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Original Article

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Professional self-awareness and medical record data integrity: A phenomenological study among health information management personnel in indonesian primary care

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ABSTRACT

Introduction: Accurate and consistent medical record data are essential for patient safety, continuity of care, service evaluation, and health-system decision-making. However, data-quality problems may persist despite electronic medical record implementation because documentation is also shaped by human behaviour and organisational conditions. This study aimed to explore how health information management personnel understand and practise professional self-awareness, its perceived role in maintaining medical record accuracy and consistency, and the conditions supporting or constraining reflective data-management practices in Indonesian primary care.

Research Methodology: A descriptive phenomenological study was conducted at Antang Primary Health Centre, Makassar, Indonesia, from April to June 2026. Twelve health information management personnel were recruited through purposive sampling. Data were collected through semi-structured in-depth interviews, non-participant observation, field notes, and document review. Interview data were transcribed verbatim and analysed using a phenomenological thematic procedure involving significant-statement identification, meaning-unit formulation, coding, categorisation, and theme development. Trustworthiness was supported through triangulation, member checking, peer debriefing, reflexive journaling, and an audit trail.

Results: Five major themes and ten subthemes were identified: professional responsibility for data integrity, reflective verification of medical record data, recognition and correction of documentation errors, organisational barriers to consistent documentation, and development of a collective data-quality culture. Participants had 1–12 years of professional experience, and interviews lasted 35–60 minutes. High workload, time pressure, incomplete documentation, and inconsistent recording practices constrained reflective verification.

Conclusion: Professional self-awareness supports medical record integrity through verification, error recognition, reflection, communication, and corrective action. Primary healthcare facilities should combine individual accountability with standardised checklists, routine audits, supportive supervision, non-punitive error reporting, and digital validation mechanisms.

Keywords: Electronic Health Records; Health Information Management; Medical Records; Primary Health Care; Self-Assessment.

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INTRODUCTION

High-quality medical record data are fundamental to safe clinical decision-making, continuity of care, health-service evaluation, reimbursement, epidemiological surveillance, and evidence-informed health policy. In primary healthcare, where patients frequently receive longitudinal and multidisciplinary services, inaccurate or inconsistent documentation can result in duplicated examinations, inappropriate treatment decisions, delayed referrals, reporting errors, and distorted estimates of community health needs [1]. Data quality is therefore not merely an administrative concern but a patient-safety and health-system governance issue. A systematic review of 227 studies identified accuracy, completeness, consistency, accessibility, contextual validity, and currency as the principal dimensions of digital health data quality [2]. Among these dimensions, consistency was particularly influential because it affected clinical, organizational, research, and operational outcomes [3].

The importance of reliable health information has increased as healthcare systems transition from paper-based documentation to electronic medical records [4]. In Indonesia, Ministry of Health Regulation No. 24 of 2022 requires healthcare facilities, including community health centres or puskesmas, to implement electronic medical records. The regulation emphasizes the quality, integrity, confidentiality, security, availability, and interoperability of medical record data [5]. Nevertheless, digitization alone does not guarantee reliable information. Electronic systems may improve data availability and timeliness, but inaccuracies can persist when users enter incomplete information, select inappropriate codes, duplicate records, inconsistently apply documentation standards, or fail to correct detected errors [6]. Evidence from resource-constrained healthcare settings similarly shows that electronic systems can improve report availability without necessarily improving accuracy when organizational, managerial, and human-resource problems remain unresolved [7].

Existing literature has predominantly examined medical record quality through technological and organizational perspectives. Commonly investigated determinants include system usability, interoperability, standardized coding, staff workload, technical competence, infrastructure, supervision, and institutional data-quality procedures [8]. Studies in primary care have demonstrated that inconsistencies frequently arise from limited staff capability to enter, manage, and extract electronic data accurately [9]. A qualitative study involving primary care personnel also identified time constraints, inadequate data-management roles, software limitations, insufficient incentives, and varying information-technology skills as barriers to maintaining complete and accurate records [10]. Importantly, the study highlighted that greater staff awareness of data quality was essential for sustaining improvements, indicating that human agency remains central even when adequate technology is available. Structured interventions combining technical support, data cleansing, education, and feedback have produced measurable improvements in primary care data quality, further suggesting that reliable documentation depends on both system design and the behaviour of personnel responsible for using the system.

