

THESIS

**Community participation as a strategy in reducing maternal and child mortality
in rural areas:
A Literature review**

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Abstract

Background: Maternal and neonatal mortality rate are still high in many developing countries. Lack of access to health facilities is one of the biggest challenges in the poorest households and in rural areas which contributes to high maternal and neonatal mortality. One strategy to improve health services utilization amongst the poorest and rural areas is by incorporating community participation into maternal and neonatal health programmes. Indonesia is one of the countries which make intensive efforts to reduce maternal and neonatal mortality using community participation strategy. Objectives: To identify the effectiveness of community participation strategies to reduce maternal and neonatal mortality and discuss the relevance of global experiences within the Indonesian context. Method: A systematic review. The relevant studies were searched electronically through two databases; Pub-Med and ISI Web of Knowledge. Pre-defined selection criteria applied to the filtered studies. The references of primary sources were traced to add more appropriate studies. Results: 12 studies were generated from the two databases and 3 studies were added from the reference list of primary sources. Conclusions: The evidences appear that community participation is an effective strategy in reducing maternal and neonatal health. Three lessons can be drawn from global experiences are considering local context, involving men and wider community members and integrating with the existing health systems. The global experiences are relevant for the Indonesian context. Further researches are needed to improve the implementation and to scale up the programmes.

Keywords: community participation, maternal mortality, neonatal mortality, Indonesia

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Acronyms and Abbreviations

BPS	<i>Badan Pusat Statistik</i> , Indonesian Statistical Bureau
CHW	Community Health Worker
DHS	Demographic and Health Survey
FCHVs	Female community health volunteers
GRADE	Grading of Recommendations Assessment, Development and Evaluation
IEEC	Information and education for change and empowerment
LHW	Lady health workers
MDG	Millennium Development Goal
MMR	Maternal mortality rate
MoH	Ministry of Health
NGO	Non Governmental Organization
NMR	Neonatal Mortality Rate
PHBS	<i>Perilaku Hidup Bersih dan Sehat</i> , Health Life Style and Practice
PKK	<i>Penggerak Kesejahteraan Keluarga</i> , Family Welfare Movement
PKMD	<i>Pembangunan Kesehatan Masyarakat Desa</i> , Village community health development
PLA	Participatory learning and action
PMM	Prevention Maternal Mortality
Posyandu	<i>Pos Pelayanan Terpadu</i> , Integrated Health Post
RCT	Randomized Control Trial
SMP	Safe motherhood promoters
TBA	Traditional Birth Attendant
TP-PPK	<i>Tim Penggerak PKK</i> , Coordinating Team of Family Welfare Movement
U5MR	Under-5 mortality rates
UKBM	<i>Usaha Kesehatan Berbasis Masyarakat</i> , Community-based health initiative
UN	United Nations
WHO	World Health Organization

Declaration

I declare that the present Master Thesis entitled "Community participation as a strategy in reducing maternal and child mortality in rural areas: A Literature review", is product of my own work and effort, and all the used sources have been acknowledged. The present work has not been submitted by me at another Institution or Program.

Name : Dewi Indriani

Signature :

A handwritten signature in black ink, appearing to be 'Dewi Indriani', written in a cursive style.

Date: 19 September 2012

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Introduction

Background

The MDG (Millennium Development Goals) 4 and 5 targets of reducing maternal and child mortality are still far off and the targets may be missed in many low and middle income countries (United Nations, 2011). One of the important reasons why many poor countries will not attain the goals is due to inequality in health within countries (Vandemoortele, 2009). Wide gaps can be seen in the percentage of institutional deliveries and under five mortality rates between rural and urban areas and between the poorest and the wealthiest households. In Indonesia, there are only 35.2% facility births in rural areas compared to 74.9% in urban areas (Ministry of Health, 2010). Only 44% of all childbirths amongst pregnant women in the poorest families are assisted by skilled health workers compared to 95% in the wealthiest families (WHO, 2012a).

Moreover, even in a country where the under-5 child mortality rate is low, children in rural areas and the poorest families are more likely to die before age five than their urban counterparts (UN, 2011). In addition, in 2001, neonatal mortality contributed to an estimated 38% of under 5 child mortality and 99% of these deaths occurred in developing countries (Gogia, 2010). In the case of Indonesia, under 5 mortality rates in rural areas is 60 per 1000 live births compared to 38 per 1000 in urban areas (WHO, 2012a). Meanwhile, the discrepancy of under 5 mortality rate is most evident between the poorest and wealthiest households, in which 77 deaths per 1000 live births in the poorest quintile and 31 deaths per 1000 live births in the wealthiest quintile respectively (WHO, 2012a).

One of the most significant factors which contribute to high maternal and neonatal mortality in the poorest households and in rural areas is lack of access to health facilities. Thus, making health services available and functioning is the first and absolutely necessary step in efforts to reduce maternal and neonatal mortality (Maine, 1999). However, the increase of availability and quality of health services is not always followed by an increase in health service utilization. Socioeconomic, cultural, distance, transportation and financial factors can cause pregnant women to delay seeking care and in reaching health facilities (Thaddeus, 1994). Therefore, strategies to strengthen the link between families and health facilities are critical to address the barriers. One of the most important strategies is community participation (Lee, 2009). Rifkin (1986) argued that low health services utilization by communities can be corrected by involving them in planning the service. Community participation strategies allow community members to recognize the health problems in their own community, develop their own capacities and collectively change their condition (Rosato, 2008). Some experts believe that slow progress in achieving the MDGs is caused by the failure to incorporate community participation into health programmes (Rosato, 2008).

In the next section, I will briefly describe the current global situation of maternal and neonatal mortality and known factors that contribute to high mortality levels. I will then introduce the concept of community participation and show how it has been defined and used by various scholars. Finally, I will introduce Indonesia's health profile, major challenges in the country's health systems, and example of community participation in Indonesian health programmes.

Maternal and Neonatal Mortality-current global status

Maternal mortality is all deaths of women related to pregnancy, delivery or within 42 days of post partum period. The global estimates on maternal mortality indicate that 287,000 women die each year due to pregnancy and childbirth related complications (WHO, 2012b). In 1990, the maternal mortality rate (MMR) in developing countries was 440 per 100,000 live births and at present it is 290 per 100,000 live births (UN, 2011). The figures show that the MDG 5 target to reduce three quarters of maternal mortality between 1990 and 2015 is difficult to achieve. Moreover, 99% of global maternal mortality occurs in developing countries. Although there is good progress in some developing countries, South Asian and sub Saharan African countries are lagging behind (Ronsmans, 2006).

On the MDG 4, from the target of reducing the under 5 mortality by two third between 1990-2015, the actual reduction is only one third. Of all under 5 mortality incidences, neonatal mortality currently --defined as death of an infant within 28 days of life-- accounts for 38% (Gogia, 2010). Globally, no less than 3.6 million infants die every year in their first month of life and 75% of these deaths occur within the first week of life (Schiffman, 2010).

