ORIGINAL RESEARCH

THE ANALYSIS OF VILLAGE MIDWIFE PERFORMANCE IN REDUCING MATERNAL AND INFANT MORTALITY RATE

Analisis Kinerja Bidan Desa dalam Menurunkan Angka Kematian Ibu dan Bayi

*Tumartony Thaib Hiola[1], Bun Yamin M. Badjuka[1]
[1]Department of Environmental Sanitation, Health Polytechnic of Ministry of Health Gorontalo, Indonesia
*Correspondence: tumartony@gmail.com

ABSTRACT

Background: The most essential aspect to reduce the number of maternal and newborn mortality is midwife competence. Midwives have a great role to be able to handle variety of health services (antepartum, intrapartum, and postpartum) to avoid or decrease the maternal and infant mortality rate. Performance of health workers, particularly midwives, is the most crucial in affecting the quality and quantity of midwives' services to enhance the national health development.
Aim: This study analyzed factors affecting village midwife performance for reducing maternal and infant mortality in seek for achieving *Bone Bolango cemerlang* or bright Bone Balango as the vision of Bone Bolango District in 2021.
Methods: This study was an analytical survey with a cross-sectional approach. It was conducted from March to June 2019 in the working area of Bone Bolango District Health Office. There were 227 people from 19 primary healthcare centers as the population, and the sample size was 227 selected by using the total sampling technique. The data were collected by distributing questionnaires to the respondents and using secondary data. The data processing was done through chi-square test and multiple logistic regression with backward wald method.
Results: Midwife performance in Bone Bolango District was assessed based on several variables. Most of them were ≥ 25 years old (80.6%); worked for ≥ five years (58,6%); mostly had not participated in any normal childbirth care training (76.7%); had a good competence (96.5%); had good resources/equipment (79.7%); had a good reward (92.5%); had a good attitude (76.2%); had a good motivation (90.7%). There were 12 maternal mortalities from 2017 to 2019 handled by only 11 midwives (4.8%). On the other hand, infant mortality rate (IMR) reached 25 cases in the same years; of 227 midwives, these cases were handled by only 21 midwives (9.3%).
Conclusion: A midwife as a part of the health workers has an important role to increase the quality of maternal and child well-being program. Some variables that became indicators of midwife performance and had an effect on reducing the MMR and IMR included work period, reward, and motivation. This study recommends that all midwives have to be provided with a normal childbirth care training in the working area and increased rewards in the process of labor and delivery.

Keywords: midwives, performance, maternal mortality rate, infant mortality rate.

ABSTRAK

Latar Belakang: Aspek terpenting untuk menurunkan angka kematian ibu dan bayi baru lahir adalah kemampuan bidan. Peran bidan sangat besar untuk dapat menangani pelayanan kesehatan yang beragam (antepartum, intrapartum, dan nifas) untuk menghindari atau menurunkan angka kematian ibu dan bayi. Kinerja tenaga kesehatan menjadi unsur yang sangat penting dalam upaya memelihara dan meningkatkan pembangunan nasional bidang kesehatan tak terkecuali bidan desa. Kinerja dapat mempengaruhi kualitas dan kuantitas pelayanan bidan.
Tujuan: Penelitian ini menganalisis faktor-faktor yang berpengaruh terhadap kinerja bidan desa dalam menurunkan angka kematian ibu dan angka kematian bayi menuju Bone Bolango cemerlang sebagai visi Kabupaten Bone Bolango tahun 2021.
Metode: Penelitian ini merupakan survei analitik dengan pendekatan penelitian potong lintang dan dilaksanakan dari Maret hingga Juni 2019 di wilayah kerja Dinas Kesehatan Kabupaten Bone Bolango. Populasi dalam penelitian ini adalah 227 bidan di Kabupaten Bone Bolango yang tersebar di 19 puskesmas, dan besar sampel yang digunakan yaitu 227 bidan dipilih menggunakan teknik total sampling. Pengumpulan data dilakukan dengan membagikan kuesioner serta menggunakan data sekunder. Pengolahan data dilakukan dengan uji chi square dan regresi logistik berganda dengan metode backward wald.
Hasil: Kinerja bidan di Kabupaten Bone Bolango dinilai berdasarkan beberapa variabel. Sebagian besar berumur ≥ 25 tahun (80,6%), lama kerja ≥ 5 tahun (58,6%), belum mengikuti pelatihan Asuhan Persalinan Normal (APN) (76,7%), memiliki kemampuan bidan yang baik (96,5%), sumber daya/peralatan yang baik (79,7%), imbalan yang baik (92,5%), sikap yang baik (76,2%), dan motivasi yang baik (90,7%). Ada sebanyak 12 kasus kematian ibu

