

Influence Without Promotion: Redefining MSL influence tactics for KOL Engagement Under Stringent Regulatory Frameworks

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Research Article

Keywords: Medical Science Liaisons, Key Opinion Leaders, influence tactics, Cross-Boundary Influence, Regulatory Science, Pharmaceutical Compliance

Posted Date: October 14th, 2026

DOI: <https://doi.org/10.21203/rs.3.rs-9791741/v1>

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Additional Declarations: No competing interests reported.

Abstract

Background:Stringent global healthcare regulations compel pharmaceutical organizations to decouple commercial promotion from medical activities. This study aims to examine the non-promotional cross-boundary influence tactics employed by Medical Science Liaisons (MSLs) to engage high-status Key Opinion Leaders (KOLs) and to evaluate their specific effectiveness boundaries within compliance frameworks.

Methods: Utilizing an exploratory sequential mixed-method design, semi-structured interviews were conducted with 43 MSLs using the Critical Incident Technique to extract bottom-up tactics. Qualitative data from 81 interaction incidents (46 successful, 35 unsuccessful) were coded using the grounded theory, then quantitatively examined by employing Fisher's exact tests and Cramer's V coefficients to map structural tactics weights and situational boundaries within this dataset.

Results:Alongside nine adapted traditional tactics, two novel compliance-aligned tactics emerged: "Role Identity" and "Building Development Opportunities." Quantitative mapping indicates that successful interactions exhibit a strong positive association with the utilization of these two tactics. Furthermore, high tactical density correlates with success frequency, with prior assessment acting as a critical procedural boundary.

Conclusions:This cross-boundary influence works best in regulated contexts, where academic empowerment and professional identity drive effective engagement, as opposed to transactional persuasion. Reframing engagement frameworks around these non-promotional dimensions presents a pragmatic pathway forward to preserving compliance metrics along the axis of medical excellence.

Introduction

In the highly specialized healthcare ecosystem, Medical Science Liaisons (MSLs) serve a critical, strategic function by providing evidence-based information to Key Opinion Leaders (KOLs), supporting clinical decision-making, and translating cutting-edge clinical evidence into real-world medical practice ^[1]. Concurrently, global healthcare governance is undergoing a structural reorganization driven by the maturation of Regulatory Science. Stringent regulatory frameworks should not be viewed merely as restrictive administrative firewalls; instead, they represent the operationalization of Best Available Regulatory Science (BARS) ^[2].

Importantly, these new regulatory landscapes require a clear demarcation between scientific influence and commercial promotion. This institutional separation eliminates commercial leverage, compelling organizations to rebuild cross-boundary stakeholder interactions within non-promotional, strictly academic boundaries. As delineated in the U.S. Food and Drug Administration's (FDA) guidance on scientific communication, the PhRMA Code on Interactions with Healthcare Professionals, and 2026 Administrative measures for medical representatives from National Medical Products Administration (NMPA), scientific exchange must remain objective, data-driven, and strictly devoid of promotional intent ^[3-5]. Recent systematic analysis of Organisation for Economic Co-operation and Development (OECD) reports highlights

that the pharmaceutical industry is facing severe enforcement actions and billion-dollar penalties globally for utilizing illicit transactional tactics, such as masking bribes as consulting fees or luxury travel to influence KOLs' prescribing behaviors ^[6]. In this global context of stepped-up anti-corruption monitoring, the pharmaceutical sector in China is used as the main empirical context for this research. The Chinese setting involves a highly dynamic and stringent regulatory environment. This environment provides important experiences which are applicable to a number of global pharmaceutical organizations operating in a cross-jurisdictional environment similarly facing concerns of compliance.

In the case of MSLs, engaging high-status KOLs is now predicated on maintaining the strict compliance boundaries and rigorous objectivity of scientific exchange. But traditional organizational influence theories have a notable explanatory limitation in this modern regulatory context. Existing models are mainly based on formal intra-organizational authority or transactional marketing exchanges ^[7-10]. The above is a cross-boundary setting where KOLs have academic autonomy, and in which strict regulatory mandates restrict material inducements, therefore coercive or transactional tactics both offer explanatory limitations and pose legal compliance risks.

