













The Leadership Perception Gap in Spanish Anesthesiology Departments: A National Cross-Sectional Survey Comparing Department Heads and Staff Views

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Purpose: The alignment between leaders' self-perception and their teams' experience remains unexplored in Spanish anesthesiology. This study aimed to quantify the "perception gap" between Department Heads (DH) and staff anesthesiologists and to identify prevailing leadership profiles.

Patients and Methods: A nationwide cross-sectional survey was conducted using a multidisciplinary ad hoc instrument. Anonymous responses were collected from DH and staff anesthesiologists. Due to the study design, analysis focused on comparing cohorts rather than matched dyads. Discrepancies in competency ratings and the association between meeting frequency and leadership scores were analyzed. Leadership typologies were identified using hierarchical cluster analysis.

Results: Responses were obtained from 32 DH and 588 staff. A significant perception gap was evident, DH consistently rated their competencies higher than the staff rated them (mean overall score 4.35 vs 3.25; recommendation 7.88 vs 5.16 on a 0–10 scale; both $p < 0.001$). Daily team meetings were strongly associated with higher staff satisfaction ratings across all domains. Logistic regression showed decision making, communication, teamwork, and research and innovation were the strongest predictors of recommending a department head (AUC 0.97–0.98), with relational and communication-oriented competencies showing the greatest influence on endorsement. Cluster analysis identified four profiles: High-Performance (22.3%), High-Potential (28.7%), Passive (16.3%), and Dysfunctional (32.7%), with the latter characterized by minimal interaction and critical deficits in communication and fairness.

Conclusion: A systematic disconnect exists between the self-concept of Anesthesiology leaders in Spain and the reality perceived by their teams. The prevalence of passive and dysfunctional leadership styles highlights an urgent need for management training and the implementation of 360-degree feedback mechanisms to bridge this gap.

Keywords: leadership, physician leadership, anaesthesia leadership, leadership profiles



Introduction

Leadership is a social influence process that directs others' efforts toward shared goals.^{1,2} Medical leadership has emerged as a critical determinant of healthcare quality, patient safety, and organizational efficiency.^{1,3–5} Unlike traditional administrative management, modern medical leadership is increasingly viewed as an intrinsic component of clinical practice, a shared competency essential for fostering interdisciplinary collaboration and optimizing daily workflow.⁶ Effective leadership is directly associated with better clinical outcomes and patient safety.⁷ In high-complexity environments like Anesthesiology, where crisis resource management and teamwork are paramount, the impact of effective leadership on staff well-being and patient outcomes is particularly significant.⁸ This field demands rapid decision-making and seamless teamwork within a high-stakes environment.^{8,9}

Despite its growing relevance, the conceptualization of medical leadership remains fragmented.¹⁰ While countries such as the United Kingdom and Canada have implemented structured leadership frameworks (eg., NHS Leadership Framework, CanMEDS),^{3,11–15} Spain currently lacks a standardized national program for developing these competencies. In the Spanish public healthcare system, Heads of Department bridge the gap between hospital administration and clinical teams.^{16,17} In Spain, Department Head positions are traditionally awarded based primarily on clinical seniority and academic merit rather than formal managerial or leadership training. This structural selection model may limit the development of professionalized leadership competencies and reduce the availability of structured feedback mechanisms. Such conditions may contribute to a potential misalignment between leaders' self-perceptions and the experiences of their teams. Their role is dual and demanding: they must manage limited resources and meet institutional objectives while simultaneously inspiring, guiding, and supporting their teams.¹⁶ Spanish anesthesiologists are responsible not only for perioperative anesthesia care but also frequently for critical care management and acute pain services. This broad clinical scope places anesthesiology Departments at the center of high-acuity environments, further emphasizing the need for effective and well-structured leadership.

A critical, yet often overlooked, aspect of leadership effectiveness is the alignment between how leaders view themselves and how they are perceived by their teams. The literature suggests that leaders frequently overestimate their own competencies, a phenomenon often linked to the Dunning-Kruger effect or a lack of honest feedback mechanisms.^{18–21} This perception gap can lead to organizational friction, staff disengagement, and reduced psychological safety. However, to the best of our knowledge, no study has systematically quantified this gap within the field of Anesthesiology at a national level.

This study addresses this gap by conducting a nationwide cross-sectional survey, an appropriate design for simultaneously capturing the self-perceptions of Anesthesiology Department Heads and the perceptions held by staff anesthesiologists, and for comparing them at an aggregate level. We begin with two hypotheses: (i) that a significant discrepancy exists between the leadership styles and behaviors that department heads report exercising and those perceived by staff in daily practice, and (ii) that certain leadership behaviors are consistently associated with higher recommendation rates of the department head by staff anesthesiologists. Based on these hypotheses, the study aims first to examine the degree of alignment or misalignment between leaders' self-perceptions and staff experiences, and second to identify distinct leadership profiles currently present in Spanish hospitals in order to inform future evidence-based training interventions.

