

Knowledge-oriented Leadership and Workforce Engagement for Sustaining Quality Accreditation in Healthcare: A Cross-sectional Study from Delhi NCR, India

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ABSTRACT

Introduction: Healthcare Workforce Engagement (HWE) is widely recognised as a critical factor influencing patient safety, service quality, and organisational effectiveness. However, in large multispecialty hospitals, workforce engagement alone may not adequately translate into sustained accreditation outcomes due to variations in leadership practices, coordination mechanisms, and knowledge-sharing processes. Evidence remains scarce on how Knowledge-Oriented Leadership (KOL) influences the relationship between workforce engagement and Hospital Quality Accreditation (HQA), particularly in the Indian healthcare context.

Aim: To examine the moderating role of KOL between HWE and perceived quality accreditation factors in private accredited multispecialty hospitals within the Delhi National Capital Region (NCR) region.

Materials and Methods: A cross-sectional research design using a structured, self-administered questionnaire on a seven-point Likert scale was employed in private multispecialty accredited hospitals of the Delhi NCR region, involving healthcare professionals working in the quality department, administrative department, nursing department, and allied health departments over a period between December 2024 and May 2025. A sample of 451 respondents was included using a stratified random sampling technique to ensure representation across different functional roles and departments. The questionnaire included

three sections: (i) demographics of respondents, (ii) items measuring HWE, and (iii) items assessing KOL and perceived HQA sustainability practices. Statistical analysis was performed using Statistical Package for the Social Sciences (SPSS) and Analysis of Moment Structures (AMOS) to perform Structural Equation Modelling (SEM), enabling examination of latent constructs model fit indices, and the moderating effect of KOL on the relationship between HWE and HQA sustainability.

Results: Among the 451 respondents, most were aged 20-30 years (33.9%). Females constituted 51.7% of the sample and males 48.3%. SEM results revealed that KOL dimensions significantly moderated the relationship between HWE and HQA sustainability. Specifically, mentoring ($\beta=0.270$), delegating ($\beta=0.303$), innovative role modelling ($\beta=0.253$), recognising achievements ($\beta=0.206$), and stimulating knowledge diffusion ($\beta=0.205$) demonstrated statistically significant moderating effects. Collectively, these leadership dimensions strengthened the positive association between workforce engagement and HQA sustainability, with a strong overall standardised effect ($\beta=0.631$, p -value <0.001), indicating that higher levels of KOL enhance the impact of workforce engagement on sustaining accreditation outcomes.

Conclusion: The findings of this study suggest that KOL has a significant moderating effect between HWE and accreditation outcomes.

Keywords: Accreditation sustainability, Hospital quality management, Knowledge-oriented practices, Leadership moderation, Workforce involvement

INTRODUCTION

The KOL has emerged as a crucial leadership style for sustainable quality accreditation standards, particularly in complex and dynamic organisations, such as healthcare settings. These healthcare settings are characterised by multidisciplinary teams, rapidly evolving medical technologies, and ever-changing regulatory frameworks, all of which demand a leadership approach that goes beyond traditional models [1,2]. Managing such complexity effectively requires robust and adaptive leadership that promotes knowledge sharing, open communication, mentoring, motivation, and effective delegation of responsibilities across various levels of the organisation [3,4]. In recent years, healthcare organisations have increasingly recognised the strategic importance of KOL as a key driver of operational efficiency and enhanced workforce engagement [5,6]. This leadership style is seen as a vital tool in fostering a learning culture within hospitals that leads to improved patient care outcomes and adherence to quality standards.

Several recent studies have demonstrated a positive relationship between KOL and a range of beneficial workforce outcomes, including enhanced innovative performance, increased self-efficacy, stronger organisational commitment, and improved knowledge-sharing behaviours among employees [7-10]. However, despite these encouraging findings, there remains a limited and fragmented understanding of how KOL impacts workforce engagement in complex healthcare settings, such as private multi-specialty hospitals. This lack of comprehensive insight has created a research gap, especially in understanding how the various dimensions of KOL interact with workforce engagement and quality accreditation outcomes.

