Supervision and Facility Availability as Determinants of Midwives' Performance in Recording and Reporting Local Area Monitoring of Maternal and Child Health

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ABSTRACT

Improving the health of mothers, newborns, and children through various maternal and child health (MCH) initiatives is an essential priority. One important strategy to enhance the quality of MCH services is improving the quality of recording and reporting data through the Local Area Monitoring of Maternal and Child Health. Midwives' performance plays a crucial role in ensuring the accuracy and completeness of these recording and reporting activities. This study aimed to analyze factors associated with midwives' performance in recording and reporting PWS KIA data in the working area of Panarung Primary Health Center. This study employed a cross-sectional design. The sample consisted of 20 midwives working in the Panarung Primary Health Center area, selected using a total sampling technique. Data were collected using a structured questionnaire. The relationships between variables were analyzed using the Fisher's exact test. The analysis showed that supervision ($p = 0.03$) and facility availability ($p = 0.02$) were significantly associated with midwives' performance. In contrast, age ($p = 1.00$), education level ($p = 0.45$), length of service ($p = 1.00$), perception ($p = 0.65$), motivation ($p = 1.00$), and workload ($p = 1.00$) were not significantly associated with midwives' performance. In, conclusion, midwives' performance in recording and reporting data of the Local Area Monitoring of Maternal and Child Health is significantly associated with supervision and the availability of facilities.
Keywords: supervision; facilities; midwives' performance; maternal and child health

INTRODUCTION

Maternal and child health (MCH) is one of the priority programs of the Ministry of Health. The Maternal Mortality Ratio (MMR) and Infant Mortality Rate (IMR) are important indicators used to measure the success of health sector development. According to the Indonesia Health Profile 2022, the MMR during the period 1991–2020 declined from 390 to 189 per 100,000 live births. Although this trend indicates progress, the current figure has not yet met the Sustainable Development Goals (SDGs) target of 70 per 100,000 live births by 2030. Meanwhile, the trend in infant mortality also still requires continued interventions in order to achieve the national target of 16 deaths per 1,000 live births by the end of 2024 [1].

Efforts to reduce MMR and IMR have been implemented through various strategies, including improving access to and quality of health services by strengthening the capacity of health personnel, expanding health insurance coverage, and increasing the reach of health services, particularly in remote and difficult-to-access areas [2]. Improving the health of mothers, newborns, and children also requires innovative MCH programs supported by effective management capacity and proper program implementation. One important approach to strengthening MCH services is improving the quality of data recording and reporting systems through integrated information systems in the health sector [3].

A well-functioning information system includes appropriate processes of data input, recording, storage, and processing to support decision-making and improve efficiency in reporting activities at primary health care facilities [4]. Such systems are used to monitor the health status of pregnant women, newborns, infants, and toddlers. In addition, they provide essential information for evaluating program achievements and for planning health programs in subsequent periods. One of the national systems used for recording and reporting MCH services in Indonesia is the Local Area Monitoring for Maternal and Child Health (PWS KIA).

PWS KIA is a nationally implemented program designed to ensure that MCH programs are well monitored and properly implemented so that accurate data describing the coverage of MCH services in a particular area can be obtained. Activities within the PWS KIA system include continuous recording, analysis, and reporting processes to support evidence-based decision-making [5]. The effectiveness and quality of PWS KIA reporting data are closely related to the performance of health personnel responsible for recording and reporting MCH service activities. Several reports have indicated that the quality of PWS KIA data recording by midwives remains suboptimal [6]. This issue has been identified in studies examining organizational and human resource factors in Banyubiru Subdistrict, Semarang [7], as well as in Jember [8].

In addition, previous studies have reported that the commitment of coordinating midwives responsible for recording activities remains relatively weak in Kapuas Regency [9]. Similarly, the level of data accuracy and reporting by health personnel at Duren Primary Health Center has also been reported as inadequate. This condition is suspected to be related to the heavy workload faced by health workers, including responsibilities such as conducting home visits and managing various administrative records beyond PWS KIA documentation. Effective reporting is highly dependent on data quality, which includes several important dimensions such as completeness, accuracy and consistency, timeliness, and data integrity.

