Technology, Education, and Science International Conference (TESIC)

Design Tool Analysis of Prenatal Care Management for Midwife in Rural Area

Ulfah [a] *, Eko Supriyanto [b], Fitri [c]

[a]*Faculty Biosciences and Medical Engineering, Universiti Teknologi Malaysia, Malaysia*
[b]*Faculty Biosciences and Medical Engineering, Universiti Teknologi Malaysia, Malaysia*
[c]*Health Polytechnic Riau,Indonesia*

Abstract

Purpose of this research is to design a tool analysis in prenatal care management for midwife in rural area. The case study will conduct at Kampar Regency, Riau Province, Indonesia. Data collection methods divided into three aspects: policy, legal and financial. Finding of this paper are points in questionnaire and clustering analysis on midwife based on background, knowledge, and working experience. This paper will become a tool to measure service level of prenatal care management in rural area. Further research will measure prenatal care management through spread of questionnaires on midwife.

Keywords: Prenatal care management, midwife, policy, legal, financial

1. Introduction

Maternal and child health program is one of the main priorities of health development in Indonesia. This program is responsible for health services for pregnant women, maternal, and neonatal infants. One of program the Maternal and Child Health (KIA) is reducing incidence of death and illness in mother. It purposes to accelerate reductions in child and maternal mortality in order to improve the quality of service and maintain continuity of maternal and perinatal health services at the level of basic services and primary referral care (Zulfansyah, Hasanbasri, & Purnama, 2008).

Basic Emergency Neonatal Obstetric Care (PONED) is the government's efforts in reducing Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) in Indonesia, which is still higher than in other ASEAN countries (Dewiyana, 2011). Furthermore, IMR of Indonesia in year 2007 was 34 per 1,000 live births and then MMR of Indonesia was 228 per 100,000 live births (Ministry of Health Indonesia, 2010). In other hand, Millennium Development Goals (MDGs) as a road map or direction of health development in Indonesia has eight goals, in which two of them are to reduce MMR and IMR. Maternal mortality is still the one of the problems due to the high maternal mortality rate has a great impact on families. The maternal mortality rate can be used as an indicator of public welfare, especially maternal health indicators (Dewiyana, 2011).

Based on the MDGs 4th and 5th which were approved by 189 Heads of State in 2000, Indonesia needs to reduce by two thirds the mortality rate of children under five years of age in 2015 and the two-thirds ratio maternal death in childbirth. In 2007, Under-five Mortality Rate (U-5MR) in Riau was 47 per 1000, this figure is above the average U-5MR in Indonesia is 44 per 1000. Until now, the Ministry of Health and related ranks have worked hard and put every effort to achieve this goal (Supriyanto, 2000). In efforts to reduce maternal mortality, midwives have a strategic role. Therefore, the midwife has the capacity to facilitate access to service delivery, promotion and education, counseling and child health, and early detection in referral cases, especially in rural areas. In some communities where outside referral is not possible, midwives must also attend to the psychological health of their patients, or even perform surgical procedures. In developed countries, a network of doctors, nurses, and specialists

* Corresponding Author Name: Ulfah.
E-mail address: ul_pha7@yahoo.com

share these responsibilities. Nevertheless, in developing countries, a midwife typically fulfills all of them (Brunette et al., 2011).

Unfortunately, many midwives lack fundamental diagnostic tools that could assist them in providing effective antenatal care. Ultrasound, for example, has been used to monitor high-risk pregnancies in most developed countries since the 1960s (Brunette et al., 2011). Regulation about using ultrasound for midwife has provided; nevertheless, in Indonesia does not widespread effectively. Indonesian Midwives Association (IBI) has been a member of International confederation of Midwives (ICM) since 1956, thus the entire policy and development of the profession of midwifery in Indonesia to refer and consider the ICM policy. The above statements contained in KEPMENKES No.369/Menkes/SK/III/2007 about the Profession Standard of Midwifery. It uses as a reference to do all acts and care provided in all aspects of professional service to individuals, families and the public from the input, process and output (Ministry of Health Indonesia, 2007). As the result, Midwives may use ultrasound to detect the extent of normal pregnancy (International confederation of midwives, 2011).

