

Evaluation of Doctors' Perceptions in Optimizing the Use of Electronic Medical Records (EMR) through the Technology Acceptance Model (TAM) Approach

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Abstract

Electronic medical record (EMR) is a key component of Indonesia's digital health transformation, yet physicians' acceptance of EMR is rarely examined once use becomes mandatory. This study evaluated physicians' perceptions of EMR use at a private type C hospital in Pontianak that adopted the Medinfrs EMR in 2015 and upgraded it in 2024. Four constructs of the Technology Acceptance Model (TAM) were examined: perceived ease of use, perceived usefulness, attitude toward using, and behavioral intention. A descriptive qualitative design was applied. Ten physicians were interviewed in depth until data saturation, and participant observation and document review supported triangulation. Perceptions were generally positive: initial adaptation was quick, all informants accepted EMR and intended to keep using it, and most judged it faster and more systematic than paper records. However, eight of ten informants reported recurring system-control problems, six of ten reported no productivity gain, and willingness to adapt to future updates was often conditional on training. Meanwhile, the most substantial finding is the gap between these positive perceptions and actual documentation completeness, that mandatory patient assessments in the first semester of 2026 were still mostly incomplete. Under mandatory use, positive attitudes and intentions did not guarantee complete documentation, so optimization should target system stability and time burden.

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1. INTRODUCTION

Digital transformation is a strategic priority in the health sector, driven by the need to strengthen patient-centered care, build integrated health information systems, and reduce medical errors that arise from incomplete, illegible, or poorly stored manual documentation [1]. Digital transformation is also reported to improve access to services, information management, and patient satisfaction [2]. Medical record is the core document of this process, and a complete, accurate, and accessible record is a prerequisite for continuity of care, coordination among professionals, and sound clinical decisions. The electronic medical record (EMR) has therefore become a central component of health transformation agendas, including in Indonesia.

In Indonesia, the Ministry of Health treats EMR as part of the sixth pillar of health transformation and is building the SATUSEHAT platform to connect patient records across facilities [3]. Ministry of Health Regulation No. 24 of 2022 requires health facilities to

operate EMR [4], and a circular sets administrative sanctions for non-compliance [5]. Yet the national Digital Maturity Index remains in the intermediate category [3], which suggests that regulation and infrastructure do not automatically produce acceptance by health workers. Studies of Indonesian hospitals indicate that EMR success depends more on user acceptance than on technological sophistication: perceived ease of use and usefulness shaped users' interest in a hospital information system [6], and were the main predictors of attitude and intention toward EMR [7]. Reported barriers include limited human resources and a digital divide [8], low EMR knowledge caused by a lack of training [9], and, at a community health center in Banten, unstable connectivity and the absence of standard operating procedures [10].

Physicians are key EMR users, and the completeness of their entries affects quality of care, continuity, and the legal standing of the record. At Mitra Medika Pontianak Hospital, a private type C hospital in West Kalimantan [11], a preliminary observation in July 2025 found that 47.1% of 5,032 patient files were incomplete, and 85% of these gaps were attributable to physicians' notes. Similar problems are reported elsewhere: only 37.4% of SOAP entries in outpatient EMR were complete in one study [12], and a TAM-based evaluation found a gap between system readiness and users' behavioral readiness [13]. The hospital has used EMR since 2015 and upgraded it (Medinfras V2) in July 2024 [11], but physicians' acceptance had never been evaluated.

The Technology Acceptance Model (TAM) [14], [15] explains acceptance through perceived usefulness and perceived ease of use, which shape attitude toward using, behavioral intention, and actual use. TAM has been applied to EMR in several Indonesian hospitals [6], [16], [17], [13], [18], [19], and a review concluded that positive attitudes, strong intentions, and management support contribute to actual EMR use [20]. Most of these studies, however, are quantitative, survey mixed groups of staff, and were conducted outside West Kalimantan; they say little about why perceptions arise. This study therefore evaluates physicians' perceptions of EMR at Mitra Medika Pontianak Hospital through four TAM constructs (perceived ease of use, perceived usefulness, attitude toward using, and behavioral intention), using a qualitative design and approaching actual use through documentation completeness. To the authors' knowledge, it is the first such evaluation of physicians at this hospital and in Pontianak, and it examines how mandatory use shapes the link between perception, intention, and documentation behavior.

