ORIGINAL ARTICLE

Challenges for Midwives in Remote areas: an ethnography study

HARYATI ASTUTII[1], INDRAYANI[2], SANDRA HARIANIS[1]
[1] Study Program of Midwifery, Akademi Kebidanan Husada Gemilang Tembilahan, Indonesia
[2] Study Program of Midwifery, Akademi Kebidanan Bina Husada, Tangerang, Indonesia
Correspondence to Indrayani, Email: indrayani_akbid@yahoo.co.id. Ph. +62-21-55655372.

ABSTRACT

Background: In Indonesia, the placement of village midwives began in 1989. However, this program was deemed not to be in line with the reduction in maternal and infant mortality rates.
Aim: To explore the experience of midwives in remote areas and identify the factors inhibiting the success of this program.
Methods: This study is a qualitative study with an ethnographic approach. Data collection used focus group discussions (FGDs), in-depth interviews, and observations. Seventy-seven midwives were involved in FGDs, sixty-three participants were interviewed, and three remote areas within the Indragiri Hilir regency were observed. A thematical analysis was used to analyze the gathered data.
Results: This study's findings reveal that one village midwife is responsible for a large area. Geographical conditions, culture, transportation, and tidal river may delay the referral process. Also, the lack of villager awareness in regard to health, community culture, and low water quality contributed to the health community status in the remote areas. Furthermore, village infrastructures, potential hazards, and compensation elucidated village midwives' unwillingness to stay in remote areas.
Conclusion: Many factors influence the ineffective village midwife program. Some corrective actions are needed to narrow the gap between the government's expectations and the problems faced by the village midwives.
Keywords: Village midwives, remote areas, geographical conditions, tidal river, referral

INTRODUCTION

A remote area typically refers to an area that is some distance away from assistance. The public health status of an area like this in this area is generally worse than in urban areas[1]. The World Health Organization recommends training and placing midwives in villages in order to make health services closer to the community[2], as reducing maternal and infant mortality is the main objective of various policies in developing countries[3, 4]. The village midwife program (VMP) has long been in operation in several countries, including Sudan since 1921[5], Papua New Guinea since 1981[6], and Indonesia since 1989[3, 7-9].

In Indonesia, midwifery training for village midwives (VMs) initially involved existing nurses in a one-year intensive program. However, this training was deemed inadequate to meet the needs of skilled midwives who were ready to be placed in remote areas, so in 1996, the one-year program was replaced by a three-year direct-entry midwifery program from high school graduates[3, 8]. The VMP mission is that each village has a midwife who lives in the village and becomes part of the community that she serves[8]. This program includes antenatal, intranatal, postnatal, perinatal care, family planning, reproductive health services, and nutritional counseling[9].

VMs are a valuable asset to the development of health services in rural villages[5]. Some previous studies have shown the positive impact of a VM's presence on increasing the birth attendance by trained health workers[6], effective referrals[2], increasing birth weight of infants[10], increasing nutritional status of children[11], and decreasing maternal and infant mortality rates[6]. However, other studies stated that the additional number of midwives in villages is not considered to be directly proportional to the expected impact. The Indonesian Demographic Health Survey reported that the maternal mortality rate (MMR) (per 100,000 live births) rose dramatically from 228 in 2007 to 359 in 2012, while the infant mortality rate (IMR) (per 1,000 live births) showed a slight decrease from 34 in 2007 to 32 in 2012[12]. Makowiecka argued that the high MMR was caused by midwives' inability to detect obstetric emergency cases[8].

Regardless, efforts to reduce MMR and IMR require a top-down health system approach as well as a bottom-up approach[9]. The study's purpose is to explore midwives' perceptions and experiences of being a village midwife (VM) and to identify factors causing VMP ineffectiveness.

MATERIAL AND METHODS

A qualitative study with an ethnographic approach was used to answer the research question. The researchers' role was to be a participant-as-observer, where the researchers become a full part of the group, but they entirely devoted their efforts to systematic observation. It allows them to experience firsthand what the research subject was experiencing[13] and to better understand the VMs' problems in-depth through their own eyes and ears. It would allow them to describe explicitly what is implied in the group through the dynamics of the interaction between the perspective of insiders ('*emic*') and outsiders ('*etic*'), which is known as reflexivity[14, 15].

