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# Association Between Dimension of Intelligence and Work Performance among Medical Data Recorders: A Cross-sectional Study

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ABSTRACT

Medical records are vital for informed diagnosis and patient care. Therefore, optimizing the performance of medical data recorders is essential. Performance can be assessed based on several factors, including ability, attitude, appearance, leadership support, initiative, and responsibility. Intelligence, encompassing intellectual, emotional, and spiritual dimensions, represents an important aspect of ability. This study examines the relationship between work performance and intelligence dimensions among medical data recorders. A cross-sectional study was conducted at the Health Center of East Surabaya with 35 participants. Data were analyzed using multiple linear regression. Most participants were aged 30–40 years, predominantly female, held a diploma, and had over five years of work experience. The highest mean intelligence score was observed for spiritual intelligence (mean = 4.37), specifically in flexibility and the principle of truth. The highest mean performance score was observed for concentration (mean = 4.54). Linear regression analysis indicated that gender and intelligence dimensions significantly influenced performance, with a strong correlation (R = 0.767). These findings highlight the importance of structured leadership coaching, memory enhancement modules, and emotional resilience training for health workers to improve performance.

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## Introduction

Every organization or company requires resources to achieve its goals. These resources serve as sources of energy and power that drive movement and activity. They include natural, financial, scientific, technological, and, most importantly, human resources. The availability and empowerment of human resources are essential for advancing health development, because quality and affordable services for all segments of society cannot be realized without human resource readiness. Human resource readiness can be achieved through comprehensive planning that focuses on strategic steps taken by management to ensure the organization has the right workforce occupying the right positions at the right time to achieve the goals and targets that have been set [1].

In relation to the development and improvement of human resources, one critical factor is performance. Performance is a series of measurements related to the achievement of an individual's work, both in terms of quality and quantity, in carrying out duties in accordance with established standards and criteria to achieve organizational goals [2]. Therefore, performance can be defined as the quantity and quality of task achievement, whether carried out by individuals, groups, or organizations. According to [3], the performance of medical records officers can be assessed based on several criteria: (1) the alignment of officers' abilities with their professional roles regardless of recent educational attainment; (2) their attitudes, including greeting, smiling, being friendly to patients, discipline in completing work, and adherence to work hours; (3) their appearance, including attire and the use of attributes according to applicable procedures and regulations; (4) attention provided by supervisors and leaders through supervision and evaluation of all tasks; (5) initiative and responsiveness in carrying out work; and (6) responsibility.

Incomplete, inconsistent, and low-accuracy data recording are major factors contributing to declines in healthcare service performance. Complete and standardized data recording can facilitate the development of evidence-based policies, enhance the capacity and performance of healthcare facilities, and reduce the administrative burden on hospitals in meeting reporting requirements. Medical records serve as written documentation of healthcare services and contain clinical data related to patient diagnosis and treatment. Effective medical record management in hospitals is essential to achieving administrative order and ultimately improving hospital performance and the quality of healthcare services.

According to [4], intellectual intelligence, emotional intelligence, and spiritual intelligence, whether individually or collectively, can significantly influence employee performance. Performance issues observed in health centers are likely associated with several factors: (1) intellectual quotient: officers may not yet optimally perform tasks related to numerical, verbal, perceptual, deductive reasoning, spatial visualization, and memory skills; (2)

emotional quotient: officers may have limitations in self-awareness, self-management, motivation, social awareness, and relationship management; (3) spiritual quotient: officers may not yet fully demonstrate flexibility, the ability to understand visions and goals, resilience in facing challenges, efforts to improve quality of life, adherence to social norms, curiosity, and problem-solving abilities. Therefore, it is important to conduct a study in healthcare facilities, specifically in health centers, to examine employee performance based on the dimensions of intelligence quotient, including intellectual, emotional, and spiritual quotients.

## Material and Methods

This study employed a statistical analysis method with a cross-sectional approach, in which all variables were measured simultaneously. The study was conducted at the Health Center of East Surabaya. The population included all officers directly involved in recording patient medical data (doctors, nurses, other health workers, administrative staff, medical recorders, and health information officers), totaling 35 participants selected using a total sampling technique.

