on the regulatory and disciplinary actions of the Pharmacy Council of Nigeria (PCN). The findings reveal that COI significantly influences decision-making within the PCN, both in terms of regulatory actions and disciplinary measures. The results highlight the role of COI as a potent driver of interventions, with odds ratios of 6.05 for regulatory actions and 7.39 for disciplinary actions, confirming the theoretical expectations from Agency Theory, Conflict of Interest Theory, and Institutional Theory.

The positive relationship between COI and regulatory interventions suggests that personal or financial interests of regulatory officials may distort decision-making, thereby undermining the integrity of the PCN's operations. This aligns with Agency Theory, which posits that agents may prioritize personal interests over the public good. The findings also support Conflict of Interest Theory, indicating that the presence of competing interests—financial, social, or political—can compromise the impartiality of regulatory bodies. Furthermore, the study demonstrates the role of institutional forces, particularly political influence and institutional transparency, in exacerbating or mitigating COI-related challenges, consistent with the application of Institutional Theory.

While the findings are in line with previous empirical studies, they also present new insights into the complex nature of COI within the Nigerian context. The study suggests that regulatory bodies need to be more transparent and better equipped to handle conflicts of interest in order to preserve the integrity and effectiveness of regulatory and disciplinary processes. Overall, the study underscores the importance of addressing COI to enhance the legitimacy and trustworthiness of regulatory bodies like the PCN.

5.2 Recommendations

1. **Strengthen Transparency Mechanisms**

   The Pharmacy Council of Nigeria should implement stronger transparency measures to ensure that decisions regarding regulatory and disciplinary actions are made in an open and accountable manner. This can include publishing decision-making criteria, providing access to hearing outcomes, and making detailed reports publicly available to foster trust.

2. **Implement Conflict of Interest Disclosure Policies**

   The PCN should introduce mandatory COI disclosure policies for all its members, ensuring that regulators and disciplinary committees are fully transparent about their personal, financial, or professional connections that may influence their decisions.

3. **Develop Training Programs on Ethical Decision-Making**

   Regular training on ethics, professional conduct, and conflict of interest management should be conducted for all regulatory officials and members of the disciplinary committees. This will help build awareness and equip them with the tools necessary to recognize and address conflicts of interest.

4. **Enhance Political and Institutional Safeguards**

   To mitigate the influence of political interference, the PCN should establish mechanisms to protect the autonomy of its decision-making processes. This includes creating institutional safeguards, such as independent oversight committees, to monitor and review regulatory actions and disciplinary measures.

5. **Adopt Predictive Tools for Identifying COI Risks**

   Drawing from the work of Wang et al. (2023), the PCN should develop or adopt systematic tools to identify and predict potential conflicts of interest in advance. These tools can help the council take proactive steps to minimize COI risks and ensure that regulatory and disciplinary actions are impartial and fair.

6. **Regular Audits and Evaluation**

   The PCN should conduct regular audits and evaluations of its regulatory processes to identify any systemic biases or inefficiencies arising from COI. This will help improve the fairness and effectiveness of regulatory and disciplinary actions over time.

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