The data was collected through focus group discussions (FGDs), in-depth interviews, and observation. Around 87 midwives from 27 subdistricts have been invited to join the FGDs. Seventy-seven of them had attended the FGDs and were divided into five groups. Each group was accompanied by a facilitator to explore the challenges faced by VMs. The FGD outcomes were then used as a basis for developing interview and observation guides.

The in-depth interviews and observations were conducted from August to November 2016 in Indragiri Hilir regency, Riau Province, Indonesia, using a snowball

technique to ensure that information is explored from various people with different perspectives. The main participants are VMs. The next participants were determined from the results of interviews and observations. In-depth interviews were conducted while researchers were participating in VM activities using Bugis, Banjar, and Indonesian languages. The use of language was adjusted to the language used by the participants. A total of sixty-three participants were interviewed (including seven village midwives, ten midwives at public health centers, three health service officers, five *sampan* skippers, six *pompong* skippers, eight village officers, seven postpartum women, seven women's husbands, and ten villagers) and three remote areas were observed. Data was collected in the form of anecdotal notes, photographs, recordings, and videos. All recordings were transcribed in Indonesian. The data was then analyzed manually via a thematic analysis. A triangulation method was used during the data analysis to minimize biases.

RESULTS

Geographical conditions: The Indragiri Hilir regency, which is the South gate of Riau Province, is located on the East Coast of the island of Sumatra with land areas of 11,605.97 km3 and water areas of 7,207 km3, surrounded by large and small rivers, river ditch (or '*parit*'), swamps, and sea (Figure 1-S-1).

"*The Indragiri Hilir River disembogues into Lake Singkarak (located in West Sumatera province) and has three estuaries to the Berhala Strait. There are lots of rivers, parit, and swamps here*." (Village officer)

Transportation system: Most sub-villages are bordered by a *parit*. It makes Indragiri Hilir known as the "area of a thousand *parit."* A majority of the villagers live near a *parit*. Common water transportation used by villagers are canoe and skiff (or '*sampan*'), boat (or '*pompong*'), and speedboat (see Figure 1-S-2). Currently, a *sampan* is only be used to carry the patient from their house to a pier as the *pompong* cannot trace the *parit*. Furthermore, the patient will be moved from *sampan* to a *pompong* or a speedboat.

The standard rate for these water vehicles vary depending on the distance. The shortest trip using a sampan continued a boat typically costs around 130,000 rupiahs, or $9 per trip for one way. In some remote areas, VMs have to spend around 1-2 million (or $66.7 to $133.3) to rent *sampan* and a speedboat to the main public health center located in the sub-district. Also, the travel schedule is greatly determined by the tidal cycle of river water.

"*Pompong is not always on standby at the pier, so the VM should book it before the travel schedule. If the pompong is unavailable or being used by the owner, she has to postpone the travel plans*." (*Pompong* skipper)

The water at the pier will shrink up to 4-5 meters during the low tide, so the VM has to go down the extreme steps to get to a water vehicle (Figure 2-S-1). Also, *parit* was experiencing drought, so even *sampan* cannot trace the *parit* to reach the villagers' houses and only reach the villages' outskirts. In some remote areas with no pier yet, even the water vehicle could not reach the village's edge as it was muddy. The VM had to cross the mud by walking on a coconut tree to get to the edge of the village (Figure 2-S-2). Furthermore, the journey continued by walking for about 4-5 kilometers or asking help from the villagers who have motorbikes for help getting to the residential areas. On the contrary, during a high tide, the *parit* was full of water, so the *sampan* could easily trace it and reach the sub-villages or villagers' houses (Figure 2-S-3).

"*Going down the stairs when the river is in the low tide is not easy. The distance between the steps of stairs is far apart from each other. If we are careless, we could fall into the river*." (Village midwife)

Quality of water: Most of the Indragiri Hilir regency (93.31%) is the lowland area, namely alluvial areas, swamps with peat soil, and brackish forest areas (or mangrove areas). This regency also consists of large and small islands. The soil structure generally consists of organosols called histosols or peat soil, which contain much organic matter. The high content of organic substances makes the water in this area blackish brown.

