A protocol study of participatory action research: Midwife empowerment in improving the quality of maternal referral in Indonesia

Nurmala Dewi Ria Lestari1*, Ova Emilia2, Detty Siti Nurdianti3, Retna Siwi Padmawati4

ABSTRACT

Background: The maternal referral system is still a health problem, especially in Indonesia’s remote areas. That system is related to the maternal referral system regarding referral decision-making. At the same time, in deciding to refer anyone other than the husband, it must involve parents, shaman/confidant, then the hamlet head. If the patient still does not want to be referred, it must involve the village head, even the sub-district head. Besides, the referral facility’s distance also takes a very long time, around 2 hours to travel; therefore, many mothers/babies die while traveling to the referral place. Health professionals, especially midwives, are responsible for explaining to patients and families because average midwives do not give detailed explanations, starting from the anamnesis, examination results, and actions done before and in the referral process.

Method: The research design utilized the Participatory Action Research (PAR) approach, consisting of four stages: problem identification, planning, action, and evaluation. Qualitative data is obtained through in-depth interviews and FGD (Focus Group Discussion) to determine existing problems and programs that are not yet running. Contradictory, quantitative data were obtained from the intervention and control groups. Qualitative data analysis used content analysis, while quantitative data used Wilcoxon sign-rank and rank-sum.

Result: This study aimed to determine the quality of midwives towards maternal referrals, to design a module for midwife empowerment programs, to implement a model design, and to evaluate the results of implementing a midwife empowerment model for maternal referrals so that midwives have guidelines and improve midwife skills so that pregnant women are given explanations by midwives, in order to facilitate the referral process.

Conclusion: The PAR approach is one of the potential ways to determine the midwife’s quality, improving the maternal referral system, especially for the remote area in Indonesia.

Keywords: empowerment, midwives, referral, maternal, participatory action research.


BACKGROUND

The maternal mortality rate (MMR) is a severe health problem in developing countries. According to a report from the World Health Organization (WHO), in 2014 several countries had a reasonably high MMR, such as 179,000 people in Sub-Saharan Africa, 69,000 in South Asia, and 16,000 in Southeast Asia. In Southeast Asian countries such as Indonesia, MMR is 190 per 100,000 live births; in Vietnam, it is 49 per 100,000 live births; in Malaysia, it is 29 per 100,000 live births; in Brunei, it is as much as 27 per 100,000 live births; and in Thailand, it is about 26 per 100,000 live births.1

Indonesia’s maternal mortality rate has generally decreased from 359 in 2012 to 305 per 100,000 live births.2 The success of health development in Indonesia is still unsatisfactory, as evidenced by the MMR and IMR that have not reached the MDG target. In some developing countries, about 25 - 50% of deaths of women of childbearing age are caused by problems related to pregnancy, childbirth, and the puerperium. WHO estimates that every year around the world, there are more than 585,000 mothers die during pregnancy or childbirth.3

For example, a country that has achieved the MDG’s target is Cambodia, which has decreased by 76% in 15 years. The maternal mortality rate decreased by 76% by expanding the coverage, including increasing human resources, providing training, and placing the incentive system. By setting service standards, especially when referrals are evident, access to health services is better through a massive investment effort from the government in transportation infrastructure and health facilities, starting from the level of health centers, referrals, and national hospitals. Besides innovative policies and programs in reproductive health, mothers and children have received priority since 2000, including a health center that operates 24 hours per day.4

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Other causes of delay in making referrals are various problems, such as geographic factors, lack of transportation, and referral place. Stabilization of complicating patients and referrals will be ineffective if the number of health workers remains less than optimal. The medicines are still incomplete, and monitoring has not been done on the patient without follow-up. Factors that influence maternal mortality are finding the right health service facilities equipped to provide services such as blood transfusions, midwife services, etc. Also, punctuality is a determining factor in reducing maternal mortality. Resource constraints significantly affect maternal mortality because it is the spearhead of the implementation of health programs. The required health workers must be competent and have the quality and quantity to increase the MDG's achievements. The cost of transportation, accommodation, and health workers' cost is still a problem for the community to go to health facilities.6,43

A preliminary study was conducted by researchers at 6 (six) health centers in the East Lombok region. The maternal referral system’s problem is making referral decisions. Deciding to refer anyone other than husbands must involve parents, traditional healers/confidants, and then the hamlet head. It must involve the village head, even the sub-district head if still not wanting to be referred. The long distance to the referral facility becomes an obstacle in the referral process where many mothers/babies die on the way to the referral place. Besides, the results of the researchers’ preliminary study of patients who did not want to be referred stated that the patient said he did not receive direction from the midwife in the cost-related referral process (BPJS) or the procedures for administering the BPJS. Patients do not want to be referred because they are more concerned about who cares for the pet at home and transportation costs when caring about the mother/baby. This protocol will help to improve the midwife’s knowledge regarding maternal referral in the remote area.