Theoretical Framework

Knowledge-oriented leadership: The KOL in healthcare is critical and strategic leadership style that emphasises the union of knowledge management practices and essential leadership traits to facilitate organisational effectiveness and improve patient

care. Extensive studies that have already explored this intersection of leadership and knowledge management within healthcare organisations. These studies argue that healthcare leaders must not only be knowledgeable but also actively facilitate dissemination and application of that knowledge among their team members [11].

Healthcare Workforce Engagement (HWE): The HWE is recognised as vital element which influences the performance and sustainability of any organisation, particularly within the context of healthcare organisations. It refers to the extent to which employees are emotionally and cognitively involved in their work, feel empowered and are committed to achieving organisational goals. When employees are engaged, they not only contribute more effectively to the organisation but also experience enriched work lives, leading to lower turnover and higher retention. These practices not only stimulate intellectual engagement but also strengthen employees' commitment and confidence in their roles [12].

Perceived quality accreditation: HQA in this study is conceptualised as a perceived organisational outcome rather than a direct measure of accreditation status or compliance scores. It reflects healthcare professionals' perceptions of their hospital's capability to sustain quality standards, as manifested through effective decision-making, workforce motivation, staff retention, and a supportive organisational climate aligned with accreditation requirements. This perceptual approach is consistent with prior research that recognises employee attitudes and engagement as critical enablers of long-term quality sustainability in healthcare organisations [13,14].

The KOL contributes to accreditation sustainability by shaping an environment that promotes learning, transparency, and shared accountability for quality-related practices. Through mentoring, knowledge sharing, and continuous professional development, such leadership enhances employees' understanding and internalisation of quality standards, thereby strengthening their commitment to accreditation-oriented behaviours [15].

Accordingly, accreditation in this study represents an embedded quality culture sustained through workforce engagement, rather than a one-time regulatory or certification outcome.

MATERIALS AND METHODS

A cross-sectional study was conducted over a six-month period (December 2024 to May 2025) in selected privately accredited multispecialty hospitals located in Delhi NCR, India. Hospitals included in the study were accredited by nationally recognised quality bodies and represented diverse ownership and service profiles within the private healthcare sector. Participants were recruited from hospital operations, quality management, and administrative departments directly involved in accreditation-related processes.

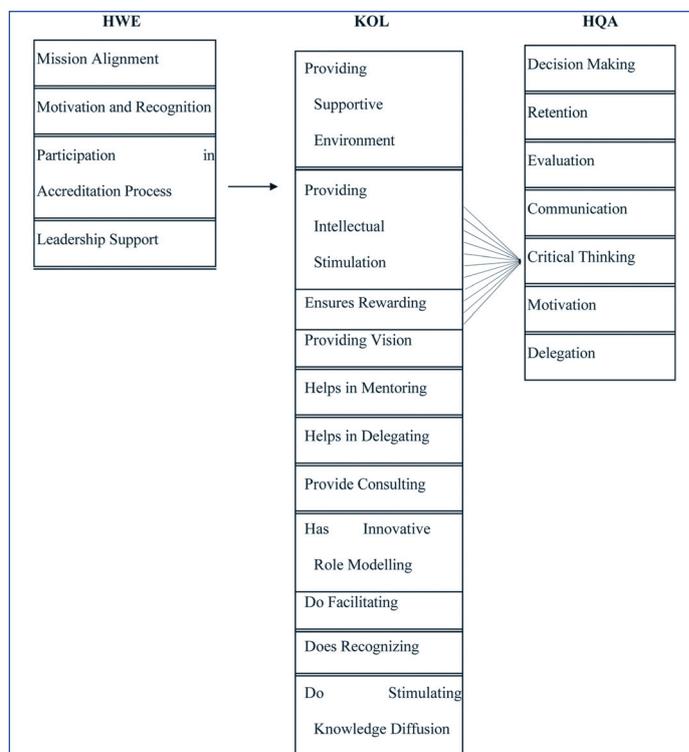
A total sample of 451 healthcare workforce was selected using stratified random sampling to ensure proportional representation across departments. Following institutional permission, the researcher visited each hospital and coordinated with the human resources departments to obtain information regarding the total number of healthcare personnel. Informed consent was obtained from all the participants in the study

Inclusion criteria: Full-time employees of NABH-accredited multispecialty hospitals in Delhi, minimum one year of experience in the current organisation, working in departments that interface with hospital accreditation activities were included in the study.

