RESEARCH PROPOSAL
INTERNATIONAL RESEARCH COLLABORATION
AND SCIENTIFIC PUBLICATION

A COMPREHENSIF APPROACH OF MATERNAL HEALTH : REDUCING MATERNAL MORTALITY RATE BY DEVELOPING HEALTH RESOURCES, ACCESS, AND MANAGEMENT

(A joint research between MMR Universitas Muhammadiyah Yogyakarta and Munster University, German)

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APPROVAL

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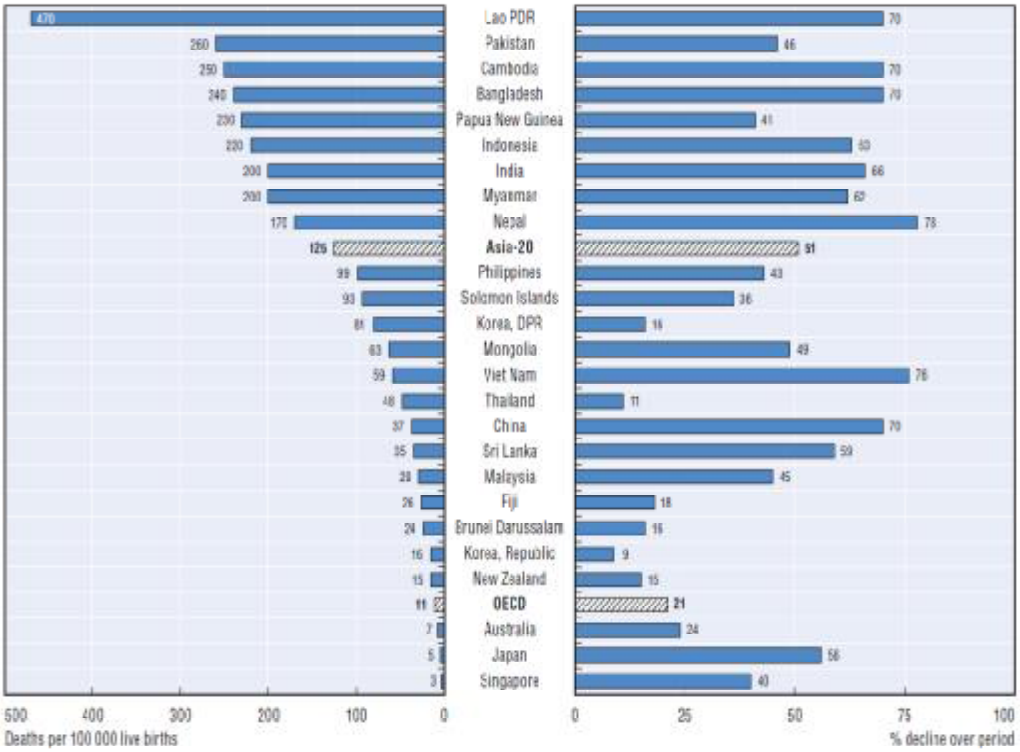
Chapter I
INTRODUCTION

Background of this research is about Maternal Mortality Rate in Indonesia. Maternal mortality is defined as the death of a woman while pregnant or during childbirth or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes (WHO, 2012). This includes direct deaths from obstetric complications of pregnancy, interventions, omissions or incorrect treatment. It also includes indirect deaths due to previously existing diseases, or diseases that developed during pregnancy, where these were aggravated by the effects of pregnancy (WHO, 2012)

Maternal mortality is here measured using the maternal mortality ratio (MMR). It is the number of maternal deaths during a given time period per 100 000 live births during the same time period. There are difficulties in identifying maternal deaths precisely. Many countries in the region do not have accurate or complete vital registration systems, and so the MMR is derived from other sources including censuses, household surveys, sibling histories, verbal autopsies and statistical studies. Because of this, estimates should be used cautiously (WHO, 2012).



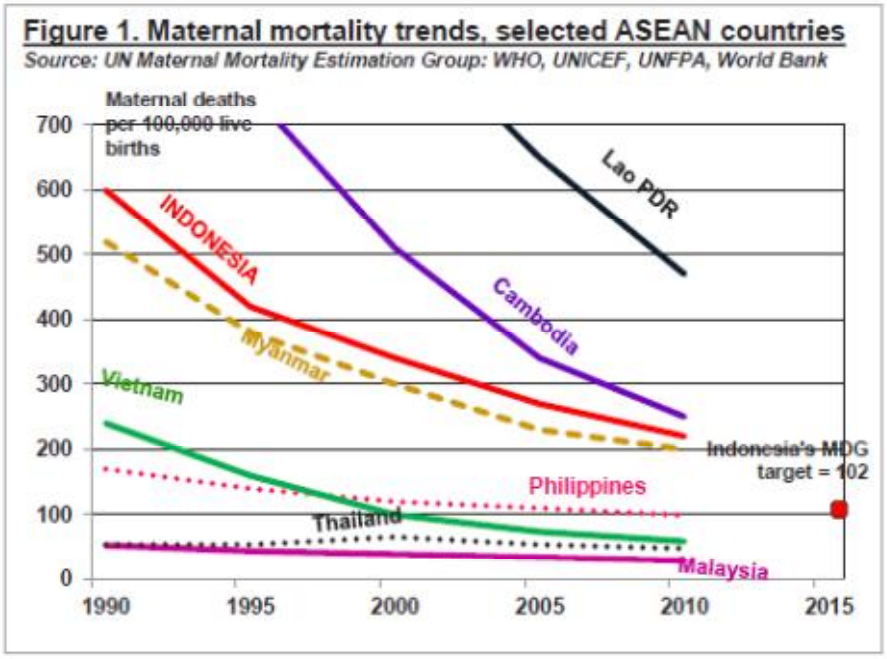
Source: WHO (2012a).