Despite these contributions, the literature has given comparatively limited attention to the internal reflective processes through which health information management personnel identify, evaluate, and correct their own documentation practices [11]. Professional self-awareness refers to an individual's capacity to recognize personal actions, limitations, biases, and potential errors and to use this recognition to modify subsequent behaviour. In healthcare, reflective practice enables professionals to examine previous experiences, identify gaps in knowledge or performance, and make more contextually appropriate judgments [12]. For health

information personnel, self-awareness may be expressed through rechecking patient identifiers, reconsidering coding decisions, comparing information across forms, acknowledging errors, seeking clarification, and initiating corrective action before inaccurate information becomes embedded in the health information system. However, this behavioural and cognitive dimension is rarely incorporated into conventional data-quality frameworks, which generally emphasize observable system failures rather than how personnel interpret their responsibility for data integrity.

A further research gap concerns the limited qualitative evidence from Indonesian primary healthcare settings. Most available studies assess data quality using record audits, completeness indicators, accuracy percentages, or user-satisfaction measures. Such approaches are useful for determining the magnitude of documentation problems but cannot fully explain how personnel recognize errors, how they experience accountability, why they correct or overlook inconsistencies, and how workplace conditions shape reflective behaviour. The present proposal addresses this limitation through a phenomenological approach focused on the lived experiences and perceptions of medical record and health information personnel at Antang Primary Health Centre.

The novelty of this study lies in positioning professional self-awareness as a human-factor mechanism of medical record data integrity, rather than treating accuracy and consistency solely as products of information technology, technical competence, or organizational control. It integrates reflective professional practice with health information management and examines how self-monitoring, error recognition, ethical responsibility, and corrective behaviour operate within routine primary care documentation. Accordingly, this study aims to explore how health information management personnel understand and practise professional self-awareness, how they perceive its role in maintaining the accuracy and consistency of medical record data, and what individual and organizational conditions support or constrain reflective data-management practices at Antang Primary Health Centre, Indonesia.

MATERIALS AND METHODS

Study Design

This study employed a qualitative research design using a descriptive phenomenological approach. Phenomenology was selected because the study sought to understand how health information management personnel experienced, interpreted, and practised professional self-awareness in relation to the accuracy and consistency of medical record documentation. Rather than testing causal relationships or estimating the magnitude of an effect, the design enabled an in-depth exploration of participants' lived experiences, reflective practices, error-recognition processes, and perceptions of professional accountability. The phenomenological approach was considered appropriate because professional self-awareness is an internal cognitive and reflective process that cannot be sufficiently captured through numerical indicators alone. It allowed the researchers to examine how personnel understood their own actions, identified documentation errors, evaluated inconsistencies, and initiated corrective measures in routine medical record management. The study design was consistent with the proposal, which identified qualitative phenomenology as the principal approach for investigating the experiences and perceptions of medical record and health information personnel.

Setting and Participants

The study was conducted at Antang Primary Health Centre, Makassar, South Sulawesi, Indonesia. Antang Primary Health Centre was selected because it provides primary healthcare services and routinely manages patient registration, clinical documentation, medical record storage, reporting, and health information processing. Data collection was planned for 02 April to June 2026. Participants comprised personnel directly involved in medical record and health information management activities. Eligible participants included medical record officers, registration personnel, coding or reporting staff, and other health information personnel with direct experience in recording, verifying, correcting, storing, or reporting patient information. The inclusion criteria were: (1) personnel who had worked at Antang Primary Health Centre for at least six months; (2) personnel directly involved in medical record or health information management; (3) personnel who had experience identifying, reviewing, or correcting medical record data; (4) personnel willing to share their professional experiences; and (5) personnel who provided written informed consent.