2. LITERATURE REVIEW

2.1.EMR, Documentation Completeness, and Implementation Barriers

A health record contains all information about a patient, the illness, and treatment, recorded in the order in which care occurs [21]. Operationally, it documents who delivered which care, why, when, and how [22]. Indonesian regulation specifies its minimum content, including anamnesis, examinations, diagnosis, management plan, and the provider's signature [4], and the record serves treatment, quality improvement, research, financing, statistics, and legal evidence [23]. An EMR is distinguished from digitized paper by integrating data from multiple sources, capturing data at the point of care, and supporting decision making [1]. Compared with paper, EMR allows standardized entry formats, automatic alerts, and data recapitulation [24]. Completeness is a quality indicator, and incomplete records weaken the legal position of the facility and the physician in a dispute [25]. Completeness of physicians' entries therefore reflects not only compliance but also their acceptance of the recording system.

The EMR obligation applies to all hospital classes [4], and the Health Law of 2023 reinforces the integrated national health information system [26]. Hence a type C hospital carries the same duty as higher classes with more limited resources [27]. EMR can improve workflow efficiency when it is accepted and used consistently [28], and physicians value rapid data access and coordination, although documentation time remains a prominent complaint [29]. Reported barriers include inadequate training and computer skills [9], staff resistance that calls for planned change management [30], dependence on devices and access security with a risk of unauthorized access when training is insufficient [31], and, in an integrative review, additional documentation workload, unfriendly interfaces, connectivity disruptions, and data security concerns, with organizational support and technical mentoring as facilitators [32]. Determinants of hospital EMR success include system quality, top management support, and user readiness [33]. Qualitative evaluations by Indonesian hospital-management researchers agree: at a community health center, EMR sped up service and reduced administrative errors, but the lack of staff with medical-record education, unstable connectivity, and the absence of SOPs limited its benefits [10], and at a maternal and child hospital EMR improved efficiency, accuracy, and patient-safety management, with training, cost analysis, and infrastructure stressed as priorities [34].

2.2.The Technology Acceptance Model

TAM adapts the Theory of Reasoned Action [35], which the Theory of Planned Behavior extends with perceived behavioral control [36], to information technology [14], [15], [37]. Perceived usefulness is the belief that using a system will enhance job performance, and perceived ease of use is the belief that using it will be free of effort [15]. Together they shape attitude toward using, which influences behavioral intention and, ultimately, actual use; external factors such as training and organizational support act through these two perceptions [15], [38]. TAM has been extended into TAM 2 [39], TAM 3 [40], and UTAUT [41], but a systematic review shows that TAM remains the most used model for health information technology [42]. Classic TAM was chosen for three reasons: its parsimony suits a qualitative study that maps perceptions construct by construct; EMR use is mandatory, which makes the voluntariness moderator of UTAUT less relevant; and most Indonesian EMR studies use TAM, allowing comparison [6], [16], [18], [19], [13]. Following the indicators summarized by Pratama *et al.* [43], ease of use was explored through six indicators (easy to learn, controllable, clear and understandable, flexible, easy to become skillful, easy to use), usefulness through five (work more quickly, job performance, productivity, effectiveness, useful), attitude through acceptance or rejection, change over time, and comparison with paper, and intention through continued use and adaptation to future updates.

Reviews of TAM in healthcare find perceived usefulness and ease of use to be the most consistent determinants of EMR intention and use, with organizational factors acting mainly through these perceptions [44], [45], and Indonesian studies report good acceptance of usefulness but variable ease of use [17], [19]. TAM is usually applied quantitatively, but it has been used as a sensitizing framework in qualitative EMR evaluations [13], [46]. Its recognized limitations are that it treats organizational context as external variables [42], relies on self-reported use, and was developed for voluntary adoption. Under mandatory use, intention no longer decides whether a system is used but how well, for example how completely entries are made. This study therefore reads the TAM constructs in terms of the quality of use (Figure 1).