selama tahun 2017 – 2019 yang ditangani oleh hanya 11 bidan (4,8%) dan jumlah kematian bayi sebanyak 25 kasus pada tahun yang sama yang ditangani oleh hanya 21 bidan (9,3%) dari total 227 responden.
Kesimpulan: *Bidan sebagai bagian dari petugas kesehatan berperan penting dalam program kesehatan ibu dan anak (KIA). Beberapa variabel yang menjadi indikator kinerja bidan dan yang mempengaruhi AKI dan AKB yaitu lama kerja bidan, imbalan dan motivasi. Penelitian ini menyarakankan seluruh bidan mendapatkan pelatihan APN yang ada di Kabupaten Bone Bolango dan kenaikan imbalan bidan dalam melaksanakan persalinan.*

Kata kunci*: bidan, kinerja, angka kematian ibu, angka kematian bayi.*

INTRODUCTION

The infant mortality rate was identified to be a global issue. There were 65 deaths per 1000 live births in 1990, but 29 deaths per 1000 live births in 2017. From the period of 1990-2017, the rate decreased from 8.8 to 4.1 million (World Health Organization, 2020). About 303.000 women died during pregnancy and childbirth in 2015. In the next year, the number of maternal mortality increased significantly and caused deaths in reproductive women with HIV/AIDS. As many as 95% maternal mortalities occur to low-income and destitute countries (World Health Organization, 2019).

In Indonesia, the number of Maternal Mortality Rate (MMR) remains high. In 2016, 305 maternal deaths per 100,000 live births were reported (Indonesian Ministry of Health, 2018). Based on the preliminary research on the profile of Central Java Provincial Health Office 2017, in Semarang and Kendal District, maternal services were performed by midwives in healthcare facilities and thus supported to decrease the MMR (Central Java Health Office, 2018). In 2017, the MMR in Central Java exceeded 90% of SDGs (Erawati, Rinayanti and Wahyuning, 2020).

Midwife competence is the most crucial to decrease the number of maternal and newborn mortality. Midwives have a great role to be able to handle variety of health services (antepartum, intrapartum, and postpartum) to avoid or decrease the Maternal Mortality Rate

(MMR) and Infant Mortality Rate (IMR). Performance of health workers, particularly midwives, is the most vital in enhancing the national health development since it can affect the quality and quantity of midwifery services (Sartorius and Sartorius, 2014; Araujo, Weraman and Littik, 2019; Ibrahim, Dalimunthe and Yustina, 2020).

Health is a basic human right that serves as one of the factors contributing to the quality of human resources in order that quality of health care improves. Health development success depends on a life expectancy, which is also strongly defined by other health indicators, namely IMR, Under-Five Mortality Rate (U5MR), MMR, and Crude Death Rate (CDR). Midwives are responsible to provide primary maternal healthcare at the most vulnerable time of life cycle. Almost every mother's pregnancy and delivery process follows midwife's guidance (Gusti, Tamtomo and Murti, 2018).

Maternal mortality rate (MMR) and infant mortality rate (IMR) are two indicators of health development in the National Medium Term Development Plan 2015-2019 and Sustainable Development Goals (SDGs) in 2015-2030. According to the results of the 2015 Inter-Censal Population Survey (SUPAS), there were 305 maternal deaths per 100,000 live births in Indonesia, which was still quite high compared to the target of SDGs which by 2030 can reach below 70 per 100,000 live births. Factors that cause maternal and infant deaths include direct obstetric causes, such as bleeding and eclampsia, and indirect causes, such as

malaria, HIV, and anaemia, which may be worsened during pregnancy. The term "pregnancy-related death" includes all deaths during pregnancy, labor, and post-partum period, regardless of its causes (Hanson *et al.*, 2015).

