Journal of Economics and Business UBS
Vol. 15, No. 5, November 2026, pp. 1285-296
e-ISSN 2774-7042
DOI: https://doi.org/10.52644/0k5c8v46

Competency-Based Performance Management and Job Satisfaction of Anatomical Pathology Laboratory Technologists: A Qualitative Case Study in an Indonesian Regional Government Hospital

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Keywords:
anatomical pathology; competency-based performance management; job satisfaction; medical laboratory technologist; public hospital; qualitative case study

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Abstract

Anatomical pathology laboratory technologists contribute to diagnostic quality through specialized technical procedures; however, conventional civil service performance appraisals may inadequately capture the competencies required for their roles. This study explored job satisfaction among anatomical pathology laboratory technologists at RSD Sidawangi, Indonesia, identified factors influencing their professional experiences, and developed strategies for competency-based performance management. An exploratory qualitative single-case study was conducted with 15 informants, comprising 12 laboratory technologists, two supervisors, and one human resources administrator. Data were collected through semistructured interviews, a focus group discussion, and document review and were analyzed using thematic analysis combining deductive and inductive approaches. The findings revealed that technologists valued their contributions to diagnostic services and the support provided by pathologists but expressed dissatisfaction with generic performance appraisal criteria, limited opportunities for structured professional training, and inadequate recognition of specialized responsibilities and occupational hazards. Reliance on informal learning enabled technologists to maintain their technical competencies but placed considerable responsibility for professional development on individual staff members. Furthermore, performance appraisal criteria emphasizing attendance and discipline provided limited opportunities for supervisors to deliver competency-specific feedback or identify professional training needs. Based on these findings, the study proposed a role-specific competency-based performance appraisal system integrated with structured training, formal mentoring, and professional recognition, alongside improvements in occupational safety and workforce development planning. Future longitudinal research should evaluate the feasibility and implementation of these strategies and examine their associations with job satisfaction.

INTRODUCTION

Job satisfaction among healthcare workers is a recognized determinant of service quality, staff retention, and patient safety (Alrawahi et al., 2024; Kitsios & Kamariotou, 2021). In hospital settings, human resource management practices are increasingly regarded not merely as administrative functions but as strategic mechanisms linking employee competencies to the quality of patient care (Purwadi et al., 2024). Organizational culture and employee treatment also influence organizational commitment and turnover intentions, thereby affecting the continuity of specialized healthcare services (Perdana et al., 2024).

Anatomical pathology laboratories play a critical role in establishing definitive diagnoses, particularly for malignant diseases. Indonesia recorded 396,914 new cancer cases in 2020 (International Agency for Research on Cancer [IARC], 2020), highlighting the importance of reliable histopathological diagnostic services. Anatomical pathology medical laboratory technologists (Ahli Teknologi Laboratorium Medik Patologi Anatomi, ATLM-PA) perform essential procedures, including specimen accessioning, assisting with gross examination, tissue processing, embedding, microtomy, and staining. These procedures directly influence the quality of histological preparations examined by pathologists, making technical competency essential for diagnostic accuracy (omer Al-Khateeb et al., 2024; SEZGİN, 2023). Evidence from other healthcare professions similarly indicates that healthcare workers' knowledge, attitudes, and behaviors influence the implementation of patient safety standards (Wijaya et al., 2024).

Previous research has identified substantial job satisfaction challenges among medical laboratory professionals, including inadequate professional recognition, limited career advancement opportunities, insufficient transparency in performance appraisal, and excessive workloads (Al-Qathmi, 2021; Alrawahi & Altouby, 2019). Heavy workloads and occupational burnout can further undermine employee motivation and performance (Kurniawati et al., 2023) and are associated with reduced quality of work life (Emanuela et al., 2024).