Material and Methods

Study Design and Ethics

A national cross-sectional observational study was conducted to evaluate leadership perceptions within Anesthesiology Departments in Spain. The study protocol was approved by the Clinical Research Ethics Committee of the Valladolid East Health Area (Ref: PI-23-3392). In accordance with ethical standards for digital research, electronic informed consent was obtained from all participants upon accessing the survey platform. Participation was voluntary and strictly anonymous. This study was designed and reported in adherence to the STROBE guidelines for observational studies and the CHERRIES checklist for internet e-surveys (Checklist for Reporting Results of Internet E-Surveys).²²

Instrument Development

Due to the absence of a validated leadership assessment tool specifically adapted to the organizational and cultural context of Spanish anesthesiology Departments, an ad hoc instrument was developed ([Supplementary Figure 1](#)). The development of the instrument was conceptually informed by established leadership theories and widely recognized medical leadership competency frameworks, including CanMEDS and the NHS Healthcare Leadership Model. These theoretical foundations were used by a multidisciplinary expert panel to identify and adapt leadership domains relevant to the organizational and cultural context of Spanish anesthesiology departments. Prior to nationwide distribution, the questionnaire underwent pilot testing among a group of anesthesiologists to assess clarity, relevance, and comprehensibility, leading to minor wording refinements. Although a formal psychometric validation was not conducted before implementation, content validity was strengthened through theoretical grounding, expert consensus, and pilot testing.

A multidisciplinary expert panel, comprising DH, staff anesthesiologists, residents, nurses, and an external management consultant, defined seven essential dimensions of medical leadership: research and innovation skills, decision-making, results orientation, communication skills, teamwork, people orientation, and global leadership assessment.

The final survey consisted of 36 items evaluated on a 5-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). Additionally, two global items rated on a 0–10 scale were included to measure the overall work experience and the likelihood of recommending the DH as a leader (Net Promoter Score approach).

Participants and Data Collection

The target population included all anesthesiologists practicing in Spain. The survey was distributed via Email to the complete membership database of the Spanish Society of Anesthesiology and Resuscitation (SEDAR, $n = 5432$) and to 190 DH identified through the National Hospital Catalogue. Data collection took place between January 17 and January 28, 2024. The survey was administered through Google Forms, optimized for desktop and mobile devices. To protect anonymity, no IP addresses were stored, and no personally identifying information was collected. No indirect identifiers were collected that would allow retrospective identification of individual participants. Data were stored in aggregated form and handled in accordance with the General Data Protection Regulation (GDPR, Regulation EU 2016/679) and applicable Spanish data protection legislation. Although no mechanisms to prevent duplicate entries were strictly enforced to prioritize privacy, the platform limited submissions to one per device. Participants could review and modify their responses prior to final submission. Incomplete questionnaires with <80% of items answered were excluded from the analysis, in accordance with CHERRIES recommendations.

To minimize social desirability bias and fear of retribution, the study design prioritized strict anonymity. Consequently, responses from DH were not dyadically matched with their specific staff members. Instead, the analysis focused on comparing the collective self-perception of the “DH” cohort against the collective perception of the “Staff Anesthesiologist” cohort.

Statistical Analysis

Data normality was assessed using the Shapiro–Wilk test. Quantitative variables are expressed as mean \pm standard deviation (SD), and categorical variables as frequencies and percentages. Comparative analyses between groups (Heads vs Staff) were performed using Student’s *t*-test for continuous variables and the Chi-square test for categorical variables.

To identify specific leadership behaviours associated with a high recommendation rate (defined as a score $\geq 9/10$), multivariate binary logistic regression models were constructed, calculating the Area Under the Curve (AUC) to assess discrimination capability.

Cluster Analysis

To classify the prevailing leadership styles in Spanish hospitals, an unsupervised machine learning approach based on hierarchical clustering was applied. This analysis utilized the mean scores of the seven leadership dimensions, the overall experience score, and the meeting frequency. Given the mixed nature of the data, Gower’s general coefficient of similarity was used to calculate the distance matrix.²³ Subsequently, agglomerative hierarchical clustering was performed using Ward’s linkage method.²⁴ The optimal number of clusters was determined by inspecting the dendrogram and the fusion levels.²⁵ All

statistical analyses were conducted using Python 3.8.8 (Python Software Foundation, Wilmington, DE, USA). A p-value < 0.05 was considered statistically significant.

Results

Participant Characteristics

The survey obtained responses from 32 DH (16.8% response rate) and 588 staff anesthesiologists (10.8% response rate). Regarding gender distribution, 59.3% of DH were male and 40.6% female. In contrast, the staff group was predominantly female (57.5% vs 38.1% male; 4.4% non-disclosed). This difference in gender distribution between the leadership group and the staff was statistically significant (p = 0.046).

Analysis of the “Perception Gap” (Heads vs Staff)

A significant and systematic discrepancy was observed between the self-evaluations of DH and the external evaluations provided by the staff (Table 1). DH rated their own performance significantly higher than their teams did across all seven evaluated dimensions (p < 0.0001).