Exclusion criteria: Interns, temporary staff, or personnel on leave during data collection and participants who declined to participate were excluded from the study.

Conceptual Framework

The conceptual framework [Table/Fig-1] shows the variables in the HWE, KOL and perceived HQA. The variable was developed based on established leadership and organisational behaviour theories



[Table/Fig-1]: Framework for all dimensions with factors (Healthcare workforce Engagement (HWE), Knowledge Oriented Leadership and Hospital Quality Accreditation).

and empirical evidence from prior healthcare research [16,17]. The framework examines the relationship between KOL (moderating variable) and HWE, with perceived HQA conceptualised as a perceived organisational outcome.

The dimensions of KOL; mentoring, delegation, innovative role modelling, recognition, and knowledge diffusion were adapted from validated leadership measurement scales reported in previous studies [18-23].

This quantitative research employed a structured questionnaire using a Likert scale from 'never' as 1, 'rarely' as 2, 'sometimes' as 3, 'often' as 4, 'regularly' as 5, 'a lot' as 6, to 'always' as 7 was administered to collect data from a stratified simple random sampling of healthcare workforce primarily working in hospital operations departments in the Delhi NCR region. A comprehensive, structured questionnaire was developed.

Part A captured respondents' demographic characteristics, including variables relevant to professional and organisational context.

Part B measured HWE and was adapted from prior studies by Jones (2019) [24]. This section included items assessing key engagement-related dimensions such as mission alignment, motivation and recognition, participation in the accreditation process, and leadership support.

Part C assessed KOL and was developed based on the framework proposed by Manzoor A et al.,(2023) [25]. This section comprised items reflecting leadership behaviours relevant to healthcare settings, including support for the healthcare workforce, intellectual stimulation, rewarding practices, vision articulation, mentoring, delegation, consultation, innovative role modelling, facilitation, recognition, and stimulation of knowledge diffusion among healthcare professionals.

Part D evaluated Perceived HQA and was adapted from Health Organisation Standards (2022) [26]. This section measured accreditation-related outcomes such as decision-making, retention, evaluation, communication, critical thinking, motivation, and delegation [Appendix].

The factors included under HWE, KOL, and HQA were identified through an extensive review of existing theoretical and empirical literature to ensure strong conceptual and theoretical grounding.

Following initial item development, content validity was assessed using the Content Validity Index (CVI). A panel of five experts in hospital management independently evaluated the relevance and clarity of each item in relation to the study objectives and the current healthcare quality context.

Based on expert feedback and CVI results, items with inadequate relevance were revised or removed, leading to a reduction in the questionnaire from 73 items to 58 items. Subsequently, a pilot study was conducted among 72 respondents to assess the clarity, feasibility, and reliability of the instrument. The pilot analysis demonstrated excellent internal consistency, with Cronbach's alpha values ≥ 0.95 , confirming the suitability of the questionnaire for full-scale data collection.

STATISTICAL ANALYSIS

Data were analysed using SPSS for preliminary screening, descriptive statistics (means, standard deviations, frequencies), and internal consistency reliability assessed through Cronbach's alpha. Confirmatory Factor Analysis (CFA) was performed using AMOS to validate the measurement model by examining factor loadings, composite reliability, average variance extracted, and model fit indices. SEM in AMOS was employed to test hypothesised relationships among constructs, while moderation effects were examined using interaction terms and, where applicable, multigroup SEM. Statistical significance was assessed using standardised path coefficients, critical ratios, and p-values.

RESULTS

Among the 451 respondents, most were aged 20-30 years 153 (33.9%). Females constituted 51.7% of the sample and males 48.3% [Table/Fig-2].