Panarung Primary Health Center is one of the health centers located in Palangka Raya City. Preliminary interviews with midwife representatives in the Panarung Primary Health Center working area revealed several challenges in the implementation of PWS KIA. The recording and reporting processes are still performed manually, while midwives are also responsible for multiple service activities both within and outside the health center, which require considerable time. In addition, the coordinating midwife requires additional time to complete the recapitulation of maternal and child health cohort records, and delays in submitting maternal and child cohort data from midwife teams in the service area are still frequently observed. These conditions indicate that midwives' performance in recording and reporting activities plays a crucial role in determining the quality of PWS KIA reporting data.

Therefore, it is important to examine factors that influence midwives' performance in recording and reporting activities in order to improve the quality of PWS KIA data management. Based on this background, the present study aims to analyze the factors associated with midwives' performance in recording and reporting PWS KIA in the working area of Panarung Primary Health Center.

METHODS

The study was conducted in the working area of Panarung Primary Health Center, Palangka Raya City, Indonesia. Data collection took place over a three-month period, from 21 February to 21 May 2022. This research employed an observational analytical approach with a cross-sectional design, in which data on all variables were collected at a single point in time to examine the relationships between the independent variables and midwives' performance. The study population consisted of all midwives working in the Panarung Primary Health Center service area. The research

sample included the entire population of midwives, totaling 20 participants. A total sampling technique (saturated sampling) was applied, whereby all members of the population were included as study participants, particularly when the population size is relatively small or fewer than 30 individuals. All eligible midwives who were actively working in the study area during the data collection period were recruited as respondents.

The dependent variable in this study was midwives' performance in recording and reporting PWS KIA data. This variable was measured using indicators that included completeness of documentation, accuracy of recorded data, and timeliness of reporting. The independent variables included age, education level, length of service, perception, motivation, workload, supervision, and availability of facilities. Data for all variables were collected using a structured questionnaire that was completed directly by the respondents. Prior to filling out the questionnaire, participants were provided with an explanation regarding the study objectives and procedures, and informed consent was obtained. Data analysis was conducted to examine the relationship between the independent variables and the dependent variable using the Fisher's Exact test [10]. This statistical test was selected due to the relatively small sample size.

RESULTS

The results of the study conducted among midwives in the working area of Panarung Primary Health Center showed that the majority of respondents were aged 21–40 years (55%), while 45% were aged 41–60 years. In terms of educational background, most respondents held a bachelor-equivalent degree (DIII/DIV/S1) (95%), and only 5% had a postgraduate degree (S2). Regarding work experience, the majority of respondents had worked for more than five years (80%), while 20% had less than five years of work experience.

Table 1. Distribution of study variables

Variable	Frequency	Percentage
Age		
21–40 years	11	55
41–60 years	9	45
Education		
DIII/DIV/Bachelor	19	95
Master	1	5
Length of Service		
New (<5 years)	4	20
Long (>5 years)	16	80
Perception		
Good	9	45
Poor	11	55
Motivation		
Good	19	95
Poor	1	5
Workload		
Heavy	2	10
Light	18	90
Supervision		
Good	15	75
Poor	5	25
Facilities		
Adequate	9	45
Inadequate	11	55
Performance		
Good	9	45
Poor	11	55

Table 2. Relationship between independent variables and midwives' performance

Variable	Performance				p-value
	Good		Poor		
	Frequency	Percentage	Frequency	Percentage	
Age					1.00
21–40 years	5	45	6	55	
41–60 years	4	44	5	56	
Education					0.45
Bachelor	8	42	11	58	
Postgraduate	1	100	0	0	
Length of Service					1.00
New (<5 years)	2	50	2	50	
Long (>5 years)	7	44	9	56	
Perception					0.65
Good	5	56	4	44	
Poor	4	36	7	64	
Motivation					1.00
Good	9	47	10	53	
Poor	0	0	1	100	
Workload					1.00
Light	8	44	10	56	
Heavy	1	50	1	50	
Supervision					0.03
Good	9	60	6	40	
Poor	0	0	5	100	
Facilities					0.02
Adequate	7	78	2	18	
Inadequate	2	22	9	82	

Furthermore, more than half of the respondents reported having a low perception regarding recording and reporting activities (55%). In contrast, most midwives demonstrated good motivation (95%). Regarding workload, the majority of respondents perceived their workload as light (90%). For the supervision variable, most respondents reported receiving good supervision (75%). However, the availability of facilities was predominantly categorized as inadequate (55%). In terms of performance, the majority of midwives were categorized as having poor performance in recording and reporting PWS KIA (55%). The distribution of respondent characteristics and study variables is presented in Table 1.