In order to address this theoretical gap, this study explores the cross-boundary influence tactics employed by MSLs within a highly regulated ecosystem. Instead of building a deterministic decision model for reverse influence, this research utilizes an exploratory sequential mixed-method design to distill specialized influence tactics from the bottom up and understand under which conditions these can occur. Specifically, this study argues that novel, compliance-aligned strategies—such as "Role Identity" and "Building Development Opportunities"—are not merely functional communication shifts, but vital non-transactional tools evolved to satisfy the BARS mandates for information objectivity and transparency. By identifying these tactics and exploring their effectiveness boundaries, this study aims to elucidate how the principles of regulatory science are fundamentally reshaping the micro-interaction boundaries within the pharmaceutical ecosystem.

Methods

Study Design

This study employed an exploratory sequential mixed-method design, conducting both qualitative and quantitative analysis based on the same dataset ^[11]. The initial phase utilized the Critical Incident Technique (CIT) and grounded theory to extract specialized influence tactics from empirical data from the bottom up. Subsequently, a quantitative data transformation phase was integrated to analyze the frequency, distribution, and structural patterns of these emergent tactics within the same retrospective dataset. This sequential mixed-data synergy retains the contextual authenticity of the qualitative text and utilises descriptive statistical mapping to clarify the structural weight and situational boundaries of the identified tactics across successful and unsuccessful interaction outcomes.

Qualitative Phase

Sample and Data Collection: Utilising purposive and theoretical sampling, semi-structured CIT interviews were conducted with 43 MSLs across 23 pharmaceutical companies, the sample was expanded to the point where recently gathered data did not bring new tactics dimensions or tactics, and theoretical saturation was attained ^[12]. Participants described two recent actual critical incidents: one successful and one unsuccessful KOL influence case. This comparative, binary-outcome design provides a natural quasi-experimental observational approach to isolate effective tactics from those unsuccessful tactics ^[13,14].

To minimize descriptive ambiguity and accurately reflect the highly regulated environment, specific criteria were established for defining interaction outcomes. "Success" meant the KOL's substantive acceptance of, or participation in, a predefined, compliance-aligned academic objective, such as formally agreeing to participate in a multi-center investigator-initiated trial, formally adopting a specific evidence-based medical consensus, or co-initiating an academic project. Conversely, "failure" was defined as the KOL explicitly rejecting the academic proposal, the stopping of the interaction process, or unable to establish an equal, peer-to-peer scientific dialogue. All sessions were recorded and transcribed word-for-word, resulting in a primary corpus of approximately 580,000 words. To guarantee narrative accuracy, member checking was performed on all transcripts. For anonymity and data desensitization, interviewees were coded sequentially as P₁, P₂...P_n, with their corresponding successful and failed cases coded as P_n-1 and P_n-2, respectively.

Data Analysis and Coding: Transcripts were coded to systematize data using NVivo software (Version 12) via a bottom-up, three-stage coding process following the post-positivist grounded theory framework ^[12,15]. Open coding deconstructed the text line-by-line to conceptualize specific influence tactics. Axial coding established logical connections surrounding the categories using the classic coding paradigm ^[12], while selective coding distilled the core narrative of cross-boundary interactions. To maximize coding reliability and mitigate researcher bias, three independent researchers executed the coding protocol ^[16]. The inter-rater reliability was examined among the coders and a Cohen's Kappa coefficient of .81, which indicated high consistency. Minor coding discrepancies were resolved through comprehensive team discussions and context-tracing.

Quantitative Phase

Data Transformation and Sample Independence: The 81 critical incidents (46 successful, 35 unsuccessful) analyzed during this phase were extracted directly from the verbatim transcripts of the 43 interviewed MSLs. Per contemporary methodological guidelines, this analytical step represents the exploratory sequential mixed-method design. The quantitative statistical methods applied herein are utilized exclusively to disclose the internal structural weights and descriptive directional distributions within this specific 81-incident dataset. They are not intended, nor mathematically equipped, to test external universal applicability or predictive statistical generalizability. Qualitative tactics codes were mapped into binary categorical variables (1 = tactic present; 0 = tactic absent) for each discrete incident.