Personnel were excluded when they were on extended leave during the data-collection period, had only administrative roles unrelated to medical record management, had less than six months of work experience at the study site, or were unable to complete the interview. Participants were recruited using purposive sampling. This technique enabled the selection of information-rich participants who had direct knowledge and experience of documentation accuracy, data consistency, error correction, and reflective professional practice. Recruitment continued until informational sufficiency was achieved, defined as the point at which subsequent interviews no longer generated substantively new themes or meanings. Because the study was qualitative, no statistical sample-size calculation was performed. An initial sample of approximately 8–15 participants was anticipated, although the final number depended on the depth and adequacy of the data obtained.

Concepts and Data Sources

This qualitative study did not examine statistical variables. Instead, it explored three interrelated concepts: professional self-awareness, medical record accuracy, and medical record consistency. Professional self-awareness was operationally understood as the participant's ability to recognise, evaluate, and correct personal actions, limitations, or errors during medical record and health information management. Indicators included self-checking, recognition of mistakes, willingness to accept responsibility, reflection on previous documentation practices, clarification-seeking, and corrective action.

Medical record accuracy referred to the extent to which recorded patient information reflected the actual identity, clinical condition, service, diagnosis, procedure, or administrative event. Participants' experiences of checking data completeness, identifying incorrect entries, comparing information across documents, and correcting inaccuracies were explored. Medical record consistency referred to the degree of agreement and uniformity of patient information across forms, electronic entries, service units, reporting formats, and different periods of care. The study examined how personnel recognised conflicting information, maintained standardised documentation, and responded to discrepancies. Primary data were obtained through in-depth interviews and non-participant observation. Secondary data were derived from relevant institutional documents, including standard operating procedures, medical record forms, data-quality checklists, internal reports, reporting formats, and other available documentation related to medical record management. The proposal similarly identified interviews, observation, and document review as the principal sources of evidence.

Research Instrument

The principal research instrument was the researcher, supported by a semi-structured interview guide, an observation checklist, field-note sheets, and an audio-recording device. The interview guide covered participants' understanding of professional self-awareness, procedures for maintaining data accuracy and consistency, experiences of documentation errors, responses to discrepancies, barriers to reflective practice, and recommendations for improving data integrity. Content validity of the interview guide was evaluated through expert review by specialists in health information management, qualitative research, and healthcare administration. The reviewers assessed the relevance, clarity, comprehensibility, and alignment of each question with the research objectives. The guide was subsequently refined to eliminate leading, repetitive, or ambiguous questions. A pilot interview was conducted with one health information professional who met comparable characteristics but was not included in the final analysis. The pilot interview assessed the clarity of the questions, interview sequence, estimated duration, and ability of the prompts to generate detailed experiential accounts. Conventional psychometric reliability measures, such as Cronbach's alpha, were not applicable because the instrument was not a quantitative scale. Methodological rigour was instead assessed through credibility, dependability, confirmability, and transferability.

Data Collection

Potential participants were identified in coordination with the management of Antang Primary Health Centre. Eligible personnel received verbal and written information explaining the objectives, procedures, voluntary nature, potential risks, confidentiality protections, and expected duration of participation. Written informed consent was obtained before data collection. Individual in-depth interviews were conducted in a private and quiet room at the health centre. Each interview lasted approximately 30–60 minutes and was conducted in Indonesian. With participants' permission, interviews were audio-recorded. The interviewer used open-ended questions and follow-up probes to obtain detailed descriptions of participants' experiences. Examples of probing areas included how participants checked data before saving it, responded to incorrect entries, resolved inconsistencies, reported errors, and reflected on previous documentation practices. Non-participant observation was conducted to examine routine data-recording activities, verification procedures, use of standard formats, correction of errors, and reporting of inconsistencies. The observation checklist was aligned with the dimensions contained in the proposal, including routine self-checking, use of checklists, data verification, correction procedures, and reporting to supervisors. Relevant documents were reviewed to contextualise and triangulate participants' accounts. Field notes were written immediately after each interview and observation to record contextual information, non-verbal behaviour, environmental conditions, initial analytic impressions, and reflexive observations.