Factors contributing to high maternal and neonatal mortality

In developing countries, women in rural and poor families have a high risk of death and disability due to childbirth complications. Unfavorable conditions created by lack of access to health care in rural areas and factors related to poverty are the inequalities in the risk of maternal deaths (Ronsmans, 2006). In fact, most women in low and middle income countries

give birth at home and a third of all pregnant women received no care during pregnancy (Islam, 2009). An analysis of Demographic and Health Survey (DHS) data in 48 developing countries found that 70-90% of poor women had home delivery. Moreover, only 3% of home births were attended by a nurse or a doctor (Montagu, 2011). It is believed that delivery location is one of several factors which determine maternal and neonatal outcomes. Meanwhile, major causes of maternal deaths –post partum hemorrhage, eclampsia, prolonged and obstructed labour, infection and unsafe abortions- can be avoided if women have timely access to quality obstetric care (Islam, 2009). Therefore, quality health service should be available for pregnant women and newborns during pregnancy, delivery and the post partum period. Common medical causes of infant mortality –preterm, severe infection and birth asphyxia- may be preventable through antenatal and postnatal care services.

However, the availability of health services alone cannot guarantee high utilization of health facilities. There are many factors which could prevent women from accessing health facilities during pregnancy and childbirth. Thaddeus and Maine (1994:pg1092) describe the factors in “the three phases of delay” in reaching care in health facilities. Delays could occur at the individual, family, community or health facility level. The status of women, knowledge of illness characteristics, financial and opportunity cost, poverty, social attitudes toward women and their needs could inhibit women from accessing health care services (Thaddeus, 1994, Islam, 2009). Furthermore, physical accessibility factors such as geographical factors, road conditions, transportation availability and cost, travel time and health facility distribution can create delays in reaching care in health facilities. Meanwhile, delays at the health facility level could occur when referral systems are insufficient (Thaddeus, 1994). Therefore, strategies to

avert maternal and neonatal mortality should not only include improvement of availability and quality of health services, but also utilization of health facilities by the community. Interventions at the family and community levels are critical to address the barrier in increasing health facility utilization.

Community Participation

Community participation as a core component in primary health care has been recognised in the Alma-Ata Declaration 1978 (WHO, 1978). The declaration recognised that involving communities is important to attain sustainable and effective health programmes. However, 30 years after its declaration, community participation in health programmes has been inconsistent. In 2008, the World Health Organization (WHO) revisited the Alma-Ata Declaration to revitalize community participation in primary health care with the slogan 'Primary health care, now more than ever' (WHO, 2008). It was emphasized that to improve health status, community participation should also be included as an inseparable component of health programmes. Although the idea of community participation is not new, it could still be the most cost effective strategy in addressing the inequality of health outcomes between rural and urban areas.

Ever since community participation emerged as a coherent approach in social development in the 1970s, numerous definitions of community participation have been cited (Midgley, 1986). In the United Nations resolution, it was defined as "the creation of opportunities to enable all members of community and the larger society to actively contribute

to and influence the development process and to share equitably in the fruits of development” (UN, 1981pg 5). In terms of health development, the WHO cited the definition of community participation in the Alma Ata Declaration. The declaration defined community participation as “the process by which individuals and families assume responsibility for their own health and welfare and for those of the community, and develop the capacity to contribute to their and community’s development” (WHO, 1978pg50). Meanwhile, Zakus and Lysack (1998pg2) argued that community participation means:

“...the process by which members of the community, either individually or collectively and with varying levels of commitment: (a) develop the capability to assume greater responsibility for assessing their health needs and problems; (b) plan and then act to implement their solutions; (c) create and maintain organizations in support of these efforts; and (d) evaluate the effects and bring about necessary adjustments in goals and programmes on an ongoing basis...”

Despite its widespread use in health programs, there is no consensus on the definition of community participation (Rifkin, 2009). Morgan (2001pg222) argued that “community participation means different things to different people.” However, self-awareness, self-reliance and autonomy have been found to be a common theme in a variety of definitions. Furthermore, the concept of participation is also closely related to mobilization and empowerment. The concept of community mobilization indicates an induced or spontaneous community capacity building process using participatory approaches through which a community plans, implements and evaluates health activities to improve their health (Rosato, 2008). Meanwhile, participation promotes equal distribution of power in the social relations in a community empowerment process (Wallerstein, 2006). In other words, participation forms the foundation of community mobilization and a community empowerment strategy.

Moreover, Rifkin (1996) distinguished two frames of references in which health planners and professionals view community participation; the target-oriented frame and the empowerment frame. The target-oriented frame views communities in a rather passive role, where resources are allocated by health professionals. The aim of cooperation with communities is merely to ensure acceptability and sustainability and the quantification of programme outcomes. In the empowerment frame, community participation is viewed as a dynamic process, in which the community is actively involved in health care resources allocation, implementation, monitoring and evaluation of the programme. The outcomes of the programme are evaluated using qualitative methods.

In both frames of community participation, community health workers (whether volunteer or salaried) play an important role in bridging health programs and community --in some literature they are also referred to as "agent of change" (Rifkin, 1996pg84). A community health worker is a community based worker who is trained to deliver or to facilitate certain public health interventions in the community. Numerous names refer to community health worker including community cadre, community facilitator, lay health worker, extension health worker or community resource people. A community health worker should be a local community member who is selected by the community and supported by the health system in undertaking her/his tasks (WHO, 1989). A community health worker can perform one or more functions associated with health care delivery. They can be tasked with simply promoting acceptability of health interventions in target-oriented frame and more complex tasks in facilitating community health problems, self diagnosis processes, resource allocation and health decisions in the community in the empowerment frame (Rifkin, 1996). Furthermore, the human

resource crisis in health care has brought the idea to shift a range of tasks of health professionals to community health workers in serving community in rural areas (Chopra, 2008). Tasks such as injecting antibiotics, dispensing and basic neonatal resuscitation are undertaken by community health workers (Baqui, 2008 and Hodgins, 2010).

Indonesia

Indonesia is a Southeast Asian country, with a total population of 237 million --the fourth most populous country in the world--, comprising of no less than 17,000 islands (*Badan Pusat Statistik/BPS*, 2010). The majority of the population live in the seven largest islands of the country; Sumatera, Java, Kalimantan, Sulawesi, Papua, Bali and Nusa Tenggara. However, unequal development in the country has led to a population density much higher in Java than the other islands, as 57% of the country's total population live in Java, while the remaining 43% are scattered in 6 other major islands (BPS, 2010).

Administratively, Indonesia is stratified into provinces, districts (*Kabupaten/Kotamadya*), sub-districts (*Kecamatan*) and villages (*Kelurahan/Desa*). There are 33 provinces, 497 districts and municipalities and 75,410 villages in the country (Ministry of Internal Affairs, 2011). Indonesia is also widely diversified in ethnicity, cultures and languages. There are 300 ethnic groups nationwide, with the biggest group (42%) being Javanese. Moreover, it is also the largest Muslim country in the world with 87.18% of the population are Muslim, while Christian are 6.96%, 2.91 % Catholics, 1,69 % Hindu and 2.5% others (BPS, 2010). Geographic conditions and unequal distribution of social and economic development produces the situation where

populations in rural and remote areas are in disadvantageous situation in terms of access to health facilities.

Health Profile

In the 1990s, Indonesia experienced socio-economic transformations which led to increasing life expectancy at birth to 69 years in 2005 (WHO, 2008). Although the increase is higher than regional indicators, achievements in maternal and child health indicators were not satisfactory. The maternal mortality ratio (MMR) is still higher compared to regional and global indicators. In 2010, Indonesia's MMR stood at 220 per 100,000 live births, while the target to be met by 2015 is 102 per 100,000 live births (Ministry of Health, 2010). Meanwhile, the under 5 mortality rate is 35 per 1,000 live births, of which 25% is caused by prematurity, 14% pneumonia and 11% birth asphyxia (Ministry of Health, 2010).