Table 2 presents the cross-tabulation between the independent variables and midwives' performance. Among respondents aged 21–40 years, 55% showed poor performance, while among those aged 41–60 years, 56% also demonstrated poor performance. Midwives with postgraduate education showed good performance (100%), whereas among those with undergraduate-level education, 42% showed good performance and 58% showed poor performance.

Regarding work experience, respondents with more than five years of service tended to have poorer performance (56%), while respondents with less than five years of service showed an equal distribution of good and poor performance (50% each). Midwives with good perceptions tended to demonstrate good performance (56%), whereas respondents with poor perceptions mostly demonstrated poor performance (64%).

For the motivation, respondents with good motivation still showed a relatively high proportion of poor performance (53%). Meanwhile, the only respondent with low motivation demonstrated poor performance (100%). Regarding workload, respondents who reported heavy workloads showed an equal proportion of good and poor performance (50% each). However, among respondents with light workloads, 56% still showed poor performance.

In terms of supervision, respondents who reported good supervision tended to demonstrate better performance (60%), whereas all respondents who reported poor supervision showed poor performance (100%). Similarly, for the facilities variable, respondents who reported inadequate facilities mostly demonstrated poor performance (82%).

The results of the Fisher's Exact test indicated that age (p = 1.00), education (p = 0.45), length of service (p = 1.00), perception (p = 0.65), motivation (p = 1.00), and workload (p = 1.00) were not significantly associated with midwives' performance. However, supervision (p = 0.03) and facilities (p = 0.02) were found to have a statistically significant association with midwives' performance in recording and reporting PWS KIA data.

DISCUSSION

Based on the results presented in Table 1, the performance of midwives in the working area of Panarung Primary Health Center in recording and reporting PWS KIA data was relatively balanced between the categories of poor and good performance. These findings were obtained from the assessment of each midwife in conducting the recording and reporting process of PWS KIA, particularly in terms of data completeness, data accuracy,

and timeliness in submitting reports. Midwives' performance in carrying out recording and reporting activities can be evaluated based on the quality of the reported data. Previous findings indicated that the quality of PWS KIA recording and reporting data at Duren Primary Health Center reached an average of 66.90%, which is below the expected standard of 80% [11]. Similarly, another study reported that the recording and reporting performance of midwives in the PWS KIA system at Banyu Biru Primary Health Center was also below 80%, and therefore categorized as inadequate [7]. Data completeness, accuracy, and timeliness are critical elements in PWS KIA reporting. High-quality data are essential for decision-making processes, enabling maternal and child health problems to be addressed effectively and promptly. In addition, PWS KIA data presentations can serve as advocacy materials as well as information and communication tools for stakeholders in solving both technical and non-technical problems [5].

The cross-tabulation analysis in this study showed that respondents in the age groups of 21–40 years and 41–60 years demonstrated relatively similar performance in carrying out recording and reporting activities. Statistical analysis also indicated that age was not significantly associated with midwives' performance in recording and reporting PWS KIA data. Age is generally considered one of the factors that may influence midwives' performance because it relates to experience and work capacity in completing tasks. However, previous research has also reported that age has only a weak influence on PWS KIA recording and reporting performance [12]. In the present study, age may not be associated with midwives' performance because midwives in primary health centers are primarily responsible for maternal and antenatal services, while PWS KIA reporting constitutes an additional administrative responsibility. Moreover, the main responsibility for coordinating reporting activities lies with the coordinating midwife. Therefore, reporting performance may not necessarily be influenced by the age of individual midwives.

In terms of education, the highest educational level among midwives at Panarung Primary Health Center was postgraduate education, represented by one respondent. The cross-tabulation results showed that the respondent with postgraduate education demonstrated good performance. However, statistical analysis indicated that education level was not significantly associated with midwives' performance. This finding differs from previous studies which reported that higher education levels were associated with better performance in recording and processing PWS KIA data [12]. In the present study, the absence of a significant relationship may be explained by the fact that all midwives working in the Panarung Primary Health Center area had at least a Diploma III in midwifery, meaning that they already met the minimum professional competency standards. A study conducted in the working area of Bukit Tinggi Primary Health Center also reported that although educational level was not statistically associated with midwives' performance in antenatal care services, midwives with appropriate professional education still play an important role in improving service quality and professional performance [13].