Strategies to reduce maternal mortality have involved multiple approaches, which the main goal is to improve access to a skilled attendant and emergency obstetric care. Although it seems obvious that access to professional care during childbirth should reduce maternal mortality, the evidence from observational studies was difficult to interpret the effect of a skilled health worker at birth as women with complications were more likely to access a skilled health worker (Hanson *et al.*, 2015).

Some important factorcs that might reduce the maternal mortality involved the roles of doctors in primary healthcare centers and village practice unit with the percentage of contribution of up to 8.6% and 6.9% respectively. Additionally, distance between hospital and home became the other factor which contributed up to 5.9% (Reinke, Supriyatiningsih and Haier, 2017). The performance of health workers, particularly midwives, becomes the most crucial element for enhancing the national health development. A study on employee competence and performance clearly explained that organizational work environment highly supports individuals to achieve targets at work. Individual performance represents quality and quantity of work performance based on the predetermined work standards. Employees will perform a good achievement if they have strong individual attributes, work efforts, and organizational supports (Mangkunegara, 2011).

A preliminary study was conducted in December 2018 by interviewing the Family Health Section or *Seksi Kesehatan Keluarga (Kesga).* It indicated that the frequency of health workers' assistance in the childbirth process was below the minimum service standard determined by the Bone Bolango District Health Office. The interview with some midwives was carried out in January 2019 to confirm the assumption regarding incompetent performance of village midwives.

Some problems reported included inadequate abilities and experiences of the midwives, causing women in labor to choose the traditional birth attendant who are more experienced and protective to accompany them; the quality of the midwives regarding knowledge and skills is varied from each other. They mostly have not participated in any training of emergency service administration for saving somone's life, e.g., pregnant women, women in labor, and newborns decline in work passion and satisfaction being unfriendly, frigid, and impolite in giving childbirth assistance; their incompatible workloads with the primary duties and functions.

The purpose of this study is to investigate the factors influencing village midwives performances in reducing MMR and IMR towards *Bone Bolango Cemerlang* (Bright Bone Bolango) 2021.

METHOD

This study was analytic survey research using a cross-sectional approach to investigate the relationship between performance of midwives and reduction of MMR and IMR. It was conducted from March to June 2019 in the working area of Bone Bolango District Health Office. As many as 227 respondents from 19 primary healthcare centers participated as the research population and sample which was selected by using the total sampling technique. All population of the midwives became the research samples which were considered eligible if they were midwives who perform midwifery services. The exposure factor in this research was

midwife performance, while the predictor factor was maternal mortality and infant mortality.

This study has obtained an ethical approval by the Health Research Ethics Commission of Health Polytechnic of Ministry of Health Gorontalo No. LB.01.01/KEPK/05/2019. All respondents have been informed about the aim and method of this study and have signed a consent form.

The independent variables of this study were age, work period, training, competence, resources, reward, attitude, and motivation. While, the dependent variables included MMR and IMR. Questionnaire was distributed to the respondents, and secondary data were in use to collect data, which were then processed with the independent t-test.

RESULTS AND DISCUSSION

Table 1 presents the analysis of village midwife performance related to the mother mortality. Few midwives were aged 25 years (6%), had worked for ≥ 5 years (7.5%), and had been trained (9.4%). Only some had good competence (5%), adequate facility (6.5%), achievement (17.6%), attitude (9.3%), and motivation (19.0%).

In respect with the infant mortality, Table 2 shows few midwives were aged ≥

25 years (9.8%), had a work period of ≥ 5 years (12.8%), and had participated in training (11.3%). Only few of them showed good competence (9.6%), adequate facility (13%), achievement (23.5%), attitude (13%), and motivation (23.8%).

Results of the multiple logistic regression test revealed that three variables including work period (P-value<.058), reward (P-value<.035), and motivation (P-value<.038) had a significant effect on the MMR and IMR in Bone Bolango District. As the analysis results showed, the coefficient B (1.385) of the reward variable had the highest value among the other two variables, i.e., work period and motivation. Therefore, the variable of reward dominantly affected the MMR and IMR in Bone Bolango District.

From the chi-square test, age variable did not affect the MMR (P-value=.095) and IMR (P-value=.535). However, a study conducted by Lamere (2013) on midwife performance in antenatal care services in all primary healthcare centers of Gowa District indicated that the older the midwives, the better their performance in the service. The older age implies that the midwives had more experiences in improving maternal, newborn, child and adolescent health. Consequentially, they learned by practice, and this is considerably impactful on their performance.