The local government has made one bore well in each village with a depth of about 300 meters to fulfill the need for clean water for villagers (Figure 2-S-4). Even though the water produced from drilled wells looks better than river water, it is still not suitable for consumption. The villagers prefer to use rainwater to meet their needs. However, during the dry season, some villagers must use the drilled well water, and some of them are forced to use river water that is dirty, smelly, and colored due to the limited amount of the drilled well water. The low quality of the river water in the village has been reported to harm the villagers' health.

"*We only have a bore well with its limited amount of water here. Moreover, its quality is not suitable for consumption, so villagers prefer to use rainwater for drinking and food processing. We have no option during the dry season, instead of using the drilled well water or river water*." (Villager)

Figure 1: The Indragiri Hilir River and its water vehicles

S-1. The Indragiri Hilir River

Name: Boat or '*pompong*'
Utility: Carrying goods

Name: Boat or '*pompong*'
Utility: Carrying passengers

Name: Big skiffs or '*sampan*'
Utility: Carrying patients or villagers from a *parit* to a pier

Name: A canoe or '*sampan*'
Utility: Transportation for fishers

Name: Small speedboats
Utility : Carrying passengers

Name: Big speedboats
Utility : Carrying passengers

Name : A small and big speedboats
Utility: Transportation for government officials

Name: A small speedboat
Utility: Transportation for customs officers

S-2. Water vehicles along the Indragiri Hilir River

Villagers' conditions and culture: Most of the villagers graduated from junior high school with their livelihoods as coconut harvesters and fishers. Some of them live in poverty and are illiterate (see Figure 2-S-5). Moreover, the lack of villager awareness of health and the culture of seeking help after their health deteriorates further aggravates the VM's duties.
"*In this village, there are three generations (three families) who live together in an old hut made of coconut trees. Other residents often make donations to them.*" (Villager)

Village infrastructure: This research found that the majority of the road and bridge infrastructure and the villagers' houses are quite good. However, there were still some fragile bamboo bridges in some areas (Figure 2-S-5).
Figure 2: Village conditions in remote areas

"*There are only some permanent bridges in certain areas. However, for villagers who live far away from the bridge, they prefer to use a fragile bamboo bridge to cross the river to save time, even though they know that it is dangerous*." (Villager)

Each remote area generally only has one primary school and a junior high school. Most children in the village prefer to work than continue their education at a senior high school, located in the sub-district or district. Also, the remote areas commonly rely on solar power as a source of electricity. There is no electricity during the rainy season, so villagers use oil lamps (Figure 2-S-6).

A pier | Pier stairs | Down the pier stairs to the *pompong*

S-1. Pier conditions during the low tide

S-2. Midwives are passing the mud to achieve the edge of the village during low tide

Pier conditions during the low (A) and high (B) tides | *Parit* conditions during the low (C) and high (D) tides

S-3. Pier and *parit* conditions during low and high tides

Groundwater | Clean water source in the remote areas

S-4. Water sources in the remote area

A villager's home (A) | Bamboo and areca bridges when the low (B) and high (C) tide comes | A wooden bridge (D)

S-5. Village bridges

A solar panel installation (A) | Elementary school (B) and junior high school (C) buildings

S-6. Facilities in the remote areas and a villager's home

Figure 3: Challenges and potential hazards in remote areas

S-1. Challenges faced by midwives in remote areas

A village midwife and patient's family carried out a patient from their home to a pier

A village midwife accompanied a patient and the patient's husband to a referral health facility using a big boat

S-2. Referral process during the low tide

A fisherman in the river

Two crocodiles in the river

A crocodile in the peat swamp area

Crocodiles that were caught by the villagers after attacking a village woman

A victim of a crocodile attack

S-3. Safety threats in the remote areas of Indragiri Hilir

Challenges and referral: This study documented some extreme conditions that made the VM's job more challenging, including fragile pier bridges, damaged roads, deserted plantation areas, and flooding. Even though there was no rain during the high tide, some areas experienced flooding, so the VM had to pass the flood to get to the integrated healthcare center (or *posyandu*) (Figure 3-S-1).

In urban areas, referral transportation is not an obstacle. However, in remote areas, a referral is an anxious period and challenging due to river water's tidal cycle. The ditch water will shrink at low tide, so the patient has to be carried away on a stretcher on foot for several kilometers to the pier (Figure 3-S-2). Consequently, there are many cases of late referrals from remote areas. Even in some referral cases, some patients have died en route.

