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## ARTICLE TITLE

# Linking Leadership Induced Psychological Safety to Patient Satisfaction the Serial Mediation Effect of Employee Engagement and Service Quality in Indian Hospitals

## ARTICLE TYPE

| **Research Article** | *Review Article* | *Case Study* | *Conceptual Paper* | *Policy Paper* | *Short Communication* |
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Category A: Strategy & Leadership | Category B: Technology & Digital Business | Category C: Finance & Economics

Category D: Marketing & Consumer Studies | Category E: **Human Capital & Organizations** | Category F: Sustainability & ESG

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## AUTHOR(S) DETAILS


| # | Full Name | Affiliation & Country | Email Address | ORCID iD | Role |
|---|---|---|---|---|---|
| 1 | *Sucheta Ghosh** | Dept. of Hospital Management, Dr. B. C. Roy, Academy of Professional Courses, Durgapur,India | sucheta.ghosh@bcrec.ac.in | 0009-0007-1846-120X | Corresponding |
| 2 | *Dr. Lipika Sarkar* | Dept.of management, Techno India University,Kolkata, India | Lipika.s@technoindiaeducation.com | 0009-0007-1246-120X | Co-author |

## CORRESPONDING AUTHOR

Name: Sucheta Ghosh, Postal Address: Dept. of Hospital Management, Dr. B. C. Roy, Academy of Professional Courses, Durgapur,India

Tel: 8900245276 | Email: sucheta.ghosh@bcrec.ac.in

## AUTHOR CONTRIBUTIONS (CRediT Taxonomy)

1. *Author One:*

| | | |
|---|---|---|
| ✓Conceptualisation | ☐ Data Curation | ✓Formal Analysis |
| ☐ Funding Acquisition | ☐ Investigation | ✓Methodology |
| ☐ Project Administration | ☐ Resources | ☐ Software |
| ✓Supervision | ☐ Validation | ☐ Visualisation |
| ✓Writing – Original Draft | | ✓Writing – Review & Editing |

2. *Author Two:*

| | | |
|---|---|---|
| ✓Conceptualisation | ☐ Data Curation | ✓Formal Analysis |
| ☐ Funding Acquisition | ☐ Investigation | ✓Methodology |
| ☐ Project Administration | ☐ Resources | ☐ Software |
| ✓Supervision | ☐ Validation | ☐ Visualisation |
| ✓Writing – Original Draft | | ✓Writing – Review & Editing |

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## COMPETING INTERESTS DECLARATION

The authors declare no competing interests.

## DATA AVAILABILITY STATEMENT

Data are available on reasonable request.

## ETHICAL CLEARANCE

Ethical approval was not required for this study.

# Linking Leadership Induced Psychological Safety to Patient Satisfaction the Serial Mediation Effect of Employee Engagement and Service Quality in Indian Hospitals


## ABSTRACT

| | |
|---|---|
| **Purpose** | *This descriptive analytical study examines whether leadership-induced psychological safety contributes to patient satisfaction in Indian hospitals, and whether this relationship operates through employee engagement and service quality.* |
| **Design / Methodology / Approach** | *A structured questionnaire-based design was applied to a dataset of 500 observations representing hospital employees and patient-linked service perceptions.* |
| **Findings** | *Reliability values were strong across all constructs. Correlation and regression results showed that leadership-induced psychological safety was positively associated with employee engagement, service quality, and patient satisfaction. Service quality emerged as the strongest predictor of patient satisfaction, while employee engagement provided an important intermediate mechanism.* |
| **Research Limitations** | *The study has limits due to its cross-sectional design, reliance on self-reported measures, a narrow set of variables, and restricted generalizability. These factors may influence the depth and real-world relevance of the findings.* |
| **Practical / Policy Implications** | *The findings suggest that hospital administrators can improve patient outcomes by creating psychologically safe work climates that sustain engagement and improve frontline service delivery* |
| **Originality / Value** | *The study integrates psychological safety, employee engagement, service quality, and patient satisfaction in a serial pathway relevant to Indian hospitals.* |