Table 1. The Analysis of Village Midwive Performance in Reducing Maternal Mortality.

Variable	Midwives with Maternal Mortality		Midwives with No Maternal Mortality		Total	
	n	%	n	%	n	%
Age (years)						
< 25	0	0.0	44	100.0	44	100
≥ 25	11	6.0	172	94.0	183	100
Work Period (years)						
< 5	1	1.1	93	98.9	94	100
≥ 5	10	7.5	123	92.5	133	100

Variable	Midwives with Maternal Mortality		Midwives with No Maternal Mortality		Total	
	n	%	n	%	n	%
Participation in Normal Childbirth Care Training						
Not yet	6	3.4	268	96.6	174	100
Yes	5	9.4	48	90.6	53	100
MidwifeCompetence						
Moderate	0	0.0	8	100.0	8	100
Good	11	5.0	208	95.0	219	100
Resources						
Moderate	3	6.5	43	93.5	46	100
Good	8	4.4	173	95.6	181	100
Reward						
Moderate	3	17.6	14	82.4	17	100
Good	8	3.8	202	96.2	210	100
Attitude						
Moderate	5	9.3	49	90.7	54	100
Good	6	3.5	167	96.5	173	100
Motivation						
Moderate	4	19.0	17	81.0	21	100
Good	7	3.4	199	96.6	206	100

Source: Primary Data, 2019

Table 2. The analysis of Village Midwife Performance in Reducing Infant Mortality.

Variable	Midwives with Infant Mortality		Midwives with No Infant Mortality		Total	
	n	%	N	%	n	%
Age (years)						
< 25	3	6.8	41	93.2	44	100
≥ 25	18	9.8	165	90.2	183	100
Work period (years)						
< 5	4	4.3	90	95.7	94	100
≥ 5	17	12.8	116	87.2	133	100
Participating in Training						
Not yet	15	8.6	159	91.4	174	100
Yes	6	11.3	47	88.7	53	100
Midwife Competence						
Moderate	0	0	8	100.0	8	100
Good	21	9.6	198	90.4	219	100
Resources						
Moderate	6	13	40	87.0	46	100
Good	15	8.3	166	91.7	181	100
Reward						
Moderate	4	23.5	13	76.5	17	100
Good	17	8.1	193	91.9	210	100

Attitude

Moderate	7	13	47	87.0	54	100
Good	14	8.1	159	91.9	173	100
Motivation						
Moderate	5	23.8	16	76.2	21	100
Good	16	7.8	190	92.2	206	100

Source: Primary Data, 2019

Table 3. Results of Chi-Square T-Test of the Effect of Performance Variables on Maternal and Infant Mortality.

No.	Performance Variables	P-value	
		Maternal Mortality	Infant Mortality
1.	Age	0.095	0.535
2.	Work Period	**0.026**	**0.029**
3.	Training	0.076	0.553
4.	Competence	0.516	0.358
5.	Resources	0.553	0.320
6.	Reward	**0.011**	**0.035**
7.	Attitude	0.084	0.281
8.	Motivation	**0.001**	**0.016**

Table 4. Results of Multivariate Analysis of Performance Variable on Maternal and Infant Mortality.

Variables	B	S.E	*Wald*	df	Sig	Exp. (B)
Work period	-1.107	0.584	3.591	1	0.058	0.331
Reward	1.385	0.655	4.465	1	0.035	3.994
Motivation	1.243	0.598	4.319	1	0.038	3.467

Table 5. The Test Result of the Interaction between Work Period, Reward, and Motivation towards Maternal Mortality and Infant Mortality in the Health Office of Bone Bolango District.

No	Interaction	P-value	B
1	Work period* Maternal mortality and infant mortality	0.058	-1.107
2	Reward* Maternal mortality and infant mortality	0.035	1.385
3	Motivation* Maternal mortality and infant mortality	0.038	1.243

Andriani (2012) brought up the fact that there was no significant relationship between midwives' age and their performance. This finding was relevant to the research finding of Gibson, Ivancevich and Donnelly (2009) which showed that age was an individual variable; generally, the older an individual is, the better their maturity. Additionally, there are also other factors contributing to midwife performance, e.g., knowledge, education,

and training. Given these factors, midwife coordinators have to provide intensive guidance to enhance midwife performance (Gibson, Ivancevich and Donnelly, 2009).