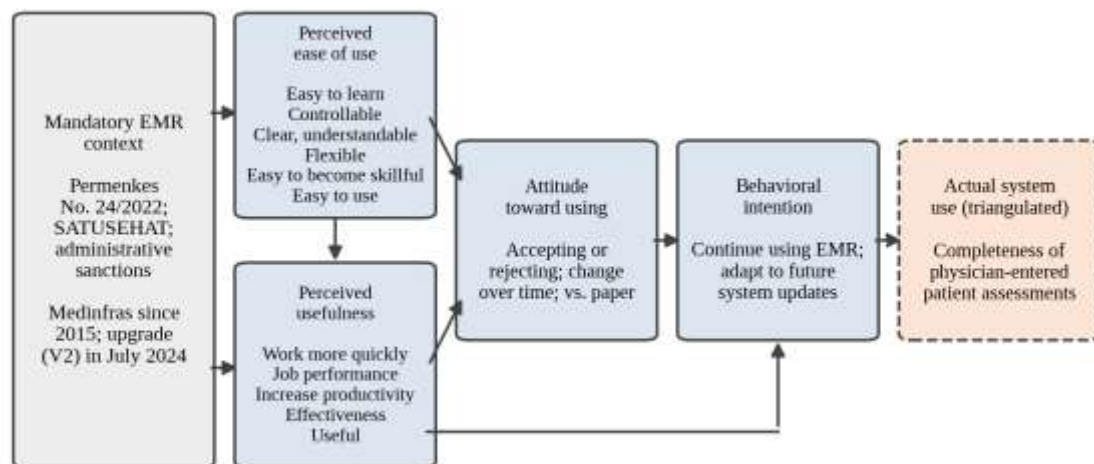


Figure 1. Conceptual framework of the study, adapted from TAM. Actual use is approached through document review of documentation completeness, not self-report.

2.3.Organizational Behavior and the Research Gap

User acceptance is inseparable from organizational behavior [38]. A hospital is a professional organization with dual managerial and clinical authority, so management policy is not automatically followed without involvement and support; management support has been identified as a determinant of EMR adoption [20], [33]. In a lung hospital in Karawang, a hospital management information system and organizational culture together explained 62.2% of employee performance [47], and competence and motivation have likewise been examined as determinants of health worker performance [48]. For physicians, limited consultation time makes every extra click an opportunity cost, and workflow misfit mainly erodes perceived ease of use [29], [32]; system upgrades are critical points at which habits must be re-adapted [30]. Prior TAM-based EMR studies in Indonesia are mostly quantitative, sample mixed groups of staff, and none had focused on physicians or on West Kalimantan. These methodological, subject, and locational gaps (Table 1) form the basis of this study's novelty.

Table 1. TAM-based evaluations of EMR and hospital information systems in Indonesia.

Study	Setting	Design	Main findings
Husnaeni and Susanti [6]	Hermima Arcamanik Hospital, Bandung	Quantitative; questionnaire, 30 employees	Ease of use 86.76%, usefulness 86.19%, and acceptance 84.19%; employees accepted the system well
Intansari <i>et al.</i> [16]	Hospital X, Surabaya	Quantitative; bivariate correlation	Significant positive relations among perceived ease of use, usefulness, attitude, and actual use of EMR
Jaya <i>et al.</i> [17]	Panti Waluya Hospital, Malang (outpatient)	Quantitative descriptive; stratified random sampling	Usefulness 88% (good), ease of use 62% (fair), intention 86% (good), actual use 81% (good)

Study	Setting	Design	Main findings
Yadita and Rezal [19]	Atma Jaya Hospital, North Jakarta (inpatient, Medinfrass)	Quantitative descriptive	Usefulness good for 84.4% of 54 respondents; ease of use good for 60.9% of 39 (39.1% not good); attitude good for 93.8% of 60
Hayati <i>et al.</i> [18]	RS Tk. II dr. Soepraoen (outpatient)	Quantitative descriptive; 61 respondents	All TAM aspects positive (mean 100%); user acceptance of outpatient EMR judged good
Buono [13]	Pandan Arang Regional Hospital, Boyolali (outpatient)	Qualitative descriptive; interviews and observation	EMR generally met expectations regarding benefit, ease, and users' interest and involvement
Chitrayuni <i>et al.</i> [10]	Binuang Community Health Center, Serang	Qualitative single case; six informants; TAM and HOT-Fit	Easy to operate, but unstable internet, no SOP, and no staff with medical-record education; EMR sped up service and reduced errors