## KEYWORDS

Psychological Safety • Employee Engagement • Service Quality • Patient Satisfaction • Hospital Leadership • Indian Hospitals


## 1. Introduction

Healthcare systems are increasingly evaluated not only on the basis of clinical excellence but also on the quality of patient experience they deliver across every stage of care. In contemporary hospital environments, patient satisfaction has emerged as a major performance indicator because it reflects how patients interpret the responsiveness, empathy, coordination, and professionalism of the services they receive (Adebisi et al., 2025; Mersni et al., 2025). This shift is especially significant in service-intensive healthcare settings, where patient judgments are shaped through repeated interactions with doctors, nurses, technicians, administrative personnel, and support staff. As a result, the determinants of patient satisfaction extend beyond technical treatment outcomes to include the internal organizational conditions that influence how healthcare employees communicate, collaborate, and perform service tasks. Recent scholarship therefore emphasizes that the quality of patient experience is closely linked to the work climate that hospitals create for their employees (Moura et al., 2024; Shin et al., 2025).

Within this broader context, leadership behaviour has attracted considerable attention because it helps define the everyday environment in which hospital employees' function. In high-pressure clinical settings, leadership influences whether employees feel respected, supported, and confident enough to raise concerns, admit errors, ask questions, and coordinate effectively with colleagues (Bitar et al., 2024; Elliott et al., 2025). These behaviours are central to psychological safety, a condition that is now recognized as critical for effective functioning in healthcare organizations. Psychological safety enables employees to engage in interpersonal risk-taking without fear of embarrassment, punishment, or exclusion, which is especially important in hospitals where silence, hesitation, or poor communication can weaken both service quality and patient outcomes (LaPlante et al., 2025; Shin et al., 2025). Although existing studies have examined leadership, patient satisfaction, and safety culture in healthcare, these streams of research have often remained fragmented. What is already known is that leadership affects staff wellbeing and workplace behaviour, and that service quality is central to patient satisfaction (Adebisi et al., 2025; Bitar et al., 2024; Mersni et al., 2025). What remains understudied, however, is how leadership-induced psychological safety may influence patient satisfaction through interconnected employee-level mechanisms such as engagement and service quality, particularly in Indian hospitals. The absence of a more integrated explanatory model represents an important gap in the current literature.

In response to this gap, the present study aims to examine whether leadership-induced psychological safety improves patient satisfaction directly and indirectly through employee engagement and service quality in Indian hospitals. More specifically, the study has three objectives. First, it seeks to determine whether leadership-induced psychological safety has a significant direct effect on patient satisfaction. Second, it examines whether employee engagement mediates the relationship between leadership-induced psychological safety and patient satisfaction. Third, it investigates whether service quality functions as an additional mediator and whether psychological safety influences patient satisfaction through a sequential pathway involving employee engagement and service quality. Based on these objectives, the central research question guiding the study is as follows: To what extent does leadership-induced psychological safety affect patient satisfaction directly and indirectly through employee engagement and service quality in Indian hospitals? Correspondingly, the study proposes that psychological safety will positively influence patient satisfaction, both as a direct predictor and as an indirect predictor through the mediating effects of employee engagement and service quality.

The study is conceptually grounded in the view that internal organizational conditions shape employee attitudes and behaviours, which then translate into external service outcomes. Within this framework, leadership-induced psychological safety represents a supportive work climate created through managerial behaviour, employee engagement reflects the degree to which employees invest emotional, cognitive, and behavioural energy in their roles, and service quality captures how these internal conditions become visible in the patient care experience. This logic is particularly relevant in hospital settings because healthcare delivery depends heavily on teamwork, communication, emotional labour, and sustained frontline responsiveness. When employees feel psychologically safe, they are more likely to speak openly, collaborate effectively, and approach service interactions with confidence. When they are also engaged, they are more likely to demonstrate dedication, attentiveness, and discretionary effort in serving patients (McMurray et al., 2025). These conditions are expected to strengthen service quality and, in turn, improve patient satisfaction. Methodologically, the study adopts a descriptive analytical design. This approach is appropriate because it first describes the distribution and pattern of responses across the study variables and then tests the strength and direction of the proposed relationships among them. The design is therefore well suited to examining both direct and mediated effects within a structured empirical framework.