These problems may be associated with low coverage of skilled attendance at birth. National coverage of delivery assisted by skilled health personnel is 82.2%. Although it is considered a good number, there is wide gap between rural and urban area as well as the poorest and wealthiest quintile. In rural areas, 63% of all deliveries were attended by skilled health workers while in urban areas, the coverage is as high as 88%. Furthermore, there was only 44% skilled attendance at birth among the poorest population, compare to 95% in the wealthiest counterparts (WHO, 2012a). In terms of delivery location, only 55.4% of deliveries took place in a health facility, while 43.2% were home births (Ministry of Health, 2010). Antenatal care coverage is 83.8%, however neonatal visit coverage remains low, in which

neonatal visits from 6-48 hours of life is 71.4%, from 3-7 days is 61.3%, while visit within 8-28 days of life is only 38% (Ministry of Health, 2010).

Health systems

Indonesia has implemented general decentralization since 2001. Previously, provision of public health service was centrally planned, coordinated, and implemented. However, since 2001, the mandate has been transferred to provincial and district government, while the role of the central government is on coordination only. This policy has had many impacts on the country's health systems, particularly health financing, health information systems, human resources for health and service provision (WHO, 2008). Fifty percent of the country's total health expenditure is derived from out of pocket payments by households. Despite the government's efforts to expand the coverage of health insurance for the poor, insurance coverage is still low. Moreover, there is a disparity of health insurance coverage between rural and urban areas. Only 38% of the rural population is covered by insurance compared to 44% of the population in urban areas (BPS, 2011). Low insurance coverage may be associated with low utilization of health services in poor households and populations in rural areas. Indonesia also faces problems in terms of a shortage of human resources for health and uneven distribution of health workers across the country. There are only 3 physicians per 10,000 population and most of them are concentrated in island of Java (WHO, 2012a). Meanwhile, there are only 3-4 primary health centers per 100,000 populations in 2011 (BPS, 2011).

Community participation in health programs in Indonesia

Indonesia has a long history of implementing community participation strategy in its national health programmes. In 1975, the Ministry of Health launched an initiative called *Pembangunan Kesehatan Masyarakat Desa/PKMD* (Village community health development) (MoH, 2011a). Through the PKMD programme, village communities were empowered to solve health problems and worked together with all stakeholders in health development efforts. The PKMD programme gained a lot of success in improving health status. From the initiative, many health services posts were established in the villages such as: child nutrition posts, immunization posts, diarrhea posts and family planning posts. Each health post was independent in terms of activities and management. As a consequence, health services became compartmentalized, lacked coordination and required more resources (MoH, 2011a). In response to these PKMD side effects, in 1984, the Indonesian Ministry of Health (MoH) launched a more comprehensive program called *Posyandu* (*Pos Pelayanan Terpadu/Integrated Health Post*). *Posyandu* is an integrated health program using all resources in the village to increase health services coverage, community involvement and intersectoral collaboration (Leimena, 1989). After the launching, *Posyandu* activities in the villages have been inconsistent. During the economic crisis in 1997, the percentage of pregnant women and children who visited *Posyandu* and participation of female health cadres decreased significantly (Frankenberg, 1999). After recovering from the crisis, the MoH revitalized the *Posyandu* programme. There was an increase of quantity of *Posyandu* from about 25,000 in 1986 to 266,827 in 2009. However, in terms of quality, improvement of *Posyandu* is still needed (MoH, 2011a).

Additionally, in 2006, the MoH revitalized community participation in health programmes through the *Desa Siaga* (Alert Village) programme. This programme promotes self awareness and self reliance of community members in the village to improve health status; particularly maternal and child health (WHO, 2008). Through the *Desa Siaga* programme, all village community members are expected to have a good access to health facilities and to be pro-active in health programme activities in the village (MoH, 2011a).

Posyandu

Posyandu is a community based health program aimed at reducing maternal, neonatal and under 5 mortality. Community empowerment in health programmes is the basic principle of all activities in *Posyandu*. Female community cadres with support from health workers provide monthly health services to pregnant women, infants, children and couples of childbearing age. Moreover, other stakeholders including heads of sub-districts, heads of village, the village level of Family Welfare Movement team (*Tim Penggerak Kesejahteraan Keluarga/TP-PKK Desa*) and community leaders are involved in the *Posyandu* programme.

The *TP-PKK Desa* is an independent social institution. Members of this movement are women in the village who are actively involved in all community development in increasing family welfare (MoH, 2011a). Together with female community health cadres, the family welfare movement teams are involved in health promotion activities in the *Posyandu* programme. Moreover, *Posyandu* working groups are also established to support *Posyandu* activities in the village (MoH, 2011a). The working groups are responsible for annual planning, programme and

cadre performance evaluation, promoting community participation and reporting to village health (MoH, 2011a).

Furthermore, *Posyandu* carries out five main activities once a month, namely: maternal and child health, family planning, immunization, nutrition and prevention and treatment of diarrhea (MoH, 2011a). In some villages, *Posyandu* expand their activities to early childhood education, livelihood activities, microfinance, pregnancy saving, dental health and adolescent health (MoH, 2011a). At present, there are 266,439 *Posyandu* with different levels of activity (MoH, 2011a). However, only 21.6% of them were considered highly active *Posyandu* (*Posyandu Purnama* and *Posyandu Mandiri*) in 2003 (MoH, 2011a). *Posyandu* is classified as highly active if the number of activities organized in a year is more than 8 monthly activities; the number of cadres is more than 5; maternal and child health care, family planning and immunization coverage are more than 50%; and they have additional activities and amount of funds collected from the community amounting to greater than 50% (MoH, 2011a).

Desa Siaga

Since 2006, *Desa Siaga* (Alert Village) programme has been set as one of the four priorities in the Indonesian health development plan (WHO, 2008). Using social mobilization and community empowerment as its main components, the programme motivates all village community members to proactively participate in village health development efforts to pursue healthy living. The phrase '*Desa Siaga*' is the short form of '*Desa Siap Antar Jaga*' which means 'ready to bring and ready to take care'. Based on mutual support and in a spirit of togetherness,

all inhabitants in an alert village are aware of those in need and bring them to appropriate care using their own resources and capacity (Birdsall, 2011).

In 2011, the *Desa Siaga* programme was strengthened into the *Desa Siaga Aktif* (Active Alert Village) programme. It has a wide range of health programmes and activities including improving access to primary health service, community-based health initiatives (*Usaha Kesehatan Berbasis Masyarakat, UKBM*), community-based surveillance system, disaster alert systems and promoting clean and healthy behavior (*Perilaku Hidup Bersih dan Sehat, PHBS*) (MoH, 2011b). All health programme activities in a *Desa Siaga* are planned through a community health problem-solving cycle, facilitated by village volunteers. Meanwhile, village facilitators assist communities to identify health problems and available resources, organize community meetings, construct participatory planning, programme implementation and foster sustainability (MoH, 2011b).