3. RESEARCH METHOD

3.1.Design, Setting, and Participants

This study used a descriptive qualitative, single-site case study design, which seeks to understand phenomena experienced by subjects and describe them systematically and objectively [49]. It was conducted at Mitra Medika Pontianak Hospital, where the first author works: a private general hospital established in 2013, designated type C in 2015, with 15 full-time general practitioners and 60 specialists [11]. The Medinfrass EMR has been used since 2015 and was upgraded (Medinfrass V2) in July 2024. The study was scheduled between August 2025 and January 2026. Participants were general practitioners, general dentists, and specialists selected by purposive sampling. Inclusion criteria were active service at the hospital, at least one year of service, independent EMR entry without delegation, and willingness to participate; physicians on leave were excluded. Eight to twelve participants from the emergency, inpatient, and outpatient units were planned, and the final number was set by data saturation.

3.2.Data Collection and Analysis

Data were collected through semi-structured in-depth interviews using a guide developed from the four TAM constructs [15]: two opening questions, six on ease of use, five on usefulness, three on attitude, two on intention, and a closing question on suggestions to management, each with probes. Interviews were planned for 30 to 60 minutes, audio-recorded with consent, and closed with a short member check. Participant observation and a review of the completeness of patient assessments that physicians must fill in in the EMR, obtained from the Medical Records Unit for the first semester of 2026 [50], served as triangulation sources. Analysis followed six steps: identification, categorization, codification, reduction, pattern mapping, and synthesis. Findings are presented as a thematic narrative by TAM construct with informants' statements translated from Indonesian; counts of informants (for example, eight of ten) show how widely a pattern was shared and are not statistical estimates.

3.3.Trustworthiness and Ethics

Trustworthiness followed Sugiyono's four criteria [51]: credibility through source triangulation and member checking, dependability and confirmability through an audit trail, and transferability left to readers. Ethical approval was obtained from the Research Ethics Committee of Adhirajasa Reswara Sanjaya University (approval number: 2025-UKARS-001), and the hospital granted research permission. Participants gave informed consent, agreed to audio recording, and were identified only by codes (R1 to R10).

4. RESULTS AND DISCUSSION

4.1.Results

4.1.1.Characteristics of informants

Interviews stopped at the tenth informant after data saturation. The informants were six men and four women aged 26 to 42 years (mean 33.5) with 1 to 7 years of service (mean about 4 years 5 months): one general dentist, six general practitioners, and three specialists (Table 2). Seven informants (R3, R4, R6 to R10) had experienced the July 2024 upgrade transition; three (R1, R2, R5) joined around or after it.

Table 2. Characteristics of informants.

Code	Sex	Age (years)	Length of service	Role or specialty
R1	Male	26	1 year 4 months	General dentist
R2	Female	32	1 year	Specialist in neurology (full-time)
R3	Female	35	6 years	General practitioner (full-time)
R4	Male	40	7 years	Specialist in internal medicine (full-time)
R5	Male	27	1 year 6 months	General practitioner (full-time)
R6	Female	35	7 years	General practitioner (full-time)
R7	Female	33	6 years	General practitioner (full-time)
R8	Male	35	7 years	General practitioner (full-time)
R9	Male	30	3 years	General practitioner (full-time)
R10	Male	42	4 years	Specialist in pulmonology (full-time)

4.1.2.Perceived ease of use

Most informants reported short adaptation, from 30 minutes by trial and error (R4) and less than a day (R9) to about a week (R1, R2, R5), but variation was wide. R6 found learning harder because initial training assumed that “this part is not needed by doctors,” and R10 needed four to eight weeks to adjust to a hybrid of paper and electronic data. Ease of learning thus depended on orientation and training as well as on interface design.