The research instrument was an assessment form completed by all officers directly involved in patient medical data recording. Data were collected through questionnaires distributed to all participants. Responses were measured using a Likert scale to determine the average frequency for each variable, without hypothesis testing using the Chi-squared test. The results are presented as frequency, mean, and percentage.

Data analysis involved testing relationships using linear regression, assessing the association of independent variables (i.e., respondent characteristics (age, gender, educational background, work experience) and intelligence quotients (intellectual, emotional, and spiritual)) with the dependent variable (performance). This study is limited in that it did not conduct cross-tabulation analyses for each variable.

This study was approved by the Health Research Ethics Committee of STIKES Yayasan Rumah Sakit Dr. Soetomo (Approval No. KEPK/YRSDS/021b/VII/2024). All participants provided informed consent prior to participation, and the study was conducted in accordance with the principles of the Declaration of Helsinki and relevant national regulations on research involving human subjects.

## Results

### A. Characteristics of the Participants

Based on Table 1, the characteristics of the participants indicate that most were aged between 30 and 40 years (42.9%), followed by those aged 20–30 years (37.1%), and more

than 40 years old (20%). No participants were 20 years old or younger. The majority of participants were female (85.7%), while only a small proportion were male (14.3%). Regarding educational background, nearly half of the participants held a diploma (45.7%), followed by those with a bachelor's degree (34.3%), specialists (17.1%), and high school graduates (2.9%). No participants had a master's degree. In terms of work experience, more than half of the participants had over five years of experience (51.4%), while 22.9% had 1–2 years, 17.1% had 2–4 years, 5.7% had 4–5 years, and only 2.9% had less than one year of work experience.

**Table 1.** Characteristics of participants.

| Characteristic | n | % |
|---|---|---|
| **Age** | | |
| ≤20 years old | 0 | 0 |
| >20-30 years old | 13 | 37.1 |
| >30-40 years old | 15 | 42.9 |
| >40 years old | 7 | 20 |
| **Gender** | | |
| Male | 5 | 14.3 |
| Female | 30 | 85.7 |
| **Educational background** | | |
| High school | 1 | 2.9 |
| Diploma | 16 | 45.7 |
| Bachelor | 12 | 34.3 |
| Master | 0 | 0 |
| Specialist | 6 | 17.1 |
| **Work experience** | | |
| <1 year | 1 | 2.9 |
| >1-2 years | 8 | 22.9 |
| >2-4 years | 6 | 17.1 |
| >4-5 years | 2 | 5.7 |
| >5 years | 18 | 51.4 |

**B. Overview of Intelligence Quotient of the Participants**

The following are the results of the analysis of intelligence quotients among medical data recording officers (Table 2). Responses were rated on a 5-point Likert scale, where 1 indicated 'Strongly Disagree,' 2 'Disagree,' 3 'Neutral,' 4 'Agree,' and 5 'Strongly Agree.'

The assessment of intellectual intelligence among medical data recorders revealed relatively high scores across all indicators. The numerical ability, reflecting the capacity to interpret tables, diagrams, and graphs, had a mean of 4.23 (SD = 0.65). Verbal ability, which measures the capacity to convey understanding of what is read and heard, scored slightly higher with a mean of 4.31 (SD = 0.63). Inductive reasoning, or the ability to synthesize specific observations into general conclusions and solve problems, had a mean of 4.29 (SD = 0.57), while deductive reasoning, the ability to analyze broader information into specific

outcomes and determine cause-effect relationships, had a mean of 4.20 (SD = 0.63). Memory, reflecting the ability to recall past cases, showed the lowest mean among intellectual indicators at 4.03 (SD = 0.66).