In the effort to reduce maternal and child mortality, the *Desa Siaga* hold the principle that all community members –husbands, neighbours, community and religious leaders, midwives and health personnel– have an important role in promoting safe motherhood. This implies that pregnancy is a common concern and no longer a private affair affecting only women (Birdsall, 2011). Moreover, the key individuals; *Suami Siaga* (alert husband), *Da'i Siaga* (alert religious leader) and *Bidan Siaga* (alert midwife) are aware and prepared for their role in caring for pregnant women and newborns.

The three key actors and other community members in the *Desa Siaga* collaborate in five alert systems to promote safe motherhood in the village. The five alert systems include (1) a notification system to identify and record all pregnant women in the village, (2) a blood donor

system to identify blood donors for medical emergency, (3) a transportation and communication system to access health facilities, (4) a financial support system to fund delivery cost and to encourage institutional delivery, and (5) a family planning information post to provide information and guidance on family planning methods (Birdsall, 2011). The *Desa Siaga* alert systems formation is facilitated by trained village facilitators through several community meetings with all stakeholders in the village. Finally, a coordinator is appointed to oversee each alert system.

Rationales

Indonesia still has high MMR and NMR. The mortality level is particularly high in rural areas and poorest households. Moreover, proportion of delivery which took place at a health facility are still low. The country's geographical conditions, social, culture and economic factors may cause low utilization of health facilities during pregnancy and childbirth. One of national strategy to address low health services utilization is by using community participation strategy. Indonesia has incorporated community participation strategy in their maternal and child health programmes since 1975. However, the implementation of the programmes has been inconsistent and poorly evaluated. Moreover, the implementation of the strategy has not been able to solve the low utilization issues in the country.

Meanwhile, globally, many studies have explored the effectiveness of various community participation strategies in reducing maternal and neonatal mortality. Lessons learnt from global experiences in implementing community participation strategy in increasing utilization of health facilities may have relevance with Indonesia, as many experts believe that a health facility delivery can be justified as the best strategy to reduce the burden of maternal mortality and neonatal mortality. Therefore, access to skilled care is used as a proxy for MMR and NMR.

Objectives

The study aims to achieve the following objectives:

Main objective:

- To identify the effectiveness of community participation strategies to reduce maternal and neonatal mortality

Sub Objectives:

- To review literatures on the effectiveness of community participation in increasing access to and utilization of birth care in health facilities.
- To identify community participation strategies that promotes utilization of birth care.
- To discuss the relevance of these strategies to improve utilization of birth care services in the Indonesian context.

Methods

The study is a literature review on community participation in maternal and neonatal health. Literature search were sourced from two databases, references cited in primary articles, academic literature and policy documents. Pub-Med and Web of Knowledge databases are used as electronic sources. The two databases were chosen due to their wide coverage in health and social science and their accessibility through the University of Bergen library. The reference list in primary articles is also traced to find appropriate articles meeting inclusion criteria for this review. Moreover, books and policy documents were searched manually in the university library, Indonesia's Ministry of Health and other documents from Indonesian government programmes.

An electronic search was conducted from 22nd May 2012 to 29th May 2012. The search was limited to articles published after 1978 to present, full text available, and articles in English and Indonesian. The year 1978 was chosen because in this year the WHO ratified community participation as a main component in Primary Health Care and from then on community participation strategies became popular in health programmes. The articles were searched systematically using several combinations of search words. Search words used were: community participation, community mobilization, community based intervention, community empowerment, maternal health, maternal mortality, safe motherhood, access health facility, utilization, skilled birth attendant, community health worker and women's group. The search was started with general terms and was narrowed with combinations using "AND". For example; community participation AND maternal mortality AND access health facility. Detailed search term combinations are presented in Table 1 below. 152 articles were filtered from Pub-Med and 127 articles from Web of Knowledge. From both search results, duplicated articles were

removed. Final results after removal of duplicates were 74 articles. Some articles which could not be accessed from library links were excluded from the study. Furthermore, the abstract of articles were read and the criteria for inclusion and exclusion in the study was applied.

Table 1. Key words combinations and search result

Search words	Pub-Med	Web of Knowledge	Remarks
Community participation AND maternal mortality/ safe motherhood AND access health facility/utilization/skilled attendant at birth AND community health worker/women's group.	39	20	Resulted from 12 systematic combinations of search words.
Community mobilization AND maternal mortality/ safe motherhood AND access health facility/utilization/skilled attendant at birth AND community health worker/women's group.	28	28	Resulted from 12 systematic combinations of search words.
Community based interventions AND maternal mortality/ safe motherhood AND access health facility/utilization/skilled attendant at birth AND community health worker/women's group.	51	70	Resulted from 12 systematic combinations of search words.
Community empowerment AND maternal mortality/ safe motherhood AND access health facility/utilization/skilled attendant at birth AND community health worker/women's group.	34	9	Resulted from 12 systematic combinations of search words.
Total result	152	127	74 after duplicated articles removed

An article is considered to be included in the study if it fulfills the criteria below:

1. Types of studies: all study types (trial, qualitative, quantitative, project evaluation) which has a component of community participation, community mobilization, community based intervention and community empowerment either as single intervention or in packages of interventions.

2. Types of participant: studies which include all community members; women of reproductive age, men or husbands, community leaders, religious leaders, traditional birth attendants, community volunteers, or community health workers.
3. Types of outcome measures: maternal mortality, neonatal mortality, perinatal mortality antenatal care coverage, skilled attendance delivery, referral to a health facility for any complication during pregnancy, delivery, or post partum period, delivery at health facility.
4. Studies conducted in developing countries.
5. Studies conducted in rural settings.

Articles were excluded if:

1. Studies cannot be accessed from University Bergen library
2. Studies which mention community participation only in the conclusion and did not have component of community participation in interventions.
3. Studies assessed training of traditional birth attendant as single intervention.
4. Studies assessed home visit as single intervention.
5. Studies conducted in high income countries.
6. Studies conducted in urban setting.
7. Study protocol articles.
8. Studies in conflict and disaster setting.
9. Editorial articles.

After reading the abstracts of 279 articles resulted from Pub-Med and Web of Knowledge and applied the inclusion criteria, only 12 studies were eligible to be included in the study. For more comprehensive results, relevant references cited in primary sources were traced and assessed to include in the study. 3 articles were extracted from the reference list and added to the study list. Moreover, hand searching in the library was conducted to search relevant books and other printed materials. To be able to design appropriate community participation strategies in reducing MMR and neonatal mortality in the Indonesian context, policy documents from the Indonesian Ministry of Health, maternal health-related programs documents from other ministries in Indonesian governments programs as well as the World Health Organization country office documents were included in study analysis.

Results

15 studies are included in the review of literature on community participation in reducing maternal and neonatal mortality. The studies used different designs and included six cluster randomized control trials, three pre-post intervention studies and one quasi-experimental study, two project evaluations and three systematic reviews. Community participation in health programmes has been on the agenda since the 1970s, but studies which have tested the impact of community participation on maternal and neonatal health were mostly conducted since 2000. 9 out of 15 studies were conducted after 2008, when the WHO called for revitalization of Primary Health Care. Most studies were concentrated in African and South Asian countries. There is only one study in the south-east Asian region and none were conducted in Indonesia.

The studies involved different community members in their interventions. Moreover, the studies used a wide range of strategies for community participation, among others: community loan funds, community transport systems, women's group, community meetings and community education, home based care by CHWs and forming village health committees. All studies implemented more than one approach in their interventions.