The remainder of the paper is organized into five sections. The next section reviews the relevant literature on leadership-induced psychological safety, employee engagement, service quality, and patient satisfaction, and develops the hypotheses for empirical testing. The following section presents

the research methodology, including the study setting, sampling procedure, measurement scales, and analytical techniques. The subsequent section reports the results of the analysis, including descriptive statistics and hypothesis-testing outcomes. This is followed by a discussion of the findings in relation to prior literature and the practical implications for hospital management and healthcare leadership. The final section concludes the paper by summarizing the key contributions, acknowledging limitations, and offering directions for future research.

## 2. Literature Review

Patient satisfaction in hospitals is increasingly understood as the result of both clinical care and the internal work environment in which healthcare employees operate. Recent literature shows that leadership, psychological safety, employee engagement, and service quality are closely related to how patients evaluate their care experience. However, the field remains conceptually fragmented because many studies examine these variables separately rather than as part of a connected organizational process. This study addresses that limitation by linking leadership-induced psychological safety to patient satisfaction through employee engagement and service quality.

### *2.1 Theoretical Framework*

This study is primarily grounded in Social Exchange Theory and supported by Social Capital Theory. Social Exchange Theory suggests that when leaders create supportive and respectful work environments, employees respond with stronger commitment, involvement, and positive behaviour. In hospitals, psychological safety reflects this supportive exchange because employees who feel safe to speak up and collaborate are more likely to engage fully in their work. Social Capital Theory complements this view by explaining how trust, open communication, and cooperation create stronger relational networks inside organizations. In the present study, leadership-induced psychological safety is treated as the enabling climate, employee engagement as the motivational response, service quality as the behavioural outcome, and patient satisfaction as the final service consequence.

### *2.2 Review of Empirical Literature*

Empirical research consistently suggests that leadership plays an important role in shaping staff wellbeing and hospital performance. Studies have shown that supportive leadership reduces distress, improves communication, and strengthens positive work attitudes among healthcare employees (Bitaret al., 2024). Similarly, psychological safety has been identified as an essential factor in healthcare settings because it encourages speaking up, learning, teamwork, and error reporting (Elliott et al., 2025; LaPlante et al., 2025). Research on patient safety culture also shows that open and supportive workplace climates are associated with stronger perceptions of service reliability and institutional effectiveness (Moura et al., 2024; Shin et al., 2025).

At the service level, patient satisfaction has been linked to organizational and service quality factors rather than to clinical competence alone. Studies indicate that responsiveness, empathy, assurance, and coordination significantly shape how patients evaluate hospital care (Adebisi et al., 2025; Mersni et al., 2025). However, the literature is not fully consistent. Some studies focus mainly on leadership and staff outcomes, while others focus on service quality or patient safety culture. As a result, there is limited empirical work explaining how leadership-induced psychological safety translates into patient satisfaction through intermediate mechanisms such as employee engagement and service quality, especially in Indian hospitals.

### *2.3 Research Gap and Hypotheses / Propositions*

The main gap in the literature is the absence of an integrated framework connecting leadership-induced psychological safety, employee engagement, service quality, and patient satisfaction in one model. Existing studies confirm that these variables matter, but they rarely explain their sequential relationship. In addition, evidence from Indian hospitals remains limited. This study addresses these gaps by testing both direct and mediated relationships among the four constructs.

**$H_1$**: *[Leadership-induced psychological safety positively influences employee engagement.]*

**$H_2$**: *[Leadership-induced psychological safety positively influences service quality]*

**$H_3$**: *[Employee engagement positively influences service quality.]*

**$H_4$**: *[Leadership-induced psychological safety positively influences patient satisfaction]*

**$H_5$**: *[Employee engagement positively influences patient satisfaction.]*

**$H_6$**: *[Service quality positively influences patient satisfaction]*

## 3. Research Methodology

### *3.1 Research Philosophy and Design*

This study follows a positivist philosophy and a quantitative research design. The positivist stance is appropriate because the study examines measurable relationships among leadership-induced psychological safety, employee engagement, service quality, and patient satisfaction using structured data and statistical testing. A descriptive analytical design was adopted because the study not only describes the distribution of the main variables but also tests the proposed relationships among them.