Every three minutes, somewhere in Indonesia a child under the age of five years dies. Moreover, every hour, a woman dies from giving birth or of causes related to pregnancy (WHO, 2012).

Measuring the MDG 5 target of reducing the maternal mortality rate (MMR) by three quarters between 1990 and 2015 remains a challenge. Less than two fifths of countries have a complete civil registration system with good attribution of cause of death, which is necessary for the accurate measurement of maternal mortality (WHO, 2013).

Indonesia's progress on maternal health, the fifth Millennium Development Goal (MDG), has slowed in recent years. Its maternal mortality ratio, estimated at around 228 per 100,000 live births, has remained stubbornly above 200 over the past decade, despite efforts to improve maternal health services. Poorer countries in the region show greater progress

in this regard (Figure 1) (UNICEF, 2013).



Urgency of this research is regarding the fact that until the end of Millennium Development Goals in 2000-2015, maternal mortality rate in Indonesia is still very high at 359. The figures 1 indicate that the target is not reached during the 15 years of development. Target post-Millennium Development Goals on maternal mortality rate in Indonesia is 102 (WHO,.2013). It means that Indonesia is even worse than the poorest countries in ASEAN, such as East Timor, Myanmar and Cambodia. Indonesia has now been predicated underdeveloped in Asia in protecting maternal health. Emergency maternal mortality should be terminated with the seriousness of improved policies, budgets and immediate action (BKKBN, 2013). Supratikto *et.al* (2002) showed between 1995 and 1999 the audit reviewed 130 maternal deaths. The leading causes of death were haemorrhage (41%) and hypertensive diseases (32%). Delays in decision-making and poor quality of care in health facilities were seen as contributory factors in 77% and 60% of the deaths, respectively. Economic

constraints were believed to have contributed to 37% of the deaths. The distance between a patient's home and a health provider or facility did not appear to have a significant influence, nor did transport problems. The audit led to changes in the quality of obstetric care in the district (.

The contribution of researchers in solving the problems:

1. For researchers Indonesia (UMY): expected to identify the weaknesses (gap) of infrastructure in primary healthcare centers (Puskesmas) as well as in hospitals, in rural areas and in urban areas in various provinces in Indonesia which in category high, medium and low Maternal Mortality Rate . Researchers from Indonesia can develop design models to improve maternal health services in Indonesia by presenting in front of the health policy makers in Indonesia. such as local health authorities, Ministry of Health and MPKU PP Muhammadiyah.

2. For German researchers (Muenster University): expected through the comparison of health services between Indonesia and Germany, the German researchers can provide a concept model of comprehensive health services for mothers and tailored to the demographic conditions Indonesia where the services is affordable by the community.

The aim of research is to look at the mother's health infrastructure (Maternal Health) which contribute to the Maternal Mortality Rate in the primary healthcare centers (Puskesmas) and secondary healthcare centers (Rumah Sakit) which are scattered in urban and rural areas in Indonesia. And also is expected to assess the disparity of services in the provinces with the Maternal Mortality Rate in Indonesia (Supratikto, 2002).

The potential results to be obtained by the end of this study are:

1. To know the maternal health infrastructure gaps in primary healthcare centers and secondary healthcare centers in Indonesia provinces with categories of low, medium and high Maternal Mortality Rate.

2. To develop a model of comprehensive services in the field of maternal health adapted to urban and rural conditions in Indonesia based on German experience in handling and reducing the number of maternal deaths.
3. To achieve quality improvement in comprehensive maternal health services at primary healthcare centers (Puskesmas) and secondary healthcare centers (hospitals) in Indonesia.

The importance to conduct the research with foreign partners because of maternal mortality rate is one of the global indicators which very important in the era of Millennium Development Goals (MDGs) that ended in 2015 and will be implemented a Sustainable Development Goals (SDGs) starting in 2015-2030. On the basis of these reasons, we need to learn from country that has successfully built on maternal health that has number very low maternal mortality. Countries that have the concept of a comprehensive maternal care is United Kingdom, Germany, Australia, Netherlands and United States. They can reduce the maternal mortality rate to less than 25 (WHO, 2013).

We choose Germany because we have cooperation with the Center for Parents, Children, and Youth Medicine, Muenster University Hospital, Germany. We have conducted cooperative research and community services in 2015 with the title IVA test and training papsmear - colposcopy for prevention of cervical cancer in low resources settings (Germany experts : Prof. Ralph J. Lelle and Prof. Jorg Haier).