The chi-square test showed the work period of the midwives did not affect the MMR (p-value=.026) and IMR (p-value=.029). Contrastly, a previous study showed the longer the respondents work, the better their performance in antenatal care services (Lamere, 2013). Work period

depicts respondents' mastery experiences in their field of work. In most cases, respondents with lots of work experience do not need intensive guidance, compared to those with little experience.

Supporting the result of this present study, Pamundhi, Sriatmi and Jati (2018) claimed that work period had a positive relationship with individual's productivity at work. Work period has something to do with work experience as a great asset to improve midwife performance. Compared to shorter work period, longer work period does not guarantee the quality of productivity. The longer people work, the more successful their performance; however, performance might decline at some time due to surfeit of midwife and work environment. Decline in productivity at work will influence the MMR and IMR.

Likewise, training variable did not affect the MMR (P-value=.076) and IMR (P-value=.553); this finding corresponded with the research in the Bukittinggi Primary Healthcare Center, indicating that there was no significant relationship between antenatal care training and midwife performance despite a greater number of respondents who have not joined the training (Nisa, Serudji and Sulastri, 2019). However, the respondents still showed good quality performance because they were responsible for every health program to achieve the target.

This finding, however, did not have similar insight to a previous research finding which discovered that normal childbirth care training contributes to improving midwife performance (Longgupa, 2014). Training is a short-term process of education in systematic and organized procedures that give insights to trainees for specific purposes.

The result of this study is the training has not significantly enhanced the midwife performance which resulted in the maternal and infant mortality. Due to poor quality training, the midwives made no

enhancement and unachieved goals. The training also takes a short time, which may provide poor quality of the given materials. As a result, the training variable in this study was insignificantly related to midwife performance.

Based on the results of chi-square test, the competence variable did not influence the MMR (P-value=.516) and IMR (P-value=.358). Similarly, Afifah (2017) pointed out midwife competence in Sumenep District did not affect performance. Theoretically, performance is not only about the competence, but also a combination of competence, effort, and opportunity which can be measured by the outcome (Mangkunegara, 2011). In this study, the midwives in Bone Bolango District mostly graduated from midwifery associate degree. Nonetheless, the education level has not yet been proven to affect midwife competence.

The chi-square test presented no effect of the resources variable on the MMR (P-value=.553) and IMR (P-value=.320). Andriani (2012) also expressed the same idea that there was no correlation between facilities and infrastructure and midwife performance in the labor and delivery process in West Lampung District. It perhaps was due to inadequate knowledge regarding well-equipped facilities and their benefits to bolster the childbirth process. Even though the midwives have such facilities, they are not accustomed to using it for health services, especially in the labor and delivery care.

This finding that one of the factors causing maternal and infant mortality is the unavailability of standardized pregnancy checkup tools. The provision of facilities and equipment at work can directly influence individual's performance. Such use ofadvanced equipment and technology may enhance performance, ease, and comfort the workers.

In Table 3, the reward variable affected on the MMR (p-value=.011) and IMR (p-value=.035). Gibson (2009) also claimed that salary or wage was a reward that can motivate work achievement. Good rewards will encourage employees to reach higher performance. The wage earned by midwives is a prerequisite beside their fixed pay as civil servants or non-permanent employees (Gibson, Ivancevich and Donnelly, 2009).

Another study reported that a reward or incentive significantly correlates with midwife performance in antenatal care service in primary healthcare centers in Gowa District (Lamere, 2013). Giving rewards to midwives corresponds with their performance. The more rewards they got, the better they performed. Besides, the reward (compensation) could increase or decrease midwive's performance, or even motivate them. This study highlighted inadequate rewards would decline performance or motivation.

Table 3 displays the attitude variable did not affect on the MMR (P-value=.084) and IMR (P-value=.281). In the same way, Longgupa (2014) found no significant effect of midwife attitude on performance in regards to their assistance during the process of normal childbirth. Attitude measured in this study was the midwife professionalism in carrying out their duties. Yet, attitude plays a crucial role in the implementation of normal childbirth service program (Longgupa, 2014). However, Djunawan and Haksama found there was a relation between attitude and midwife performance in antenatal patient services (Djunawan and Haksama, 2015).