Potential hazards: Indragiri Hilir Regency consists of 20 districts and 236 villages. Seven of the sub-districts have extreme potential danger, namely two oil palm plantation areas (which are the habitat for Bonita tigers or '*Panthera Tigris*'), a coconut plantation area (which is the habitat of

pythons), and four swamp areas (which are crocodile habitats) (Figure 3-S-3).

"*There are four sub-districts that are habitat for crocodiles. Crocodiles usually hide under a collection of water hyacinth plants. Sometimes they often sunbathe behind the residents' houses. Last week, a woman villager was attacked by a crocodile while washing her feet in the river. Fortunately, other villagers came on time to rescue her and caught the crocodile*." (Villager)

Most deliveries occur at night. In an emergency, a referral process occuring at night is a safety threat to village midwives, patients, and patients' families. Both a *pompong* and a speedboat are not likely to be equipped with lights, so the potential for a collision or hitting the coral may occur at night.

"*Last night occurred a collision between the pompong and the boat, and all the passengers fell into the river. Fortunately, most of them can swim, but a passenger died to drowning*." (Villager)

During the rainy season, the *pompong* skipper should also be careful because rainwater can cause ripples in the river water and make the *pompong* unstable. In this condition, the *pompong* may overturn and sink.

"*We have also to drive the pompong very carefully when rainy season because the ripples caused by rainwater can make the pompong unstable and turn upside down. If the pompong is turned upside down in the crocodile's place, we can all become its prey*." (*Pompong* skipper)

Compensation: Apart from the heavy workload, extreme environment conditions, lack of facilities, and threats to safety, midwives in remote areas earn an incentive of less than $150 per month (for civil midwives) and $50 per month (for non-civil midwives). Non-civil midwives expressed that their salaries could not even cover transportation costs. Although they are allowed to charge the patients for their services outside of working hours, most of the villagers can only afford the health service costs with their livestock, garden products, and even some of them have no money to pay the health services.

"*The salary given for the civil midwives is Rp. 2,000,000 (or $133) while the non-civil midwives earn IDR 750,000 (or $50) per month as their incentives*." (District health officer)

Reasons for the absence of village midwives: Although the local government has built a midwife house and an army house next to the auxiliary health center to attract the midwife's interest and secure her, some midwives still do not want to stay in the villages due to safety reasons. Also, the army house was always unoccupied during the observation period.

"*Village soldier rarely stay in villages. Before married, I lived in the village for several months, but I felt scared every night because the village is tranquil and the distance between the villagers' houses is very far from each other. Moreover, there is no lighting during rainy season because this village relies on solar power*." (Village midwife)

Moreover, the need for education for their children and the husband's workplace location in the city has been expressed as midwives' reluctance to stay in the village.

"*This is a tough choice for me. I had to choose between my responsibilities as a VM and as a wife and mother. If we live in the village, my children and my husband have to commute every day from the village to the city. It is expensive and takes time and harm to their safety, so I prefer to commute from the village to the city. However, if I know that there is a woman who wants to give birth, I commonly stay in the village for a couple of days to assist their births*." (Village midwife)

DISCUSSION

This study's findings support the previous studies that many countries have problems with transportation, communication, and the equitable distribution of health services in rural areas[1, 16]. The high rate of maternal and infant mortality in rural areas compared to urban areas does not only occur in Indonesia but also in many other countries[17, 18].

Some previous studies reported that midwives' lack of competence in detecting and handling the obstetric emergency cases caused a delay in referrals[2, 8]. However, this study revealed that this was not the only cause of a late referral. Geographical conditions, community culture, transportation systems, infrastructure, and potential hazards have contributed to a delay in referrals. Makowiecka et al. strengthens that village women's culture to seek help after their condition worsens caused delays in handling emergency obstetrics[8]. Another previous study also reported that VMs were responsible for a greater area and faced many problems, including transportation issues[19].

