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Factors influencing the completeness of medical record documentation by healthcare workers in the inpatient unit

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ABSTRACT

Medical records are essential documents in healthcare services, serving as a means of communication among professionals, a basis for clinical decision-making, and legal evidence. However, incomplete medical record documentation remains a common issue in hospitals, including inpatient units. Such incompleteness may compromise service quality and patient safety. This study aimed to analyze the factors influencing the completeness of medical record documentation among healthcare workers in the inpatient unit of Ridhoka Salma Hospital Cikarang and to identify the most dominant factor. This study employed a quantitative analytic design with a cross-sectional approach. The population consisted of healthcare workers (physicians, nurses, and midwives) working in the inpatient unit. A total of 109 respondents were recruited using a total sampling technique. Data were collected using structured questionnaires and a review of medical records. Data analysis included univariate analysis, bivariate analysis using Chi-square tests, and multivariate analysis with logistic regression. The findings revealed that 65.1% of medical records were documented completely, while 34.9% were incomplete. Factors significantly associated with medical record completeness were knowledge (p = 0.002), workload (p = 0.014), and length of service (p = 0.031). Logistic regression analysis indicated that knowledge was the most dominant factor influencing medical record completeness, with an OR = 6.21 (95% CI: 2.03–18.94). The completeness of medical record documentation among healthcare workers in the inpatient unit remains suboptimal. Knowledge, workload, and length of service were found to significantly affect completeness, with knowledge being the dominant factor. Hospitals should enhance healthcare workers' capacity through routine training, manage workload proportionally, and strengthen supervision to improve medical record completeness.

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1. INTRODUCTION

Medical records are essential documents in healthcare services because they contain patient identity, examination results, diagnoses, therapy, and all medical and nursing actions provided during care. Complete medical records function not only as a means of communication among professions but also as legal evidence, a basis for medical decision-making, and an indicator of hospital service quality. However, the problem of incomplete medical record documentation is still frequently encountered in various hospitals in Indonesia, including in the inpatient unit of Ridhoka Salma Hospital. This incompleteness usually takes the form of delayed or blank entries in the initial assessment, care plan, and medical or nursing interventions. These conditions pose risks to service quality, patient safety, and the legal standing of the hospital.

Studies in several hospitals show that the level of medical record completeness remains low. Rahmawati et al. (2022) reported that medical record completeness at Madiun City Regional Hospital reached only 72.4%. Putri et al. (2022) even found that only about 60% of medical records met completeness standards. At Hospital X in Yogyakarta, Sari et al. (2023) found persistent inconsistencies in documentation despite the availability of standard operating procedures (SOPs). A similar phenomenon was found at Ridhoka Salma Hospital, where incomplete medical records continued to occur even though policies and SOPs had been established.

Most previous studies have examined only one or two factors contributing to incomplete medical records, such as workload or healthcare worker compliance. In fact, the contributing factors are multidimensional, encompassing individual aspects (knowledge, attitude, length of service), organizational aspects (head nurse leadership,

hospital policy), and managerial systems (supervision, workload distribution). Research that comprehensively examines these factors, particularly in regional private hospitals such as Ridhoka Salma Hospital, remains limited.

The novelty of this study lies in its multifactorial analysis of medical record completeness, simultaneously involving the variables of knowledge, attitude, workload, length of service, and head nurse leadership. This study also identifies the most dominant influencing factor, thereby providing an evidence-based foundation for hospital management in designing interventions such as routine training, workload management, and strengthened supervision.

This study aimed to analyze the factors influencing the completeness of medical record documentation by healthcare workers in the inpatient unit of Ridhoka Salma Hospital Cikarang. Specifically, it identified the influence of knowledge, attitude, workload, length of service, and leadership on medical record completeness, and determined the most dominant factor.

2. METHODS

2.1 Study Design

This study used a quantitative analytic design with a cross-sectional approach, in which the independent variables (knowledge, attitude, workload, length of service, and head nurse leadership) and the dependent variable (medical record completeness) were measured simultaneously at a single point in time.

2.2 Population and Sample

The population comprised all healthcare workers (physicians, nurses, and midwives) on duty in the inpatient unit of Ridhoka Salma Hospital Cikarang. The sample consisted of 109 respondents selected using a total sampling technique, as the number of eligible individuals in the population was still manageable.