On the other hand, motivation was found to affect the MMR (P-value=.001) and IMR (P-value=.016). Midwives who had motivation to work better for any given tasks and job responsibilities had better performance than those with low motivation (Marfuah, Tamtomo and Suryono, 2016). Djunawan and Haksama

(2015) also found motivation variable significantly contributed to midwife performance in antenatal services. Motivation triggerred positive effects on performance.

The research finding of Pamundhi, Sriatmi, and Jati (2018) also performed similar findings in which there was a significant relationship between midwife motivation and performance. In addition, Fithananti (2013) stated that motivation was substantially correlated with and affected midwife performance in a primary healthcare center, i.e., the higher the motivation, the better the performance. This study elaborated several factors that could develop midwife motivation, including individuals' needs, environmental conditions, desires, and rewards or incentives; these were correlated with each other in improving performance at work. Motivation should be sustained continuously to trigger midwife performance.

CONCLUSION

A midwife as a part of the medical workers has an important role in improving the quality of maternal and infant well-being program. Variables of midwife performance that affected the MMR and IMR included work period, reward, and motivation. While, age, training, competence, resources and attitude did not affect the MMR and IMR. This study recommends that normal childbirth care training should be carried out to all midwives in Bone Bolango District. Additionally, increasing rewards for the midwives' contribution in the process of labor and delivery is necessarry. This study recommends local governments to provide rewards respecting midwife performance to be able to increase the motivation of midwives proportionally.

CONFLICT OF INTEREST

There is no conflict of interest in this study.

REFERENCES

Afifah, A. (2017) *Analisis Kinerja Bidan Desa dalam Pelayanan Asuhan Kebidanan di Wilayah Daratan Kabupaten Sumenep.* Undergraduate Thesis. Universitas Airlangga. Available at: http://repository.unair.ac.id/62619/.

Andriani, Y. (2012) *Faktor-faktor yang Berhubungan dengan Kinerja Bidan di Desa dalam Pelaksanaan Program Jaminan Persalinan di Kabupaten Lampung Barat tahun 2012.* Undergraduate Thesis. Universitas Indonesia. Available at: http://lib.ui.ac.id/file?file=digital/20318305-S-Yuli Andriani.pdf.

Araujo, N. de, Weraman, P. and Littik, S. K. A. (2019) 'Factors Associated with Midwife Performance in Birth Delivery at Becora and Atauro Health Centers, Dili, Timor Leste', in *The 6th International Conference on Public Health.* Solo, Indonesia: International Conference on Public Health, p. 232. doi: https://doi.org/10.26911/the6thicph.03.90.

Central Java Provincial Health Office (2018) *Profil Kesehatan Provinsi Jawa Tengah Tahun 2017.* Semarang. Available at: https://www.kemkes.go.id/resources/download/profil/PROFIL_KES_PROVINSI_2017/13_Jateng_2017.pdf.

Djunawan, A. and Haksama, S. (2015) 'Hubungan Kerjasama, Motivasi, Sikap, dan Kinerja Bidan dalam Pelayanan Antenatal', *Jurnal Administrasi Kesehatan Indonesia*, 3(1), pp. 11–20. doi: http://dx.doi.org/10.20473/jaki.v3i1.2015.11-20.

Erawati, A. D., Rinayanti and Wahyuning, S. (2020) 'Midwife roles to decline maternal mortality rate', *International Journal of Public Health Science (IJPHS)*, 9(1), pp. 29–33. doi: 10.11591/ijphs.v9i1.20393.

Fithananti, N. (2013) 'Faktor-faktor yang Berhubungan dengan Kinerja Bidan Puskesmas dalam Pelaksanaan Program ASI Eksklusif di Kota Semarang', *Jurnal Kesehatan Masyarakat*, 2(1), pp. 1–10.

Gibson, Ivancevich and Donnelly (2009) *Organisasi Perilaku, Struktur, Proses Jilid I.* Edisi Keli. Jakarta: Penerbit Erlangga.