In the following paragraphs, I organized the results into three sections. Firstly, I give an overview of community participation strategies represented in the studies included in the review, study type, year of publication and place of studies (see Table 2). Secondly, I move to community participation strategies. In this section, I report various community participant targeted in the intervention and describe the implementation and impact of the strategies on increasing institutional birth or in reducing MMR and NMR. Lastly, I present a table (Table 3) on

summary of the individual study including study design, objectives, population who were involved in the study, intervention, results and conclusion.

Table 2. Studies based on community participation strategy, study design, year of publication and place.

Community participation strategy	No of studies	Type of study	Year of publication	Country
Community loan fund and community transport systems	5 studies	1 project evaluation 1 pre-post intervention study 1 Cluster-RCT 2 systematic reviews	1997 1997 2008 2009 and 2010	Nigeria Nigeria Pakistan
Community health education	6 studies	2 pre-post intervention studies 2 Cluster-RCT 1 Project evaluation 1 quasi-experimental study	1997 and 2010 2008 and 2010 2008 2011	Nigeria and Tanzania Bangladesh and Pakistan Cambodia Eritrea
Women's groups	5 studies	2 Cluster-RCT 3 systematic reviews	2004 and 2010 2009 and 2010	Nepal and Bangladesh
Home visits by CHW	7 studies	3 Cluster-RCT 2 systematic reviews 2 pre-post intervention studies	2008 and 2010 2009 and 2010 2010	Two in Bangladesh, Nepal Nepal and Tanzania
Village health committees	1 study	1 Cluster-RCT	2008	Pakistan

Community participation strategies

Community member involved in the studies

Most studies involved women of reproductive age, community health workers and traditional birth attendants. A few studies involve other community members such as husbands, mother in laws, village heads, religious leaders, school teachers and adolescent girls. Community health workers as change agents play an important role in community participation strategies (Rifkin, 1996). All studies used community health workers as a key actor in their intervention except two studies in Nigeria. A community health worker is often a trained local

female or male who is selected by the community. There were two studies, one in Bangladesh (Baqui, 2008), and another one in Tanzania (Mushi, 2010), involving male community health workers in their interventions. Baqui et al (2008) in their study involved male community mobilisers to organize group meetings for dissemination of birth and newborn care information. Meanwhile, a study in Tanzania found that by involving males as part of the team of safe motherhood promoters increased acceptability of the community intervention (Mushi, 2010). Moreover, a wide range of effective interventions can be performed by CHWs in the community such as to facilitate health education sessions, home visits, treat neonates and refer them to a health facility. However, the challenge of scaling up and the sustainability of the intervention by CHWs remain unclear. There were only two studies that mentioned percentages of CHWs still active after the intervention period. In a study in Mtwara, Tanzania, 88% of safe motherhood promoters remained active at the end of the intervention period, while 95% of women's groups which were facilitated by female community health volunteers were still active at the end of trial in Makwanpur, Nepal (Mushi, 2010, Manadhar, 2004). However, the studies have different periods of interventions, as the intervention in Nepal the intervention was rolled out for 30 months, while in Tanzania was for 24 months.

There were two studies that involved husbands in their interventions. A trial in Pakistan compared the effects of IEEC (Information and education for change and empowerment) in women's only IEEC arms with husbands' IEEC arms (Midhet, 2010). At the end of the trial it was found that the proportion of pregnant women who visited health facilities was significantly higher in the husbands' IEEC arms than women's IEEC only. Moreover, they also found that the percentage of pregnant women who improved their diets and reduced household chores was

highest in husbands' IEEC arms. In the study in Mtwara Tanzania, the group of husbands/partners worked together with other community members to promote safe motherhood (Mushi, 2010).

Interventions

Community loan fund and community transport systems

Thaddeus and Maine (1994) pointed out that lack of funds and the availability of transportation can cause delay in deciding to seek care and in reaching a health care facility. In relations to this, community loan funds and transport system serves as a community participation strategy to address these barriers. Five studies reported on community loan funds and community transport systems as a strategy of community participation to reduce maternal and neonatal mortality. The studies included one project evaluation in Nigeria (Essien, 1997 and Olaniran, 1997), one cluster randomized control trial in Pakistan (Bhutta, 2008) and two systematic reviews (Lee, 2009 and Bahl, 2010). In the pilot studies of the PMM (Prevention Maternal Mortality) projects in northern and Cross river state, Nigeria, it was found that the main factor causing pregnant women to delay seeking care in a health facility was lack of funds and transport (Essien, 1997, Olaniran, 1997). To address the constraints, community loan funds and community transport systems were set up as an intervention in the project. Communities were involved in designing and managing the loan schemes including compulsory contribution, requirements, amount of loans, interests and repayment methods. The loans were provided only for women with obstetric complications for hospital fee and transport to a health facility. Meanwhile, private vehicle owners in the community were encouraged to participate in the community transport services (Essien, 1997). There were 18 loans approved during the

intervention period in northern Nigeria, while in Cross River state only a very small amount of loan funds was collected (Essien, 1997, Olaniran, 1997). However, both studies showed that the interventions had no significant impact in increasing health facility utilization for obstetric care.

Additionally, a cluster randomized control trial study in rural Pakistan also incorporated emergency treatment and transport fund program in their intervention package, however they did not elaborate how the implementation was realized (Bhutta, 2008). The emergency treatment and transport funds program were combined with home visit by lady health workers, traditional birth attendants trainings, forming village health committee and health system strengthening resulted in reducing of maternal and neonatal mortality in intervention clusters (Bhutta, 2008).

Lee et al (2009) in their review also measured the GRADE (Grading of Recommendations Assessment, Development and Evaluation) evidence level of the impact of community loan fund and transport system on maternal and neonatal outcomes.¹ In their review, Lee et al (2009) found that community loan funds and transport systems have low quality GRADE evidence level. Moreover, long term sustainability and the impact of these strategies in reducing maternal and neonatal mortality remains unclear (Lee, 2009, Bahl, 2010).

¹ GRADE is used to rate the quality of evidence and strength of recommendations of a study (Guyatt, 2008). This grading system helps health policy making and clinicians in weighing the advantages and disadvantages of evidence and recommendations in a study. Evidence is classified into four levels-high, moderate, low and very low. Although randomized control trials begin as high level quality evidence and observational studies as low quality, some factors such as study limitation, consistency of results, directness of evidence, precision and reporting bias will influence the quality of the evidence (Guyatt, 2008).

Community health education

Another reason for women to delay seeking care during pregnancy and childbirth is lack of knowledge and awareness of maternal and neonatal health (Midhet, 2010). Various methods of health education with different levels of community engagement to improve knowledge and health-seeking behavior were implemented in the studies. Six studies used these methods in their interventions including two pre-post intervention studies in Nigeria (Olaniran, 1997) and in Tanzania (Mushi, 2010), two cluster randomized controlled trials in Bangladesh (Baqui, 2008) and in Pakistan (Midhet, 2010), one project evaluation in Cambodia (Skinner, 2010) and one quasi-experimental study in Eritrea (Turan, 2011). Moreover, health messages on healthy maternal and neonatal care practice and signs of obstetric and childbirth complications were delivered through different activities such as community health campaigns, community meetings, support groups and media.