METHODS
The research design used action research with participatory action research (PAR) approach, which consisted of four stages: problem identification, planning, action, and evaluation. Action research (AR) is applied research by practitioners who identify the need for change or improvement.6 PAR explains the nature of reality and an effort to build relationships with participants, understand more deeply, and empathize with reality.7 PAR is not a research method, so it cannot be classified as qualitative or quantitative and can even use both methods.8 PAR is a research that has a cycle that identifies problems, compiles a joint action plan by group members, acts and observes, then reflects and continues to identify problems from the previous cycle. And so on, the cycle continues until the desired change is achieved. AR stages include a) action plan, b) implementation of the action, c) reflection, and d) observation of actions and implications for improving the program of activities studied (Figure 1).9

RESULT
Study Setting
Geographically, East Lombok Regency is located in the province of West Nusa Tenggara, with an area of about 1,606 km² of the total area of West Nusa Tenggara Province. East Lombok Regency is a district that has the highest number of maternal and infant deaths in West Nusa Tenggara Province, with the largest population of 1,200,612 inhabitants. East Lombok Regency has 132 health centers, 34 units of inpatient health centers, 87 units of supporting health centers, and 11 mobile health centers. The number of midwives in Puskesmas (Public Health Center), hospitals, and other health facilities in 2019 was 1,355, and the ratio of midwives per 100,000 population was 100. The number of referral cases in 2018 increased from 799 to 899 in 2019. Some of the Puskesmas (Public Health Center) that contributed the highest to maternal mortality were Puskesmas (Public Health Center) Suela, Batuyang, Lenek, Masbagik Baru, and Masbagik. The highest cause of maternal death in East Lombok Regency is hypertension in pregnancy, with an amount of 38%.10

This research located in five puskesmas (Public Health Center) in the target area in East Lombok Regency and utilized total sampling in sample selection. A qualitative sample of 36 participants, which was collected through FGD (Focus Group Discussion) by two groups of polindes (Village Maternity Cottage) and puskesmas (Public Health Center) midwives, in-depth interviews with pregnant women, post-partum mothers with a history of referrals, doctors in charge at puskesmas (Public Health Center), coordinating midwives, traditional healers, cadres, ambulance drivers, community leaders, Head of Kesga (family) Health Service, Head of Kesga (Family) Health Office, and Chairman of the IBI (Indonesian Midwives Association) East Lombok Regency. The quantitative sample amounted to 80 respondents. Data
was obtained after midwives in clinical and non-clinical interventions for one month, then observed midwives’ pre- and post-ability and the number of referrals. Qualitative data analysis used content analysis, while quantitative used Wilcoxon sign-rank and rank-sum.

The procedural stage consists of four stages, which are described below (Figure 2):

a. Stage I: Problem Identification

Problem identification is to prepare planning steps in exploring implementing a midwife empowerment model to improve maternal referral quality in the East Lombok district. The preparations were a preliminary study to determine the research location, research subjects, and data collection methods. After that, form and perceive a research team and determine a professional one. Next, the module and video outline preparations to improve the quality of referrals, make questionnaire grids and finally take care of permits, letters, and ethical clearance at Universitas Gadjah Mada. Problems were identified from qualitative results through FGD with midwives and collaboration with the research team will be analyzed and formulated systematically. The results obtained from this first step explore the potential quality of midwives for maternal referrals in East Lombok Regency.

b. Stage II: Planning

Planning in phase II is the preparation of modules and making videos by the research team, a team of experts such as the Chairperson of the Central IBI (Indonesian Midwives Association), the Chairperson of the IBI (Indonesian Midwives Association) East Lombok Regency, obstetricians, coordinating midwives and the Education Office. After this, the module trials were conducted in five health centers, with one midwife as a midwife coordinator in each place. Video tests for pregnant women, polindes (Village Maternity Cottage) midwives, and puskesmas (Public Health Center) midwives. Next, developing a questionnaire, researchers consulted with a team of experts and then tested the research instruments related to knowledge, attitudes, behavior, skills, beliefs, perceptions, experiences, and performance. Finally, testing the validity and reliability and obtaining valid and reliable questionnaires to be presented to respondents.