Competency-based performance management provides a potential approach to addressing these challenges by integrating the knowledge, skills, and behaviors required for effective job performance into performance planning, appraisal, feedback, and professional development (Shet et al., 2019; Spencer & Spencer, 1993). Performance appraisals that recognize employee strengths can enhance perceived supervisor support and motivation for professional improvement (van Woerkom & Kroon, 2020), while structured training and performance assessment can contribute to employee achievement (Pratiwi et al., 2024). However, performance appraisal practices in Indonesia's public sector frequently emphasize general behavioral indicators, including discipline and work ethic (Khoiri et al., 2022), which may inadequately reflect the specialized technical competencies required in anatomical pathology laboratories.

Three research gaps informed this study. First, existing job satisfaction research has primarily focused on physicians, nurses, or medical laboratory personnel as a broader professional group, with limited attention to anatomical pathology laboratory technologists. Second, previous studies have predominantly employed quantitative approaches, providing limited insight into technologists' experiences of performance appraisal, professional recognition, and competency development. Third, empirical evidence remains limited regarding these issues in Indonesian regional government hospitals, where budgetary constraints, civil service regulations, and staffing policies may restrict managerial flexibility. Furthermore, effective hospital improvement strategies require systematic assessments of internal and external organizational conditions, consistent with established strategic management frameworks (Kalavani et al., 2024; Wheelen & Hunger, 2012) and their application in Indonesian healthcare institutions (Margaretna et al., 2025; Tiurma Augustina et al., 2023).

This study was conducted at the Anatomical Pathology Installation of RSD Sidawangi, a provincial government-owned pulmonary specialty hospital located in Cirebon Regency, West Java, Indonesia. A preliminary survey conducted in January 2026 among nine active anatomical pathology laboratory technologists, using an adapted short form of the Minnesota Satisfaction Questionnaire (Weiss et al., 1967), indicated that 55.6% of respondents reported low-to-moderate job satisfaction. The lowest mean satisfaction scores were recorded for performance appraisal (2.1 out of 5.0) and competency development (2.3 out of 5.0). Personnel

records further indicated an average annual technologist turnover rate of approximately 15% over the preceding three years, with no documented individualized competency development plans. These preliminary findings highlighted potential deficiencies in existing performance management and professional development practices. Accordingly, this study aimed to (1) explore job satisfaction among anatomical pathology medical laboratory technologists; (2) identify individual, organizational, and systemic factors influencing their job satisfaction; (3) examine the strengths and limitations of existing competency-based performance management practices; and (4) formulate feasible, context-specific strategies to improve performance management and professional development within the hospital.

METHOD

Design and setting

This study employed an exploratory qualitative single-case study design grounded in social constructivism (Yin, 2018) to examine anatomical pathology laboratory technologists' experiences and perceptions of performance management within their organizational context. The Anatomical Pathology Installation of RSD Sidawangi was purposively selected based on its active diagnostic services, preliminary evidence of employee dissatisfaction, and institutional support from hospital management.

Informants

Informants were selected through purposive sampling combined with snowball sampling until no substantially new themes emerged. Fifteen informants took part: 12 ATLM-PA as primary informants, two supervisors (the head of the medical support section and a senior laboratory officer) for triangulation, and one human resource administrator as a policy context informant. Inclusion criteria for technologists were civil servant (PNS) or government contract (PPPK) status, at least one year of service, assignment in tissue processing to staining, a minimum diploma in medical laboratory technology, and voluntary written consent. Table 1 summarises their characteristics.

Table 1. Characteristics of informants (n = 15)

Characteristic	Category	n (%)
Informant group	ATLM-PA (primary)	12 (80.0)
	Supervisor (triangulation)	2 (13.3)
	Human resource administrator (context)	1 (6.7)
Employment status	Civil servant (PNS)	11 (73.3)
	Government contract employee (PPPK)	4 (26.7)
Length of service	< 3 years	3 (20.0)
	3–10 years	4 (26.7)
	11–20 years	4 (26.7)
	> 20 years	4 (26.7)
Education	Diploma III	10 (66.7)
	Diploma IV / Applied Bachelor	2 (13.3)
	Bachelor	1 (6.7)
	Master	2 (13.3)

Data collection

Data were collected between 11 June and 3 July 2026. Face-to-face semi-structured in-depth interviews lasting 60–90 minutes were conducted at the hospital using a guide covering five domains: current job satisfaction, influencing factors, the performance appraisal system,

competency development, and expected strategies. All interviews were audio-recorded with consent. One focus group with three senior technologists and two supervisors (90 minutes) was used to validate preliminary findings, and documents were reviewed, including the appraisal form, human resource policies, training records and installation procedures.