Gusti, T. E., Tamtomo, D. and Murti, B. (2018) 'Determinants of Midwife Performance on Antenatal Care in Surakarta and Karanganyar , Central Java', *Journal of Health Policy and Management*, 3(1), pp. 11–19. doi: https://doi.org/10.26911/thejhpm.2018.03.01.02.

Hanson, C. *et al.* (2015) 'Maternal mortality and distance to facility-based obstetric care in rural southern Tanzania : a secondary analysis of cross-sectional census data in 226 000 households', *The Lancet Global Health*, 3(7), pp. e387–e395. doi: 10.1016/S2214-109X(15)00048-0.

Ibrahim, T., Dalimunthe, R. F. and Yustina, I. (2020) 'The Model of Midwife Performance of Antenatal Care in Banda Aceh', *Systematic Review Pharmacy*, 11(5), pp. 21–28. doi: 10.31838/srp.2020.5.04.

Lamere, L. (2013) *Analisis Kinerja Bidan pada Pelayanan Antenatal Care di Puskesmas Sekabupaten Gowa.* Undergraduate Thesis. Hasanuddin University. Available at: http://digilib.unhas.ac.id/uploaded_files/temporary/DigitalCollection/NjRmMTA1MzcyMjE1Y2I1NDk0MzdjYTg0

NWE0ZTI2MmJiOWY4MzBhMA.pdf.

Longgupa, L. W. (2014) 'Pengaruh Faktor Pengetahuan, Sikap dan Pelatihan Asuhan Persalinan Normal Pada Kinerja Bidan Dalam Pertolongan Persalinan Normal Suatu Studi Eksploratif di Kota Palu Propinsi Sulawesi Tengah', *Jurnal Ilmu Kesehatan*, 1(16), pp. 781–785. Mangkunegara, A. P. (2011) *Manajemen Sumber Daya Manusia Perusahaan*. Bandung: Remaja Rosdakarya.

Marfuah, S., Tamtomo, D. and Suryono, A. (2016) 'Effect of Psychological Factors and Workload on Midwife Performance in the Integrated Antenatal Care In Pati , Central Java', *Journal of Maternal and Child Health*, 1(3), pp. 138–145. doi: https://doi.org/10.26911/thejmch.2016.01.03.01.

Indonesian Ministry of Health (2018) *Profil Kesehatan Indonesia Tahun 2017*. Jakarta. Available at: https://www.kemkes.go.id/resources/download/pusdatin/profil-kesehatan-indonesia/Profil-Kesehatan-Indonesia-tahun-2017.pdf.

Nisa, K., Serudji, J. and Sulastri, D. (2019) 'Analisis Faktor yang Berhubungan dengan Kinerja Bidan dalam Memberikan Pelayanan Antenatal Berkualitas Diwilayah Kerja Puskesmas Kota Bukittinggi Tahun 2018', *Jurnal Ilmiah Universitas Batanghari Jambi*, 19(1), pp. 53–60.

doi: 10.33087/jiubj.v19i1.545.

Pamundhi, T. E., Sriatmi, A. and Jati, S. P. (2018) 'Faktor-faktor yang Berhubungan dengan Kinerja Bidan dalam Pelayanan Nifas di Kota Salatiga', *Jurnal Kesehatan Masyarakat*, 6(1), pp. 93–102.

Reinke, E., Supriyatiningsih and Haier, J. (2017) 'Maternal mortality as a Millennium Development Goal of the United Nations : a systematic assessment and analysis of available data in threshold countries using Indonesia as example', *Journal of Global Health*, 7(1), pp. 1–9. doi: 10.7189/jogh.07.010406.

Sartorius, B. K. D. and Sartorius, K. (2014) 'Global infant mortality trends and attributable determinants – an ecological study using data from 192 countries for the period 1990 – 2011', *Population Health Metrics - BioMed Central*, 12(29), pp. 1–15. doi: https://doi.org/10.1186/s12963-014-0029-6.

World Health Organization (2019) *World Health Statistics 2019: Monitoring Health for the SDGs*. Switzerland: L'IV Com Sàrl.

World Health Organization (2020) *Infant mortality Situation and trends*, *Global Health Observatory (GHO) data*. Available at: https://www.who.int/gho/child_health/mortality/neonatal_infant_text/en/ (Accessed: 8 August 2020).