Mapping of research cooperation between UMY - Munster Germany :

1. The first year (2016) :
    a. Mapping the disparity or gap of the quality services that maternal mortality increased in the provinces in Indonesia in low, medium and high Maternal Mortality Rate (infrastructure, human resources, service coverage, sources of financing)
    b. disparity or gap of the quality services of maternal health in Indonesia compared to Germany

2. The second year (2017) : Qualitative research on prototype development of comprehensive services in the field of maternal health (eg, service models using telemedicine).
3. The third year (2018) : Pilot Project

Target outcomes (publication) to be achieved each year are:

1. The first year

This study is targeted for publication to at least two international journals :

a. Maternal and Child Health Journal (Germany)
   Publisher: Springer GmbH & Co, Auslieferungs-Gesellschaf, . ISSN: 10927875, 15736628 H Index 52 . Maternal and Child Health Journal offers an exclusive forum for advancing scientific and professional knowledge of the maternal and child health (MCH). Maternal and Child Health Journal is an important tool for practitioners as well as academics in public health, obstetrics, gynecology, prenatal medicine, pediatrics, and neonatology for exploring the full spectrum of the field.
b. Journal of Public Health Management and Practice (United States**)** Publisher**:** Lippincott Williams and Wilkins**.** ISSN**:** 15505022, 10784659, H Index**:** 35. Journal of Public Health Management and Practice publishes articles which focus on evidence based public health practice and research. The journal is a bi-monthly peer-reviewed publication guided by a multidisciplinary editorial board of administrators, practitioners and scientists. Journal of Public Health Management and Practice publishes in a wide range of population health topics including research to practice, emergency preparedness, bioterrorism, infectious disease surveillance, environmental health, community health assessment, chronic disease prevention and health promotion, and academic-practice linkages.

2. **Second year**: Releasing and publishing a monograph with tittle Comprehensive service model in maternal health to reduce MMR in Indonesia

3. **Third year** : International conference

Chapter II
LITERATURE REVIEW

According to Biggs et al (2010, p. 266), a number of studies indicate the interaction between the national income level and income inequality as determinants of poverty within public health[7]. This has an enormous influence on public health outcomes. Poverty as a social determinant of health limits people's ability in accessing health services. The common belief that rural levels of health are generally worse than in urban areas is supported by good scientific evidence. One analysis of 90 surveys from the dermographic and health surveys program found that, on average, the urban population of poor countries exhibit lower level of child mortality than rural population and similar urban-rural differences were evidence across a range of health indicator (population bulletin no.64). Further, these studies identified a relationship between life expectancy, infant mortality rates, and tuberculosis (TB) mortality rates with the economic condition reflected on gross domestic product (GDP) per capita in purchasing power parity, the poverty rates and 'gini coefficient' for personal income. Gini coeeficient is the measurement tool used to reflect equality. The range number of its measurement is 0 to 1, with 0 indicating complete equality (The World Bank, 2011). The increasing of GDP per capita has a positive impact on health status as stated by Pritchett and Summers (1996) cited in Biggs et all (2010, p. 266). They found in their cross national analysis that increasing GDP would lead to a decrease in infant mortality rates (by a 5 % increase in GDP for a 1 % decrease of infant mortality rate). Moreover, with an increase in country wealth, the government would able to spend more money on promoting health education in the community, such as sanitation for people, clean water programs, and initiating health awareness. On the individual level, the wealthier growth in economic status will enable access to more health services, spending on healthy foods and benefiting better health conditions.

Indonesia has had a good achievement on economic growth; however it is still combating poverty as the main developmental barrier having an impact of the

health status of Indonesians. Poverty is an interrelated issue within the institutional and governance context, since the implementation of regional autonomy in Indonesia (ADB, 2011). The proportion of the population living below the international poverty line illustrates the vulnerability of the Indonesian community. There are 7.5 % of the community who live below the international poverty lines of $1 and 52.4% others within the parameter of $2 per day in 2002 (ADB, 2011). Linking these statistics to maternal health status shows that Indonesian women's health status is still behind when compared to that of Australian woman. An Indonesian woman is 30 times more likely to die in childbirth than a woman in Australia. Also, one in three children in Indonesia under the age of five suffers malnutrition. Difficulties in accessing safe drinking water affect 120 million Indonesians and about 110 million others do not have adequate sanitation (AusAID, 2011).

It is important to explore poverty as a social determinant of health in affecting maternal and children health in Indonesia. As stated in the Millennium Development Goals (MDG's): MDG Goals 4 and 5 indicators for South East Asia Region is: Under-five mortality rate, 45 males and 36 females per 1,000 live births; Infant mortality rate 35.0 per 1,000 live births; Proportion (%) of 1 year-old children immunised for measles 72; MMR 307 per 100,000 live births; Births by skilled attendant is 68.4% (WHO, 2004).

Introducation

The literature review provides information on the subject of the research. It gives an overview of the known literature and identifies gaps in the existing literature (Schneider, Whitehead & Elliot 2007, p. 47). This literature review aims to analyse existing literature about poverty in less developed countries and the patterns of maternal mortality rate (MMR) and infant mortality rate (IMR). The focus of this literature review is on poverty as a social determinant of health, due to the impact on maternal and infant health. In addition, this review analysed the existing literature about the opinion and experience of related public policy (government policy's on the provision of maternal and child health) and what government support is available for maternal and child health in Indonesia.

Literature search and key words

The study design collected studies with a level of evidence ranging from descriptive studies (case reports, survey) and analytic studies (analytic – case control, quasi experimental design). The literature review includes the search and selection processes undertaken by researchers, analysis of articles, along with the presentation of findings using a thematic framework, including the implications in relation to health and international development, limitation of articles, and conclusion (Appendix 1). The literature search was conducted using electronic database search focused on current research articles published between 2000 and 2011 in Science Direct, Pro Quest, CINAHL, and Informit (AMI – Australasian Medical Index. Articles were confined to those written in English simply because this is the university's first language. Key words used were poverty, social determinant of health, maternal health, maternal mortality rate, children health, infant mortality rate and developing countries. The search used the key words "maternal mortality". This led to nine articles, with one article related to maternal mortality rate and the economic status in a developing country (India). Further searches through Proquest database using the key words "maternal mortality" resulted in many articles , however they were not specific to developing countries. Searches with the specific key words of "maternal mortality rate and poverty in developing countries" identified a number of articles suitable for this review.