Statistical Analysis: Using SPSS software (Version 27), non-parametric statistical methods were employed to evaluate positional patterns in tactics usage. Due to the presence of low expected frequencies (< 5) in specific cross-tabulation cells, Fisher's exact tests were utilized. Additionally, Cramer's V effect size

coefficients were calculated to evaluate the strength of the association between specific tactics and interaction outcomes ^[17].

Results

The empirical results of this present study comprise two interrelated components derived from the sequential mixed-data analysis. First, eleven core cross-boundary influence tactics were extracted via grounded theory analysis and contextualized within the regulated medical affairs domain. Second, based on the quantitized data of 81 critical incidents (46 successful and 35 unsuccessful interactions), descriptive statistical mapping was employed to analyze the distributional patterns, tactics combinations, and contextual boundaries of these tactics within a strict compliance framework.

1. Qualitative Findings: Taxonomy of Cross-Boundary Influence Tactics

Under highly regulated, non-promotional contexts, cross-boundary influence on high-status Key Opinion Leaders (KOLs) requires departing from traditional transactional exchanges to align closely with the scientific, evidence-based nature of the healthcare industry. Grounded theory coding revealed that alongside adaptive modifications of traditional organizational behaviors, two new tactics with distinct Medical Affairs characteristics emerged from the bottom up: "Role Identity" and "Building Development Opportunities."

Role Identity: Defined as the MSL's dual confirmation and endowment of the KOL's social leadership status and professional academic authority. serving as a non-transactional prerequisite for establishing an equal, peer-to-peer scientific dialogue.

"...Or regarding the product, their understanding may not be as clear as yours, so you need to demonstrate your professionalism on this point, letting them know you can communicate from an equal standpoint. This might bring a significant paradigm shift, making them subconsciously feel you are an equal..." (P₂₆-1) "...Because he was the chairman, we made very thorough preparations regarding speaker allocation, meeting agenda, and attendance. For speakers, we specifically selected external experts within his academic circle whom he recognized and had good relations with..." (P₁₉-1)

Building Development Opportunities: Involves constructing cutting-edge, non-promotional research, clinical trials, or academic exchange platforms that implicitly support the KOL's academic network expansion and continuous professional growth.

"We wanted to design an educational platform for young and mid-career physicians, and feature these senior experts... allowing them to deliver treatment concepts through non-promotional academic activities, such as medical information dissemination, guideline updates, and complex case discussions..." (P₃₁-1)

Rational Persuasion: Strictly operationalized as objective scientific transmission anchored in evidence-based clinical data and rigorous logical deduction.

"I brought a compilation of literature and the latest years of research across various fields for the product, delivering a scientific presentation and discussion in their department... During this process, I implicitly

conveyed the product's mechanism of action, physicochemical properties, and evidence-based advantages..." (P₁-1)

Information Exchange: Replaces one-way communication with bidirectional dialogue to uncover the KOL's underlying scientific and clinical unmet needs.

"Actually, I explored these situations at that time, because only then could I better match [my strategies] later... so I needed to probe whether the director had a strong need for research; only then would she invest effort..." (P₁-1)

Collaboration: Entails providing essential professional resource support, such as literature retrieval, research design assistance, or compliance routing feedback.

"During the project introduction, we told him that our Medical Department could provide corresponding literature support when he writes the proposal..." (P₁₃-2)

Inspirational Appeal: Appealing to higher-order medical values, such as patient clinical benefit and public health advancements, to stimulate intrinsic motivation.

"Now, when visiting, we definitely discuss things centering on the patient... You have to rely on trial data and explain what benefits the patient will receive during their management cycle if this drug is used..." (P₁₂-1)

Coalition: Indirectly constructing a supportive expert network around the target KOL by leveraging external peer opinions or cross-departmental alignment.