Controllability was one of the most consistent weaknesses. Eight of ten informants (R3 to R10) had experienced data that were not saved, sudden inaccessibility, or processes that had to be repeated, and coped by refreshing the page or contacting IT. R3 said, “Yes, errors often occur; I overcome them by starting over,” and R9, “Yes, the data were not saved; [I fix it by] reloading the page and refilling the data.” R5 described bugs when saving patient status or prescribing. Because these reports cut across tenure and profession, system stability appears to be a systemic problem and not an individual perception. Seven informants found the interface and terms clear, although R8 found the pharmacy and drug-order menus ambiguous and R9 proposed removing one of two overlapping menus for instruction notes and physician instructions. On flexibility, four informants (R1, R2, R5, R8) found EMR adaptable to different workflows, whereas six reported that physicians had to adapt to the system, especially in complex situations: R4 in ordering urgent drugs, R9

during emergency care, and R10 in operating-room reporting. R6 noted that mandatory coding of supporting examinations and filling-time limits may create the false impression that filling speed reflects the quality of examination. Time to become skillful ranged from one day (R9) to almost six months (R6), who noted the absence of direct mentoring and a long escalation chain. Overall ease of use was rated positively (R5 gave 8.5/10), yet seven informants added improvement notes, such as searching by medical record number (R7), viewing previous laboratory, ECG, and X-ray results without re-registering patients (R3), default drug administration times (R9, repeated by R6), and integrating radiology results (R5, R10).

4.1.3. Perceived usefulness

Eight of ten informants said EMR speeds up tracing patient history and preparing therapy instructions; R9 said it “can accelerate the search for patients' medication history,” which helps prevent medication errors. Two findings on job performance concern patient safety. R4 noted that many drugs are not yet entered in the drug database, and R6 revealed that drug-allergy warnings are informative and not a hard stop: the drug can still be selected if the prescriber overlooks the note. R7 and R8 found the allergy check helpful, but R8 said duplication checking “depends,” so the effectiveness of this feature depends on user vigilance and not on system design.

Productivity was the least consistent indicator and tended to be negative. R1 and R2 found that EMR eases and speeds up work, but six informants (R3, R4, R6, R8, R9, R10) saw no gain in patient volume or time efficiency. R4 said “no relationship was found between the number of patients and EMR,” and R10, “more or less the same; if you want it complete, there is a lot of typing.” R6 explained that EMR takes more time than the manual system because of the many components and clicks, and R7 questioned whether typing speed is a valid measure of physicians' productivity. Yet seven informants (R1, R3, R4, R7, R8, R9, R10) found EMR more systematic and effective than paper, and R5 said it is “far more efficient in time and effort, and the clarity of digital writing compared with handwriting.” R6 added that external files must still be uploaded manually and are sometimes missed, and proposed electronic forms with electronic signatures from patients and families. Three informants (R1, R3, R9) gave negative overall answers, which for R3 and R9 were inconsistent with their earlier answers, a point returned to under limitations.

4.1.4. Attitude toward using and behavioral intention

All ten informants accepted the obligation to use EMR, from full acceptance (R1 to R6, R9, R10) to conditional acceptance, as R8 put it: “Neutral acceptance, because overall it is more practical, it just needs adjustment to the practical mechanisms.” No informant expressed rejection or compulsion. Most preferred EMR to paper, and R10 noted an ergonomic benefit (fewer wrist complaints), with R4 the exception because of the limited prescribing system. All ten also intended to keep using EMR independently and completely and were willing to adapt to future updates, but six (R1, R3, R5, R6, R7, R10) made this willingness conditional on training, tutorials, or mentoring. R6 proposed responsive mentoring during the first one to two months of an update because quick solutions are needed when patients are numerous.

4.1.5. Documentation completeness and summary

Actual use was approached through observation and document review. Data from the Medical Records Unit show that the patient assessments that physicians must complete in the EMR averaged only 66.7% in the first semester of 2026 [50], so about one-third were incomplete. This is better than the 37.4% SOAP completeness reported elsewhere [12], although the indicators and settings differ, and it is a different indicator from the 47.1%

incompleteness of all files in the July 2025 observation. It coexists with consistently positive attitudes and intentions and generally positive usefulness, except for productivity. In the closing question, R6 spontaneously said, “For doctors who still have not filled in the EMR completely, whether general practitioners or specialists, they are urged to complete it, especially the diagnosis,” which suggests that incompleteness is recognized by peers. Table 3 summarizes the findings.

Table 3. Summary of findings by TAM construct.