In studies in Nigeria and Tanzania, health education messages were conveyed through posters, hand bills, dramas, sketches, songs, dances and video shows (Olaniran, 1997 and Mushi, 2010). Both studies found increased knowledge on safe motherhood in the intervention areas. However, only study in Tanzania reported increase of skilled attendance at birth by 17.3% after the intervention. In a trial in Bangladesh, 24 village clusters were divided into home care arms, community arms, and control arms (Baqui, 2008). Community meetings organized by female and male mobilisers were conducted in community arms. The meetings were aimed at promoting health-seeking behavior, birth and newborn care preparedness amongst pregnant women. The endline survey found improvement on healthy newborn care practices, however

reduction of neonatal mortality as a primary outcome of the intervention was not achieved in this trial.

Community health education sessions facilitated by midwives and village volunteers in a project in Cambodia also led to increased ANC coverage, skilled birth attendance and referral to hospital (Skinner, 2008). In addition, in a study in northern Eritrea, participatory health education sessions led by village health volunteers on safe motherhood aspects increased antenatal care coverage, birth preparedness and facility births (Turan, 2011). Similarly, a cluster-RCT in a rural district of Balochistan province, Pakistan found that there were declines in perinatal and early neonatal mortality in intervention arms where women and their husbands received IEEC (Information and Education for Empowerment and Change) through support group meetings facilitated by female volunteers (Midhet, 2010).

Women's group

Lack of awareness on maternal and neonatal health can cause low utilization of health facilities during pregnancy and childbirth. Participatory approach through women's group can improve awareness and care seeking behavior (Manandhar, 2004). Women's groups as a strategy to mobilize communities was studied in 5 out of 15 studies. There were two trials; one in Nepal (Manandhar, 2004) and one in Bangladesh (Azad, 2010) and three systematic reviews assessed the effectiveness this strategy in reducing maternal and neonatal mortality (Lee, 2009, Bahl, 2010 and Schiffman, 2010). Both trials were conducted in South Asia.

Women's groups as a strategy was adopted from a successful project called the Warmi in Inquisivi, Bolivia in 1990 -1993. Women's groups participated in monthly meetings which were

facilitated by a local female. Through the meetings, women identified maternal and neonatal problems in the community, prioritized the problems, planned the possible solutions, chose strategy and implemented as well as assessed their strategy (Manandhar, 2004). In a study in Makwanpur, a rural area in Nepal, women's groups reduced neonatal mortality by 30% and maternal mortality ratio by 80% in intervention areas (Manandhar, 2004). In contrast, another study in Bangladesh using the same strategy found that participatory women's groups did not significantly improve maternal and neonatal outcomes (Azad, 2010).

The three reviews found that community mobilization with women's groups has various impacts across studies (Lee, 2009, Bahl, 2010 and Schiffman, 2010). A review by Lee et al (2009) found that community mobilization with high levels of community engagement (women's groups) had a moderate GRADE evidence level to increase health facility births and reduce perinatal mortality. Meanwhile, Bahl et al (2010) found that the greatest impact on neonatal mortality and utilization of health facilities resulted from a combination of intervention home visits by CHWs and community mobilization with women's groups. In their review, Schiffman et al (2010) in their review also found that women's groups had positive effects on maternal and neonatal outcomes.

Home visits by Community Health Workers (CHWs)

Home visit by CHWs is another strategy in community participation to improve maternal and neonatal outcomes. In high maternal and neonatal mortality settings and poor access to health facilities, antenatal and neonatal care home visits by CHWs together with community mobilization activities could reduce maternal and neonatal mortality (Gogia, 2010). Moreover,

the WHO recommends at least three home visits within 28 days after delivery (WHO, 2009). However, the evidence on the impact of this strategy varied widely across studies. There were seven studies analysing the impact of home visits by CHWs on maternal and neonatal health, including three cluster randomized control trials, two trials in Bangladesh (Baqui, 2010; Darmstadt, 2010) and one trial in Pakistan (Bhutta, 2008), and two pre-post intervention studies –one in Nepal (Hodgins, 2010) and the other in Tanzania (Mushi, 2010) and two systematic reviews (Bahl, 2010 and Schiffman, 2010).

Two trials in Bangladesh and Pakistan showed positive impact of antenatal and postnatal visits by CHWs on maternal and neonatal outcomes (Baqui, 2008, Bhutta, 2008). In Bangladesh, CHWs conducted two antenatal and three early neonatal home visits in home care arms, while in Pakistan, LHWs (Lady health workers) performed home visits twice during pregnancy and five times in the neonatal period (Baqui, 2001, Bhutta, 2008). Moreover, during home visits, CHWs carried out several activities related to prevention, counseling and curative measures. In a study in rural Tanzania, safe motherhood promoters visited families to conduct health education on maternal and neonatal health, while in a trial in Sylhet, Bangladesh CHWs also assessed sick neonates, injected antibiotics and made referrals to a health facility in severe cases (Baqui, 2010).

Furthermore, a study in Nepal that implemented home visits by female community health volunteers (FCHVs) reported decreased neonatal mortality and slight increase of delivery at a health facility. FCHVs carried out home-based antenatal counseling to pregnant women, husbands and mothers in law and a postnatal home visit within 3 days of birth. Moreover, the FCHVs were also tasked with dispensing of iron, folate and vitamin A pills (Hodgins, 2010). In

contrast, another trial in Bangladesh by Darmstadst et al (2010) found that there was no evidence for the impact of antenatal and neonatal care home visits on miscarriage rate, stillbirth rate and neonatal mortality. In addition, two reviews of evidence (Bahl, 2010 and Schiffman, 2010) of the impact of home visits on maternal and neonatal mortality found that home visits by CHWs had a better impact on neonatal mortality and health facility utilization if it was combined with community mobilization.

Village health committees

Village health committees could mobilize broader community action to address barriers in accessing health facilities (Lee, 2009). Members of this committee may represent all main stakeholders in the community. There was one cluster randomized control trial in Pakistan (Bhutta, 2008) and one systematic review (Lee, 2009) which included forming community health committees in their studies. A study in Pakistan established community health committees to support Lady Health Workers (LHWs) in conducting health education sessions and establishing an emergency transport fund for mothers and newborns. Members of this committee are community volunteers whom identified by LHWs. However, the author did not mention from what elements of community they come from. There were 875 community group education sessions held and 46 emergency transport and treatment fund set up in intervention clusters. The intervention resulted in reduction of home births by 14%, increasing of skilled attendance at birth by 12%, decreasing of neonatal mortality and still birth rates. Program experience with creation of village health committees in south Asian countries showed significant increase of birth preparedness and health facility births (Lee, 2009).

Table 3 below summarizes the studies include in the review, including; study design, objectives, population who involved in the study, intervention, results and conclusion.

Table 3. Outline of studies included in the review of community participation as strategy in reducing maternal and neonatal mortality in rural areas.