Data analysis

Recordings were transcribed verbatim with automatic speech recognition and verified manually against the audio, producing a corpus of about 48,000 words. Analysis followed thematic analysis (Braun & Clarke, 2006) using a hybrid deductive–inductive strategy in NVivo 14. Five a priori parent nodes reflected the research questions (job satisfaction, influencing factors, performance appraisal system, competency development, and strategies and expectations), while in vivo codes and new categories were allowed to emerge from the data. A meaning unit could be coded to more than one node. Word frequency, text search and matrix coding queries by informant group were used to identify dominant issues and to compare perspectives. More than 60 analytic memos documented coding decisions. Themes were classified as convergent when confirmed across informant groups and divergent when perspectives differed, and the resulting themes were then mapped onto the strategic management stages in Table 1.

Trustworthiness and ethics

Trustworthiness followed Lincoln and Guba's (1985) criteria. Credibility was supported by source and method triangulation and by member checking with five key informants; transferability by thick description of the context; and dependability and confirmability by an audit trail and verbatim quotations. Because the first author is an anatomical pathologist at the study hospital, a reflexive journal was kept and informants were assured that participation would not affect their employment. The study was approved by [nama komite etik, nomor, dan tanggal persetujuan etik]. All informants gave written informed consent, and pseudonymous codes are used throughout (ATLM-01 to ATLM-12, SUP-01 and SUP-02, MAN-01). Quotations were translated from Indonesian by the authors.

RESULTS AND DISCUSSION

Overview of the coded data

The analysis produced 356 coding references across the five dimensions (Table 2). The job satisfaction dimension attracted the most references, followed by influencing factors. The most frequent words in the corpus were pelatihan (training, 312), penilaian (appraisal, 287), kompetensi (competence, 241) and belum (not yet, 238); the prominence of "not yet" reflected a pervasive narrative of absence.

Table 2. Distribution of coding references by dimension and informant group

Dimension	ATLM-PA (n = 12)	Supervisors (n = 2)	HR (n = 1)	Total
Job satisfaction	72	16	8	96
Influencing factors	54	18	6	78
Performance appraisal system	44	12	6	62
Competency development	46	14	4	64
Strategies and expectations	34	16	6	56
Total	250	76	30	356

Job satisfaction of ATLM-PA (RQ1)

Job satisfaction was suboptimal in all five aspects examined (Table 3).

Table 3. Job satisfaction by aspect

Aspect	Pattern	Key indicators
Performance appraisal	Convergent (15/15)	Generic civil servant instrument without anatomical pathology parameters; no constructive feedback
Competency development	Convergent (14/15)	Sporadic, vendor-dependent training; immunohistochemistry and special techniques not trained; no onboarding
Professional recognition	Convergent (11/15)	No formal recognition; remuneration not differentiated by occupational risk
Career path	Convergent (10/15)	No competency map per functional level; Ahli Pertama level not differentiated
Physical working conditions	Divergent (staff vs supervisors)	Inadequate grossing station, ventilation and ageing microtomes reported only by field staff

Performance appraisal was the only aspect on which every informant agreed. Technologists explained that the instrument did not distinguish careful technical work from minimal effort:

"The current assessment criteria have nothing at all to do with anatomical pathology technical competence. The system does not distinguish analysts who work to a high standard from those who just get by." (ATLM-04 and ATLM-09)

The human resource administrator confirmed that this was a matter of formal policy rather than individual perception: the instrument assesses service orientation, integrity, commitment, discipline and cooperation, with no technical competence for anatomical pathology. Technologists also identified objective parameters that could be used:

"Slide quality can be measured objectively: consistency of thickness, quality of staining, number of recuts. That should be part of the appraisal." (ATLM-05)

For competency development, a senior technologist recalled only two technical trainings in ten years, both funded by equipment vendors, while new technologists described having to learn mostly from seniors without a curriculum (ATLM-08, ATLM-11). Recognition was undermined by remuneration that did not reflect exposure to hazardous chemicals. On career paths, informants described resigned satisfaction, captured in the in vivo expression "just about enough" (cukup-cukupan saja): expectations had been lowered rather than met. Physical conditions showed the clearest divergence. Complaints about the grossing station and exhaust system, summarised in the phrase "the formalin smell is still strong", came from field staff but were not raised by supervisors, despite formaldehyde being classified as carcinogenic to humans (IARC, 2012).

Factors shaping job satisfaction (RQ2)

Factors operated simultaneously at three levels. At the individual level, all 12 technologists identified gaps in technical readiness as their main source of pressure. Without formal training, staff compensated through self-directed adaptation. This kept output stable but created a hidden cost that did not appear in productivity figures: variation in technique, fatigue, dependence on particular individuals and the loss of knowledge when experienced staff left. Informants with experience in other units appeared more resilient than those without such comparisons.

At the organisational level, 13 of 15 informants reported that aspirations were received but not followed up, 10 noted the absence of a formal channel for technical proposals, and 14 described weak support for staff development. Senior technologists carried an unrecognised mentoring burden, and pre-analytical coordination with clinical units lacked binding procedures.

At the systemic level, 12 informants pointed to budgeting and the annual training needs analysis (TNA) as unfavourable to small units, a view confirmed by the human resource administrator:

"Training proposals have to go through the annual TNA. But for ATLM-PA they often do not become a priority because the unit is small. The training budget is competitive, and larger units are better at advocating for their needs." (MAN-01)

Recruitment and placement of civil servants were based on administrative rather than technical criteria, and contract (PPPK) employees described uncertainty over their status as an additional stressor.

Current performance management practice (RQ3)

The current practice did not yet reflect competency-based principles. Table 4 summarises its four strengths and five interrelated weaknesses.

Table 4. Strengths and weaknesses of current performance management practice

Strengths	Weaknesses
Supportive technologist–pathologist relationship as social capital	Generic appraisal without anatomical pathology parameters (15/15)
Concrete managerial vision of supervisors	No post-appraisal feedback (13/15)
Intrinsic professional motivation of senior staff	No specific TNA or onboarding programme (14/15)
Basic infrastructure in place (personal protective equipment, general procedures, specimen flow)	No competency map per functional level
	Ahli Pertama level not differentiated from lower levels

Formulated strategies (RQ4)

Five strategies were formulated by matching each weakness with informants' expectations, existing strengths and feasibility within a government hospital (Table 5). They form an integrated package in which the appraisal instrument serves as the foundation for the others.

Table 5. Alternative strategies for competency-based performance management

Strategy	Main components	Empirical basis	Priority
S1. Competency-based appraisal instrument	Checklists for accessioning, grossing, sectioning and staining; differentiated by functional level; developed jointly by pathologist, section head and technologists	Convergent 15/15; policy confirmed by MAN-01	Very high (foundation)
S2. Structured competency development	Internal mentoring by the pathologist and external training through a dedicated TNA route; onboarding curriculum with checkpoints at months 3 and 6	Convergent 14/15; TNA barrier	High
S3. Pathologist as change agent	Formal roles as technical assessor, institutional advocate and scheduled mentor	Technologists and supervisors	High (lowest cost)
S4. Facilities and non-financial recognition	Grossing station, ventilation, microtome renewal; internal competency certificates; involvement in procedure revision	Divergent physical conditions; recognition 11/15	Medium–high

Strategy	Main components	Empirical basis	Priority
S5. Reform of TNA and staffing policy	Dedicated TNA route for small technical units; competency-based placement; transparent PPPK career roadmap	Supervisors and MAN-01	Medium term