Variable	Category	n (%)
Age (years)	20-30	153 (33.9)
	31-40	143 (31.7)
	41-50	149 (33.0)
	51-60	5 (1.1)
	60 and above	1 (0.2)
Gender	Male	218 (48.3)
	Female	233 (51.7)
Marital status	Married	274 (60.8)
	Unmarried	176 (39.0)
	Other	1 (0.2)
Highest academic qualification	Diploma	3 (0.7)
	Graduation	181 (40.1)
	Postgraduation	255 (56.5)
	PhD	12 (2.7)
Designation	Nurses	165 (36.6)
	Doctors	69 (15.3)
	Paramedical staff	102 (22.6)
	Administrative staff	115 (25.5)
Total years of experience (years)	1-5	169 (37.5)
	5-10	186 (41.2)
	10-15	82 (18.2)
	15 and above	14 (3.1)
Member of quality management dept.	Yes	350 (77.6)
	No	101 (22.4)
Staff participation in accreditation activities	Yes	368 (81.6)
	No	83 (18.4)

Department	Patient care	182 (40.4)
	Medical records department	9 (2.0)
	Laboratory	25 (5.5)
	Radiology and imaging	24 (5.3)
	Admission/discharge	38 (8.4)
	Front office	11 (2.4)
	Admin	40 (8.9)
	Quality	65 (14.4)
	Other	57 (12.6)
Management level (organisational classification)	Top management	95 (21.1)
	Mid management	303 (67.2)
	Lower management	53 (11.8)

[Table/Fig-2]: Demographic profile of the respondents.

Impact of KOL on Perceived HQA: Building on the descriptive profile of the study participants as shown in [Table/Fig-3], the following analysis examines the structural pathways. Among the 11 pathways tested, only five demonstrated a significant positive relationship with HQA [Table/Fig-4].

Knowledge Oriented Leadership (KOL)	Mean \pm SD
Supportive environment	23.67 \pm 4.81
Intellectual stimulation	17.81 \pm 3.52
Reward	17.57 \pm 3.72
Vision	17.88 \pm 3.49
Mentoring	17.77 \pm 3.57
Delegating	8.85 \pm 1.91
Consulting	17.73 \pm 3.66
Innovative role modelling	23.73 \pm 4.78
Facilitating	35.83 \pm 6.74
Recognising	11.89 \pm 2.33
Stimulating knowledge diffusion	17.77 \pm 3.56
Hospital Quality Accreditation (HQA)	Mean \pm SD
Staff competence in quality improvement	6.086 \pm 1.222
Balancing organisational goals with accreditation	6.002 \pm 1.257
Interdepartmental communication and coordination	6 \pm 1.242
Availability of training and technical support	6.084 \pm 1.161
Integration and utilisation of information systems	6.024 \pm 1.197
Policies encouraging staff ownership and motivation	6.051 \pm 1.183
Accurate identification of quality indicators	6.058 \pm 1.184
Clarity in responsibility and authority	6.1 \pm 1.157
Healthcare Workforce Engagement (HWE)	Mean \pm SD
Mission alignment	5.965 \pm 1.179
Understanding of accreditation goals	5.887 \pm 1.107
Resource availability	5.738 \pm 1.289
Recognition for efforts	5.623 \pm 1.325
Motivation and recognition	5.752 \pm 1.295
Colleague commitment	5.816 \pm 1.174
Role clarity	5.933 \pm 1.129
Opportunities for development	5.789 \pm 1.205
Participation in accreditation processes	5.769 \pm 1.24
Commitment to Quality	5.816 \pm 1.175
Constructive feedback	5.692 \pm 1.284
Team collaboration	5.851 \pm 1.134
Leadership support	5.854 \pm 1.149

Pride in the Hospital	5.925±1.137
Perceived support	5.836±1.113
Impact on patient care	6.016±1.116
Sustainability confidence	5.887±1.169