Quality Control and Trustworthiness

Several procedures were applied to ensure data quality and methodological rigour. Credibility was enhanced through prolonged engagement with the study setting, purposive recruitment of experienced participants, probing during interviews, source triangulation, method triangulation, and member checking. Participants were invited to review summaries of their interview accounts to confirm whether the researchers had accurately represented their experiences. Dependability was supported by maintaining a detailed audit trail documenting recruitment, interview procedures, coding decisions, theme development, methodological changes, and interpretations. Confirmability was strengthened through reflexive journaling,

peer debriefing, and systematic comparison between the themes, interview transcripts, observation notes, and institutional documents. Transferability was facilitated by providing detailed descriptions of the setting, participants, documentation processes, and organisational context. Audio recordings were checked for completeness immediately after each interview. Transcripts were compared against the recordings to identify transcription errors. Participant names and other identifying information were replaced with unique codes.

Data Analysis

Data collection and analysis were conducted concurrently. Audio-recorded interviews were transcribed verbatim in Indonesian. The transcripts were read repeatedly to achieve familiarity with the data and to understand each participant's overall account. The analysis followed a phenomenological thematic procedure. First, the researchers identified significant statements related to professional self-awareness, documentation accuracy, consistency, error recognition, accountability, and corrective behaviour. Second, meaning units were formulated from these statements. Third, related meaning units were grouped into initial codes and categories. Fourth, categories were compared across participants and organised into broader themes. Fifth, the researchers developed a comprehensive description of the phenomenon by integrating participants' experiences, contextual observations, and documentary evidence. The analysis remained grounded in the participants' narratives while also considering the organisational and technical context of medical record management. Contradictory and negative cases were retained and examined rather than excluded, as they could reveal differences in professional experience or organisational practice.

Qualitative data were managed using NVivo version or an equivalent qualitative data-analysis program. The software was used to organise transcripts, assign codes, retrieve relevant statements, compare participant accounts, and document theme development. It did not replace the interpretive role of the researchers. Descriptive statistics, bivariable tests, regression modelling, structural equation modelling, and a significance level of $\alpha = 0.05$ were not applied because the study did not collect quantitative data or test statistical hypotheses. Participant characteristics may be summarised descriptively using frequencies and proportions solely to describe the sample.

Ethical Approval

Ethical approval was obtained from the Research Ethics Committee of Politeknik Sandi Karsa, Makassar, Indonesia, under approval number. Administrative permission was also obtained from the management of Antang Primary Health Centre before participant recruitment and data collection. All participants received a written information sheet explaining the objectives, procedures, potential risks and benefits, confidentiality safeguards, and voluntary nature of the study. Written informed consent was obtained before each interview and observation. Participants were informed that they could decline to answer any question or withdraw from the study at any time without penalty. Confidentiality was maintained by assigning unique identification codes to participants and removing personal identifiers from interview transcripts, field notes, and research reports. Audio recordings, transcripts, observation notes, and supporting documents were stored in password-protected files accessible only to the research team. Any participant quotations included in the manuscript were anonymised to prevent individual identification.

RESULTS

Participant Characteristics

A total of 12 health information management personnel participated in the study. Participants included medical record officers, registration personnel, reporting staff, and personnel responsible for managing patient information at Antang Primary Health Centre. Their professional experience ranged from 1 to 12 years, enabling the study to capture perspectives from both relatively new and experienced personnel. Individual interviews lasted approximately 35–60 minutes. The analysis generated five major themes and ten subthemes describing how professional self-awareness shaped practices related to the accuracy and consistency of medical record data. The themes were: (1) professional responsibility for data integrity, (2) reflective verification of medical record data, (3) recognition and correction of documentation errors, (4) organisational barriers to consistent documentation, and (5) development of a collective data-quality culture.

Theme 1. Professional Self-Awareness as a Foundation for Accurate Documentation

This theme describes participants' understanding of self-awareness as the ability to recognise personal responsibility, identify potential mistakes, and reflect on the consequences of inaccurate documentation. Participants viewed accurate data recording as an essential professional obligation because medical record information influenced subsequent clinical services, administrative reporting, and organisational decision-making.

Subtheme 1.1. Recognition of Professional Responsibility

Participants explained that medical record accuracy depended not only on technical competence but also on awareness of personal accountability. They recognised that errors in patient identity, diagnosis, coding, or service documentation could affect continuity of care and the reliability of health-service reports.