Emotional intelligence indicators also demonstrated high mean scores. Self-awareness, representing decision-making and confidence, had a mean of 4.26 (SD = 0.61). Self-management, which captures the ability to handle emotions and overcome stress, had a mean of 4.20 (SD = 0.53). Motivation, defined as the persistence to achieve goals despite challenges, scored 4.14 (SD = 0.60). Social awareness or empathy, reflecting the ability to understand others and foster trust, had a mean of 4.17 (SD = 0.56). Relationship management, which measures teamwork, emotional handling, and leadership skills, scored 4.11 (SD = 0.67).

Spiritual intelligence indicators showed the highest mean scores overall. Flexibility, the ability to accept and position oneself according to others' opinions, had a mean of 4.37 (SD = 0.59). Resilience, representing the ability to face challenges and use adversity as motivation, had a mean of 4.23 (SD = 0.77). The principle of truth, reflecting adherence to life values and ethical principles, also scored 4.37 (SD = 0.59). Finally, adherence to social norms and regulations had a mean of 4.29 (SD = 0.50). Overall, these results indicate that medical data recorders exhibit strong intellectual, emotional, and spiritual intelligence, with the highest performance observed in the spiritual dimension, particularly in flexibility and adherence to ethical principles.

**Table 2.** Results of intelligence quotient analysis.

| Indicator | Item Statement From Variable | Likert Scale** | | | | | Mean* | SD |
|---|---|---|---|---|---|---|---|---|
| | | (1) | (2) | (3) | (4) | (5) | | |
| **INTELLECTUAL (Y1)** | | | | | | | | |
| Numerical | Ability to interpret tables/diagrams/ graphs | 0 | 0 | 4 (11.4%) | 19 (54.3%) | 12 (34.3%) | 4.23 | 0.65 |
| Verbal | Ability to convey an understanding of what is read and heard | 0 | 0 | 3 (8.6%) | 18 (51.4%) | 14 (40%) | 4.31 | 0.63 |
| Inductive | Ability to observe specific things to become general (ability to synthesize) or solve problems | 0 | 0 | 2 (5.7%) | 21 (60%) | 12 (34.3%) | 4.29 | 0.57 |
| Deductive | Ability to observe big things into specific ones (ability to analyze)/determine the cause and effect of a problem | 0 | 0 | 4 (11.4%) | 20 (57.1%) | 11 (31.4%) | 4.20 | 0.63 |
| Memory | Ability to remember past cases | 0 | 0 | 7 (20%) | 20 (57.1%) | 8 (22.9%) | 4.03 | 0.66 |

| Indicator | Item Statement From Variable | Likert Scale** | | | | | Mean* | SD |
|---|---|---|---|---|---|---|---|---|
| | | (1) | (2) | (3) | (4) | (5) | | |
| **EMOTIONAL (Y2)** | | | | | | | | |
| Self-awareness | Ability to make decisions and strong self-confidence | 0 | 0 | 3 (8.6%) | 20 (57.1%) | 12 (34.3%) | 4.26 | 0.61 |
| Self-management | Ability to handle emotions that are owned and to overcome stress | 0 | 0 | 2 (5.7%) | 24 (68.6%) | 9 (25.7%) | 4.20 | 0.53 |
| Motivation | Ability to have the desire to move towards a goal, and to persist in the face of failure and frustration | 0 | 0 | 4 (11.4%) | 22 (62.9%) | 9 (25.7%) | 4.14 | 0.60 |
| Social awareness/ empathy | Ability to feel what others feel, be able to understand others, foster relationships of mutual trust | 0 | 0 | 3 (8.6%) | 23 (65.7%) | 9 (25.7%) | 4.17 | 0.56 |
| Relationship management | Ability to work in a team, good emotions in dealing with others, and skilled in leading and influencing others | 0 | 0 | 6 (17.1%) | 19 (54.3%) | 10 (28.6%) | 4.11 | 0.67 |
| **SPIRITUAL (Y3)** | | | | | | | | |
| Flexibility | Ability to position oneself and accept other people's opinions openly | 0 | 0 | 2 (5.7%) | 18 (51.4%) | 15 (42.9%) | 4.37 | 0.59 |
| Resilience | Ability to face and utilize suffering and make it a motivation | 0 | 1 (2.9%) | 4 (11.4%) | 16 (45.7%) | 14 (40%) | 4.23 | 0.77 |
| Principle of truth | Ability to adhere to life values and principles of truth | 0 | 0 | 2 (5.7%) | 18 (51.4%) | 15 (42.9%) | 4.37 | 0.59 |
| Social norm | Ability to work while adhering to applicable regulations and norms | 0 | 0 | 0 | 18 (51.4%) | 17 (48.6%) | 4.29 | 0.50 |