Motivators rather than pay

The strongest dissatisfaction concerned appraisal, development and recognition, which are motivators in the framework of Herzberg et al. (1959), rather than pay alone. This mirrors findings among laboratory technologists in Saudi Arabia and Oman, where career development, reward systems and appraisal transparency were the least satisfying aspects (Al-Qathmi, 2021; Alrawahi & Altouby, 2019). Recognition matters beyond satisfaction: in an Indonesian clinic, employee rewards were associated with improvements in quality and patient safety (Pranudia et al., 2024), and job satisfaction is linked to performance more broadly (Davidescu et al., 2020). The remuneration complaints found here were specific to unrecognised occupational risk, which supports non-financial recognition and risk differentiation (S4) as feasible responses within civil service pay rules.

Appraisal, expectancy and equity

A generic instrument weakens all three elements of Vroom's (1964) model: technologists cannot see how technical effort translates into a better rating, ratings are not linked to development, and outcomes are not meaningful to them. It also violates equity (Adams, 1965), since careful and minimal work receive the same assessment. The instrument's emphasis on attendance and discipline is consistent with how civil servant performance is commonly operationalised (Khoiri et al., 2022), but it leaves the technical core of the job invisible. A competency-based supplement that adds observable parameters such as section thickness, staining quality and recut rates (S1) is consistent with evidence that competency-based systems improve performance and organisational effectiveness (Shet et al., 2019), that training and performance assessment support achievement (Pratiwi et al., 2024), and that strengths-based appraisal increases motivation to improve (van Woerkom & Kroon, 2020).

The hidden cost of self-directed adaptation

The hidden cost identified here extends the literature by showing how informal adaptation can mask a structural gap. Because technical competence in anatomical pathology is closely tied to diagnostic quality, relying on informal learning carries a safety risk, in line with evidence that staff knowledge, attitudes and behaviour shape the implementation of patient safety targets (Wijaya et al., 2024). The pressure of compensating for missing training also adds to workload, which is known to affect burnout, motivation and performance (Emanuela et al., 2024; Kurniawati et al., 2023). Structured development with onboarding (S2) converts this informal burden into a planned and recognised process.

Working conditions and divergent perceptions

The divergence between field staff and supervisors on physical conditions suggests that occupational risks do not reach decision-makers. Work environment is associated with occupational stress (Sahsabilla et al., 2022), and investment in facilities and infrastructure has been shown to improve the quality of health services (Dewi et al., 2025). Framing the grossing station and ventilation as a mandatory occupational safety requirement, given the carcinogenicity of formaldehyde (IARC, 2012), strengthens the case for S4 in budget negotiations.

Organisational and systemic levers

The simultaneous operation of individual, organisational and systemic factors supports the argument that satisfaction requires multi-level intervention (Paais & Pattiruhu, 2020). The gap between aspirations and follow-up, together with weak pre-analytical coordination, points

to the value of formal communication channels and better integration between departments (Rahmayani et al., 2024). The supportive relationship with the pathologist is an asset: leadership that promotes development shapes the hospital environment (Juliana et al., 2024), which makes formalising the pathologist's role (S3) a low-cost lever. Systemically, competitive training budgets and fixed cost structures limit what small units can obtain (Kasmanto et al., 2025), so a dedicated TNA route and transparent staffing roadmap (S5) require advocacy beyond the installation. Addressing these issues may also strengthen loyalty and reduce turnover (Perdana et al., 2024).

A strategic management perspective

Interpreted through Wheelen and Hunger's (2012) process, RQ1–RQ3 constitute an environmental scan of the installation, comparable to the internal–external analyses used to formulate service strategies in Indonesian hospitals and primary care (Margaretna et al., 2025; Tiurma Augustina et al., 2023), and consistent with the role of environmental scanning in evidence-based health decision-making (Kalavani et al., 2024). The five strategies represent the formulation stage. Table 6 completes the cycle by proposing implementation actors and evaluation indicators, so that management can monitor progress if the recommendations are adopted.