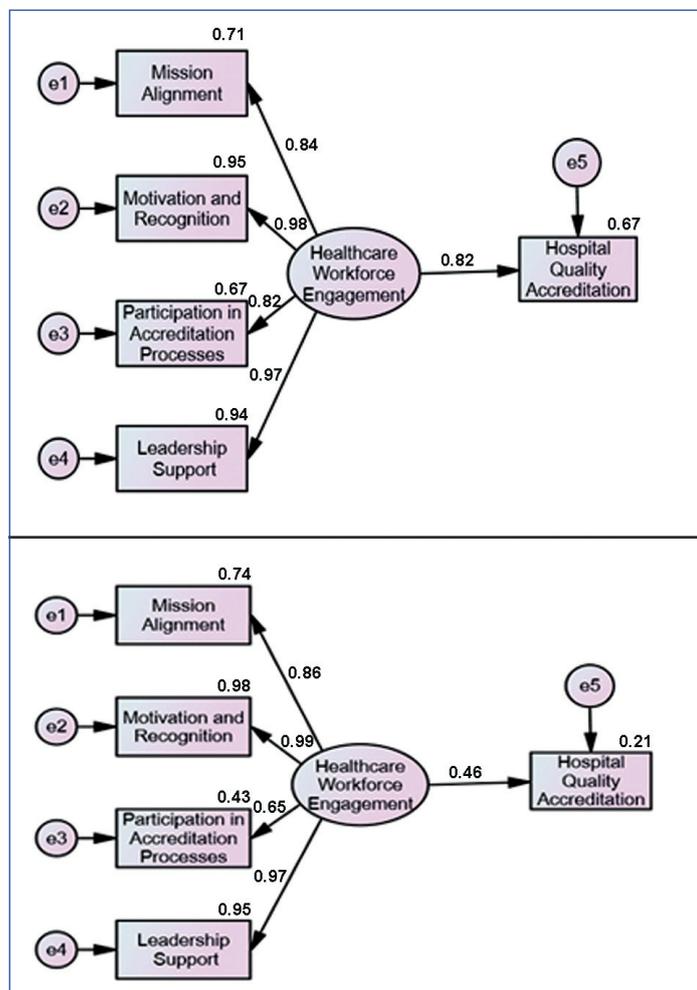
[Table/Fig-3]: Descriptive data showing mean of KOL, HQA and HWE.

Impact of KOL on perceived HQA	Beta value	p-value	Hypothesis to be accepted or rejected
Providing supportive environment -HQA	-0.035	0.989	Rejected
Providing intellectual stimulation -HQA	-0.114	0.954	Rejected
Ensures rewarding - HQA	-0.015	0.981	Rejected
Providing vision - HQA	-0.073	0.966	Rejected
Helps in mentoring HQA	0.270	<0.001	Accepted
Helps in delegating - HQA	0.303	<0.001	Accepted
Provide consulting - HQA	-0.089	0.987	Rejected
Has innovative role modelling- HQA	0.253	<0.001	Accepted
Do facilitating- HQA	-0.288	0.949	Rejected
Does recognising - HQA	0.206	<0.001	Accepted
Do stimulating knowledge diffusion -HQA	0.205	<0.001	Accepted

[Table/Fig-4]: SEM Pathway of Knowledge-Oriented Leadership (KOL) and moderating role on Perceived Hospital Quality Accreditation (HQA).

Direct Impact of Healthcare Workforce Engagement (HWE) on Hospital Quality Accreditation (HQA) with Knowledge Oriented Leadership as a determinant

The numerical values displayed in [Table/Fig-5] represent standardised path coefficients and explained variance (R²) values derived from the SEM analysis. The values shown along the arrows indicate standardised regression weights (β), reflecting the



[Table/Fig-5]: Levels of KOL Moderation with Healthcare Workforce Engagement (HWE) and Perceived Hospital Quality Accreditation (HQA).

strength and direction of relationships between latent constructs. The numerical values presented above the endogenous constructs denote R² values, representing the proportion of variance explained by the predictor variables in the model.

The first model in [Table/Fig-5] illustrates the high level of KOL, wherein HWE explains a substantially higher proportion of variance in perceived HQA outcomes. HWE is strongly influenced by four key factors: motivation and recognition (0.98) and leadership support (0.97), followed by mission alignment (0.84) and participation in accreditation processes (0.82). These dimensions collectively strengthen workforce engagement, which in turn shows a significant positive effect on achieving and sustaining HQA (path coefficient=0.82).

The second model in [Table/Fig-5] represents the low level of KOL, where the explanatory power of workforce engagement on accreditation outcomes is reduced.