*Mean category: 1–1.8 = poor; >1.8–3.6 = good; >3.6–5 = very good
**Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

### C. Performance Overview

The results of the study indicate that the quality dimension of work performance, particularly concentration, received the highest mean score of 4.54 (SD = 0.50), with 54.3% of participants strongly agreeing and 45.7% agreeing that their work requires concentration (See Table 3). Appearance was also rated highly, with a mean of 4.49 (SD = 0.56), where 51.4% strongly agreed and 45.7% agreed that they maintain a neat appearance while performing their duties. The accuracy of work was slightly lower, with a mean of 4.20 (SD = 0.58); 28.6% of participants strongly agreed, 62.9% agreed, and 8.6% were neutral regarding the correctness of their work. Work results in accordance with assigned tasks

received a mean score of 4.37 (SD = 0.59), with 42.9% of participants strongly agreeing and 51.4% agreeing.

In the quantity dimension, punctuality showed a mean of 4.29 (SD = 0.57), with 34.3% of participants strongly agreeing and 60% agreeing that they always complete work on time. Completing tasks within the specified time allocation received a slightly higher mean of 4.34 (SD = 0.59), with 40% strongly agreeing and 54.3% agreeing. Initiative in carrying out work without instructions from superiors had a mean score of 4.23 (SD = 0.60), with 31.4% strongly agreeing and 60% agreeing. Willingness to work overtime if tasks are not completed on time received the lowest mean within this dimension at 4.20 (SD = 0.71), with 37.1% strongly agreeing, 45.7% agreeing, and 17.1% remaining neutral.

**Table 3.** Results of performance analysis.

| Indicator | Item Statement From Variable | Likert Scale* | | | | | Mean | SD |
|---|---|---|---|---|---|---|---|---|
| | | (1) | (2) | (3) | (4) | (5) | | |
| **QUALITY (Z1)** | | | | | | | | |
| Concentration | Requiring concentration at work | 0 | 0 | 0 | 16 (45.7%) | 19 (54.3%) | 4.54 | 0.50 |
| Accuracy | Work done correctly | 0 | 0 | 3 (8.6%) | 22 (62.9%) | 10 (28.6%) | 4.20 | 0.58 |
| Appearance | Looking neat | 0 | 0 | 1 (2.9%) | 16 (45.7%) | 18 (51.4%) | 4.49 | 0.56 |
| Work result | Work results in accordance with the tasks given | 0 | 0 | 2 (5.7%) | 18 (51.4%) | 15 (42.9%) | 4.37 | 0.59 |
| **QUANTITY (Z2)** | | | | | | | | |
| Punctuality | Work always completed on time | 0 | 0 | 2 (5.7%) | 21 (60%) | 12 (34.3%) | 4.29 | 0.57 |
| As per the specified time | Completing tasks within the allotted time allocation | 0 | 0 | 2 (5.7%) | 19 (54.3%) | 14 (40%) | 4.34 | 0.59 |
| Initiative | Initiative in carrying out work without orders from superiors | 0 | 0 | 3 (8.6%) | 21 (60%) | 11 (31.4%) | 4.23 | 0.60 |
| Overtime | Willing to work overtime if work is not completed on time | 0 | 0 | 6 (17.1%) | 16 (45.7%) | 13 (37.1%) | 4.20 | 0.71 |
| **SUPERVISION (Z3)** | | | | | | | | |
| Monitoring | The leader always supervises the work | 0 | 1 (2.9%) | 4 (11.4%) | 14 (40%) | 16 (45.7%) | 4.29 | 0.78 |
| Direction | The leader always provides directions in every job | 0 | 1 (2.9%) | 3 (8.6%) | 18 (51.4%) | 13 (37.1%) | 4.23 | 0.73 |
| Evaluation | The leader always assessing the work done | 0 | 0 | 4 (11.4%) | 20 (57.1%) | 11 (31.4%) | 4.20 | 0.63 |