Table 6. Proposed implementation and evaluation indicators

Strategy	Lead actors	Indicators for evaluation and control
S1	Pathologist, section head, senior technologists	Instrument drafted and piloted in one appraisal cycle; proportion of technologists assessed with it
S2	Pathologist, HR unit	Onboarding checkpoints completed at months 3 and 6; number of TNA-based trainings per year
S3	Pathologist, hospital management	Quarterly technical forums held; written responses to staff proposals within an agreed time
S4	Hospital management, occupational safety committee	Grossing station and ventilation procured; internal competency certificates issued
S5	HR unit, provincial authority	Dedicated TNA route adopted; PPPK roadmap communicated
Overall	Hospital management	Repeated job satisfaction measurement; turnover; recut and slide rejection rates

Practical implications

Hospital management can begin with actions that require little additional budget: forming a cross-professional team to draft an internal technical supplement to the civil service appraisal, establishing scheduled mentoring and onboarding checkpoints, and holding quarterly technical forums with written follow-up. Investments in occupational safety and changes to training and staffing policy can be pursued through the next budget cycle and in coordination with the provincial government. Professional associations may use these findings to develop a national competency framework for anatomical pathology technologists by functional level.

Limitations and future research

This study did not implement or test the strategies, and its scope was limited to competency-based performance management rather than the hospital's overall human resource system. Data came from a single installation, so findings are transferable analytically rather than generalisable statistically. Pathologists were not interviewed as a separate group, part of some recordings was of limited quality, social desirability may have affected responses on sensitive topics, particularly among contract staff, and coding was performed by one researcher without formal inter-rater reliability; these risks were mitigated through triangulation, member checking and an audit trail. Future studies should use multi-site designs, include pathologists

as informants, develop and validate a competency-based appraisal instrument, and evaluate implementation longitudinally for at least 12 months.

CONCLUSION

This qualitative case study conducted at RSD Sidawangi revealed that anatomical pathology laboratory technologists valued their contributions to diagnostic services and the professional support provided by pathologists. The primary sources of job dissatisfaction included generic civil service performance appraisals that inadequately reflected technical competencies, limited access to structured professional development, and insufficient recognition of specialized responsibilities and occupational hazards. Technologists relied primarily on informal learning to maintain their technical competencies, placing substantial responsibility for professional development on individual staff members. The findings highlighted the need for a role-specific, competency-based performance appraisal system that integrated competency-focused feedback, structured training, formal mentoring, and professional recognition. Improvements in occupational safety, workforce planning, and structured competency development were also recommended to address broader organizational constraints and support sustainable laboratory service quality.

Future research should include comparative studies across anatomical pathology laboratories in regional government hospitals, incorporating pathologists as a distinct participant group to examine the influence of supervisory practices and institutional resources on technologists' professional experiences. Further studies should develop and validate a role-specific competency assessment instrument incorporating measurable technical performance indicators, including histological section thickness, staining quality, and section recut rates. Longitudinal research incorporating baseline assessments and a minimum 12-month follow-up period should evaluate the feasibility of implementing the proposed performance management strategies within existing civil service regulations. Such research should also examine their associations with perceived appraisal fairness, job satisfaction, employee retention, and laboratory quality indicators.

FUNDING

The research and preparation of this article was carried out independently without funding support from external parties.

CONFLICT OF INTEREST

The author states that there are no conflicts of interest, whether personal, commercial, or financial, that can affect the implementation and results of this study.

AUTHOR CONTRIBUTION

Alendra Chakramurty, Purwadhi, Mira Veranita contributed to research design, data collection and processing, system development, result analysis, and article manuscript preparation.

GENERATIVE ARTIFICIAL INTELLIGENCE USAGE STATEMENT

In the process of compiling this article, the author uses generative artificial intelligence (AI) as a tool in language refinement, writing structure, and grammar improvement. The use of AI is carried out on a limited basis and remains under the supervision of the author. All data, analysis, interpretation, and scientific substance in this article have been checked and verified by the author. The author is solely responsible for the accuracy, authenticity, and final content of the manuscript.

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