Regarding length of service, the analysis showed that there was no significant association between work experience and midwives' performance. Length of service is often considered a factor related to professional performance [14]. However, in this study, work experience was not associated with performance in PWS KIA recording and reporting. This finding may be related to other factors observed in the cross-tabulation results, which indicated that respondents with poorer perceptions and lower motivation tended to demonstrate poorer performance. Nevertheless, similar to work experience, perception and motivation were also not statistically associated with midwives' performance in this study. Perception refers to the process by which individuals organize and interpret stimuli received from their environment, which subsequently influences their attitudes and behaviors. In this context, perception is related to how midwives view the complexity of data recording and reporting procedures, including the difficulty of filling in small tables in certain reporting documents [7]. Midwives who perceive PWS KIA reporting procedures as manageable, with formats that are not overly complex, are more likely to produce complete, accurate, and timely reporting data [11].

Similarly, the analysis showed that motivation was not significantly associated with midwives' performance in recording and reporting PWS KIA data. Previous research has also reported that motivation was not significantly associated with performance in recording and reporting maternal and child health service data. This may occur because some respondents, particularly those working in independent midwifery practices, tend to wait for instructions from supervisors before completing reporting tasks, which may result in incomplete or delayed data submission [15]. Leadership motivation and encouragement in the workplace are therefore considered important in ensuring the quality of PWS KIA data reporting [6].

Furthermore, the workload variable in this study was not significantly associated with midwives' performance in PWS KIA recording and reporting. This result may be related to the relatively low perception and motivation levels among midwives regarding reporting tasks, as well as the fact that nearly 90% of respondents perceived their workload as light. This finding differs from other studies which reported that workload was significantly associated with midwives' performance in reporting maternal and child health services [15]. In the present study, the relatively light workload may be explained by the fact that not all midwives in the Panarung Primary Health Center area were fully involved in the entire process of PWS KIA recording and reporting, including data processing, and the number of midwives available to carry out MCH services was considered adequate.

In contrast, the cross-tabulation results indicated that respondents who reported inadequate facilities tended to demonstrate poorer performance in recording and reporting activities. Statistical analysis also showed a significant association between the availability of facilities and midwives' performance. Previous studies conducted among private practice midwives in Semarang City also reported a significant relationship between facility availability and midwives' performance [15]. The quality of reporting data is strongly supported by the availability of adequate facilities, and improving PWS KIA reporting quality requires the integration of information technology in data management systems [11]. Adequate infrastructure and facilities that correspond to the tasks that must be completed will support favorable working conditions, which in turn contribute to improved performance [16]. Other studies have similarly found that midwives supported by adequate facilities tend to demonstrate better performance [17].

Finally, the results of this study showed that supervision was significantly associated with midwives' performance in recording and reporting PWS KIA data. Similar findings have been reported in studies involving village midwives in Bangli, where effective supervision by coordinating midwives helped other midwives improve their professional duties and functions in providing midwifery services [18]. In the context of PWS KIA recording and reporting, supervision can be interpreted in two ways. First, it refers to supervision conducted by the coordinating midwife over PWS KIA reports submitted by midwives working in auxiliary health centers, which serve as input data. Second, it refers to supervision conducted by the head of the primary health center over the processed data and verification performed by the coordinating midwife. These findings are consistent with previous research conducted in Kapuas Regency [14]. Regular and well-planned supervision contributes to improved quality of PWS KIA reporting. High-quality data can be assessed through several dimensions, including completeness of documentation, accuracy of data, and timeliness of reporting [7]. Other studies have also reported that supervision and constructive feedback play an important role in improving data quality [19-21].

Although the findings of this study contribute to understanding factors associated with midwives' performance in recording and reporting PWS KIA data, several limitations should be acknowledged. First, the cross-sectional design limits the ability to explore causal relationships; therefore, future studies may consider incorporating qualitative approaches to obtain more in-depth insights. Second, the relatively small sample size used in this study may limit the generalizability of the findings to broader populations.

CONCLUSION

Based on the results of the study, adequate supervision and the availability of sufficient facilities are associated with midwives' performance in recording and reporting PWS-KIA data in the working area of Panarung Primary Health Center.