The ratio of midwives to a 100,000-person population in the Riau province is 1:107[20]. A VM is commonly responsible for up to five villages[2, 4] and required to be versatile to solve various non-health and health problems in the village such as replacing the traditional birth attendance roles that have already been trusted by villagers for many years, improving the quality of antenatal care, reducing the incidence of maternal and neonatal death, promoting immunization, improving the community nutritional status, and implementing other health programs[3, 21]. The heavy workload assigned to VMs makes them not focus on their main task of providing midwifery services to village communities[19, 21, 22]. VMs fend for themselves as service providers in remote villages[22]. They also experience professional isolation, face greater pressure from more traditional communities, and have fewer career development opportunities than urban midwives[8].

On the other hand, they earn little incentive. The compensation is considered to be unbalanced with its burdens and risks[3, 21]. Ensor et al. stated that although the government allows VMs to open private midwifery clinics outside of working hours as VMs, this is still not enough to fix the burden and risks borne by them[23].

MMR and IMR are not only the responsibility of the VMs, but also the collective responsibility of the government, other health workers, village officials, and the community themselves[24]. The VMs cannot solve complex health problems in remote areas alone[8, 19]. Even if they have good skills to manage obstetric complications at home, they still could not handle the severe complications requiring intervention with adequate health equipment in referral hospitals[25].

CONCLUSION

VMs face complex problems in remote areas. The VMP's success is determined not only by the midwives' performance but is also significantly affected by external factors. Facilitating a VM's needs and finding solutions to the problems they face are more useful instead of blaming them. Nevertheless, VM skills are one of the critical factors that must be continuously addressed.

This research further supports the government in improving the facilities and infrastructure needed by VMs, prioritizing the VM career development and the incentive suitability between the workload and the challenges the VMs in order to enhance the midwife's interest in remaining in the village. Furthermore, the government needs to re-formulate the VMP policies related to its placement, monitoring system, rewards, and sanctions.

Acknowledgments: We experienced and learned many things from this study. We want to thank the VMs who have supported us, accompanied us during the observation in remote areas, and thank all the participants who shared their experiences with us.

Competition Interests: The authors declare that they have no conflicts of interest in this study.