"In the process of achieving the goal, everyone must do their part well while executing collaborative projects... this shows that we definitely achieve a win-win through cross-departmental collaboration..." (P₄₀-1)

Ingratiation: Directing professional praise toward the KOL's latest academic achievements, such as recent publications or guideline consensus drafting.

"Whenever the expert publishes new papers, as soon as we see our expert as the first author or their team as the corresponding author, we immediately read it and discuss the article with them..." (P₄₀-1)

Apprising: Articulating, within compliance boundaries, how a specific medical collaboration will tangibly support the academic standing of the KOL's team.

"Doing this, and what it might ultimately bring to the expert and his team—this is probably the key point..." (P₄₀-1)

Relationship-based Strategy: Grounded in contextual interpersonal trust built through informal, compliance-safe interactions.

"There needs to be some private interpersonal interaction... we occasionally invite him out for dinner, and then on the dinner table, chat with him about product information..." (P₁₂-1)

Threat: A defensive strategy involving hinting at resource scarcity or the reallocation of future collaborative opportunities.

"Scarcity was discussed, because there are only 5 quotas in all of China, while 100-120 experts globally are participating..." (P₉-1)

2. Quantitative Mapping: Tactics Utilization and Distributional Patterns

Distribution and Efficacy of Core Driving Tactics

Frequency distributions and post-hoc correlation analyses indicate that within this bounded dataset, specialized tactics aligned with academic value are significantly associated with positive interaction outcomes. As outlined in Table 1, successful cases exhibited a substantially higher utilization of Role Identity (93.5% vs. 60.0%) and Building Development Opportunities (73.9% vs. 34.3%) compared to unsuccessful cases.

Statistical mapping confirms that these two novel tactics, alongside Inspirational Appeal and Collaboration, demonstrate notable positive associations with successful outcomes, with Cramer’s V coefficients ranging from .361 to .441 ($p < .01$). Conversely, historically commercial tactics—such as pure Ingratiation ($V = .200$, $p = .114$) or Threats ($V = .051$, $p = .739$)—exhibited low frequencies and lacked statistical significance within this interaction grid.

Patterns of tactics Combinations and Contextual Covariance

When interpreting the aggregation of multiple influence tactics, a critical methodological caveat regarding simultaneity bias and contextual covariance must be established. In real-world medical interactions, conversational duration, a KOL's initial academic openness, and the volume of executed tactics operate as highly coupled, covariant factors. Consequently, the synergistic deployment of multidimensional strategies is a prominent structural feature of high-quality, deep-level interactions, meaning that the strategy count serves as a visible proxy indicator of interaction depth rather than a mechanical, isolated causal variable for triggering success.

Table 1. Differential Preference of MSLs in The Usage of Influence Tactics in Successful and Unsuccessful Cases

Influence Tactics, n (%)	Unsuccessful Cases(n=35)	Successful Cases(n=46)	Total Cases(n=81)	p Value (df=1)	Cramer's V
Role Identity	21 (60.0%)	43 (93.5%)	64 (79.0%)	< .001	.407**
Information Exchange	24 (68.6%)	36 (78.3%)	60 (74.1%)	.443	.110
Rational Persuasion	21 (60.0%)	38 (82.6%)	59 (72.8%)	.042	.252*
Coalition	19 (54.3%)	37 (80.4%)	56 (69.1%)	.016	.280*
Inspirational Appeal	17 (48.6%)	38 (82.6%)	55 (67.9%)	.002	.361**
Collaboration	13 (37.1%)	37 (80.4%)	50 (61.7%)	< .001	.441**
Building Development Opportunities	12 (34.3%)	34 (73.9%)	46 (56.8%)	< .001	.396**
Ingratiation	12 (34.3%)	25 (54.3%)	37 (45.7%)	.114	.200
Apprising	4 (11.4%)	15 (32.6%)	19 (23.5%)	.034	.248*
Relationship-based Strategy	1 (2.86%)	11 (23.9%)	12 (14.8%)	.010	.294**
Threats	5 (14.3%)	5 (10.9%)	10 (12.3%)	.739	.051

Note. Fisher's exact tests were employed due to low expected frequencies (< 5) in specific cross-tabulation cells. MSL = Medical Science Liaison.