Presentation of findings

Identified weaknesses were mostly related to ethical issues. Ethical weakness issues identified included limited or lack of discussion of ethics approval along with limited discussion around ethical issues in research such as informed consent, confidentiality and the possible impact of the study on participants. Weakness issues identified in relation to researcher bias failed to acknowledge their own bias or to consider any alterations to the study in response to events that occurred during data collection. Studies using multi analytical method provided a broad results on the issue, not just on the relationship between poverty and child health. Thus, it was important to look at information that involved the end correlation with child health.

Analysis of the literature found 24 articles and identified three main themes;

1. Poverty, GDP and the access to services in developing countries
2. Impact of lower standard living on mother and infant mortality rate
3. Poverty as a social determinant of health, a psychosocial characteristic that is involved in the prevention of infant mortality related problems.

Theme 1: Poverty, Gross Domestic Product and the access to services in developing countries

Poverty is of great concern globally since the late 1980's, with most multilateral and bilateral agencies interested in poverty reduction (Baulch, 1996). The World Bank reported that reducing poverty is the fundamental objective of economic development (Thomas, 2000. p.24). The United Nations World Summit on Social Development in Copenhagen in 1995, agreed on a purpose to reduce poverty by 50 % by 2015 and the World Bank has as its main objective, tackling poverty through poverty studies and research in many countries (Robb, 2002).

Poverty is a subjective matter, with no fixed standard to define what poverty is. It is a portmanteau term, whereby each person will have their own meaning of poverty (Baulch, 1996). Different views of poverty will give a different definition of what poverty is, thus the different actions taken. Mukherjee (2006) identified what poverty in Indonesia is like in their report of Making Service Work for the Poor in Indonesia. They analysed the basic service delivery for the poor that included basic health, education, water supply, and sanitation services. The study was conducted in many different areas in Indonesia: South Kalimantan, East Java, West Java, West Nusa Tenggara, and Madura. Every region has different problems regarding the resources that influence poverty. For example, Madura has poor access to clean water compared to Kertajaya, West Java, where the water supply is good and managed by a district water supplier. Kanbur (2008) studied poverty in a village of Napad, Kheda district of Gujarat state. Kanbur witnessed a poor Kamlaben's family in which two children died because of

poor health status. Low income families are not able to pay for health- care.. Furthermore, below the poverty -line, a poor family is restricted in getting daily needs met, which is essential for support and maintenance of their health status.

Health provider realize that the poor are likely to abandon prescribed medication to save on the cost of purchasing medicines, or economize by buying less that what was prescribed. The poor can be discouraged by the difficulties of finding affordable transport, inconvenient hours of operation at clinics or health centers, the frequent absence of key staff, and long waits to receive care(population bulletin no.64). Another example by Kanbur (2008) shows how poverty has limited access to other social aspects of the community. There is an example of a temple in Ganeshpura which is not open to any people from Senmas or the lower castes. This form of poverty then results in an inability for a particular person to engage with others in that community. They felt marginalized as they were prohibited entry to a temple, where people from upper castes are able to attend. Deprivation from social interaction is another aspect of poverty.

While Gujarat has experienced poverty in accordance with lack of health status and social boundaries, the Brazilian city has a slightly different story. Based on Seed of hope in Amazon's urban jungle written by Bellos in 1998 (cited in Thomas, 2000), since World War II, Brazil became the largest migratory destination. The population rose from approximately 20 million, 20 years ago to 190 million recently. The urban sprawl led to a new problem, 40 % of urban homes were without running water and 88 % homes had no sewerage pipes. Where the basic needs of running water are not adequately facilitated this may cause many diseases related to absence of sanitation. Moreover, with the increasing population, Bellos (1998) also identified that Rio Branco, the 25th largest city in Brazil, has the highest number of criminal cases. The pressures of higher population mean that more people need employment. . Unemployment may lead to robbery or stealing to fulfil basic

daily needs. The problem becomes even more serious when half of the adolescents use cocaine.

Researchers agree that poverty is a deprivation condition (Bellos, 1998). The countries described above have similar deprivation due to their economic status, such as low income and low consumption, poor health status where people have inadequate health services, knowledge deprivation, such as illiteracy, social deprivation of caste boundaries, and not feeling safe from fear of criminality.

Commonly, in many developing countries, poverty is related to low income and low consumption which then becomes the root cause of further problems of health status and education standard due to the increasing rate of illiteracy. It is not the same as the poverty experienced by developed countries where criminality, drug use, alcohol consumption, child abuse, even social deprivation such as bullying and terrorism, are the reflection of poverty (Bellos, 1998).

Theme 2: The definition and indicator of poverty

The definition of poverty by the World Development Report (WDR, 2011) covers a broader range: low income, low consumption, lack of education, nutrition and health, respect and dignity.