Table 1 Comparison Between Leadership Evaluations by Anaesthetists and Self-Assessments by Department Heads

Evaluation	Anaesthetists n=588 Mean (SD)	Self-Assessment by Heads Mean (SD)	P-Value
Research and Innovation			
Encourages teaching and is attentive to the learning process of junior staff	2.93 (1.53)	4.53 (0.56)	<0.0001
Promotes continuous training to develop team talent	2.87 (1.53)	4.59 (0.65)	<0.0001
Encourages innovation in clinical practice	3.00 (1.49)	4.38 (0.70)	<0.0001
Supports knowledge dissemination by encouraging participation in conferences and congresses	2.90 (1.53)	4.50 (0.75)	<0.0001
Promotes research and knowledge development	2.84 (1.52)	4.09 (0.76)	<0.0001
Promotes the use of new technologies	3.12 (1.51)	4.69 (0.58)	<0.0001
Decision-Making			
Acts fairly	3.05 (1.51)	4.47 (0.61)	<0.0001
Considers different perspectives before making decisions	3.01 (1.48)	4.59 (0.49)	<0.0001
Is receptive to feedback from the team	3.10 (1.54)	4.63 (0.54)	<0.0001
Involves the team in decision-making	2.79 (1.49)	4.34 (0.64)	<0.0001
Uses solid arguments (data-driven) when defending a position	3.01 (1.51)	4.50 (0.66)	<0.0001
Results Orientation			
Analyses negative outcomes and reviews processes instead of assigning blame	2.91 (1.51)	4.31 (0.53)	<0.0001
Sets clear, achievable but demanding objectives	3.03 (1.37)	4.19 (0.58)	<0.0001
Provides transparent information on results	2.94 (1.52)	4.38 (0.65)	<0.0001
Recognises good performance	3.29 (1.47)	4.56 (0.66)	<0.0001
Measures outcomes, collects data, and promptly detects issues	2.91 (1.52)	4.28 (0.67)	<0.0001
Communication			
Communicates efficiently in any situation	3.10 (1.49)	4.00 (0.87)	0.0008
Actively listens with interest and attention	3.17 (1.52)	4.47 (0.61)	<0.0001
Provides constructive feedback	2.85 (1.52)	4.16 (0.83)	<0.0001
Expresses themselves clearly, precisely, and unambiguously	3.09 (1.52)	4.31 (0.68)	<0.0001
Provides necessary information without overloading or omitting key details	3.02 (1.49)	4.25 (0.79)	<0.0001

(Continued)

Table 1 (Continued).

Evaluation	Anaesthetists n=588 Mean (SD)	Self-Assessment by Heads Mean (SD)	P-Value
Teamwork			
Promotes teamwork (internal meetings, interdisciplinary collaborations, and external projects)	2.93 (1.51)	4.50 (0.61)	<0.0001
Aligns the team towards a common goal	2.74 (1.46)	3.78 (0.86)	<0.0001
Creates a trustful environment conducive to teamwork	2.95 (1.53)	4.38 (0.70)	<0.0001
Challenges the team with collective goals	2.82 (1.49)	4.22 (0.82)	<0.0001
Acknowledges team achievements	3.17 (1.51)	4.59 (0.49)	<0.0001
People Orientation			
Addresses conflicts and differences constructively	3.04 (1.49)	4.41 (0.61)	<0.0001
Provides support and guidance	3.07 (1.51)	4.53 (0.56)	<0.0001
Demonstrates empathy, understanding others' perspectives and situations	3.11 (1.48)	4.59 (0.49)	<0.0001
Treats the team with respect at all times	3.56 (1.49)	4.75 (0.50)	<0.0001
Communicates assertively, without judgement or harm	3.09 (1.52)	4.31 (0.81)	<0.0001
Overall Evaluation			
Is admirable in certain aspects	3.46 (1.42)	3.72 (0.87)	0.3053
Is a good leader	2.97 (1.58)	3.84 (0.76)	0.0018
Is a competent professional	3.62 (1.39)	4.25 (0.50)	0.0110
I feel comfortable working with this leader	3.19 (1.53)	3.97 (0.64)	0.0041
If I could, I would replace this leader with someone else	2.99 (1.58)	2.44 (1.30)	0.0512
Scales (0–10)			
Experience	5.65 (3.29)	7.59 (1.00)	0.0009
Recommendation	5.16 (3.77)	7.88 (1.32)	<0.0001

Notes: Data values are expressed as mean \pm standard deviation (SD), absolute numbers (n), and percentages (%). Bold p-values indicate statistical significance ($p < 0.05$).

The widest gaps were observed in the “People Orientation” and “Decision-Making” domains. For instance, while Heads rated their fairness with a mean score of 4.47/5, staff rated it at 3.05/5 ($p < 0.0001$). Similarly, in “Promoting Teaching,” Heads assessed themselves at 4.53, whereas staff perception was markedly lower at 2.93 ($p < 0.0001$). This gap extended to the global metrics: the Net Promoter Score (likelihood to recommend the leader) averaged 7.88 among Heads (self-assessment) versus 5.16 among staff ($p < 0.0001$).