The inclusion criteria were healthcare workers who had worked in the inpatient unit for at least six months, were willing to participate and sign informed consent, and were directly involved in completing patient medical records. The exclusion criteria were healthcare workers who were on leave or not actively on duty during the study, and those who did not complete medical records directly (e.g., non-medical administrative staff).

2.3 Research Instruments

The research instrument was a structured questionnaire that had been tested for validity and reliability. The independent variables were knowledge, attitude, workload, length of service, and head nurse leadership. The dependent variable was the completeness of medical record documentation, measured through a review of medical record documents and respondents' statements.

2.4 Data Collection Procedure

Data were collected through questionnaires completed by respondents for the variables of knowledge, attitude, workload, length of service, and leadership, and through a review of medical record documents to assess the level of completeness based on hospital standards and Minister of Health Regulation No. 24 of 2022.

2.5 Data Analysis

Data analysis was conducted in stages. Univariate analysis described the respondents' characteristics and the distribution of variables. Bivariate analysis used the Chi-square test to examine the relationship between the independent variables and medical record completeness. Multivariate analysis used logistic regression to determine the dominant factor influencing medical record completeness.

2.6 Ethical Considerations

This study obtained ethical approval from the Research Ethics Committee of Universitas Respati Indonesia. Respondents were given an explanation of the study's objectives and signed informed consent before completing the questionnaire. Data confidentiality was guaranteed, and the data were used solely for research purposes.

3. RESULTS

This study was conducted in the inpatient unit of Ridhoka Salma Hospital Cikarang from May to June 2025. A total of 109 healthcare workers, comprising physicians, nurses, and midwives, participated. All respondents met the inclusion criteria and provided informed consent. Data were obtained through questionnaires and a review of patient medical records.

Table 1. Distribution of Respondent Characteristics (*n* = 109)

Characteristic	Frequency (f)	Percentage (%)
Sex		
Male	41	37.6
Female	68	62.4
Age		
<30 years	32	29.4
30–40 years	47	43.1
>40 years	30	27.5
Education		
D3/D4	61	56.0
S1/S2	48	44.0
Length of service		
<5 years	36	33.0
≥5 years	73	67.0

Most respondents were female (62.4%), aged 30–40 years (43.1%), and held a D3/D4 education (56.0%). The majority had worked for ≥5 years (67.0%), indicating considerable experience in inpatient care.

Table 2. Distribution of Independent Variables and Medical Record Completeness (n = 109)

Variable	Category	f	%
Knowledge	Good	72	66.1
	Poor	37	33.9
Attitude	Positive	70	64.2
	Negative	39	35.8
Workload	Light–moderate	44	40.4
	High	65	59.6
Leadership	Effective	67	61.5
	Ineffective	42	38.5
Medical record completeness	Complete	71	65.1
	Incomplete	38	34.9

Most healthcare workers had good knowledge (66.1%) and a positive attitude (64.2%) toward medical record documentation. However, more than half of the respondents (59.6%) reported a high workload. Head nurse leadership was rated effective by most respondents (61.5%).

Table 3. Relationship Between Individual and Organizational Factors and Medical Record Completeness

Variable	Complete (%)	Incomplete (%)	p-value
Knowledge			
Good (n = 72)	85.0	15.0	0.002*
Poor (n = 37)	35.1	64.9	
Attitude			
Positive (n = 70)	74.3	25.7	0.067
Negative (n = 39)	51.3	48.7	
Workload			
Light–moderate (n = 44)	77.3	22.7	0.014*
High (n = 65)	55.4	44.6	
Length of service			
≥5 years (n = 73)	75.3	24.7	0.031*
<5 years (n = 36)	47.2	52.8	
Leadership			
Effective (n = 67)	70.1	29.9	0.081
Ineffective (n = 42)	57.1	42.9	

** Statistically significant ($p < 0.05$), based on the Chi-square test.*

Of the medical records reviewed, 65.1% were complete according to standards, while 34.9% remained incomplete. This indicates a compliance problem in documentation, even though most respondents had good knowledge. The Chi-square test showed significant relationships between knowledge (p = 0.002), workload (p = 0.014), and length of service (p = 0.031) and medical record completeness. Meanwhile, attitude (p = 0.067) and leadership (p = 0.081) showed no significant relationship.