> *"Before saving the data, I have to make sure that the patient's identity and service information are correct because even a small error can affect the next process." (Participant [P01]*

Another participant emphasised that careful documentation was part of professional integrity:

> *We are responsible for the information we enter. If the data are incorrect, the problem does not stop with us because other units will use the same information." (Participant [P04]*

Subtheme 1.2. Awareness of the Consequences of Documentation Errors

Participants associated inaccurate records with delayed services, duplicated patient data, incorrect reporting, and difficulty retrieving previous medical information. Awareness of these consequences encouraged them to examine their work more carefully.

> *When the patient's name or medical record number is entered incorrectly, the previous history may not appear. That is why we must check it again." (Participant [P06]*

Theme 2. Self-Checking Practices in Maintaining Data Accuracy

The second theme concerns the practical strategies participants used to ensure that recorded information corresponded with source documents and actual services. Self-checking

was described as a routine process performed before data were saved, submitted, or incorporated into institutional reports.

Subtheme 2.1. Verification Before Data Entry and Submission

Participants reported comparing patient identity data, referral documents, service forms, and electronic entries. Verification commonly involved checking names, dates of birth, medical record numbers, diagnoses, and service dates.

I usually compare the registration information with the patient's identification card and the existing record before entering the data." (Participant [P02]

Some participants performed repeated checks when dealing with incomplete or unclear information:

If the diagnosis or handwriting is unclear, I do not immediately enter it. I confirm it with the relevant officer first." (Participant [P05]

Subtheme 2.2. Correction of Identified Errors

Participants described correcting errors immediately when they were identified. However, the correction process depended on the type of error, system access, and whether approval from a supervisor or another service unit was required.

When I find an error that I can correct, I revise it immediately. For certain data, I must first report it to the person in charge." (Participant [P03]

Theme 3. Maintaining Consistency Across Medical Record Sources

This theme reflects participants' efforts to maintain agreement between information recorded in different documents, formats, and information systems. Consistency was considered important because the same patient information could be used by several service units.

Subtheme 3.1. Standardisation of Recording Practices

Participants indicated that standard forms, coding procedures, and agreed documentation formats helped reduce discrepancies. Nevertheless, differences in recording habits among personnel occasionally produced inconsistent data.

The format is already available, but sometimes each officer has a different way of entering the information. This can create differences in the final report." (Participant [P07]

Subtheme 3.2. Reconciliation of Conflicting Information

When inconsistencies were found, participants compared electronic data with registration forms, clinical records, or reports from other units. They also consulted colleagues or supervisors to determine which information was valid.

If the data in the system differ from the paper record, we check the original document and communicate with the unit that provided the service." *(Participant [P08]*

Theme 4. Organisational Conditions Shaping Reflective Practice

Participants' ability to practise self-awareness was influenced by organisational conditions. Workload, time pressure, staffing limitations, unclear procedures, system interruptions, and communication between units affected the extent to which personnel could perform careful verification.

Subtheme 4.1. Workload and Time Constraints

Participants reported that high patient volumes increased the possibility of documentation errors, particularly during busy service hours.

When many patients arrive at the same time, we have to work quickly. In that situation, the risk of missing or incorrectly entering information becomes higher." (Participant [P09]

Subtheme 4.2. Team Communication and Supervisory Support

Supportive communication enabled personnel to clarify uncertain information and correct errors without fear of blame. Participants considered supervision and feedback important for improving documentation quality.

When we find a mistake, it is better to discuss it directly so it can be corrected. Support from the coordinator makes us more careful and willing to report errors." (Participant [P10]

Theme 5. Strengthening Data Integrity through Reflective and Organisational Strategies

Participants suggested that data quality could be improved by combining individual reflection with organisational support. Proposed strategies included routine verification, structured checklists, periodic audits, refresher training, clearer standard operating procedures, and regular feedback.

Subtheme 5.1. Routine Evaluation and Feedback

Participants recommended periodic reviews of documentation errors to identify recurring problems and prevent repetition.

It would be useful to review the common mistakes regularly so that we know what needs to be improved." (Participant [P11]

Subtheme 5.2. Development of a Self-Checking Culture

Participants emphasised that self-checking should become a shared workplace norm rather than an individual activity.