Kanbur (2008) identified a typical scene of poverty in Gujarat state. The illustration was drawn to the definition of poverty which is viewed as inability to fulfil health status. The criteria of defining poverty from this view will be related to the individual's ability to maintain their health, such as access to the health services, the system of health delivery in a particular area or even the number of nurses and doctors in every district. Kanbur also mentioned poverty as social isolation from a particular community. Spicker (2007) noted a number of studies in relation to the definition of poverty. The studies explained poverty by measuring a normative household budget and a level of income. It is different to what Narayan in the Voices of the Poor: Crying out for Change (2000) stated that ill-being, which is often described

by the participants to be the impact of poverty, can be differently defined, even contradictory among continents, countries, contexts, and types of people. It is often defined as something opposite to well-being. Poverty is not only a material matter, but also covers the health status, social interaction, freedom from fear, even lack of self confidence, powerlessness, and frustration. A slightly different view from Narayan (2007) and Harriss (2007) identified many kinds of deprivation which are not defined by the conventional poverty measurement. Professionals often relate the poverty definition as measured by income, physical weakness, and the social barriers rather than looking for vulnerability and powerlessness.

Both of these definitions from Narayan (2007) and Harriss (2007) cover what poverty actually is, not a judgment of economic capability only, but moreover they exposed a psychological and social aspect. People commonly view poverty as a superficial appearance, the ability to fulfil daily needs, the property that someone owned, and for others the physical appearance, however, this does not lessen the psychological effects.

Furthermore, because poverty means a lot of things it makes it difficult to measure, thus how poverty can be measured depends on how poverty is described (Bacchi, 1999). Spicker (2007) stated that there are many ways to present poverty indicators: headline indicators, summary indices, and multiple indicators. The headline indicators are a single figure, giving an uncomplicated measurement, and showing a select point. Income and inequality are commonly used to indicate poverty economically, mother and child mortality rates can be an indicator of health status, the lack of doctors and nurses in a rural area is interpreted as poor health services, and isolation from particular groups in a community as a social deprivation. The second means to present poverty indicators is summary indices, which is a set of indicators that are engaged to make a better measurement. It is represented by the use of human development index (HDI), where validity, reliability, quantification, inclusion and exclusion of relevant factors, weighting, norm and values are considered (Spicker 2007). The third way to indicate poverty is

to perform multiple indicators. It is methodological, practical, and there is an argument for principle. When poverty is not a matter related with economy only, or health only, then the best indicators to measure it is using the multiple indicators. Multiple indicators are able to view poverty from multiple angles , using accurate data as detailed information at a local level. They can identify poverty as a whole when the important problem which becomes a part of the bigger problem is sometimes ignored, such as educational attainment, gender inequalities, homelessness. So the best indicator used in dealing with Narayan's (2007) and Harriss's (2007) definition of poverty is using multiple indicators, where the economic, social, physical and psychological aspects are definitely measured.

Poverty as social determinants of health; the impact of lower standard of living on mother and infant mortality rates.

Bleeding during and after childbirth or early bleeding during pregnancy is reported as the most common cause of maternal deaths in Indonesia (Jaffer & Mehru 2000). The reluctance in response to treating each pregnancy at risk has been claimed as a leading cause for maternal bleeding leading to fatality. Moreover, a delay in accessing immediate help and in identifying and diagnosing the symptoms that might lead to this life threatening illness during pregnancy and childbirth increases poor outcomes. If every village in Indonesia had one midwife as promised, then 200.000 midwives would be required. The fact is that the country currently only has 70,000 trained midwives (Jaffer & Mehru, 2000).

For some women in Indonesia, it appears that maternal health has improved. A major challenge for many Indonesian women to their health is pregnancy and childbirth. According to Susenas (1998) cited in The World Health Organisation (WHO, 2004) 10% of adolescents' girls are beginning their marital stage at the age of 16 years. West Java, South Kalimantan, East Java, Jambi, Bengkulu are some provinces that have a higher proportion than others for the first marriage among female adolescents with 16%, 15%, 15%,

14%, and 11% respectively. While there are 4.1% of adolescent pregnancies, they are whom give birth before the age of 18 years.

Poverty is an important social determinant that influences mortality and access to health services in all countries (WHO, 1999). Turning to poverty and its effect on maternal and childr mortality rates, there is a strong relationship between these three variables. Particularly among the poor, there is a high rate of complication in childbirth. According to Biggs (2010) limited access to prevention and curative services due to limited resources becomes the factors that increase morbidity and mortality of children and mothers. An integrated system facilitating effective access and achievement of services will be a key factor in reducing both morbidity and mortality rates (Accorsi, 2009). Biggs (2010) also mentioned that in Peru in 1996, there was a difference of infant mortality rate between poorest and richest quintile, with five times higher infant mortality occurring in the poorest quintile group. Market forces do play an important role in economic development by improving the needs of material circumstances for the community; for example the access to clean water, appropriate shelter, and good quality food for health development and maintenance. Moreover, good economic development can facilitate people to obtain appropriate employment and increase their income, including the possibility of generating income from capital investment, which in turn can further increase household income and facilitate quality child health outcomes (Boyle, 2006).

On the other hand, regarding maternal mortality rate, indirectly, the stable status of economic conditions will contribute to the increase of improvement in maternal health. Families with good income will be able to provide their members an opportunity to achieve health enhancing purchase ability. The ability such as the strength of material resources that support them to purchase goods and pay for health qualified services (Boyle, 2006).