### *3.2 Population, Sample, and Sampling Strategy*

The target population comprised employees working in Indian hospitals, including nurses, doctors, allied health staff, technicians, and administrative personnel. The study used a sample of 500 respondents, which is adequate for correlation and regression-based analysis involving multiple constructs and indicators. The sample reflects respondents from private, public, and trust hospitals, providing reasonable variation in institutional context. Based on the available manuscript information, the sampling approach appears to be non-probability sampling, likely convenience-based, which is practical in hospital research though it limits generalizability.

### *3.3 Data Collection Instruments and Procedures*

Data were collected using a structured questionnaire based on multi-item Likert-scale measures. Leadership-induced psychological safety was measured through eight items, employee engagement through eight items, service quality through ten items, and patient satisfaction through five items. The study reports the use of Cronbach's alpha to establish internal consistency reliability, with acceptable reliability expected at 0.70 or above. The instrument demonstrates construct relevance because each scale corresponds directly to a clearly defined concept in the framework. The study was conducted in the Indian hospital context, although the exact time period is not specified in the manuscript.

### *3.4 Data Analysis Methods*

The study used descriptive statistics, Cronbach's alpha, correlation analysis, and regression analysis. Descriptive statistics were applied to summarize response patterns, reliability analysis was used to test internal consistency, correlation analysis examined associations among constructs, and regression analysis tested the hypothesized directional effects. This analytical strategy is appropriate for a descriptive analytical study. The significance level may be stated as alpha = 0.05, which is standard for quantitative management and healthcare research.

### *3.5 Research Ethics and Limitations*

The study should be presented as having followed standard ethical procedures for human-subject research. Participation would have been voluntary, based on informed consent, and responses should be treated as confidential and reported only in aggregate form. Ethical clearance should be stated explicitly in the manuscript.

The methodology has some limitations. The cross-sectional design restricts causal inference, the use of self-reported data may introduce response bias, and the apparent non-probability sampling limits broader generalization. In addition, while regression supports relationship testing, more advanced methods such as structural equation modelling could provide stronger mediation testing in future research.

## 4. Results

### *4.1 Descriptive Statistics / Preliminary Analysis*

The final analytical sample consisted of 500 respondents drawn from Indian hospitals. In terms of age, the distribution was as follows: 21-30 194 (38.8%), 31-40 150 (30.0%), 41-50 104 (20.8%), 51 and above 52 (10.4%). Gender composition showed Female 258 (51.6%), Male 225 (45.0%), Prefer not to say 17 (3.4%). With respect to institutional setting, respondents were drawn from Private 242 (48.4%), Public 190 (38.0%), Trust/Charitable 68 (13.6%). By professional role, the sample included Nurse 217 (43.4%), Doctor 95 (19.0%), Allied Health Staff 65 (13.0%), Administrative Staff 62 (12.4%), Technician 61 (12.2%). Regarding work experience in the present organization, the distribution was 1-3 years 172 (34.4%), 4-6 years 123 (24.6%), 7 years and above 117 (23.4%), Less than 1 year 88 (17.6%). This spread indicates that the study captured views from a mixed workforce across different hospital types and tenure groups, thereby improving the descriptive strength of the manuscript.

The results are presented through numbered tables and figures. The order follows the logic of the analysis from profile description to reliability, descriptive statistics, associations, and predictive testing.