TAM construct	Dominant finding	Variation and important notes
Perceived ease of use	Initial adaptation generally quick (days); interface and terms judged clear by most informants	Eight of ten reported recurring control problems (unsaved data, errors); six of ten found flexibility required adjustment from physicians
Perceived usefulness	Speeds tracing of patient history, supports clinical decisions, and is more effective than the manual system	Productivity indicator showed a negative pattern; gaps found in drug database completeness and in passive (non-hard-stop) allergy warnings
Attitude toward using	All ten informants accepted EMR; no rejection	Some acceptance was conditional on adjustments to work mechanisms (R8)
Behavioral intention	All informants intended to keep using EMR and were willing to adapt to system updates	Six of ten made willingness to adapt conditional on training or mentoring
Actual use (document review)	Average completeness of physician-entered patient assessments was 66.7% in Semester I 2026 [50]	Coexists with consistently positive attitude and intention, indicating a perception–practice gap

4.2. Discussion

4.2.1. Ease of use and usefulness

Rapid learning is consistent with the ideal of an EMR that supports decisions at the point of care without a long learning curve [1]. The controllability problems reported by eight of ten informants are nevertheless critical, because they may drive incomplete filling. They resemble the questionnaire results at a hospital using the same Medinfrass system, where 39.1% of respondents rated ease of use as not good [19], which suggests that part of the instability originates in the system and not in user readiness. Ease of use was also the weaker construct at a hospital in Malang (62% versus 88% for usefulness) [17] and at a community health center where the system was easy to operate but limited by unstable connectivity [10]. The finding that physicians had to adapt to the system supports the view that physicians judge technology by its effect on clinical workflow [29], [32], and that barriers arise from the interaction of system, user, and organization [33]. The long escalation chain described by R6 (physician to IT to system provider) shows that support processes also shape perceived ease of use.

Perceived usefulness was generally positive, in line with most Indonesian TAM-EMR studies [6], [18]. The strength of the qualitative approach is that it reveals variation hidden by mean scores: productivity was predominantly negative, echoing the tension between clinical benefit and documentation burden [32], [29], whereas EMR was reported to raise the productivity of patient-safety management at a maternal and child hospital [34]. Productivity effects therefore seem to depend on what is measured and how the system is configured. The two patient-safety findings, incomplete drug data and non-blocking allergy

warnings, are rarely exposed in questionnaire-based studies and are a practical note for management.

4.2.2. Attitude, intention, and the perception–practice gap

Universal acceptance and strong intention agree with evidence that positive attitudes and intentions contribute to actual EMR use [20]. Willingness to adapt was, however, mostly conditional on responsive training, consistent with the role of management support [33] and planned change management at system updates [30], and with the view that health worker performance rests on competence, motivation, and organizational culture [48], [47]. Acceptance is an asset that the organization must sustain.

The most substantial finding is the gap between positive perceptions in all TAM constructs and completeness of patient assessments averaging only 66.7% (Figure 2). TAM was developed for voluntary adoption, whereas EMR use here, as in all Indonesian facilities, is mandatory [4]. Under mandatory use, intention no longer decides whether EMR is used but how completely, so the relevant question is no longer “is EMR used?” but “how completely is EMR used?”