c. Stage III: Action and Observation

Action and observation in exploring the implementation of the midwife empowerment model in improving the quality of maternal referrals in the East Lombok district would involve a group of midwives and a research team, including experts prepared in advance. The pre-test was given simultaneously between the intervention group and the midwife who was not given the intervention (the control group). After that, the action group was given intervention; for one month, the intervention and control groups were simultaneously given a post-test. Finally, the control group was given an intervention.
**ORIGINAL ARTICLE**

**Table 1. The description of the respondent**

<table>
<thead>
<tr>
<th>Respondents</th>
<th>Amount</th>
<th>Data Collection Technique</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnant mothers</td>
<td>12</td>
<td>In-depth interview</td>
<td>Pregnant women and post-partum mothers referral history</td>
</tr>
<tr>
<td>Midwives</td>
<td>10</td>
<td>FGD</td>
<td>Midwives at puskesmas (Public Health Center) and polindes (Village Maternity Cottage)</td>
</tr>
<tr>
<td>The person in charge of the agency</td>
<td>6</td>
<td>In-depth interview</td>
<td>Coordinating midwives, doctors in charge of puskesmas (Public Health Center), chairman of the Indonesian midwife association, head of the family health division of the health department</td>
</tr>
<tr>
<td>Public figures</td>
<td>8</td>
<td>In-depth interview</td>
<td>Traditional healers, cadres, ambulance drivers, hamlet heads, village heads, and sub-district heads</td>
</tr>
<tr>
<td>Midwives</td>
<td>30</td>
<td>Questionnaire</td>
<td>Validity and Reliability Test</td>
</tr>
<tr>
<td>Midwives</td>
<td>5</td>
<td>Video</td>
<td>Video Test</td>
</tr>
<tr>
<td>Pregnant mothers</td>
<td>5</td>
<td>Video</td>
<td>Video Test</td>
</tr>
<tr>
<td>Midwives</td>
<td>5</td>
<td>Module</td>
<td>Module Test</td>
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<tr>
<td>Midwives</td>
<td>40</td>
<td>Questionnaire</td>
<td>Intervention Group</td>
</tr>
<tr>
<td>Midwives</td>
<td>40</td>
<td>Questionnaire</td>
<td>Control Group</td>
</tr>
</tbody>
</table>

**Respondents**

All midwives in the polindes (Village Maternity Cottage) and the puskesmas (Public Health Center) who contributed to the model's design will be involved in training activities. In contrast, monitoring only involves a few agencies. In addition to midwives and doctors, researchers invited community leaders to participate in this research so midwives could be better empowered for the community. The respondents in this study are as follows (Table 1)

**Data Collection**

Qualitative research is the research instrument of the researcher himself. Qualitative researchers, as a human instrument, can determine the focus of research, select informants as data sources, collect data, assess data quality, analyze data, interpret data, make conclusions, and compare data obtained with observations, interviews, or in-depth interviews. The scope of the qualitative data in the form of questions for interviews and FGDs will cover referral cases, midwife actions ranging from anamnesis, evaluation to the process of advising pregnant women with communication, pregnant women programs at puskesmas (Public Health Center), and factors inhibiting referrals and inputs related to local government. Interviews will take between 30 and 60 minutes, while FGDs will last 60 to 90 minutes. Field notes during data collection and transcripts of recorded interviews and FGDs will be made after completing the activity. Re-interviews will only be conducted if information from previous interviews is incomplete due to time constraints from health personnel.

For triangulation purposes related to maternal referrals, this will be done by member checking and independent coders. The questionnaire's quantitative data contains clinical training material, such as handling severe preeclampsia, while the non-clinical is about counseling midwives in maternal referrals. Each respondent was given a number and initials to facilitate coding, then correct and wrong results were collected, and the data was inputted into the data processing software.