The Ministry of Health improves obstetric and neonatal care in primary health centers and health care facilities in the villages in order to accelerate the achievement of the MDGs (Dewiyana, 2010). To analyze problems high MMR and IMR in Indonesia especially Kampar Regency, Riau Province is to design tool analysis of prenatal care management. Purpose of this research is to design tool analysis in prenatal care management from policy, legal, and finance aspect for midwife in Kampar Regency, Riau Province, Indonesia. Expected result can be points in questionnaire and clustering analysis on midwife based on background, knowledge, and working experience.

2. Methodology

Data collection methods divided into three aspects: policy, legal and financial. Aspect of policy in prenatal care management has a potential role. The policy implications are related to access to obstetric health care (Doherty, Norton & Veney, 2001). For example, government policies about prenatal care management should be coupled with broader efforts to ensure the equitable women in need provision of prenatal care services to all (Marın et al., 2009). In Germany, an incoherent policy environment contributes to inadequate services and treatment delays (Castaneda, 2009).

Aspect of legality influence prenatal care utilization (Korinek & Smith, 2011). For instance, offering prenatal care diagnosis in a situation where abortion is unlawful places women and their partners in a situation of moral hazard (Ball, 2009). Solutions which represent a primary barrier to equity in a nation with otherwise universal health coverage must address these legal ambiguities (Castaneda, 2009). In addition, Aspect of financial influences the utilization of prenatal care management. For instance, the cost of prenatal care was substantial for rural poor (Long et al., 2010).

Level of utilization of prenatal care has been associated with age, marital status, educational level, occupation, income, higher parity, difficulties in dealing with health service organizations, and health insurance status. It has also been associated with conditions during pregnancy, including gaining excess weight during pregnancy, having a baby for the first time, carrying twins or triplets, being at a higher obstetric risk, being attended to by a doctor rather than other types of caregivers, and switching to another health care facility during pregnancy (Chen, Chen and Yang, 2008).

3. Finding

Design analysis of prenatal care management for midwives can be arranged points questionnaire that illustrate policy, legal and financial aspect. The questions are made about the background, knowledge and experience of midwives working and management system of prenatal care services.

Table 1. Background of Midwife

No	Item	Sub item
1	Identity of midwife	Name, Age, Marital Status, Child, Where the midwife on duty, How long work as midwife
2	Educational level	Formal, Informal Educational level
3	Training	Course/ Seminar/ Training attended by midwife
4	Income	Income as a midwife and a side income
5	Job satisfaction	Job satisfaction as a midwife, pleasure to work as a midwife
6	Future	Future plans

Table 2. Basic Knowledge of Midwife

No	Item	Sub item
1	Anatomy and physiology	Ultrasound picture of the fetus in the womb, fetal physiology, fetal heart rate, fetal movement
2	Use of Computer	Notebook, Battery
3	Use of prenatal care tools	Sphygmomanometer, Doppler, ultrasound
4	Analysis blood and urine	Analysis Hemoglobin, Protein urine
5	Regulation	legislation governing midwifery profession, Abortion drug
6	Cases of fetal abnormalities	Syndrome Down
7	Normal Labor	Normal labor process

Table 3. Experience of Midwives Working and management system of prenatal care services

No	Item	Sub item
1	Certain cases	Fetal abnormalities, maternal mortality
2	Relationship with physicians	Good or not
3	Relationship with patients	Sphygmomanometer, Doppler, ultrasound
4	Payment system	Payment system in Puskesmas, Hospital
5	Error Handling	Error handling in patients
6	Relationship with pharmacy	Good or not
7	Relationship with Puskesmas, Hospital	Good or not
8	Experience to train	Experience to train other midwife, experience socialization to patients
9	Laws	Laws about midwife
10	Structural Work	Midwives working structure

The point's questionnaires in table 1 explain about background of midwives. Table 1 includes the point of all identity of midwifes such as age, marital status, educational level, training attended, income, job satisfaction and future plans. Basic knowledge about anatomy physiology, use of computer and prenatal tools, analysis blood and urine, regulation, normal labor and cases of fetal abnormalities can be seen table 2. Experience of midwives working and management system of prenatal care services can be explained in table 3.

4. Discussion

Result of this paper will be conducted in a rural area. Questionnaires were developed wisely that illustrates the questions about the background, basic knowledge and experience of midwives working and management system of prenatal care services. Midwives are expected to fill in accordance with the actual conditions in the field.