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Essien E, Ifenne D, Sabitu K, Musa A, Alti-Mu'azu, Adidu V, Golji N, Mukaddas M .1997.. Community loan funds and transport services for obstetric emergencies in northern Nigeria. International journal of gynecology and obstetrics, 59(2) pp. S237-S244	Project evaluation--PMM (Prevention of Maternal Mortality) 10 months intervention	To evaluate the impact of community loan fund and transport systems in addressing the community level barriers to utilization of emergency obstetric care	-Village heads -selected community members managed the community loan fund -Vehicleowners	-Setting up community loan for obstetric emergency (particularly for obstructed labour) and establishing community transport systems for delivery -Improving quality of maternity care services at secondary and tertiary level	-There was no increase in health facility utilization for maternal care -The total amount of money was collected US \$20,500; 18 loans were approved in 9 months. -58 vehicle owners voluntarily participated in community transport system, 23 of them are permanent participants	Community interest and participation growing steadily. Collaboration with traditional leadership promoted sustainability.	-There was no data how many pregnancy during the intervention period, therefore coverage of the community loan could not be measured -the sustainability of the program was difficult to predict since the intervention period is too short and no data were available on repayment of the loan

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Olaniran N, Offiong S, Ottong J, Asuquo E, Duke F. 1997. Mobilizing the community to utilize obstetric services, Cross River State, Nigeria. International journal of gynecology and obstetrics, 59(2), pp S181-S189	Pre and post intervention study 1990-1995	To assessed the impact of community health education and community loan fund and transport system on knowledge and awareness of obstetric complications and reducing transportation and cost barriers	-State and local government officials, clan heads, village leaders, male and female opinion leaders, market women, teachers and youth leaders	-Health education on danger signs of obstetric and childbirth complications were targeted to women of childbearing age and their husbands through posters, hand bills, drama sketches, songs and dances -community loan for transport to health facility and hospital deposit -community transport systems for delivery -Improving quality of health services, training for hospital staffs and TBAs	-recognition of obstetric complication was increased in the communities - there were significant decreased of obstetric admission and delivery in health facilities during 1990-1994 and recovered in 1995 -There were increased number of referred patients to hospital -There were very small amount of loan fund collected during the intervention	Community mobilization through health education can improve obstetric services utilization	-There were a 300% inflation rate and increased of fuel and transportation prices, health personnel strike as well as increased of treatment fee at hospital before and during the study. These situations resulted in the decline of obstetric services utilization. -No data on community transport system

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Manandhar DS, Osrin D, Shrestha BP, Mesko N, Morrison J, Tumbahangph e KM, Tamang S, Thapa S, Shrestha D, Thapa B, Shrestha JR, Wade A, Borghi J, Standing H, Manadhar M, Costello AM, and MIRA Makwanpur trial team. 2004. Effect of a participatory intervention with women's groups on birth outcomes in Nepal: cluster-randomized controlled trial. The Lancet, 364, pp 970-79.	Cluster-RCT 30 months intervention	To test the effectiveness of a community based participatory intervention (women's group) in reducing neonatal mortality	-Married women of reproductive age, female community health volunteers	-Health education through monthly women's group meeting facilitated by local female community health volunteers (community action cycle) -health services strengthening in both clusters, essential newborn care training for cadres of government health staff, female community health volunteers and TBAs	-In intervention clusters, neonatal mortality rate were lower than the control cluster (reduced neonatal mortality by 30%) -No difference on stillbirth rate between two clusters -the maternal mortality ratio in intervention cluster was 80% lower than the control cluster -better health behaviors in intervention clusters -neonatal deaths caused by infection were less in intervention cluster	-women's group strategies is potentially acceptable, scalable, sustainable and cost effective in reducing neonatal and maternal mortality in poor and rural communities	-cluster-RCT are susceptible to bias (it is difficult to control the similarity of social factors between two clusters) -collaboration with government trained female community health volunteers and health services strengthening: effect modifier or the main factor for success? -two years trial is difficult to predict the sustainability of the intervention although 95% of groups remain active at the end of the trial -evidence showed there was less poverty in intervention than control cluster. This fact might influence the study result

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Baqui AH, El-Arifteen S, Darmstadt GL, Ahmed S, Williams EK, Seraji HR, Mannan I, Rahman SM, Shah R, Saha, SK, Syed U, Winch PJ, Lefevre A, Santhosham M, Black RE. 2008. Effect of community-based newborn-care intervention package implemented through two service-delivery strategies in Sylhet district, Bangladesh: a cluster-randomized controlled trial. The Lancet, 371, pp 1936-44	Cluster RCT 30 months intervention	To test the effect of a home care model and community care model in promoting neonatal health in rural Bangladesh	-all married women aged 15-49 years -female community health worker -female and male community mobilizer -NGO	-home care arms: trained community health worker conducted five home visits (two antenatal and three postnatal) and referred the neonate in severe cases, group meetings for spreading information on birth and newborn care preparedness -community arms: community meetings organized by female and male community mobilizer encourage pregnant women attending routine ANC and seek care for signs of serious illness in mothers and newborns -home care arms, community arms and comparison arms received health system strengthening intervention and supply of antibiotics for neonatal infection	-neonatal mortality in the home care arms was 34% lower than in the comparison arms -no change in neonatal mortality in the community care arms -improvements of healthy newborn care practice in both intervention arms, but no change in iron and folic acid supplementation and tetanus toxoid immunization coverage	- efforts to improve neonatal health should be integrated with other child survival and maternal health programmes -high coverage of antenatal and postnatal home visits within the existing government and NGO infrastructures can lead to substantial reduction of neonatal mortality	- the role of CHWs as a change agent is very critical and influences the program outcome and sustainability - iron and folate pills and tetanus toxoid supply from the government directly influence the coverage -In home care arms, community health workers injected antibiotic (procaine penicillin and gentamicin) to sick infant before they were referred to hospital. This task shifting practice is not acceptable in some places -To scale up the intervention, it is critical to ensure the availability of referral services and strong supervisory system

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Bhutta ZA, Memon ZA, Soofi S, Salat MS, Cousens S, Martines J. 2008. Implementing community-based perinatal care: results from a pilot study in rural Pakistan. Bulletin of the World Health Organization, 86(6), pp 452-9</p>	<p>Randomized Control Trial (RCT) 2003-2005</p>	<p>To investigate the feasibility of delivering a package of community based interventions for improving perinatal care using lady health workers (LHWs) and traditional birth attendants (Dais) in rural Pakistan</p>	<p>Lady Health Workers (LHWs), TBAs, women of reproductive age, adolescent girls and older women</p>	<p>-LHWs training in home based newborn care (collaborated with regular government's LHWs training) -TBAs training on basic newborn care -establishing community health committee to support LHWs in conducting health education for women of reproductive age, adolescent girls and older women -setting up emergency transport and treatment fund -primary and intermediate-level newborn care training for physicians</p>	<p>- the percentage of home birth decreased by 14% - the proportion of skilled attendant at birth increased by 12% -neonatal mortality rate decreased from 57.3 to 41.3 per 1000 live births and stillbirth declined from 65.9 to 43.1 per 1000 births in intervention clusters -13 maternal deaths in 5,542 pregnancies during the study period, where 5 in 2,932 pregnancies in intervention clusters and 8 in 2,610 pregnancies in control clusters -important changes in household behavior and the care provided by LHWs in intervention arm</p>	<p>Community care and outreach strategy within the existing health system can influence newborn outcomes</p>	<p>-The study provide the data on maternal death during the intervention period, however there was no explanation whether it decrease or increase -collaboration with government's regular LHWs training. This collaboration could influence effects of the interventions -LHWs programme is government's programme which has been implemented since 1994 in Pakistan - Number of LWHs in intervention village was more than in control village -collaboration of the LWHs, TBAs and skilled care providers would have positive impacts on maternal and newborn outcomes.</p>