Moreover, education and economic status have an indirect relation that later, contributes to maternal and children health (Boyle, 2006). The provision of more effective parenting care and the broad knowledge of

treatment and prevention services of health systems in the community has resulted from the mothers' education. It is also believed to improve opportunities for women to work outside the home and to contribute to generating household income. This influences child bearing, with longer birth intervals and fewer children. Currently , education is a means to enhance economic development, especially for women. It enables women to pursue their professional career and to increase family wealth. Indirectly this can have a positive impact on child health.

Poverty, maternal health and child health are three variables that are correlated and interconnected. intercorrelated. Poverty can become a direct factor in influencing both maternal and child health. The fulfilment of basic needs and access to health facilities are important factors for maternal and child health needs to be better addressed in developing countries. Other indirect factors resulting from poverty that might influence maternal health is education. It ensures mother's knowledge on bearing children and giving the best parenting care for them.

This research will be implemented, in accordance with the Master Plan for University Muhammadiyah Yogyakarta research in the field of social, economic and education: the alleviation of poverty and the protection of vulnerable groups of society.

Chapter III
RESEARCH METHODOLOGY

1. . The research method

This research is a mixed method study with cross sectional design. Obstetric structure data will be collected at the level of cities / districts in Indonesia. Level of the city / district is represented on the provincial level criteria with categorized maternity maternal mortality high, medium and low, according to data from the Provincial – Ministry of Health in 2013 (Report of the Maternal and Child Routine 2013).

2. The research sample

Research samples are all health centers and hospitals at the level of district / city. Sampling conducted through proportional stratified sampling method.

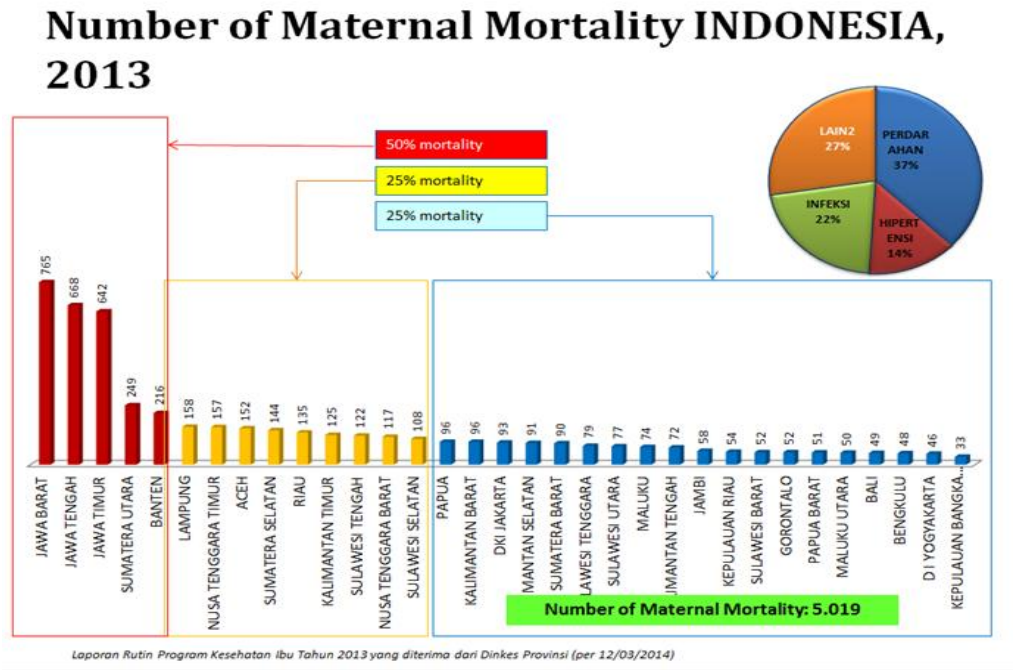
The stages of determination of sample.

The Stage I Determination Province

Level of provinces are divided into 3 clusters according to the number of maternal deaths. The total of maternal deaths in 2013 as many as 5019, then 33 provinces in Indonesia are categorized into three groups based on the number of deaths:

a. High (50% mortality) derived from 5 provinces
b. Medium (25% mortality) derived from 9 provinces
c. Low (25% mortality) derived from 19 provinces

At this level, selected 3 provinces of total or 3 provinces that are proportional in each cluster.



Cluster	Proportional ∑	Selected provinces (proportional average number of deaths)
Low	19/33 x 8 = 5	Total clusters: 1261 Average : 1261/19 = 66,37 1. West Kalimantan 2. West Sumatera 3. Riau Archipelago 4. North Maluku 5. **Special Region of Yogyakarta**
Medium	9/33 x 8 = 2	Total Clusters : 1218 Average : 1218/9 = 135,33 1. South Sulawesi 2. **Riau**
High	5/33 X 8 = 1	Total Clusters: 2540 Average :2540/5 = 508 1. **West Java**

Stage of II Determination of Total District-City

Districts Level of cities are divided into two clusters are urban and rural. At this level also selected 25% of the total district / city in each province were selected, and were taken by proportional.