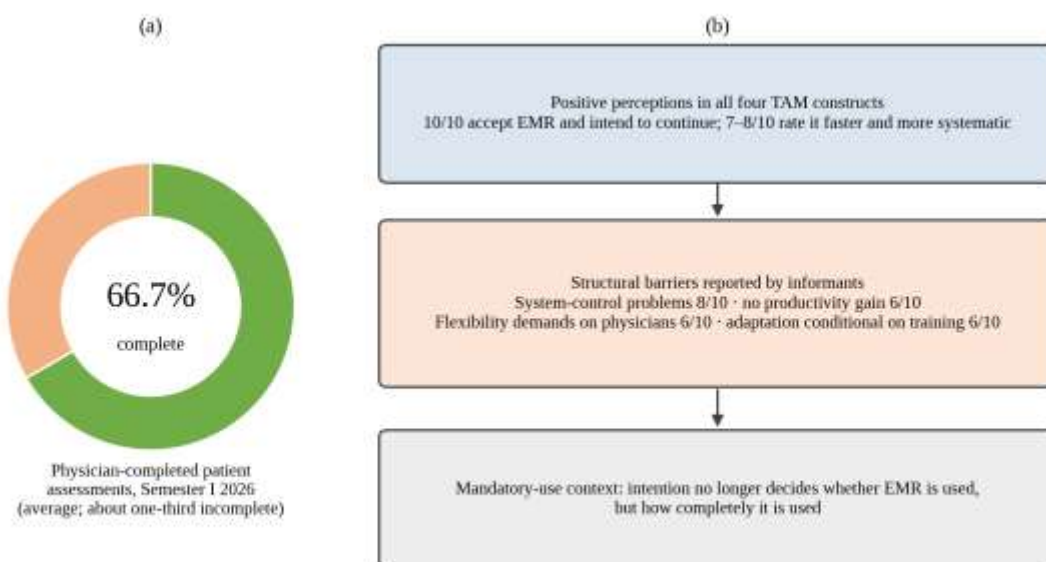


Figure 2. Perception–practice gap: (a) average completeness of physician-entered patient assessments in Semester I 2026; (b) synthesis of perceptions, structural barriers, and the mandatory-use context.

Several findings offer coherent clues about the source of the gap, although they are associations and not tested causal relations. Productivity was the only TAM indicator with a predominantly negative pattern, and R6 and R10 noted that complete filling demands more steps and typing than paper; the controllability problems of eight informants add documentation time; and R6's spontaneous appeal to colleagues shows that incompleteness is a recognized problem. Evidence from a blood bank information system is instructive: entering data repeatedly across many sheets was non-value-added work, and integrating entry into one system cut documentation time from 636 to 239 seconds [52]. Reducing the steps and instability of physician documentation in Medinfrass may thus be a more effective lever than changing attitudes that are already positive. Incomplete records also weaken the hospital's medico-legal position and affect continuity of care [25].

Theoretically, the study reinforces the critique that classic TAM under mandatory use should address the quality of use and not merely its existence: strong intention was not a sufficient condition for complete documentation, so variables such as workload and

workflow fit are needed to explain the gap. It also shows the value of a qualitative design triangulated with document data. Managerially, optimization requires removing structural barriers, namely technical stability and filling-time burden, and not intervening in already positive attitudes.

4.3.Limitations

This is a single-site case study, so transferability must be judged by readers. Three of the ten informants were specialists from different fields, so the other specialists among the hospital's 60 are not represented. R3 and R9 gave answers that were inconsistent across related indicators, which may reflect the complexity of their experience or the limits of working from summarized interview recaps and not full transcripts. The 66.7% figure is an aggregate for one indicator and one period, and its link with the perceptual findings is an interpretation of consistent patterns, not a statistical test. Finally, the first author is an insider researcher who works in hospital medical service management, which gave access to context and data but may have affected informants' openness and interpretation; triangulation and member checking were used as mitigation.

5. CONCLUSION

Physicians' perceptions of EMR at Mitra Medika Pontianak Hospital were generally positive across the four TAM constructs. Ease of use was clear to most informants, but eight of ten reported recurring control problems and six of ten had to adapt to the system's flow. Usefulness was positive for speed, performance, and effectiveness, but productivity showed a negative pattern, and incomplete drug data and non-blocking allergy warnings were identified as patient-safety notes. All ten informants accepted mandatory use and intended to keep using EMR, although more than half made adaptation to updates conditional on training. Yet physician-completed patient assessments averaged only 66.7% in the first semester of 2026, so under mandatory use, positive attitudes and intentions did not ensure complete documentation.

Priorities follow the findings: technical stability comes first, because instability may add time to every entry; safety features come second; and organizational measures come third. Management should audit the stability of Medinfrs (especially the patient-status saving and prescribing modules), make allergy warnings a hard stop and complete the drug database, simplify filling steps that add time, give periodic completeness feedback per physician and unit, provide responsive mentoring in the first one to two months of each update, and follow up on user proposals such as searching by medical record number and integrating radiology results. Future research should use quantitative or mixed methods to test the relationships among TAM constructs and completeness, include more specialties, monitor completeness longitudinally, examine the negative productivity pattern, and extend document review to other EMR components.

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Author contributions. Meliani Fransiska Andita: conceptualization, research design, data collection, data analysis, manuscript preparation. Rian Andriani: research supervision, methodological guidance, manuscript review and revision. Wahyuddin Bagenda: research supervision, theoretical framework development, manuscript critical review.

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