* $p < .05$, ** $p < .01$.

Descriptive mapping demonstrates a clear differentiation in interaction distributions based on strategy density (Table 2). In incidents where MSLs synergistically deployed complex strategy combinations (>6 tactics), a positive outcome was observed in 88.2% of cases. Conversely, interactions restricted to sparse strategy utilization (≤ 3 tactics) resulted in an unsuccessful outcome in 81.2% of incidents ($\chi^2 = 25.923$, $df = 2$, $p < .001$). This variance underscores that a highly receptive and engaged KOL provides the necessary conversational depth and time window for an MSL to sequentially unfold multiple compliance-aligned strategies.

Table 2. Overview of MSL's Distribution of Combined Influence Tactics

Interaction Outcome, n (%)	High Density(>6 Tactics, n=34)	Moderate Density(3–6 Tactics, n=31)	Low Density(≤ 3 Tactics, n=16)	$\chi^2(df=2)$	p Value
Successful Cases	30 (88.2%)	13 (41.9%)	3 (18.8%)	25.923	< .001
Unsuccessful Cases	4 (11.8%)	18 (58.1%)	13 (81.2%)		

Note. Percentages represent column-wise proportions showing the distribution of success and failure across different levels of tactical density.

Pre-engagement Assessment and Tactical Boundaries

The utilization and efficacy of advanced academic tactics are strictly bounded by the adequacy of preparatory insights. Incidents characterized by adequate pre-engagement assessment demonstrated a 100% alignment with successful outcomes within this dataset. Furthermore, sufficient pre-engagement evaluation displayed significant statistical associations with higher-order tactics, specifically Building Development Opportunities ($V = .335, p < .01$) and Inspirational Appeal ($V = .329, p < .01$) (Table 3). Rather than supporting a deterministic choice model, this pattern suggests that a systematic prior analysis of a KOL's specific academic trajectory and clinical unmet needs operates as an essential procedural boundary, enabling MSLs to effectively tailor customized professional development platforms and value-driven academic opportunities.

Table 3. Differences in the Use of Influence Tactics Under Varying Adequacy of Pre-engagement Assessment

Influence Tactics, n (%)	Adequate Assessment(n=58)	Inadequate Assessment(n=23)	p Value(df=1)	Cramer's V
Role Identity	50 (86.2%)	14 (60.9%)	.017	.281*
Information Exchange	46 (79.3%)	14 (60.9%)	.100	.190
Rational Persuasion	46 (79.3%)	13 (56.5%)	.053	.231*
Coalition	44 (75.9%)	12 (52.2%)	.060	.231*
Inspirational Appeal	45 (77.6%)	10 (43.5%)	.007	.329**
Collaboration	41 (70.7%)	9 (39.1%)	.012	.293*
Building Development Opportunities	39 (67.2%)	7 (30.4%)	.003	.335**
Ingratiation	32 (55.2%)	5 (21.7%)	.007	.303**
Apprising	17 (29.3%)	2 (8.70%)	.079	.219*
Relationship-based Strategy	11 (19.0%)	1 (4.35%)	.154	.186
Threats	7 (12.1%)	3 (13.0%)	1.000	.013

Note. Fisher's exact tests were employed due to cell frequency constraints. Pre-engagement assessment adequacy was determined based on structured coding criteria of interview text. ** $p < .05$, ** $p < .01$.

Discussion

1. Theoretical Dialogue and Framework Elevation

This study identified 11 cross-boundary influence tactics employed by MSLs during KOL engagements. Although nine tactics evolved from established organizational behavior frameworks that were contextually specific, rational persuasion, information exchange, coalition, inspirational appeal, collaboration, ingratiation, apprising, relationship-based strategy, and threats ^[8,10], two novel tactics were identified—namely, Role Identity and Building Development Opportunities. These findings expand traditional upward influence frameworks ^[18] into highly regulated, asymmetrical ecosystems where material reciprocity is legally restricted.