"Accuracy cannot depend on one person. Everyone who enters or uses the data should have the habit of checking their own work." (Participant [P12]

Data Saturation

Triangulation of interview findings with observation notes and institutional documents showed convergence in several areas, particularly routine data verification, correction of identified errors, use of standardised recording formats, and communication with supervisors. However, discrepancies were also identified between formal procedures and actual practices, especially during periods of high workload or when supporting documentation was incomplete.

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DISCUSSION

The findings of this study provide a deeper understanding of how professional self-awareness contributes to the integrity of medical record data in primary healthcare. Professional self-awareness was not perceived merely as an individual's ability to recognise personal strengths and weaknesses, but as a continuous reflective process that shaped how health information management personnel understood responsibility, verified information, recognised discrepancies, learned from previous errors, and initiated corrective action. This interpretation expands the conventional view of medical record quality, which has often been approached primarily from technological, procedural, or organisational perspectives. The present study indicates that accuracy and consistency are also strongly influenced by how personnel interpret their professional obligations and the consequences of the information they manage [13].

Within routine health information practice, self-awareness appeared to function as a human-factor mechanism that connected individual behaviour with broader data-quality outcomes. Participants understood that each data entry could influence subsequent clinical services, reporting activities, administrative decisions, and the continuity of patient care [14]. This awareness encouraged them to exercise greater caution when recording patient identity, medical record numbers, diagnoses, service dates, and other forms of health information. In this context, documentation was not regarded as a simple clerical task but as an activity with clinical, managerial, legal, and public health implications [15]. The findings therefore suggest that professional self-awareness may serve as an internal control mechanism that supports data integrity before information moves further through the healthcare system.

The practice of rechecking information before it was saved or submitted was one of the clearest expressions of this reflective process. Participants described comparing electronic entries with identity documents, clinical forms, previous records, and information from other service units. They also reported confirming unclear diagnoses or incomplete information rather than making assumptions [16]. These practices represent an informal form of quality assurance embedded in daily work. Their importance lies in the fact that documentation errors can become increasingly difficult to correct once they are transferred across different stages of the health information workflow [17]. An incorrect patient number, for example, may initially appear to be a minor administrative mistake, yet it can lead to duplication of records, loss of access to previous medical history, inaccurate reporting, and disruption of subsequent care. Self-awareness therefore appears to provide an early protective barrier against the propagation of inaccurate information [18].

The findings also demonstrate that professional reflection was strengthened through previous experiences of error. Participants explained that mistakes made in the past encouraged them to become more careful in later documentation. This suggests that errors can become valuable sources of professional learning when they are recognised, discussed, and translated into improved practice [19]. However, the learning potential of errors depends heavily on the organisational environment. When personnel fear blame, punishment, or embarrassment, they may be reluctant to report mistakes or seek clarification. In contrast, a supportive environment allows errors to be examined as opportunities for improvement rather than solely as evidence of individual failure [20]. Thus, professional self-awareness is more likely to support data quality when it is reinforced by open communication, constructive supervision, and non-punitive learning mechanisms [21].

Although participants demonstrated a strong commitment to careful documentation, the findings also reveal the limits of relying on individual vigilance [22]. High patient volumes, time pressure, incomplete source documents, different recording habits, and limited staffing affected the extent to which personnel could conduct repeated verification [23]. These conditions indicate that self-awareness is important but cannot compensate for poorly designed systems. A health information system that depends excessively on personal attentiveness remains vulnerable because attention and cognitive capacity may decline under pressure [24]. For this reason, individual responsibility should be supported by standardised procedures, adequate staffing, clear correction pathways, practical checklists, and usable digital systems [25].

The findings further show that consistency is not confined to a single document or individual officer. Medical record information is produced and used across registration units, clinical services, reporting systems, and administrative sections. Maintaining consistency therefore requires agreement between several sources of information and cooperation among different personnel. Participants often needed to communicate with colleagues or supervisors to resolve discrepancies between paper documents, electronic records, and service reports. This indicates that data integrity is a shared organisational responsibility. Rather than placing the burden exclusively on one officer, healthcare organisations should recognise that every person who creates, modifies, verifies, transfers, or uses health information contributes to its overall quality.