Impact of Meeting Frequency on Leadership Perception

The frequency of interactions showed a strong positive association with leadership ratings (Table 2). Staff members who reported having daily meetings with their DH ($n=108$, 18.4%) awarded significantly higher scores across all dimensions compared to those with less frequent contact ($p < 0.0001$).

Specifically, daily interaction was associated with higher perceptions of “Support and Guidance” (4.22 vs 2.82) and “Fairness” (4.11 vs 2.81). It is notable that staff with daily contact rated their “Comfort working with this leader” at 4.31/5, compared to 2.93/5 for those with sporadic contact.

Predictors of Leadership Recommendation

Binary logistic regression identified the dimensions of “Research and Innovation Skills,” “Decision-Making,” “Communication,” and “Teamwork” as the strongest predictors for recommending a DH (Figure 1), with the model achieving an Area Under the Curve (AUC) of 0.97.

Table 2 Comparison of the Evaluation of the Head of Service According to the Frequency of Meetings with the Anaesthesiologist

Evaluation	Daily Meeting n=108 (18,4%)	No Daily Meeting n=480 (81,6%)	P-Value
Research and Innovation			
Encourages teaching and is attentive to the learning process of junior staff	4.06 (1.19)	2.67 (1.48)	<0.0001
Promotes continuous training to develop team talent	4.00 (1.21)	2.61 (1.48)	<0.0001
Encourages innovation in clinical practice	4.08 (1.08)	2.75 (1.46)	<0.0001
Supports knowledge dissemination by encouraging participation in conferences and congresses	3.95 (1.23)	2.66 (1.49)	<0.0001
Promotes research and knowledge development	4.01 (1.16)	2.57 (1.47)	<0.0001
Promotes the use of new technologies	4.20 (1.03)	2.87 (1.49)	<0.0001
Decision-Making			
Acts fairly	4.11 (1.10)	2.81 (1.49)	<0.0001
Considers different perspectives before making decisions	4.04 (1.06)	2.78 (1.46)	<0.0001
Is receptive to feedback from the team	4.19 (1.05)	2.85 (1.52)	<0.0001
Involves the team in decision-making	3.90 (1.13)	2.54 (1.45)	<0.0001
Uses solid arguments (data-driven) when defending a position	4.02 (1.14)	2.78 (1.49)	<0.0001
Results Orientation			
Analyses negative outcomes and reviews processes instead of assigning blame	3.97 (1.20)	2.67 (1.47)	<0.0001
Sets clear, achievable but demanding objectives	3.88 (1.12)	2.83 (1.35)	<0.0001
Provides transparent information on results	4.03 (1.13)	2.69 (1.48)	<0.0001
Recognises good performance	4.24 (0.96)	3.07 (1.48)	<0.0001
Measures outcomes, collects data, and promptly detects issues	4.00 (1.21)	2.66 (1.47)	<0.0001
Communication			
Communicates efficiently in any situation	4.00 (1.11)	2.90 (1.49)	<0.0001
Actively listens with interest and attention	4.14 (1.06)	2.95 (1.52)	<0.0001
Provides constructive feedback	3.83 (1.27)	2.63 (1.48)	<0.0001
Expresses themselves clearly, precisely, and unambiguously	4.05 (1.14)	2.88 (1.51)	<0.0001
Provides necessary information without overloading or omitting key details	4.04 (1.11)	2.79 (1.47)	<0.0001
Teamwork			
Promotes teamwork (internal meetings, interdisciplinary collaborations, and external projects)	3.99 (1.12)	2.69 (1.48)	<0.0001
Aligns the team towards a common goal	3.85 (1.12)	2.49 (1.41)	<0.0001
Creates a trustful environment conducive to teamwork	4.11 (1.10)	2.69 (1.49)	<0.0001
Challenges the team with collective goals	3.94 (1.22)	2.57 (1.43)	<0.0001
Acknowledges team achievements	4.27 (0.98)	2.92 (1.49)	<0.0001
People Orientation			
Addresses conflicts and differences constructively	4.05 (1.09)	2.82 (1.47)	<0.0001
Provides support and guidance	4.22 (1.03)	2.82 (1.49)	<0.0001
Demonstrates empathy, understanding others' perspectives and situations	4.15 (0.99)	2.87 (1.47)	<0.0001
Treats the team with respect at all times	4.34 (0.95)	3.38 (1.53)	<0.0001
Communicates assertively, without judgement or harm	4.06 (1.12)	2.88 (1.52)	<0.0001
Overall Evaluation			
Is admirable in certain aspects	4.34±0.96	3.26±1.44	<0.0001
Is a good leader	4.18±1.14	2.69±1.54	<0.0001

(Continued)

Table 2 (Continued).