Cluster			District	Urban	Rural
High (1)	West Java	total	35	6	29
		25%	8,75	1,5	7,25
Medium (2)	Riau	total	10	2	8
		25%	2,5	0,5	2
	South Sulawesi	total	24	3	21
		25%	6	0,75	5,25
Low	West Kalimantan	total	14	2	12
		25%	3,5	0,5	3
	Special Region of Yogyakarta	total	5	1	4
		25%	1,25	0,25	1
	Riau Archipelago	total	7	5	2
		25%	1,75	1,25	0,5
	North Maluku	total	9	2	7
		25%	2,25	0,5	1,75
	West Sumatra	total	19	7	12
		25%	4,75	1,75	3

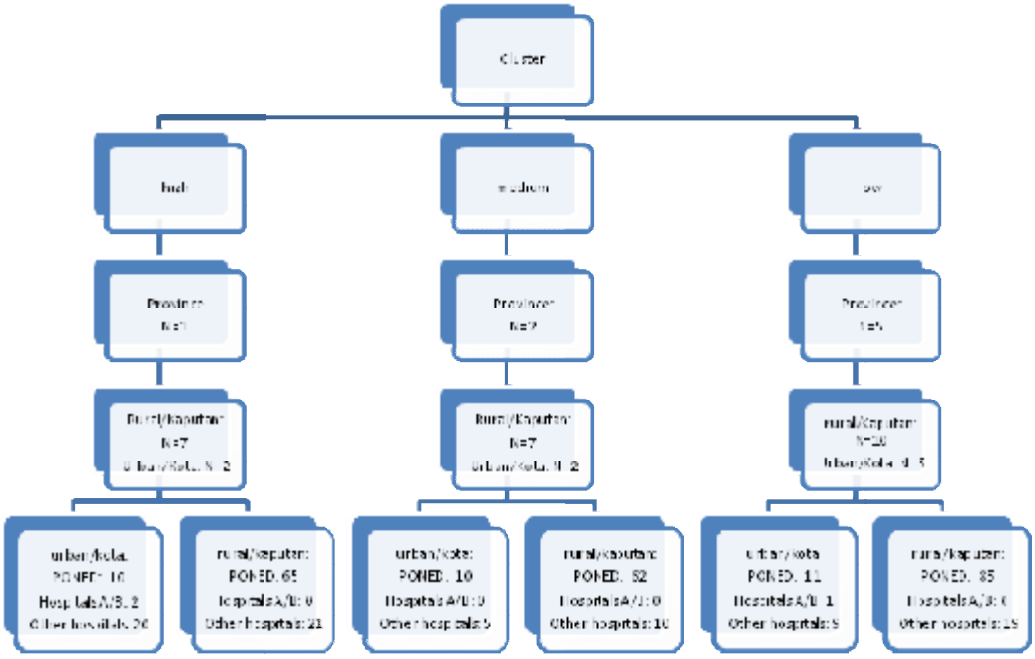
Stage of III Determination of District-City

District or city selected based on population density. District selected clusters of high, medium and low. City selected for each cluster with the highest and lowest population density. Total samples taken hospitals and health centers in each district or city selected. Results shown as follows.

Classif. High	urban	rural	
Poned	10	65	75
Hosp. A/B	2	5	7
other Hosp.	20	21	41
	32	91	

Classif. Medium	urban	rural	
Poned	10	62	72
Hosp. A/B	0	0	0
other Hosp.	5	10	15
	15	72	

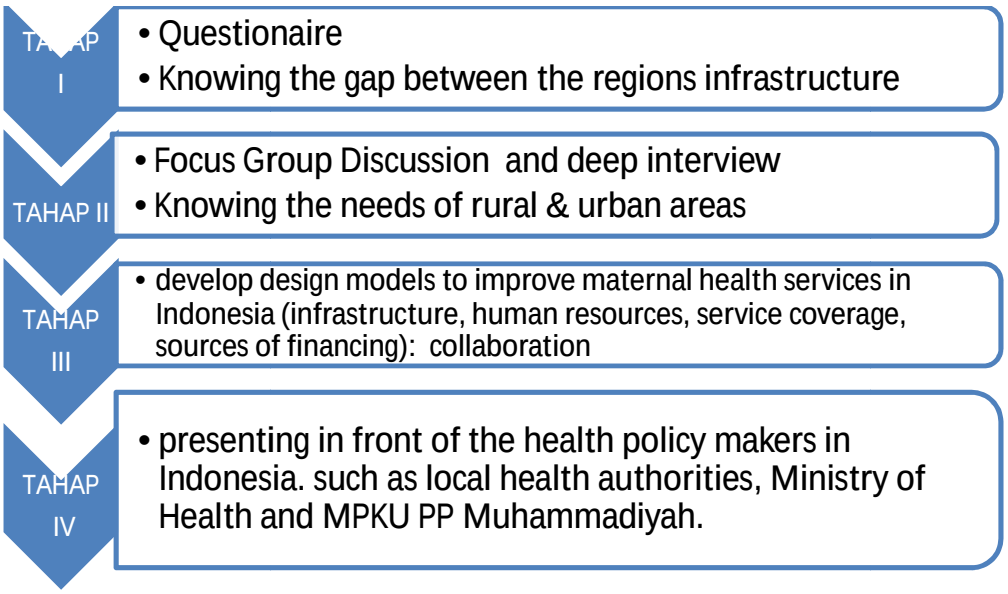
Classif. Low	urban	rural	
Poned	11	85	96
Hosp. A/B	1		1
other Hosp.	9	19	28
	21	104	



3. **The stages of this Research**

Research will be conducted by stages as the following diagram:

The first Year (2016):



The second Year (2017) :

Qualitative research on prototype development of comprehensive services in the field of maternal health (eg, service models using telemedicine).