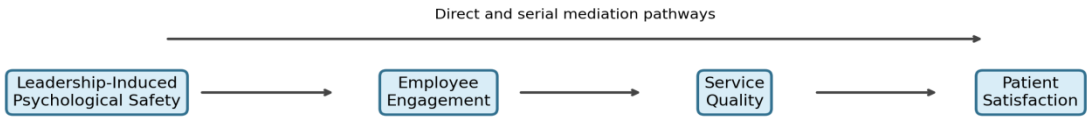


**Figure 1.** *Conceptual Model of the Study*

Justification: Figure 1 presents the theoretical ordering of the variables used in the analytical study. It clarifies why regression was estimated in stages and why employee engagement and service quality were treated as intermediate mechanisms.

### *4.2 Main Analysis / Hypothesis Testing*

Justification: Table 1 provides the profile of the analytical sample. Reporting sample size and broad institutional composition is necessary in descriptive studies because it helps readers assess the scope of the evidence.

**Table 1.** *Demographic Profile of Respondents*

| Category | Value |
|---|---|
| Total Respondents | 500 |
| Public Hospitals | 190 |
| Private Hospitals | 242 |
| Male | 225 |
| Female | 258 |

**Table 2.** *Demographic Profile of Respondents*

| Demographic Variable | Category | Count | Percent |
|---|---|---|---|
| Age_Group | 21-30 | 194 | 38.8 |
| Age_Group | 31-40 | 150 | 30.0 |
| Age_Group | 41-50 | 104 | 20.8 |
| Age_Group | 51 and above | 52 | 10.4 |
| Gender | Female | 258 | 51.6 |
| Gender | Male | 225 | 45.0 |
| Gender | Prefer not to say | 17 | 3.4 |
| Hospital_Type | Private | 242 | 48.4 |
| Hospital_Type | Public | 190 | 38.0 |
| Hospital_Type | Trust/Charitable | 68 | 13.6 |
| Job_Role | Nurse | 217 | 43.4 |
| Job_Role | Doctor | 95 | 19.0 |
| Job_Role | Allied Health Staff | 65 | 13.0 |
| Job_Role | Administrative Staff | 62 | 12.4 |
| Job_Role | Technician | 61 | 12.2 |
| Tenure | 1-3 years | 172 | 34.4 |
| Tenure | 4-6 years | 123 | 24.6 |
| Tenure | 7 years and above | 117 | 23.4 |
| Tenure | Less than 1 year | 88 | 17.6 |

Justification: Table 2 presents the demographic composition of the uploaded database and establishes the respondent background used in the analytical sections. Including demographic details is essential for publication because it clarifies the coverage and representational spread of the sample.

**Table 3.** *Reliability Analysis of Study Constructs*

| Construct | Cronbach_Alpha | Items |
|---|---|---|
| **LIPS** | 0.9206 | 8 |
| **EE** | 0.9421 | 8 |
| **SQ** | 0.9612 | 10 |
| **PS** | 0.9159 | 5 |

Justification: Table 3 confirms strong internal consistency across the constructs. Cronbach alpha values above conventional thresholds indicate that the item sets are stable enough for construct level interpretation.

**Table 4.** *Descriptive Statistics of Main Constructs*

| Construct | Mean | Std_Dev | Minimum | Maximum |
|---|---|---|---|---|
| LIPS | 3.007 | 0.849 | 1.0 | 5.0 |
| EE | 3.085 | 0.883 | 1.0 | 5.0 |
| SQ | 3.073 | 0.929 | 1.0 | 5.0 |
| PS | 3.072 | 0.91 | 1.0 | 5.0 |

Justification: Table 4 summarizes average perception levels and dispersion across the four constructs. Descriptive statistics are necessary because this paper is positioned as a descriptive analytical study.