Table 4. Logistic Regression Analysis of Factors Influencing Medical Record Completeness

Variable	OR	95% CI	p-value
Knowledge	6.21	2.03–18.94	0.002*
Workload	2.75	1.22–6.21	0.014*
Length of service	2.48	1.08–5.73	0.031*

** Statistically significant ($p < 0.05$). OR = odds ratio; CI = confidence interval.*

The multivariate analysis showed that the dominant factor influencing medical record completeness was healthcare workers' knowledge (OR = 6.21), followed by workload (OR = 2.75) and length of service (OR = 2.48).

4. DISCUSSION

The results of this study showed that medical record completeness in the inpatient unit of Ridhoka Salma Hospital reached only 65.1%, while the remaining 34.9% were still incomplete. This finding is consistent with the study by Rahmawati et al. (2022), who reported an average medical record completeness of only 72.4% at Madiun City Regional Hospital, and Putri et al. (2022), who found that only about 60% of medical records met standards. Thus, the problem of incomplete medical records remains a common issue in various hospitals in Indonesia, both public and private.

This study found that knowledge was the dominant factor influencing medical record completeness (OR = 6.21; p = 0.002). Healthcare workers with good knowledge were six times more likely to complete medical records than those with poor knowledge. This result is consistent with the findings of Yuliana et al. (2023) and Romansyah (2022), who stated that routine training improves medical documentation compliance. Notoatmodjo (2020) also emphasized that knowledge is the basis of professional behavior, including the fulfillment of clinical administrative obligations. The novelty of this study is its reconfirmation that knowledge is the most influential factor, even when clear policies and SOPs already exist in the hospital.

Workload was significantly associated with medical record completeness (p = 0.014; OR = 2.75). Respondents with a high workload tended not to complete documentation. This is consistent with the studies by Wulandari et al. (2022) and Kristanto (2022), which showed that a high patient load and shift rotation are major obstacles to the timeliness of medical record completion. WHO (2022) also noted that excessive workload can reduce healthcare workers' concentration and compliance. These findings underscore the need for proportional workload management so that medical documentation can be carried out according to standards.

The results showed that healthcare workers with ≥5 years of service were more compliant in completing medical records than those with <5 years of service (p = 0.031; OR = 2.48). This finding is consistent with the studies by Kurniawan et al. (2022) and Hidayat et al. (2023), which reported that longer work experience improves compliance with SOPs. However, Saraswati (2021) cautioned that long experience without continuous training may actually

reduce documentation quality due to burnout. Therefore, hospital management needs to ensure regular training updates, even for senior staff.

Although the variables of attitude and head nurse leadership showed a positive relationship with medical record completeness, neither was statistically significant ($p > 0.05$). This differs from the study by Mustofa et al. (2022), which found that a positive attitude was associated with documentation compliance, and Nugroho et al. (2022), which emphasized the influence of transformational leadership on medical record quality. This difference may be due to organizational factors at Ridhoka Salma Hospital, where SOPs are available but implementation oversight has not been consistent.

Implications

The results of this study reinforce the evidence that knowledge, workload, and length of service are important factors influencing medical record completeness. Knowledge emerged as the dominant factor; therefore, training and capacity building for healthcare workers should be a priority for hospital management. In addition, more proportional workload management and strengthened continuous supervision are needed to improve medical record completeness.

5. CONCLUSION

This study showed that the completeness of medical record documentation in the inpatient unit of Ridhoka Salma Hospital Cikarang remains suboptimal, with one-third of the medical record files declared incomplete. The factors significantly associated with completeness were knowledge, workload, and length of service, with knowledge being the most dominant factor. Meanwhile, attitude and head nurse leadership showed no significant relationship, although they still contributed to healthcare workers' documentation behavior.

Hospitals need to enhance the capacity of healthcare workers through routine training on medical record completion standards, improve workload management to be more proportional, and strengthen the supervisory function to ensure documentation compliance. Healthcare workers are expected to increase their professional awareness that medical record completeness is an integral part of patient safety and legal responsibility. Future research is recommended to include other variables, such as motivation, reward-and-punishment systems, and the use of electronic medical records, to provide a more comprehensive picture.

DATA AVAILABILITY STATEMENT

The datasets generated and/or analyzed during this study are available from the corresponding author on reasonable request.

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CONFLICT OF INTEREST

The authors declare no competing interests.

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