Ethical consideration, competing interest and source of funding

REFERENCES

1. Kemenkes RI. Profil kesehatan Indonesia tahun 2022. Jakarta: Kemenkes RI; 2022.
2. Kemenkes RI. Keputusan Menteri Kesehatan Republik Indonesia nomor 320 tahun 2020 tentang standar profesi bidan. Jakarta: Kemenkes RI; 2020.
3. Lippeveld T, Sauerborn R, Bodart C. Design and implementation of health information systems. Geneva: World Health Organization; 2010.
4. Krishnan A, Nongkynrih B, Yadav K, Singh S, Gupta V. Evaluation of computerized health management information system for primary health care in rural India. BMC Health Serv Res. 2010;10(1):102-108.
5. Kemenkes RI. Pedoman pemantauan wilayah setempat kesehatan ibu dan anak. Jakarta: Kemenkes RI; 2010.
6. Yuliastari. Penilaian kualitas data rutin program kesehatan ibu dan anak dengan Routine Data Quality Asessment (RDQA). Jurnal Sistem Informasi Kesehatan Masyarakat. 2017;8(2):82-92.
7. Dwijayanti F. Kualitas data pemantauan wilayah setempat (PWS) KIA bidan desa terkait faktor organisasi dan sumber daya manusia di Kecamatan Banyubiru Kabupaten Semarang. Berkala Ilmiah Mahasiswa Kesehatan Masyarakat Indonesia. 2017;5(2):58-68.
8. Rani I, Hargono A. Description the activities of recording and reporting maternal health monitoring in PWS-KIA based on surveillance attributes. Jurnal Berkala Epidemiologi. 2014;2(1):34–47.
9. Primaharini KH, Jati SP, Adi MS. Analisis perbandingan komitmen bidan koordinator dalam pencatatan dan pelaporan PWS KIA di Kabupaten Kapuas. Jurnal Manajemen Kesehatan Indonesia. 2020;8(2):88–97.
10. Nugroho HSW, Santosa BJ. Misleading use of the terms of univariate and bivariate analysis in health research. Health Notions. 2019;3(8):352-6.
11. Dharmawan Y, Putri Asmita W, Dwijayanti F. Kinerja petugas dalam pencatatan dan pelaporan pws kia di Puskesmas Duren. Kemas. 2015;10(2):210-7.
12. Dwi RSP. Hubungan karakteristik individu bidan desa dengan kinerja bidan desa dalam pencatatan dan pengolahan data PWS KIA di Kecamatan Banyubiru Kabupaten Semarang. Jurnal Kesehatan Masyarakat. 2015;3(1):2346–2346.
13. Nisa K, Serudji J, Sulastri D. Analisis faktor yang berhubungan dengan kinerja bidan dalam memberikan pelayanan antenatal berkualitas diwilayah kerja Puskesmas Kota Bukittinggi Tahun 2018. Jurnal Ilmiah Universitas Batanghari Jambi. 2019 Jan 22;19(1):53-62.
14. Hapsari K, Patria Jati S, Sakundru Adi M. Analisis perbandingan komitmen bidan koordinator dalam pencatatan dan pelaporan PWS KIA di Kabupaten Kapuas. Jurnal Manajemen Kesehatan Indonesia. 2020;8(2):88-98.
15. Sutaip, Mawarni A, Dharmawan Y. Faktor-faktor yang berhubungan dengan kinerja pelaporan data pelayanan KIA oleh bidan praktek swasta di Kota Semarang Tahun 2012. Jurnal Kesehatan Masyarakat. 2012;1(2):206–17.
16. Mulyana Y, Kusumastuti I. Determinan kinerja bidan dalam pelaksanaan MTBS. Jurnal Ilmu Kesehatan Masyarakat. 2021;10(01):14–24.
17. Gusti TE, Tamtomo D, Murti B. Determinants of midwife performance on antenatal care in Surakarta and Karanganyar, Central Java. Journal of Health Policy and Management. 2018;3(1):11–9.
18. Adiputri A, Wijaya IPG, Karmaya INM. Kompetensi, kompensasi finansial, supervisi dan kinerja bidan desa di Kabupaten Bangli. Public Health and Preventive Medicine Archive. 2014 Jul 1;2(1):76–80.
19. Teklegiorgis K, Tadesse K, Mirutse G, Terefe W. Level of data quality from Health Management Information Systems in a resources limited setting and its associated factors, eastern Ethiopia. SA Journal of Information Management. 2016 Aug 10;17(1):172-178.
20. Kebede M, Adeba E, Adeba E, Chego M. Evaluation of quality and use of health management information system in primary health care units of east Wollega zone, Oromia regional state, Ethiopia. BMC Med Inform Decis Mak. 2020 Jun 12;20(1):22-28.
21. Sugiar L, Sukirman S, Sanusi S. Academic supervision as a strategy for improving teaching and learning quality. International Journal of Educational Administration, Management, and Leadership. 2024:24(1):31-48.