Evaluation	Daily Meeting n=108 (18,4%)	No Daily Meeting n=480 (81,6%)	P-Value
Is a competent professional	4.44±0.84	3.43±1.43	<0.0001
I feel comfortable working with this leader	4.31±1.05	2.93±1.5	<0.0001
If I could, I would replace this leader with someone else	2.18±1.43	3.18±1.56	<0.0001
Scales (0–10)			
Experience	8.20 (2.01)	5.08 (3.25)	<0.0001
Recommendation	7.94 (2.72)	4.54 (3.61)	<0.0001

Notes: Data values are expressed as mean ± standard deviation (SD), absolute numbers (n), and percentages (%). Bold p-values indicate statistical significance (p < 0.05).

In the detailed behavioral model (Figure 2), specific actions such as “Promoting innovation in clinical practice,” “Acting fairly,” “Providing constructive feedback,” and “Ensuring team alignment” emerged as critical factors. The high discriminative ability of this model (AUC 0.98) suggests a strong inter-correlation between these positive behaviors and the overall endorsement of the leader.

Identification of Leadership Profiles (Cluster Analysis)

Hierarchical clustering identified four distinct leadership profiles within Spanish anesthesiology Departments (Figure 3 and Supplementary Figure 2). The descriptive characteristics of each cluster are summarized in Table 3. Each cluster represents a specific pattern of competency ratings:

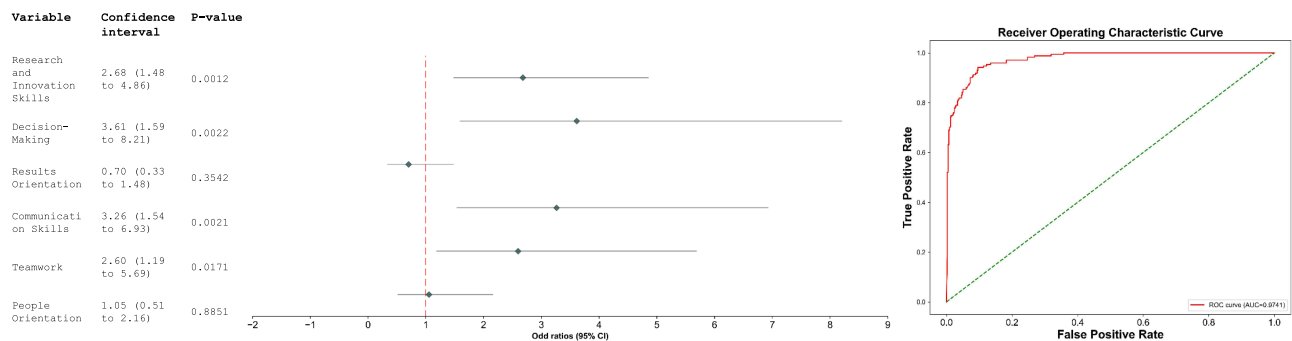


Figure 1 Logistic regression model identifying the main leadership dimensions associated with the recommendation of department heads.

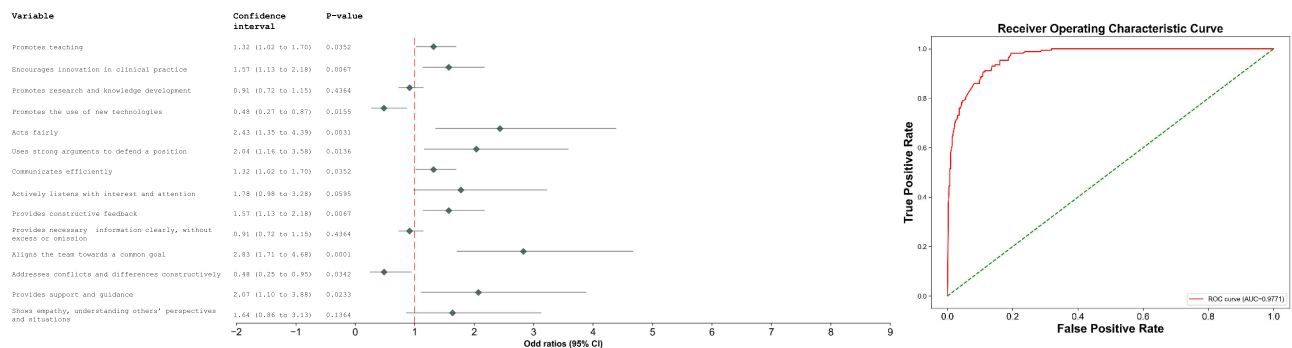


Figure 2 Logistic regression model for specific leadership behaviors most valued by anaesthetologists when recommending department heads.