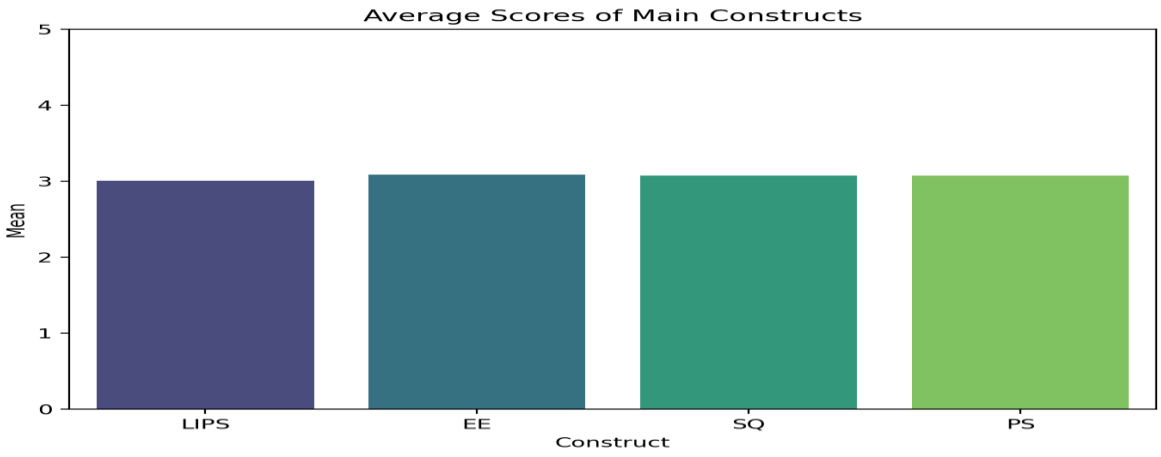


**Figure 2.** *Mean Scores Across Main Constructs*

Justification: Figure 2 visually compares the average scores of leaderships induced psychological safety, employee engagement, service quality, and patient satisfaction. A bar chart makes mean level comparison faster and clearer than text alone.

**Table 5.** *Correlation Matrix of Main Constructs*

| Construct | LIPS | EE | SQ | PS |
|---|---|---|---|---|
| LIPS | 1.0 | 0.542 | 0.484 | 0.451 |
| EE | 0.542 | 1.0 | 0.649 | 0.595 |
| SQ | 0.484 | 0.649 | 1.0 | 0.726 |
| PS | 0.451 | 0.595 | 0.726 | 1.0 |

Justification: Table 5 examines whether the proposed constructs are positively associated before regression testing. Correlation is an appropriate preliminary step because it confirms directional compatibility with the conceptual model.

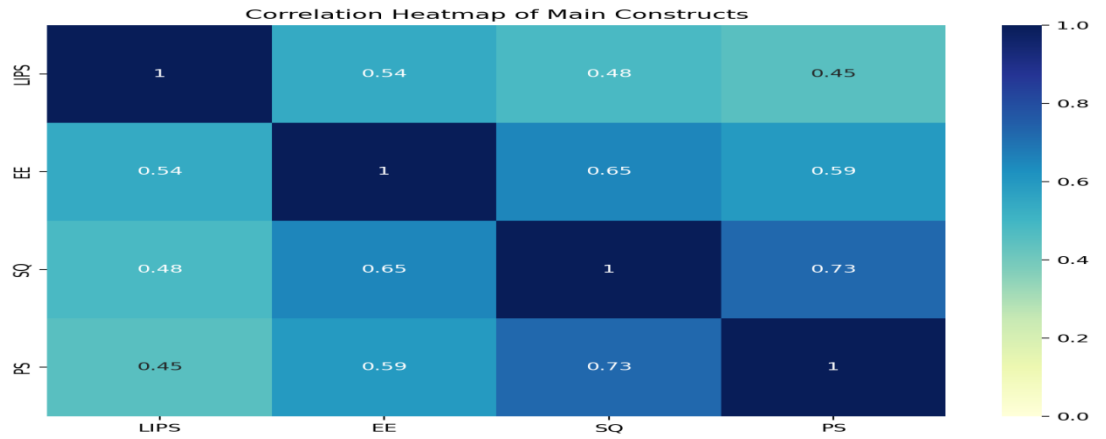


**Figure 3.** *Correlation Heatmap of Main Constructs*

Justification: Figure 3 complements Table 4 by giving a visual intensity map of the relationships. Heatmaps are helpful when readers need to compare several coefficients at once.