REFERENCES

1. Strasser R. Rural health around the world: challenges and solutions. Family Practice. 2003;20(4):457-63. [DOI: https://doi.org/10.1093/fampra/cmg422].
2. D'Ambruoso L, Achadi E, Adisasmita A, Izati Y, Makowiecka K, Hussein J. Assessing quality of care provided by Indonesian village midwives with a confidential enquiry. Midwifery. 2009;25(5):528-39. [DOI: https://doi.org/10.1016/j.midw.2007.08.008].
3. Shrestha R. The village midwife program and infant mortality in Indonesia. Bulletin of Indonesian Economic Studies. 2010;46(2):193-211. [DOI: http://dx.doi.org/10.1080/00074918.2010.486109].
4. Middleton JJ. Laporan konsultansi kebidanan. Jakarta: Kementrian Kesehatan Republik Indonesia, United Nations Fund for Population Activities (UNFPA), dan Ikatan Bidan Indonesia (IBI); 2014.
5. Bayoumi A. The training and activity of village midwives in the Sudan. Tropical Doctor. 1976;6(3):118-25. [DOI: https://doi.org/10.1177/004947557600600311].
6. Alto WA, Albu RE, Irabo G. An alternative to unattended delivery-a training programme for village midwives in Papua New Guinea. Social Science & Medicine. 1991;32(5):613-8. [DOI: https://doi.org/10.1016/0277-9536(91)90296-O].
7. Ministry_of_Health. Circular of the Director General of Public Health Development No 429/Binkesmas/DJ/III/89 on March 29th, 1989. Jakarta, Indonesia: Directorate of Public Health Development, Ministry of Health, Republic of Indonesia; 1989.
8. Makowiecka K, Achadi E, Izati Y, Ronsmans C. Midwifery provision in two districts in Indonesia: how well are rural areas served? Health Policy and Planning. 2008;23(1):67-75, [DOI: https://doi.org/10.1093/heapol/czm036].
9. Shankar A, Sebayang S, Guarenti L, Utomo B, Islam M, Fauveau V, et al. The village-based midwife programme in Indonesia. The Lancet. 2008;371(9620):1226-9. [DOI: https://doi.org/10.016/S0140-6736(08)60538-3].
10. Frankenberg E, Thomas D. Women's health and pregnancy outcomes: Do services make a difference? Demography. 2001;38(2):253-65. [DOI: 10.1353/dem.2001.0014].
11. Frankenberg E, Suriastini W, Thomas D. Can expanding access to basic health care improve children's health status? Lessons from Indonesia's "midwife in the village" program. Population Studies. 2005;59(1):5-19. [DOI: 0.1080/0032472052000332674].
12. Statistics_Indonesia, NPFPB, Ministry_of_Health, MEASURE_DHS_ICF_International. Indonesia demographic and health survey (IDHS) 2012. Jakarta, Indonesia: Statistics Indonesia, National Population and Family Planning Board (NPFPB), Ministry of Health, MEASURE DHS ICF International.; 2013.
13. Babchuk N. The role of the researcher as participant observer and participant-as-observer in the field situation. Human Organization. 1962;21(3):225-8. [DOI: https://doi.org/10.17730/humo.21.3.cv621531420405p5].
14. Atkinson P, Hammersley M. Ethnography: Principles in practice 3rd edition. London and New York: Routledge; 2007, p. 194.
15. Draper J. Ethnography: principles, practice and potential. Nursing Standard. 2015;29(36):36-41. [DOI: https://doi.org/10.7748/ns.29.36.36.e8937].
16. WHO. Rural poverty and health systems in the WHO European Region. Copenhagen, Denmark: WHO Regional Office for Europe; 2010.
17. Liang J, Dai L, Zhu J, Li X, Zeng W, Wang H, et al. Preventable maternal mortality: Geographic/rural-urban differences and associated factors from the population-based maternal mortality surveillance system in China. BMC Public Health. 2011;11(1):243. [DOI: 10.1186/471-2458-11-243].
18. WHO, Koller TS, editors. Rural poverty and health services: challenges and gaps. Expert Meeting on Eradicating Rural Poverty to Implement the 2030 Agenda for Sustainable Development; 2019; Addis Ababa. Retrieved from http://www.un.org/development/desa/dspd/wp-content/uploads/sites/22/2019/03/WHO-Rural-Health_Kollert-Theadora-Swift_1March2019@06h00.pdf: World Health Organization.
19. Indrayani, Harianis S, Ritasari M, Astuti H, Sari NI, Sari DEA, et al. Please, understand why village midwife performance is not optimum! Bangladesh Journal of Medical Science. 2017;16(4):505-14. [DOI: 10.3329/bjms.v16i4.33603].
20. Ministry_of_Health. Rasio tenaga kesehatan terhadap jumlah penduduk (per provinsi) per 100.000 penduduk. In: Kesehatan BPdPS, editor. Jakarta, Indonesia: Ministry of Health Republic of Indonesia; 2019.
21. Indrayani, Mulyawati G. Village midwives' experiences in rural area. Jurnal Ilmiah Permata Medika. 2015;4(1):1-24. [DOI: http://doi.org/10.5281/zenodo.1322413].
22. Indrayani, Husin F, Sarbini AA, Andriyani A, Sari DN, Bachtar F, et al. The midwifery practice challenges in the rural populations of Indonesia. Research Journal of Medical Sciences. 2017;11(1):40-5. [DOI: http://doi.org/10.5281/zenodo.1323015].
23. Ensor T, Quayyum Z, Nadjib M, Sucahya P. Level and determinants of incentives for village midwives in Indonesia. Health Policy and Planning. 2009;24(1):26-35. [DOI: https://doi.org/10.1093/heapol/czn040].
24. Supratikto G, Wirth ME, Achadi E, Cohen S, Ronsmans C. A district-based audit of the causes and circumstances of maternal deaths in South Kalimantan, Indonesia. Bulletin of the World Health Organization. 2002;80(3):228-35. Retrieved from https://www.scielosp.org/scielo.php?script=sci_arttext&pid=S0042-96862002000300009.
25. Ronsmans C, Endang A, Gunawan S, Zazri A, McDermott J, Koblinsky M, et al. Evaluation of a comprehensive home-based midwifery programme in South Kalimantan, Indonesia. Tropical Medicine and International Health. 2001;6(10):799-810. [DOI: https://doi.org/10.1046/j.365-3156.2001.00780.x].