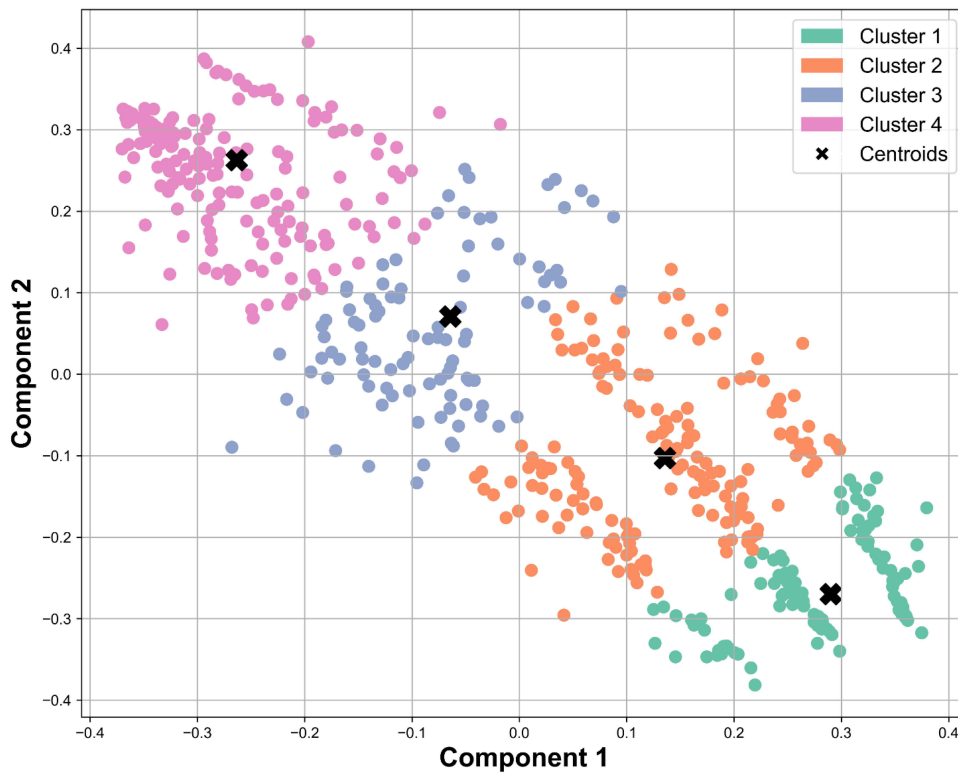


Figure 3 Leadership profiles among department heads of anaesthesiology in Spain identified by hierarchical clustering analysis. The figure displays a two-dimensional multidimensional scaling (MDS) projection of the Gower's distance matrix of the data. Each colored point represents an individual department head evaluation. Colors indicate the four clusters identified using agglomerative hierarchical clustering with Ward's linkage method: Cluster 1 (High-Performance), Cluster 2 (High-Potential), Cluster 3 (Passive), and Cluster 4 (Dysfunctional). Black cross symbols (×) represent the centroid of each cluster. The spatial proximity between points reflects similarity in leadership profile scores.

- Cluster 1: High-Performance Leaders (22.3%). Characterized by high scores across all domains (mean Global Score 4.3/5). These leaders excel in “People Orientation” and “Communication” and maintain high meeting frequencies. They are strongly recommended by their teams.

Table 3 Leadership Profiles Identified Through Hierarchical Cluster Analysis

	Cluster				P-Value
	1 High Performance	2 High Potential	3 Passive	4 Dysfunctional	
Number Of Cases	131 (22.3%)	169 (28.7%)	96 (16.3%)	192 (32.7%)	-
Meetings Frequency	2.3±0.7	1.9±0.7	1.3±0.6	1.2±0.5	<0.0001
Experience	9.4±0.7	7.6±1.2	5.0±1.4	1.8±1.7	<0.0001
NPS	9.6±0.6	7.4±1.5	3.7±1.8	0.8±1.4	<0.0001
Research	4.7±0.5	3.6±0.6	2.3±0.8	1.4±0.6	<0.0001
Decision	4.7±0.4	3.7±0.6	2.6±0.6	1.3±0.4	<0.0001
Results	4.7±0.4	3.7±0.6	2.6±0.6	1.5±0.5	<0.0001
Communication	4.8±0.4	3.8±0.6	2.7±0.7	1.4±0.5	<0.0001

(Continued)

Table 3 (Continued).

	Cluster				P-Value
	1 High Performance	2 High Potential	3 Passive	4 Dysfunctional	
Team	4.7±0.3	3.6±0.6	2.4±0.6	1.3±0.5	<0.0001
People	4.8±0.4	3.9±0.6	3.0±0.8	1.5±0.6	<0.0001
Global	4.3±0.3	3.8±0.4	3.2±0.5	2.2±0.6	<0.0001

Notes: Data are presented as mean ± standard deviation (SD) or number (%), as appropriate. Meeting frequency was coded ordinarily according to reported interaction frequency with the department head. NPS: Net Promoter Score (0–10 scale). Research, Decision, Results, Communication, Team, People, and Global correspond to the mean scores of the respective leadership dimensions (5-point Likert scale). A p-value < 0.05 was considered statistically significant.

- Cluster 2: High-Potential Leaders (28.7%). This group shows competent performance (Global Score 3.8/5) but lacks consistency in “Teamwork” promotion and meets less frequently with staff.
- Cluster 3: Passive Leaders (16.3%). Characterized by low-to-moderate scores (Global Score 3.2/5). Their leadership style is perceived as detached, with significantly lower ratings in “Innovation” and “Results Orientation.”
- Cluster 4: Dysfunctional Leaders (32.7%). The largest cluster, characterized by critical deficiencies across all dimensions (Global Score 2.2/5). These leaders had the lowest frequency of team meetings and received the poorest ratings for “Communication” (1.4/5) and “Decision Making” (1.3/5), correlating with a negative work experience for the staff.