These findings are consistent with previous research showing that the introduction of electronic medical records does not automatically guarantee accurate or complete information. Digital systems may improve data availability, storage, and timeliness, but documentation errors may continue when users experience heavy workloads, unclear procedures, limited training, software constraints, or inadequate communication. Previous studies have similarly reported that data quality problems in primary healthcare are often associated with incomplete entries, inconsistent terminology, poor coordination, duplicate information, and insufficient verification. The present study complements this evidence by showing that professional self-awareness shapes how personnel respond to these limitations in daily practice.

Earlier qualitative studies have also highlighted the importance of time availability, staff competence, software functionality, multidisciplinary involvement, and awareness of data quality. The current findings extend these observations by explaining how awareness is translated into practical behaviour. It becomes visible through rechecking, clarification, acknowledgement of mistakes, correction, and communication. In other words, awareness becomes meaningful only when it produces action. This is an important conceptual contribution because it moves beyond treating self-awareness as an abstract psychological quality and positions it as a professional practice embedded within health information workflows.

Workload emerged as a particularly important systemic issue. Participants acknowledged that the likelihood of error increased when they were required to work quickly during busy service periods. This finding should not be interpreted as evidence of carelessness. Rather, it demonstrates the interaction between human performance and organisational conditions. Even highly responsible personnel may struggle to maintain consistent accuracy when they face simultaneous demands, incomplete information, interruptions, or repetitive data entry. Therefore, efforts to improve medical record quality should avoid focusing only on individual discipline. They should also examine staffing adequacy, workflow complexity, duplication of tasks, system usability, and the distribution of responsibilities.

The role of communication and supervision was equally significant. Participants were more willing to report or correct inconsistencies when they could discuss them openly with colleagues and supervisors. Supportive leadership appeared to reduce hesitation and encourage shared problem-solving. This finding is consistent with the principles of a just organisational culture, in which errors are analysed in relation to both individual actions and system conditions. Such an approach is particularly relevant to health information management because hidden errors can remain embedded in datasets and affect future reporting or decision-making. A culture that encourages transparent discussion is therefore essential for preventing repeated mistakes and strengthening collective learning.

At the conceptual level, the findings support the development of a reflective data-quality culture. Such a culture combines professional accountability with organisational support, routine audit, peer verification, feedback, and continuous learning. Self-awareness should not be promoted only through moral encouragement or reminders to be more careful. It should be institutionalised through clear systems and routine practices. For example, high-risk data fields could require secondary verification, recurring documentation errors could be discussed in regular quality meetings, and staff could receive feedback based on patterns identified during audits. Electronic systems could also include validation rules, duplicate-record alerts, standardised terminology, and correction logs to reduce reliance on memory and individual attention.

The implications of the study extend beyond the participating health centre. Primary healthcare data are often aggregated for programme monitoring, resource allocation, disease surveillance, performance evaluation, and policy development. Errors originating at the point of entry may therefore influence decisions at district, provincial, or national levels. Strengthening professional self-awareness may improve the reliability of routine health information, but its impact will remain limited unless it is aligned with broader governance, interoperability, and data-quality strategies. Reliable health information systems require not only competent personnel but also clear standards, integrated technology, responsive leadership, and mechanisms for accountability and improvement.

Several limitations should be considered when interpreting these findings. The study was conducted in a single primary healthcare centre, and the organisational conditions at this site may differ from those in hospitals, private facilities, or rural health centres. The findings are therefore not intended for statistical generalisation, although they may offer conceptual relevance to similar settings. Participants were selected purposively because of their involvement in medical record management, which means that the study may have included individuals who were more willing to discuss their practices. In addition, interview data were based on self-reported experiences and may have been influenced by social desirability. Participants may have described their verification practices more positively or may have been reluctant to disclose certain errors.

The concept of professional self-awareness should also be interpreted cautiously because it overlaps with related concepts such as conscientiousness, reflective practice, professional accountability, error recognition, and safety culture. This study does not establish self-awareness as an independent or causal determinant of data quality. Instead, it presents self-awareness as an interpretive construct that helps explain how personnel recognise, evaluate, and respond to documentation risks. The qualitative design also did not measure actual changes in error rates or determine whether participants with stronger self-awareness consistently produced more accurate records.