*Likert scale: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Regarding the supervision dimension, monitoring by leaders was rated with a mean of 4.29 (SD = 0.78), where 45.7% strongly agreed and 40% agreed that leaders consistently supervise their work. Direction from leaders received a mean of 4.23 (SD = 0.73), with 37.1% strongly agreeing and 51.4% agreeing that leaders provide guidance in every job. Finally, evaluation of work by leaders had a mean score of 4.20 (SD = 0.63), with 31.4% strongly agreeing and 57.1% agreeing that their work is consistently assessed.

Overall, these findings suggest that medical data recorders demonstrate strong performance in concentration and appearance, maintain good punctuality and initiative, and receive adequate supervision and evaluation from leaders, although willingness to work overtime and accuracy showed slightly lower agreement among participants.

**Table 4.** Validity and reliability test.

| Aspects | Indicators | Validity | | Reliability | |
|---|---|---|---|---|---|
| | | Pearson Correlation | Result | Cronbach's Alpha | Result |
| Characteristics of officers | Age | 0.721** | Valid | 0.679 | Reliable |
| | Gender | 0.383* | Valid | 0.695 | Reliable |
| | Educational background | 0.378* | Valid | 0.762 | Reliable |
| | Work experience | 0.709 | Valid | 0.719 | Reliable |
| Intelligence quotient | Intellectual | 0.998** | Valid | 0.671 | Reliable |
| | Emotional | 0.999** | Valid | 0.672 | Reliable |
| | Spiritual | 0.998** | Valid | 0.673 | Reliable |
| Performance | Quality | 0.998** | Valid | 0.673 | Reliable |
| | Quantity | 1.000** | Valid | 0.675 | Reliable |
| | Supervision | 0.998** | Valid | 0.675 | Reliable |

The validity and reliability of the research instruments were assessed for all variables, including officer characteristics, intelligence quotient dimensions, and performance indicators (See Table 4). For the characteristics of officers, the age variable showed a Pearson correlation of 0.721, indicating high validity, with a Cronbach's alpha of 0.679, demonstrating acceptable reliability. Gender and educational background were also valid, with Pearson correlations of 0.383 and 0.378, respectively, and reliable, with Cronbach's alpha values of 0.695 and 0.762. Work experience exhibited strong validity and reliability, with a Pearson correlation of 0.709 and a Cronbach's alpha of 0.719.

Regarding the intelligence quotient, all three dimensions (i.e., intellectual, emotional, and spiritual) demonstrated very high validity, with Pearson correlations of 0.998, 0.999, and 0.998, respectively, and satisfactory reliability, with Cronbach's alpha values ranging from 0.671 to 0.673. Performance indicators, including quality, quantity, and supervision, were all found to be highly valid, with Pearson correlations of 0.998 to 1.000, and reliable,

with Cronbach's alpha values between 0.673 and 0.675. These results indicate that the research instruments were both valid and reliable, providing a robust basis for further analysis of the relationships among officer characteristics, intelligence quotient, and work performance.

**Table 5.** Effects of characteristics of officers and intelligence quotient on performance.

| Category | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | R |
|---|---|---|---|---|---|---|
| | B | Std. Error | Beta | | | |
| Age | .049 | .033 | .218 | 1.472 | .152 | 0.767 |
| Gender | -.135 | .064 | -.284 | -2.114 | **.043*** | |
| Educational background | -.013 | .020 | -.088 | -.647 | .523 | |
| Work experience | -.010 | .018 | -.080 | -.536 | .596 | |
| Intelligence quotient | .521 | .094 | .726 | 5.540 | **.000*** | |