This model demonstrates that HWE is a central factor influencing HQA, although the relationship is moderate (β=0.46). Among the predictors of HWE, motivation and recognition (β=0.99) and leadership support (β=0.97) emerged as the strongest contributors, followed by mission alignment (β=0.86), whereas participation in accreditation processes (β=0.65) showed a relatively weaker effect.

Model Fit Comparison Summary

While the high KOL demonstrated [Table/Fig-4] a superior model fit (better GFI, AGFI, CFI, and RMSEA), the effect of HWE on HQA is much stronger in the low KOL (β=0.821, R²=0.674) than in the high KOL (β=0.460, R²=0.212). This suggests that, in settings with lower KOL, workforce engagement plays a critical and direct role in driving accreditation outcomes. Conversely, in higher KOL environments, leadership mechanisms themselves may reduce direct dependence on workforce engagement to achieve accreditation, possibly because leadership processes already provide structured support [Table/Fig-6].

Criteria	Low KOL	High KOL	Interpretation
Model Fit (CMIN/DF)	3.644	2.330	High KOL has better fit (closer to ideal <3).
Goodness of Fit Index (GFI)	0.929	0.969	High KOL shows stronger overall model fit.
Adjusted GFI (AGFI)	0.926	0.957	High KOL indicates more adjusted fit.
Comparative Fit Index (CFI)	0.920	0.990	High KOL demonstrates excellent incremental fit.
RMSEA	0.070	0.046	High KOL is in the 'excellent' range (<0.05), better than Low KOL (acceptable <0.08).
Unstandardised Estimate (HWE → HQA)	9.950	2.459	Effect size is much higher in Low KOL.
Standardised Estimate (HWE → HQA)	0.821	0.460	Stronger influence of HWE on HQA in low KOL.
R ² for HQA	0.674	0.212	HWE explains much more variance in HQA in Low KOL.

[Table/Fig-6]: Model comparison: low KOL vs high KOL.

Although intuitively, one might expect high KOL to strengthen the relationship between HWE and HQA, the data suggest the opposite: under strong leadership, the direct influence of the work environment on accreditation diminishes. This could imply that in healthcare settings with strong leadership, other factors such as delegating mentoring, innovative role modelling, recognising achievements, and stimulating knowledge diffusion become more influential in driving accreditation outcomes than just the perceived work environment.

DISCUSSION

The findings highlight the moderating role of KOL in HQA. At low levels of KOL, HWE shows a strong and significant association

with accreditation outcomes, indicating that engaged employees compensate for leadership structures by sustaining quality accreditation outcomes. In contrast, at high levels of KOL, the independent effect of HWE becomes less visible, as leadership-driven knowledge systems, standardised processes, and embedded quality mechanisms directly guide accreditation efforts [27,28]. This reflects a substitution effect, rather than reduced effectiveness, wherein leadership replaces the need for engagement as an independent driver [29]. These results partially align with prior studies reporting direct positive effects of leadership on workforce engagement and quality outcomes [30,31]. These results provide actionable insights for hospital administrators, policymakers, and accreditation bodies. Hospital administrators should recognise that strong leadership alone does not guarantee quality outcomes; rather, a balanced strategy is needed in which leadership vision is complemented by initiatives that strengthen day-to-day work environment conditions and effectively empower the workforce.

Limitation(s)

First, the geographical scope was confined to private multispecialty hospitals in the Delhi NCR which restricts the generalisability of the findings to other healthcare settings or regions. Second, the use of a cross-sectional design with data collected at a single point in time limits the ability to draw causal inferences regarding the relationships examined. Finally, the study did not account for additional organisational variables, such as financial resources, organisational culture, and patient safety initiatives, which may also play a critical role in influencing accreditation outcomes.

CONCLUSION(S)

The results demonstrate that KOL moderates the relationship between workforce engagement and accreditation outcomes, weakening the dependence on workforce engagement when leadership is strong. By highlighting both the strengths and constraints of KOL, this study underscores the need for integrated approaches to sustaining accreditation, ensuring that leadership excellence and workforce engagement complement each other in delivering high-quality patient care.

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