More importantly, these 11 tactics represent a micro-organizational adaptation to the Best Available Regulatory Science (BARS) framework. According to Moghissi et al. ^[2], the ethical, scientific and reproducibility rules of BARS require rigorous transparency and objectivity in scientific communication. Adapted traditional tactics such as Rational Persuasion and Information Exchange are fundamentally re-operationalized for scientific accuracy, rather than commercial rhetoric under these rules. "Role Identity" validates academic authority to establish a prerequisite for peer-to-peer dialogue, while "Building Development Opportunities" creates compliance-safe platforms for KOL professional development, for example, investigator-initiated trials (IITs) to ensuring evidence generation remains insulated from commercial bias and satisfies strict reproducibility standards ^[19]. In successful cases, these tactics were shown to have higher utilization rates, yet threats and relationship-based strategy exhibited a lower utilization rate in successful cases. Thus they are tailored, non-transactional operations created in order to ensure that cross-boundary influence remains tightly bound to regulatory obligation.

In addition, whereas conventional opinion leader theories (based on the two-step flow model) primarily concerned with how KOLs extend their influence downward as "intermediaries" to shape peer behaviors ^[20-22], this work reframes this analysis to a reverse, cross-boundary upward dynamic. This research fills a sizable theoretical void by demonstrating how external agents compliantly influence high-status experts.

Quantitative analysis results indicate a highly positive association between complex strategy combinations (>6 tactics) and influence success (88.2%). However, this finding must be interpreted with methodological caution regarding simultaneity bias. Rather than a strictly unidirectional causal mechanism—where utilizing more tactics mechanistically triggers success—the synergistic deployment of multidimensional strategies serves as a core manifestation of contextual covariance. In real-world engagements, interaction duration, the KOL's academic openness, and the volume of executed strategies are highly covariant. A receptive KOL grants the MSL sufficient time and conversational depth to sequentially deploy role identity, information exchange, and collaboration. Conversely, unsuccessful engagements often terminate prematurely, inherently restricting the strategy count (≤ 3 tactics). Thus, multidimensional strategy architecture reflects the depth of the established peer-to-peer relationship rather than acting as an isolated trigger.

Finally, the effectiveness of such high-level tactics is bounded by the adequacy of pre-engagement assessment. 100% of successful cases were accompanied by sufficient pre-engagement evaluation, exhibiting a significant statistical correlation with tactics like "Building Development Opportunities"

(Cramer's $V = .335, p < .01$). Rather than relying on abstract reverse-influence decision models, this finding confirms that the practical application of advanced tactics hinges entirely on the MSL's prior assessment of, and alignment with, the KOL's specific academic trajectory and clinical unmet needs ^[23].

2. Practical Implications

The transition of Medical Affairs toward rigorous compliance requires restructuring performance metrics, talent acquisition, and competency frameworks. While MSLs are tasked with executing non-promotional academic empowerment, the performance indicators typically follow the historical, volume-driven tracking ^[19]. Shifting to a qualitative KPI matrix that is outcome-based and qualitative—moving towards milestone progression of collaborative research or consensus drafting rather than frequency of visits—is required to reduce compliance risk and safeguard the KOLs’ academic time.

Moreover, the empirical correlation of extensive preparation with tactical efficacy is relevant to MSL recruitment and competency modelling. Historically the focus of recruitment was on baseline clinical and scientific knowledge. Navigating complex compliance frameworks, however, requires Medical Affairs to broaden these models to account for strategic capabilities on a high-order level. Talent acquisition strategies as well as competency frameworks should be built to assess the applicant’s acute KOL needs insight, objective academic composure, and strategic architectural insight ^[24]. Organizations should institutionalize scenario-based behavioral assessments during recruitment to evaluate how candidates analyze a KOL’s academic trajectory and dynamically deploy appropriate, compliance-bound tactics.