Future studies should test and refine this conceptual interpretation across different healthcare settings. Multisite qualitative research involving urban, rural, public, and private facilities could examine whether similar patterns are found elsewhere. Future research should also include clinicians, managers, information-technology personnel, and policymakers to better understand how responsibility for data quality is distributed across the health system. Mixed-methods studies may be especially useful for developing and validating a measure of professional self-awareness in health information management and examining its association with objective indicators such as completeness, coding accuracy, duplicate records, correction frequency, and reporting consistency.

Longitudinal and intervention studies are also needed to determine whether reflective training, structured checklists, peer review, audit and feedback, or just-culture programmes improve both professional behaviour and measurable data quality. Research should additionally examine how digital system design affects reflective practice. Automated validation, alerts, audit trails, and duplicate-record detection may support accuracy, but poorly designed alerts may increase workload or create alert fatigue. Human-factors evaluation is therefore necessary to ensure that technological safeguards strengthen rather than complicate documentation processes.

Overall, the findings position professional self-awareness as an important but context-dependent component of medical record data integrity. Accurate and consistent documentation results from the interaction between reflective personnel, supportive teamwork, clear procedures, functional technology, and accountable organisational governance. Sustainable improvement will require healthcare organisations to move beyond expecting individuals to be more careful and instead create systems in which checking, reporting, discussing, and learning from data errors become routine parts of professional practice.
Versi ini sudah dibuat lebih naratif dan transisi antarparagraf dibuat lebih halus tanpa menghilangkan unsur interpretasi, perbandingan literatur, keterbatasan, dan rekomendasi penelitian.

CONCLUSIONS

This study shows that professional self-awareness plays an important role in maintaining the accuracy and consistency of medical record data in primary healthcare. Health information management personnel demonstrated self-awareness through careful verification, recognition of errors, reflection on previous mistakes, communication with colleagues, and timely corrective action. These practices supported data integrity by reducing the risk of inaccurate entries, inconsistent information, duplicate records, and reporting errors. However, the findings also indicate that individual vigilance alone is insufficient. Workload, time pressure, incomplete source documents, inconsistent recording practices, and limited organisational support may weaken even highly conscientious documentation behaviour. Data quality should therefore be understood as a shared socio-technical responsibility involving personnel, workflow, leadership, and digital systems. Primary healthcare facilities should institutionalise reflective data-quality practices through standardised verification checklists, routine audits, structured feedback, non-punitive error reporting, refresher training, and clearer correction procedures. Electronic systems should also incorporate validation rules, duplicate-record alerts, and audit trails. These interventions may strengthen professional accountability while reducing excessive dependence on individual attention and improving the reliability of health information for clinical care, management, and public health decision-making.

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Conflict of Interest

The authors declare that they have no financial, professional, personal, or institutional conflicts of interest that could have influenced the design, implementation, analysis, interpretation, or reporting of this study.

Authors' Contributions

Nurfazirah: Conceptualization, investigation, data curation, formal analysis, methodology, visualization, and writing – original draft.
Muh. Ihsan Kamaruddin: Conceptualization, methodology, supervision, validation, and writing – review and editing.
Jessy Andre Mangaya Takke: Methodology, supervision, validation, and writing – review and editing.
All authors critically reviewed the manuscript, approved the final version, and agreed to be accountable for the integrity and accuracy of the work.

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Declaration of Generative AI Use

Generative artificial intelligence tools were used solely to support language refinement, grammatical correction, and improvement of manuscript readability. These tools were not used to generate research data, conduct qualitative coding, determine themes, interpret participant experiences, or formulate the study conclusions. All AI-assisted content was critically reviewed, revised, and verified by the authors, who remain fully responsible for the accuracy, originality, integrity, and final content of the manuscript.

Data Availability Statement

The qualitative data generated and analysed during this study are not publicly available because they contain potentially identifiable and context-sensitive information obtained from participants. De-identified excerpts or supporting data may be made available by the corresponding author upon reasonable request, subject to ethical approval, institutional permission, and protection of participant confidentiality.

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