Discussion

This national study provides the first comprehensive analysis of leadership perception in Spanish anesthesiology Departments. Returning to our initial hypothesis, the results confirm a significant and systematic misalignment between how DH view their own performance and how they are perceived by their clinical teams. Unlike traditional evaluations that focus solely on individual competencies, our findings highlight a deep-seated “perception gap” that may hinder organizational effectiveness. While Heads consistently rated their leadership as highly effective across all domains, the staff reported a markedly different reality, identifying significant deficiencies in critical areas such as communication, fairness, and team support.

The Perception Gap: Roots and Implications

The discrepancy observed between self-assessments and external evaluations is a classic manifestation of “self-enhancement bias”.²⁰ This phenomenon is frequently exacerbated in hierarchical environments like medicine, where leaders may lack honest feedback loops, leading them to overestimate their competencies, a pattern closely linked to the Dunning-Kruger effect.¹⁹ In our study, DH rated themselves approximately 20–30% higher than their teams did. This magnitude of disagreement is consistent with the findings of Fleenor and Yammarino in corporate sectors^{20,21} who identified that leaders with inflated self-perceptions (“over-estimators”) tend to be less effective because they are blind to their own developmental needs.

The root of this discrepancy may lie in the structural selection process. In the Spanish public healthcare system, leadership positions are frequently awarded based on clinical seniority or academic merit rather than managerial competency.¹⁶ This traditional model prioritizes the “medical expert” over the “leader”, often resulting in Department Heads who assume the role without specific training in people management or organizational behaviour.²⁶ Consequently, this lack of professionalization creates a vacuum of honest communication. In such a hierarchical culture, upward feedback is rare, and without structured mechanisms (like 360-degree evaluations), leaders remain unaware of their “blind spots” regarding interpersonal skills.^{20,26} This lack of self-awareness is not merely an administrative issue; it creates a dissonance where leaders believe they are fostering a supportive environment while the staff perceives neglect, potentially leading to organizational cynicism.^{6,10}

Interaction Frequency as a Marker of Leadership Quality

Our results identified a strong statistical association between the frequency of meetings and positive leadership ratings. Staff who interacted daily with their Heads rated them significantly higher in every dimension compared to those with sporadic contact. While our cross-sectional design cannot establish causality, meaning we cannot confirm if meetings cause better leadership or if better leaders simply choose to meet more often, these findings resonate with Allen and Rogelberg's theory of meeting science.²⁷

Frequent “huddles” or briefings likely serve as a proxy for a participatory leadership style, fostering psychological safety and ensuring goal alignment.²⁸ Regular interaction reduces information asymmetry, allowing the leader to address concerns before they escalate into conflicts. This supports the evidence on “Leadership Walkrounds,” which has demonstrated that the visible presence of leaders discussing safety issues with frontline staff is significantly associated with a better safety climate and lower burnout rates.²⁹

Conversely, the “Dysfunctional” cluster identified in our study was characterized by a distinct lack of interaction. This reinforces the notion that “absentee leadership”, being physically present but psychologically unavailable, is perceived as detrimental as “toxic leadership”.³⁰ In the high-pressure environment of anesthesiology, where workflows are dynamic and often critical, the physical unavailability of the leader is interpreted as a lack of support, eroding trust.

Competencies That Drive Team Endorsement

The regression analysis revealed that while technical competencies (such as research promotion) are valued, the strongest predictors for recommending a leader were “soft skills”: acting fairly, providing constructive feedback, and the ability to align the team. This supports the shift in medical leadership literature from a “heroic”⁶ leader model to a “servant” or “relational” leadership model.^{2,3}

The high predictive value of our model suggests that anesthesiologists view leadership holistically; they do not separate the “manager” from the “mentor.” A leader who fails to communicate effectively or act fairly is unlikely to be endorsed, regardless of their academic or clinical prestige.³¹ This finding is crucial for recruitment policies: traditionally, Heads of Service in Spain have been selected based on their hard curriculum vitae metrics. Our data suggests that “People Orientation” and “Communication Skills” should be weighted on par with technical expertise during the selection process to ensure team engagement.¹³

Impact on Patient Safety and Clinical Outcomes

Although this study did not directly measure clinical outcomes, the identified leadership deficiencies have theoretical implications for patient safety, a concern raised by recent literature.⁷ Effective leadership is a cornerstone of “Crisis Resource Management” (CRM) and non-technical skills (NTS) in anesthesia. The “Dysfunctional” and “Passive” leadership profiles (comprising nearly 50% of our sample) scored particularly low in communication and teamwork promotion.³² Importantly, clinical or safety outcomes were not directly assessed in this study. However, the observed deficiencies in communication and teamwork correspond to established non-technical skills frameworks in anesthesiology, which have been associated with safety culture and perioperative performance. Therefore, the potential impact on patient safety should be interpreted as theoretically inferred rather than empirically demonstrated within this dataset. In an operating room setting, a culture of poor communication and low psychological safety, fostered by a distant leader, can prevent staff from speaking up about safety threats or errors. Leaders who score low on “Teamwork” and “Decision Making” may inadvertently create siloed departments where standard operating procedures are not uniformly followed. Therefore, improving leadership competencies is not just an issue of staff satisfaction, but a potential lever for improving perioperative safety culture.