**Analysis**

This analytical approach uses thematic analysis, which involves coding and categorizing into themes. The theme refers to drawing the code from the transcribed interview and FGD results to present meaningful findings. Six phases of thematic analysis will be applied in this research. Two people do the coding. The code is re-coded and grouped into categories. It is sub-categorized and organized into primary categories using a process known as ‘describe-compare-relate.’ The newly categorized data will be analyzed in the next session with participants to review the categories for consistency and identify critical categories. Data saturation is achieved when no new information is sought, which the first author and research assistant will discuss and agree upon. If there is disagreement, consultations will be conducted with the OE, DSN, and RSP supervisors. The findings will be presented as a coding tree, describing the coding, categories, sub-themes, and themes. Quotas will be presented to illustrate categories and themes. The results will also present various cases and minor findings in this study. The data will be analyzed using manual coding for more sensitivity. Quantitative data obtained from attitudes, skills, knowledge, behavior, experience, beliefs, perceptions, and performance were analyzed using independent t-tests and dependent t-tests. The normality test is carried out before statistical tests with an independent t-test and a dependent t-test. Normality test to
determine whether the data is standard or not, using the Shapiro-Wilk W test for standard data formula. The rule used to determine whether a data distribution is normal is if the significance value is \((p > 0.05)\). The data is usually distributed, and if the significance value is \((p < 0.05)\), then the data distribution is said to be abnormal.\(^{13}\) Independent t-test is a comparative test to determine the mean or meaningful mean between the two independent groups with the interval/ratio data scale; referred to here are two unpaired groups. The data source comes from different subjects, the control and the intervention group. The paired t-test is used because the data collected consists of two interconnected samples. One sample will have two data, so this design is known as the pre-test and post-test design, which compares one sample's average pre-test and post-test scores.\(^ {13}\) Not normally distributed data were performed using the Wilcoxon sign-rank and rank-sum tests.

**DISCUSSION**

The PAR study design will involve health professionals in all four stages (needs assessment, planning, implementation, and evaluation).\(^ {14}\) It will improve the reference manual’s understanding, leading to better professional habits, a change in mindset, and discipline to apply the referral manual effectively.\(^ {15}\) In PAR, participation is the key to success. We recognize that the time constraints and workload of each participant can vary. However, we believe that intense communication during training, monitoring, and ongoing discussion can increase participants’ contribution to this study.\(^ {16–18}\) Regarding the potential for bias, the author and research assistants observed directly at the polindes (Village Maternity Cottage) and at the puskesmas (Public Health Center) to deepen the understanding obtained from the interviews/FGDs.

Competent, skilled, and empowered midwives can generate respect from women by providing quality care. However, midwives cannot do it alone; they need support. In other words, midwives need midwifery to achieve the essential empowerment, safety, and respect that enables them to provide caring and caring for women, babies, and families.\(^ {19}\) Empowerment of midwives includes providing interventions related to improving the quality of work so that pregnant women and families can quickly make referrals. It is the same as research that interventions to prevent maternal mortality must include empowering the community to understand their situation better and collaborate with health professionals.\(^ {20}\) The result of midwife empowerment is increasing parental awareness as a resource and capacity to master changing situations and the professional role in this process. Midwives also feel satisfaction in witnessing the growth of themselves and their parents. Midwives are in a close position with consumers of health services and can, therefore, have a significant impact on the lives and health of many individuals and families.\(^ {21,22}\)

Counseling training is critical in providing knowledge to pregnant women and families due to poor communication during delivery and emergencies. Non-compliance with local protocols, lack of recognition of seriously ill patients and lack of accountability, documentation that is impractical with little information to be noted, mostly when the work ward is occupied. According to healthcare providers, investment in transport and communication infrastructure, in-service training, and supportive supervision are priorities to support the referral system's functioning and improve the quality of timely emergency obstetric care.\(^ {21,22}\)

This article has limitation since it is a protocol that will guide the assessment process in the future research. The involvement of community members who depend on community knowledge, political will, mobilization, accountability, and empowerment is an influential potential for improving maternal health and welfare.

**CONCLUSION**

This protocol determined the Participatory Action Research, which consists of four stages: problem identification, planning, action and observation, and evaluation. It is a potential way to determine the midwife’s quality, improving the maternal referral system, especially for the remote area in Indonesia.
plan to communicate the research findings to respondents. These module creators are a team of experts, health professionals, funding sources, and through publications, conference proceedings, and other related documents.

**Conflict of Interest**
This protocol does not have a conflict of interest.

**Abbreviation**
AKI: Maternal mortality rate
WHO: World Health Organization
MDGs: Millennium Development Goals
IBI: Indonesian Midwives Association
FGD: Focus Group Discussion
AR: Action Researcher
PAR: Participatory Action Researcher
RTA: Final Project Recognition
MHREC: Medical and Health Research Ethics Committee
BAPPEDA: Regional Development Planning Agency

**REFERENCES**