Lastly, training programs must shift from rote literature recitation toward structured, compliance-aligned behavioral development. This approach prepares MSLs to proficiently combine supportive tactics (e.g., role identity, collaboration) while abandoning historically commercial tactics. Codifying these insights into digital customer relationship management platforms ensures that pre-engagement assessment serves as a mandatory gatekeeping node, aligning longitudinal interactions with verified clinical unmet needs (Table 4).

Table 4. Strategic Re-engineering of Medical Affairs Operations

Traditional Pitfalls	Empirical-Based Re-engineering	Strategic Value to the Ecosystem
Activity-Driven Metrics: Reliance on quantitative visit volume or mandatory coverage quotas.	Outcome-Driven KPIs: Evaluate milestone progression in <i>Building Development Opportunities</i> (e.g., trial milestones, consensus nodes).	Systematically mitigates the incidence of low-quality engagements and associated compliance risks; respects KOLs' academic time.
Clinical-Centric Recruitment: Prioritizing pure scientific knowledge without assessing tactics behavior.	Competency-Based Acquisition: Integrate behavioral assessments evaluating KOL insight, academic composure, and tactical selection.	Secures talent capable of navigating compliance boundaries and asymmetrical engagements.
Rote Training & Unprepared Enquiries: Focus on literature memorization; preparation treated as optional paperwork.	Architectural Training & Gatekeeping: Train MSLs in dynamic strategy assembly; mandate pre-engagement assessment as a workflow gate.	Transforms MSLs into strategic partners delivering actionable clinical insights anchored in unmet needs.

3. Limitations and Future Research

While this study is a step toward an empirically supported explanation of cross-boundary influence in highly regulated contexts, some methodological and statistical constraints must be transparently acknowledged.

First, the quantitative section is limited to a small sample size ($N = 81$). Although preliminary analyses explored potential covariates (e.g., MSL tenure, KOL tier) and detected no significant variances, restricted degrees of freedom precluded robust multivariate modeling. Relying on univariate mapping (Fisher's exact, Cramer's V), subtle multi-collinearity cannot be definitively excluded. Thus, the observed associations must be interpreted with academic restraint, reflecting contextual alignments rather than deterministic triggers.

Second, reliance on the Critical Incident Technique (CIT) introduces potential attribution and self-serving biases. MSLs may subconsciously over-attribute successful engagements to their strategic acumen while assigning failures to external constraints, potentially challenging the absolute objectivity of the extracted variables.

Third, the absence of dyadic data limits the scope of the findings. Cross-boundary influence is inherently a bidirectional process. Without capturing the KOLs' direct psychological feedback and acceptance levels, the verified effectiveness of these tactics remains strictly from the agent's (MSL's) perspective. Future research should employ longitudinal, multivariate models with larger cohorts and dyadic sampling designs to further validate the boundary generalizability of these qualitative findings.

Conclusion

This study responds to the explanatory deficiencies of traditional influence theories in heavily regulated pharmaceutical environments. The findings, through the examination of cross-boundary MSL-KOL interactions, demonstrate a strategic paradigm shift from transactional persuasion to compliance-aligned academic empowerment. The core theoretical contribution lies in distilling and validating two novel

constructs—"Role Identity" and "Building Development Opportunities"—confirming that successful medical engagement relies on validating expert authority and co-creating scientific value rather than material reciprocity.

Furthermore, the verified significance of multidimensional strategy architectures and pre-engagement assessments provides an empirical foundation for reshaping Medical Affairs evaluation and training frameworks. As global healthcare governance demands heightened transparency, the ability to cultivate compliance-aligned influence through systemic academic investments will remain the cornerstone of sustainable industry-physician collaboration. Ultimately, these insights offer a high-level strategic roadmap for pharmaceutical organizations navigating the strategic alignment of regulatory compliance architectures with sustainable medical affairs objectives.

Declarations

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

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