The Burden of the Hybrid Role

It is important to acknowledge the structural challenges faced by DH. In the Spanish system, these leaders are often “hybrid managers” who must maintain a full or partial clinical load while managing complex administrative tasks without protected time or administrative support.³³ The “Passive” leadership profile identified in our cluster analysis

(16.3%) may reflect leaders who are overwhelmed by clinical and bureaucratic demands rather than those who are inherently incompetent. This “role overload” can lead to a reactive leadership style, where the leader only interacts with the team to solve immediate crises rather than to strategize or mentor. As recently highlighted, ignoring the emotional toll of this position can drive leaders into isolation and burnout, diminishing their influence.⁹ Therefore, recognizing this structural barrier is essential; training programs must be accompanied by organizational changes that professionalize the management role and foster a shared leadership model to ensure sustainability.

Leadership Profiles, A Call for Intervention

The cluster analysis paints a concerning picture of the current state of leadership in the specialty. Only 22.3% of the profiles (High-Performance Leaders) were perceived as fully competent. Alarming, the largest cluster (32.7%) corresponded to “Dysfunctional Leaders,” characterized by low scores in all dimensions and minimal team interaction. This prevalence of suboptimal leadership profiles may have profound implications for staff burnout and retention.¹ If nearly a third of anesthesiologists perceive their leadership as deficient, the risk of “quiet quitting” and talent drain increases. These findings strongly advocate for the implementation of mandatory leadership training programs for current and aspiring DH, focusing on communication, conflict resolution, and emotional intelligence.^{14,34,35}

Strengths and Limitations

This study has notable strengths. To our knowledge, it is the first nationwide initiative to systematically evaluate leadership competencies within the specific context of Spanish anesthesiology, filling a significant gap in the literature. Unlike previous studies that rely solely on self-reports, our dual-cohort design allowed us to quantify the “perception gap” at a macro level, providing a critical baseline for future research. Furthermore, the application of unsupervised machine learning (hierarchical clustering) and logistic regression models offers a novel typology of leadership profiles, moving beyond simple descriptive statistics to identify complex behavioral patterns and predictors of team endorsement.

However, several limitations must be considered to interpret these findings appropriately. First, the cross-sectional design prevents causal inferences. Second, to prioritize participant anonymity and encourage honest responses in a close-knit professional community, we did not pair individual DH with their specific staff (dyadic analysis). Consequently, our “perception gap” reflects a comparison of cohorts rather than matched pairs. This design choice was deliberate to avoid the social desirability bias that often plagues internal hospital climate surveys.

Third, the response rate (10.8% for staff), while typical for voluntary online surveys, implies a potential selection bias; it is possible that staff with extreme opinions (either very satisfied or very dissatisfied) were more motivated to participate.³⁶ Finally, a limitation of this study is the use of an ad hoc questionnaire that did not undergo a formal psychometric validation process prior to data collection. Future studies should include formal psychometric validation of the instrument, including factor structure and construct validity analysis, to consolidate its use for national benchmarking and leadership development initiatives. Nevertheless, its content validity was substantially strengthened through a structured review by a multidisciplinary expert panel, comprising department heads, staff anesthesiologists, residents, nursing personnel, and an external management consultant. This approach is widely recognized as the essential foundation for content validity when no prior measures are available that are culturally and organizationally adapted to the specific context.³⁷ Therefore, although exploratory, the instrument demonstrated high internal consistency and appears methodologically sound for the study’s intended aims.

Conclusion

There is a widespread disconnect between the leadership self-concept of Anesthesiology Department Heads in Spain and the experience of their teams. This “perception gap,” compounded by the prevalence of passive and dysfunctional leadership profiles, underscores the need for systemic change. Interventions should extend beyond technical management training to include structured 360-degree feedback, professionalization of the management role with reduced clinical overload, and the development of relational competencies. Such structural reforms require institutional commitment from hospital administrations and professional societies to ensure protected managerial time, adequate administrative support, and sustainable implementation of leadership development and feedback mechanisms. Bridging this gap is not merely

a Human Resources issue but a clinical imperative to promote high-functioning teams, workforce sustainability, and, ultimately, patient safety.

Data Sharing Statement

The data presented in this study are available on request from the corresponding author. The data are not publicly available due to privacy and ethical restrictions aimed at protecting participant anonymity.

Ethics Approval Statement

The study protocol was approved by the Clinical Research Ethics Committee of the Valladolid East Health Area (Ref: PI-23-3392).

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Disclosure

The authors report no conflicts of interest in this work.

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