Data collections will coordinate with Kampar Health Department especially Chief Medical Officer of the Kampar Regency, Head of Section Family Health Kampar Regency, and This research will be associated with Heads of Community Health Centers (Puskesmas), and the midwives in the village. Questionnaires will spread through Puskesmas, Public Hospital and Private Hospital in Kampar Regency.

In order to accelerate the achievement of the MDGs, one of the breakthrough programs that is being and will be conducted by the Ministry of Health is to improve obstetric and neonatal care in primary health centers and health care facilities in the villages. To support this program, standard prenatal care operational procedure (SOP) that can be used to monitor maternal health and fetal development in the uterus, and be able to interact with specialists and parties related to reporting, is required. This system should also be used easily by a midwife or nurse and can be used for diagnostic purposes in general. More importantly also, the system should be safe to use and has a price that can compete in the market. *Sistem Pemantau Pra Kelahiran Terpadu* (**Si Pemandu**) or *Integrated Prenatal Monitoring System (IPMS)*, is being developed and can be a suggestion system for standard prenatal care operational procedure Indonesia generally, Riau Province particularly (Supriyanto, 2000). Result of this paper will be used to help IPMS project.

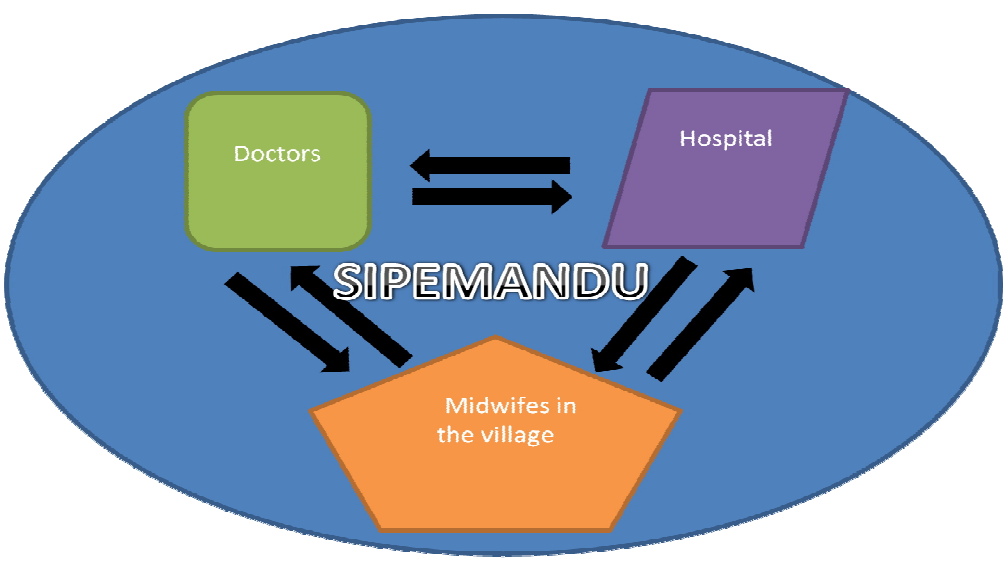

Figure 1. *Integrated Prenatal Monitor System (IPMS)*

Figure 1 shows that patients or pregnant women consult to a village midwife. Village midwifes serve patients with limited knowledge. Then, village midwives using the system to send messages to the physician community. Collection of messages records by the standard device. Doctors open to PDA and know case of the system and make standard treatment. Doctors print out patient complaints and provide standard treatment using instruments. Doctors send information to the hospital so that the hospitals provide recommendation of doctor. Hospital will send an ambulance to pick up and drop off patients. Patient payments made by the system. Financial system will distribute to the midwives, doctors and hospitals. Midwives, doctors and hospitals have job standard. Costs treatment of patient have standard (Supriyanto, 2000).

Currently, System is developed by Prof. Dr.-Ing. Eko Supriyanto. System that has been made through research more than three years in Malaysia and one year in Germany is a low price system, which safe and qualified, which capable used to produce images fetus in the uterus as well as detecting several genetic abnormalities fetus in the uterus. Ultrasonic waves based system who made has been tested been clinically in several hospitals and clinics in Malaysia during the two years, as well as this has been meets the requirements international standards for security and usage (Supriyanto, 2000).