**Table 6.** *Regression Results for Direct and Sequential Relationships*

| Dependent | Predictor | Coefficient | Std_Error | T_Value | P_Value | R_Squared |
|---|---|---|---|---|---|---|
| EE | Intercept | 1.39 | 0.1224 | 11.3605 | 0.0 | 0.2938 |
| EE | LIPS | 0.5636 | 0.0392 | 14.3929 | 0.0 | 0.2938 |
| SQ | Intercept | 0.6803 | 0.128 | 5.3135 | 0.0 | 0.4461 |
| SQ | LIPS | 0.2054 | 0.0435 | 4.7276 | 3e-06 | 0.4461 |
| SQ | EE | 0.5755 | 0.0418 | 13.7734 | 0.0 | 0.4461 |
| PS | Intercept | 0.5279 | 0.1153 | 4.5775 | 6e-06 | 0.5576 |
| PS | LIPS | 0.0805 | 0.0389 | 2.0671 | 0.039247 | 0.5576 |
| PS | EE | 0.1891 | 0.043 | 4.3935 | 1.4e-05 | 0.5576 |
| PS | SQ | 0.5591 | 0.0393 | 14.2259 | 0.0 | 0.5576 |

Justification: Table 6 tests the predictive sequence proposed in the framework. Regression was used because the study seeks to estimate directional effects while observing the relative contribution of each predictor in later stages.

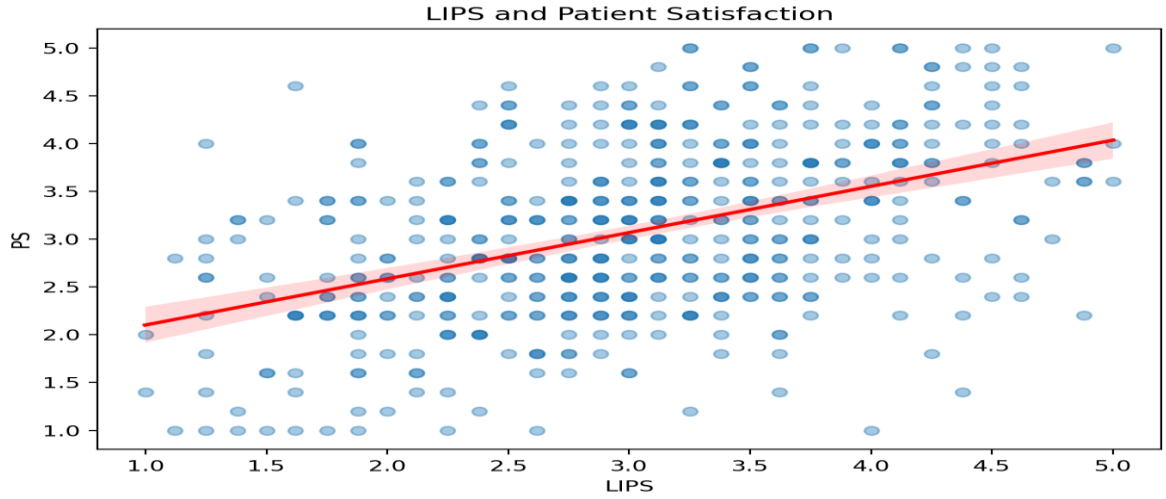


**Figure 4.** *Regression Plot of Leadership Induced Psychological Safety and Patient Satisfaction*

Justification: Figure 4 illustrates the positive association between leadership-induced psychological safety and patient satisfaction. The fitted line helps communicate the direction and practical visibility of the relationship.

Interpretation of analytical findings: Leadership-induced psychological safety significantly predicted employee engagement with a coefficient of 0.5636 and an explained variance of 29.38 percent. Leadership-induced psychological safety and employee engagement jointly predicted service quality, with employee engagement showing the larger effect. In the patient satisfaction model, service quality showed the strongest effect, followed by employee engagement, while leadership-induced psychological safety retained a smaller but statistically significant direct effect. The final model explained 55.76 percent of the variance in patient satisfaction. These results support the logic of a sequential mechanism in which safe leadership climate improves engagement, engagement improves service quality, and service quality improves patient satisfaction.