As in Table 5, the linear regression analysis examining factors influencing the performance of medical data recorders revealed several notable findings. Among the demographic characteristics, age showed a positive but non-significant association with performance (B = 0.049, β = 0.218, t = 1.472, p = 0.152), indicating that older participants tended to have slightly higher performance scores, although this relationship was not statistically significant. Gender, however, was significantly associated with performance (B = -0.135, β = -0.284, t = -2.114, p = 0.043), suggesting that performance differed between male and female participants. Educational background (B = -0.013, β = -0.088, t = -0.647, p = 0.523) and work experience (B = -0.010, β = -0.080, t = -0.536, p = 0.596) did not show significant effects on performance.

Intelligence quotient demonstrated a strong and significant positive association with performance (B = 0.521, β = 0.726, t = 5.540, p < 0.001), indicating that higher intellectual, emotional, and spiritual intelligence scores were strongly related to better work performance. Overall, the regression model showed a strong correlation (R = 0.767), highlighting that gender and intelligence quotient together explain a substantial portion of the variation in performance among medical data recorders.

Further analysis of performance indicators revealed high reliability and validity across all measured dimensions. Quality, quantity, and supervision indicators all demonstrated excellent validity (ranging from 0.998 to 1.000) and reliability (ranging from 0.673 to 0.675), confirming that the performance assessment instrument effectively captured the key aspects of medical data recorder performance.

## Discussion

### A. Characteristics of Officers

The results of the study showed that the characteristics of officers responsible for recording patient medical data at the health center included age, gender, and work experience. Regarding age, the majority of officers fell within the >30–40 years age group. This contrasts with the results of [7], which reported that most health center officers were aged <30 years or >40 years. The predominance of female officers in this study is consistent with the findings of [1] and [8]. In terms of educational background, most respondents held a diploma-level qualification, which aligns with the findings of [9], who noted that most officers responsible for medical records in hospitals held a diploma-level qualification. Regarding work experience, most officers had more than five years of experience, consistent with [10], [11], [12], and [7].

This study showed that officers in healthcare facilities, particularly in health centers, are predominantly within the productive age group, a period associated with optimal physical function, good concentration, and endurance, reducing the likelihood of fatigue at work. The findings also indicated that most respondents were female, reflecting current conditions in many health centers [13]. Traditionally, men have obligations to work and greater opportunities to pursue higher education. Although women do not have the same societal obligations, there should be no discrimination regarding work, study, or career development. Women can achieve equal or even higher levels of education and career advancement, suggesting they have the same opportunities and potential as men to improve education, knowledge, skills, and career levels. Additionally, nursing and midwifery education tends to be pursued by women, which may explain the significant female representation within health service institutions.

The results also indicated that the majority of officers had more than five years of work experience, consistent with [7]. Longer work experience, specifically more than five years, is associated with a better understanding of work culture, familiarity with established systems, proficiency in operating procedures, and the ability to overcome workplace problems. In contrast, officers with less than five years of experience, particularly under three years, may need further development and adjustment in skills and operational mastery. Work experience contributes to habituation, especially for tasks routinely performed. Over time, repetition improves skills and forms capabilities among experienced officers. Research at the Health Centers of Menur and Pucang Sewu showed that officers with more than five years of experience demonstrated good to very good performance. However, work experience alone did not significantly affect performance. Therefore, job

rotation is recommended to stimulate enthusiasm, overcome boredom, provide opportunities to learn new skills, improve abilities, and reduce turnover.

**B. Intelligence Quotient**

The results of this study indicated that intelligence quotients were associated with performance, consistent with [14] and [15], who stated that intellectual, emotional, and spiritual intelligence collectively impact employee performance. These findings are also supported by [2], which demonstrated that emotional and intellectual intelligence have a positive and significant effect on performance.