This research will also discuss the regulation requirement for midwives to use ultrasound. International Confederation of Midwives (ICM) is a federation of midwifery associations representing countries across the globe. ICM clarify midwife has essential competencies for basic midwifery practice, such as ultrasound examination if available (International confederation of midwives, 2011).

Results of Midwives Congress in Indonesia states that midwives are allowed to use ultrasound in accordance with the limits of their competence, but results of ultrasound examinations are not allowed to diagnose. In Indonesia, the laws about midwife use ultrasound do not explain.

5. Conclusion

Result of this paper will become a tool to measure service level of prenatal care management in rural area. Questionnaires were developed wisely that illustrates the questions about the background, basic knowledge and experience of midwives working and management system of prenatal care services. *Sistem Pemantau Pra Kelahiran Terpadu (Si Pemandu)* or *Integrated Prenatal Monitoring System (IPMS)*, is being developed and can be a suggestion system for standard prenatal care operational procedur in Indonesia generally, Riau Province particularly. Result of this paper will be used to help IPMS project. Further research will measure prenatal care management through spread of questionnaires on midwife.

Acknowledgements

This research is part of *Integrated Prenatal Monitoring System* (IPMS) project and coordinated by Kampar Health Department especially Chief Medical Officer of the Kampar Regency, Head of Section Family Health Kampar Regency, and This is associated with Heads of Community Health Centers (Puskesmas), and the midwives in the village. The research team would like to give lots of thanks to Kampar Health Department and staff as well as Head of Puskesmas and all midwives joining in the study.

References

Ballantyne, A., Newson, A., Luna, F., & Ashcroft, R. (2009). Prenatal diagnosis and abortion for congenital abnormalities: is it ethical to provide one without the other? The American journal of bioethics : AJOB, 9(8), 48–56.

Brunette, W., Hicks, M., Hope, A., Ruddy, G., Anderson, R. E., & Kolko, B. (2011). Reducing Maternal Mortality: An Ultrasound System for Village Midwives. Global Humanitarian Technology Conference GHTC 2011 IEEE, 84–90.

Castañeda, H. (2009). Illegality as risk factor: a survey of unauthorized migrant patients in a Berlin clinic. Social science & medicine (1982), 68(8), 1552–60.

Chen, L., Chen, C.-L., & Yang, W.-C. (2008). The influences of Taiwan's National Health Insurance on women's choice of prenatal care facility: Investigation of differences between rural and non-rural areas. BMC health services research, 8, 67.

Dewiyana. (2011). PONED as Strategies for Safer Childbirth (pp. 1–8). Surabaya.

Doherty, J. P., Norton, E. C., & Veney, J. E. (2001). China's one-child policy: the economic choices and consequences faced by pregnant women. Social Science & Medicine, 52(5), 745–761.

International Confederation of Midwives. (2011). Essential Competencies for Basic Midwifery Practice 2010 (pp. 1–19).

Korinek, K., & Smith, K. R. (2011). Prenatal care among immigrant and racial-ethnic minority women in a new immigrant destination: exploring the impact of immigrant legal status. Social science & medicine (1982), 72(10), 1695–703.

Long, Q., Zhang, T., Hemminki, E., Tang, X., Huang, K., Xiao, S., & Tolhurst, R. (2010). Utilisation, contents and costs of prenatal care under a rural health insurance (New Co-operative Medical System) in rural China: lessons from implementation. BMC health services research, 10, 301.

Marín, H. a, Ramírez, R., Wise, P. H., Peña, M., Sánchez, Y., & Torres, R. (2009). The effect of Medicaid managed care on prenatal care: the case of Puerto Rico. Maternal and child health journal, 13(2), 187–97.

Ministry of Health Indonesia. (2007). Standard midwifery profession. Jakarta.

Ministry of Helath Indoneisa. (2010). Center for Data and Epidemiological Surveillance Ministry of Health (pp. 1–42). Jakarta.

Supriyanto E. Implementation Integrated Prenatal Monitoring System (IPMS) to Reduce Maternal Mortality and Infant Mortality in Indonesia. 2000.

Zulfansyah, W., Hasanbasri, M., & Purnama, C. (2008). Antenatal Care Policy. Jogjakarta.