The third year (2018) : Pilot Project (experiment) for the result from Second Year

4. **Management and analysis of data**

Processing quantitative data was analyzed with descriptive statistics analysis. Descriptive statistical analysis is a way to analyze both primary data and

secondary data involving input from various sources with various methods such as "roundtable meeting", Focus Group Discussion (FGD) and others. This data is then tabulated, analyzed and described based on the information obtained in the field and FGD. Data is displayed in the form of numbers, percentages, the average (mean), and ratio.

5. Variable

1. Differences in the needs of the health services infrastructure across the clusters area on the ability to reduce the number of maternal deaths : infrastructure, human resources, service coverage, sources of financing
2. The study of the suitability of the experimental project of technology in supporting the needs of health workers in improving maternal care better

6.. Research Activity

This study will be conducted in 3 - 8 provinces: West Java, South Sulawesi, Riau, West Kalimantan, Special Region of Yogyakarta, Bintan, Riau Island, North Maluku, West Sumatra. The total sample consisted of 68 hospitals and 267 Puskesmas Inpatient.

Activities of the following activities:

1. Hold a meeting to prepare the research among researchers with the following main activities:
   a. Meeting proposal
   b. The development of research instruments
   c. Held a seminar proposal (by teleconference) with researchers from the German
2. Arrange of licensing research

   In the framework of the implementation of the study, required a letter of assignment from the Ministry of Health in Jakarta. The assignment letter was subsequently used to take care of permits research at provincial and district level survey site. An assignment letter from the

provincial or district also needs to be given to the local surveyor to support the data collection task.

3. Recruitment surveyor

   Survey questionnaire for data retrieval Elections local surveyor is among other reasons, surveyor better understand geography and culture of the respondents in the region. Number of surveyors will be recruited according to need.

4. Training surveyors in each region

   Surveyor Training is training to prospective surveyor regarding the contents of the questionnaire and methodological techniques, that happened a common perception and level of understanding among surveyors. This training is also intended to minimize bias the results of data collection. The training will be given by the research team in each province All prospective surveyors collected at the provincial level and trained in the workshop for 1 day or as needed. At the end of the training throughout the surveyor will get a questionnaire, guide questionnaire, survey licenses and identification surveyor.

5. Implementation of the survey

   The series of surveys in the framework of data collection will be done for 7 days and simultaneously begins 1 day after the implementation of the training of surveyors at the provincial level. The completed questionnaires will be collected on the standby Research Team at the provincial level on one day before the scheduled execution of the survey ends. Results of the questionnaire will be verified by a team of research is conducted prior to data entry.

6. Focused group discussion (FGD)

   Focused group discussion (FGD) and in-depth interview conducted after 25% of questionnaire data collected (some idea of the condition of

each region). The participants are stakeholders in the respective regions. FGDs were held in the respective province and attended by at least 2 members of Researchers.

7. Bridging between needs :
    a. Bring researchers from Germany to provide an explanation of the program for maternal health services and efforts are made to reduce MMR
    b. Jointly develop design models to improve maternal health services in Indonesia (infrastructure, human resources, service coverage, sources of financing)
8. Presenting in front of the health policy makers in Indonesia. such as local health authorities, Ministry of Health and MPKU PP Muhammadiyah.
9. Publication and the Final Report

Time Table of The Reseach

No.	Plan Item	Month												Ket
		1	2	3	4	5	6	7	8	9	10	11	12	
1.	Meeting to prepare the research among researchers (sample, questionare, etc)													
2.	Research permit by Ministry of Health													
3.	Recruitment and training surveyor													
4.	Data collection (Primary and secondary Data)													
5	In depth interview													
6	Focus Group Discussion													
7	Data analysis													
8	Bridging between needs, Infrastructure, Policy, Health systeme and Human and Financial Ressources													
7.	Jointly develop design of Maternal Health programme													
8.	Preliminary reports													
9.	Seminar result													
10.	Publication													
11	Draft Final Report													
12	Reporting													

PROJECT BUDGEDTING

	Budget Item	Unit	@	TOTAL	Additional Information	SUBTOTAL	%
a.	Human Ressources						
	Researcher's Team	4 person	5000000	20000000			
	Assistents researchers	2 person	2000000	4000000			
						24,000,000	7%
b.	Direct Expenses (Operational)						
	Surveyor data	100 location	1000000	100000000	(8 province, 100 hospital/Pusk)		
	Transcrip for qualitatif data	10	150000	1500000			
	Quetionare paper	2000	300	600000			
	Communication	6 bl	750000	4500000			
	Focus Goup Discussion program	2	15000000	30000000	(3 location, include accomodation 20 member)		
	In dept interview	10	2000000	20000000	(3 location, for 10 person)		
	Expenses for Student (accommodation)	2 mg	10000000	20000000			
	Institusional fee	2 credit point		10000000	(Kuliah Blok Elektif: Akreditasi FKTP)		
						186,600,000	53%
c	Travel Expenses						
	Local dan International						
	Travel supervisor (local)	8	3000000	24000000	(8 Province)		
	Travel researcher (from Indonesia)	2	15000000	30000000			
	Local Accomodation Researcher (from German)	1	20000000	20000000			
	Travel for student	1	20000000	20000000	German-Indonesia pp		
						94,000,000	27%
d	Report						
	Seminar	2	1500000	3000000			
	Report	2	1000000	2000000			
	Publication	2	15000000	30000000		35,000,000	10%
e	Unexpected Expenses			10400000		10,400,000	3%
	TOTAL					350,000,000	100%

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