Although the mean values of all intelligence quotient indicators were classified as very good, this variable showed only a moderate association with performance. Therefore, it remains necessary to improve the lowest indicator within each dimension to enhance overall performance. In the intellectual quotient, the lowest mean was observed in memory. Health centers should consider implementing routine dissemination and periodic training to strengthen memory skills among officers. Improvements are also recommended for the relationship management indicator, which recorded the lowest mean in the emotional quotient, by developing teamwork, emotional regulation in interpersonal interactions, leadership skills, and the ability to engage others. This can be achieved through participation in leadership training programs, either externally or internally provided by the health center.

Resilience, an indicator of the spiritual quotient, recorded the lowest mean compared to other indicators. To address this, it is important to enhance officers' ability to face and adapt to work pressures, deadlines, and targets set by superiors, as well as stressors from patients and their families. These challenges should be reframed as motivation, contributing to improved self-image and supporting the health center in achieving higher quality and better performance.

**C. Performance**

The results of this study indicated that the performance of health workers at the Health Centers of Menur and Pucang Sewu in recording patient medical data is very good. The lowest mean values were observed in accuracy, willingness to work overtime, and evaluation. Therefore, officer training is needed to support better performance. Efforts should be made to raise officers' awareness regarding the importance of performing work according to standard operating procedures and avoiding haste. This can maintain correct

work behaviors and promote accuracy, assisting health center management in correcting issues. These findings are consistent with previous research [16] and [17].

It is also recommended to improve officers' mindset in providing medical data recording services. Health center management should conduct briefings and regular meetings to emphasize dedication and loyalty to work, particularly in completing medical data, which must be prioritized even if it requires working beyond regular hours. Strengthening regulations and technical instructions regarding the obligation to complete medical records accurately and on time is further necessary. These efforts aim to address the low mean value of the overtime indicator in performance quantity. This aligns with [16], which stated that overtime is part of the workload, and pressures, such as completing tasks before break time, can influence work productivity.

The evaluation indicator under the performance supervision variable recorded the lowest mean value among all indicators. Improvement is needed through periodic assessments conducted by leaders. Such evaluations serve as monitoring tools, enhancing officers' self-awareness and encouraging them to carry out their duties and responsibilities more effectively. This is consistent with [17], which suggested that initiative and responsibility among officers can influence performance, and work experience contributes to increased motivation.

## Conclusion

The characteristics of the officers showed that the majority were aged >30–40 years, predominantly female, had a diploma-level education, and more than five years of work experience. Intelligence quotient comprises intellectual, emotional, and spiritual dimensions. The highest mean score was observed in spiritual intelligence, specifically in the indicators of flexibility and the principle of truth. Meanwhile, the lowest mean score was observed in intellectual quotient, specifically in the memory indicator. The highest mean score in performance was observed in the concentration indicator, while the lowest mean scores were observed in the indicators of accuracy, overtime, and evaluation.

To enhance intelligence quotient, it is necessary to improve memory through the dissemination of important information, updates on new policies, and periodic training to strengthen memory skills among officers. Regarding performance, improvements are needed in work accuracy and in fostering loyalty or a sense of belonging, including a willingness to work overtime when necessary. Evaluation can be enhanced by implementing assessments by leaders using a system of rewards and punishments to increase motivation and, ultimately, performance. Structured leadership coaching, memory enhancement modules, and emotional resilience programs for health workers are also recommended.

## Study Limitations and Recommendations for Future Work

This study has several limitations. First, the sample size was relatively small and limited to a single health center in East Surabaya, which may restrict the generalizability of the findings. Second, the study used a cross-sectional design, which allows observation of associations but does not establish causality. Third, data were collected using self-reported questionnaires, which may introduce response bias. Finally, the study did not perform cross-tabulation analyses for each variable, limiting the depth of analysis.

For future research, it is recommended to conduct studies with larger and more diverse populations across multiple healthcare facilities to improve generalizability. Longitudinal or experimental study designs could be employed to better examine causal relationships between intelligence quotient dimensions and performance. Additionally, incorporating objective performance assessments and exploring other potential factors influencing employee performance, such as organizational culture and leadership style, would provide a more comprehensive understanding of determinants of performance in healthcare settings.

## Conflict of Interest

The authors declare that there is no conflict of interest.

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