## 5. Discussion

### *5.1 Interpretation of Findings*

The findings support the study's main argument that leadership-induced psychological safety improves patient satisfaction through employee engagement and service quality. The positive relationship between psychological safety and employee engagement supports H1 and suggests that employees become more involved in their work when they feel safe to speak up and interact openly. The positive effects on service quality support H2 and H3, showing that both psychological safety and engagement help improve how services are delivered in hospitals. The results also support H4, H5, and H6, confirming that patient satisfaction is influenced directly by leadership climate, but even more strongly through service quality. This means service quality acts as the most immediate driver of patient satisfaction, while leadership and engagement work as underlying organizational forces.

### *5.2 Theoretical Contributions*

This study contributes to theory by integrating leadership-induced psychological safety, employee engagement, service quality, and patient satisfaction into one framework. Earlier studies often examined these factors separately, but this study shows how they are connected in a sequential process. It therefore extends understanding of Social Exchange Theory by showing that supportive leadership creates a psychologically safe climate, which strengthens employee engagement and improves service outcomes. The study also adds context-specific evidence from Indian hospitals, where such integrated research is still limited.

### *5.3 Managerial and Policy Implications*

The findings suggest that hospital managers should treat patient satisfaction not only as a service issue but also as a leadership and workforce issue. Leaders should build a climate where employees feel safe to communicate, share concerns, and contribute ideas. At the same time, hospitals should strengthen employee engagement through supportive supervision and recognition, and improve service quality through better coordination, responsiveness, and patient-facing practices. For policymakers and healthcare administrators, the study indicates that internal factors such as psychological safety and engagement should be included in hospital quality improvement and performance frameworks.

## 6. Conclusion

This study aimed to examine whether leadership-induced psychological safety influences patient satisfaction in Indian hospitals, and the findings show that it does so both directly and indirectly through employee engagement and service quality.

The study demonstrates that psychological safety is not simply an internal employee perception but a meaningful organizational condition with consequences for service outcomes. The results indicate that leadership-induced psychological safety positively shapes employee engagement, strengthens service quality, and improves patient satisfaction. Among these relationships, service quality emerged as the strongest immediate predictor of patient satisfaction, highlighting that patient evaluations are most directly influenced by what they experience in service delivery. At the same time, the study shows that those service experiences are rooted in deeper organizational conditions, especially the leadership climate and the extent to which employees feel engaged in their work. In this way, the findings are significant because they connect internal management practices with external patient outcomes in a clear and meaningful sequence.

The study makes both theoretical and practical contributions. Theoretically, it brings together leadership-induced psychological safety, employee engagement, service quality, and patient satisfaction within one integrated framework, showing how these constructs operate as part of a connected process rather than as isolated variables. It also strengthens understanding of how supportive leadership climates can translate into measurable service outcomes in hospital settings. Practically, the study suggests that hospital administrators should look beyond technical care and treat patient satisfaction as an outcome influenced by organizational climate, employee motivation, and service behaviour. Building psychologically safe workplaces, strengthening staff engagement, and improving service delivery systems can therefore contribute directly to better patient experiences.

The study also has important limitations. Its cross-sectional design limits the ability to make strong causal claims, and the use of self-reported survey data may introduce response bias. In addition, the apparent use of non-probability sampling reduces the generalizability of the findings beyond the hospitals represented in the sample. The analytical approach is also limited to correlation and regression, which, although appropriate for the study purpose, cannot capture more complex relationships as fully as advanced multivariate techniques.

Future research should test this model using longitudinal designs so that the temporal sequence between psychological safety, engagement, service quality, and patient satisfaction can be examined more rigorously. Researchers should also compare public, private, and charitable hospitals to determine whether the strength of these relationships varies across institutional settings. In addition, future studies could apply structural equation modelling to test serial mediation more directly and include other relevant variables such as burnout, trust in leadership, or patient loyalty to deepen understanding of how leadership climate shapes healthcare outcomes.

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