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Lee ACC, Lawn JE, Cousens S, Kumar V, Osrin D, Bhutta ZA, Wall SN, Nandakumar AK, Syed U, Darmstadt GL. 2009. Linking families and facilities for care at birth: What works to avert intrapartum-related deaths? International journal of gynecology and obstetrics, 107, pp S65-S88	Systematic review, metaanalysis	To systematically review strategies to link family and health facilities, including community mobilization, financial incentives, emergency referral and transport systems, prenatal risk screening and maternity waiting homes.	Various level of community involvement	-various strategies of community mobilization: women's group with community action cycle, home-based counseling on newborn care by CHWs, community meeting and workshop to increase demand for skilled obstetric care, creation of village health committee	- community mobilization with high level community engagement has a moderate quality evidence (GRADE evidence level) to increase health facility births and substantially reduce perinatal mortality -the meta analysis presented evidence of increasing proportion of institutional delivery by 71% due to increase in demand for skilled birth care	-mobilizing and empowering communities should be a main strategy to link women in poor and rural community with skilled obstetric care	-the study reviewed various strategies to link families and facilities for care at birth, amongst them are community mobilization, financial incentives, emergency referral and transport systems, prenatal risk screening and maternity waiting homes. However, only community mobilization strategy has a moderate quality of evidence, the others have limited and low quality GRADE evidence level -studies were predominantly conducted in South Asia and Africa

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Skinner J, Rathavy T. 2008. Design and evaluation of a community participatory, birth preparedness project in Cambodia. The Elsevier midwifery, 25, pp738-43.	Project evaluation 12 months	To evaluate a pilot project, which used a community participatory approach to introduce birth preparedness in rural Cambodia	-Involved wide range of community members, village volunteers and health workers (midwives) in birth preparedness program	-community health education on danger signs of pregnancy and childbirth facilitated by midwives and village volunteers -community meeting to discuss maternal health problems and possible solutions	22% increase in ANC coverage, 32% increase in the number of women whose delivery was assisted by midwives, 19% decrease in the number of women birthed with TBAs and 281% increase in referral to hospital.	Community participation, developing and supporting capacity of local staffs is crucial to improve maternal health and birth outcomes	-Short term project makes it difficult to predict the sustainability of the program -All community members are involved.

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Azad K, Barnett S, Banerjee B, Shaha S, Khan K, Rego AR, Barua S, Flatman D, Pagel C, Prost A, Ellis M, Costello A. 2010. Effect of scaling up women's groups on birth outcomes in three rural districts in Bangladesh: a cluster-randomized controlled trial. The Lancet, 375, pp 1193-202.</p>	<p>Cluster- RCT 3 years intervention</p>	<p>To assess the effectiveness of a scale up development programme with women's groups to address maternal and neonatal care in three rural districts of Bangladesh</p>	<p>-Women aged 15-49 years -female community health volunteers -traditional birth attendants</p>	<p>- health education through women's group meeting facilitated by local female community health volunteers (participatory learning method and action cycle) -TBAs trained on clean and safe delivery and neonatal resuscitation -health services strengthening focus on improving referral system</p>	<p>-neonatal mortality increased during year 2 and stabilized in year 3 in intervention cluster, while it decreased over time in control cluster but the differences were not significant -small difference of maternal mortality ratio between intervention and control clusters -no difference in stillbirth rates between intervention and control cluster -no significant difference in home care practice and health seeking behavior between two clusters -institutional delivery was slightly higher in control cluster than intervention cluster -hygienic delivery practices were higher in group members than non group members -No significant difference in mean early NMR between cluster in which TBAs received resuscitation training -there were no interaction between TBA training intervention and women's group intervention</p>	<p>-participatory women's group did not significantly reduce neonatal mortality in poor and rural community in Bangladesh.</p>	<p>According to the researchers, the negative result which were different from findings in the same studies in Nepal and India are due to lower population coverage, smaller study size and different local context such as climatic condition and culture</p>

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Bahl R, Qazi S, Darmstadt GL, Martines J. 2010. Why is continuum of care from home to health facilities essential to improve perinatal survival. The Elsevier seminars in perinatology, 34, pp 477-85</p>	<p>Review</p>	<p>Review strategies to promote the establishment of continuum of care from home to health facilities; providing health care within or close to home by frontline workers and increasing the use of services in health facilities through community mobilization and financing strategies</p>	<p>Various level of community involvement</p>	<ul style="list-style-type: none"> - TBAs training -home visit by CWHs -Home based care by TBAs and CHWs and combined with community mobilization - community mobilization (women's group strategy) 	<ul style="list-style-type: none"> -TBAs training did not have impact on ANC attendance and obstetric care utilization -home visits by CHWs increase ANC visits, health facility births and improve coverage of newborn care practice -4 out of 6 studies using community mobilization with women's group showed positive impact on maternal and neonatal outcomes 	<p>-combination of home visits by CHWs and community mobilization strategies have the greatest impact on neonatal mortality and health facility utilization.</p>	<ul style="list-style-type: none"> -to address health problems required not only health intervention but need to extend to large developmental issues -this study also reviewed financial strategies (conditional cash transfer and voucher scheme, elimination of user fees, community based health insurances and community loans) to reduce financial barriers to health facility at birth, the result showed that conditional cash transfer or voucher is an effective strategy to increase health facility utilization

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Darmstadt GL, Choi Y, Arifeen SE, Bari S, Rahman SM, Mannan I, Seraji HR, Winch PJ, Saha SK, Ahmed NU, Ahmed S, Begum N, Lee ACC, Black RE, Santhosham M, Crook D, Baqui AH. 2010. Evaluation of a cluster-randomized controlled trial of a package of community-based maternal and newborn intervention in Mirzapur, Bangladesh. Plos ONE, 5(3): e9696.</p>	<p>Cluster-RCT 3 years intervention</p>	<p>To evaluate a delivery strategy for newborn interventions in rural Bangladesh</p>	<p>Women of reproductive age and community health workers</p>	<p>-two antenatal home visits (birth and newborn care preparedness) and three postnatal home visits by trained CHWs</p> <p>-CHWs facilitated transport for neonates needed referral</p> <p>-TBA training on essential newborn care practices and indication for referral of newborns and mothers.</p>	<p>-miscarriage and stillbirth rates were not different between intervention and comparison arms</p> <p>-ANC visits and iron supplement coverage increased significantly in intervention arm</p> <p>-the proportion of pregnant women who received 1 tetanus toxoid immunization did not change and received 2 or more immunization decreased in both study arms</p> <p>-significant increase of percentage of women who delivered in a health facility in intervention arm</p> <p>-increased of good newborn care practices is larger in intervention arm than comparison arm</p> <p>-improved knowledge on maternal and neonatal danger signs in both arms</p> <p>-there were no significant change in neonatal mortality estimates in both arms</p>	<p>-No evidence on the impact of intervention on neonatal mortality</p> <p>-to achieve optimal neonatal survival in low resources setting - with moderate NMR, a clear pathway from risk factors to survival must be considered in intervention design and should be appropriated with local context</p>	<p>-no data whether CHWs paid or unpaid. If paid, who paid them?</p> <p>- findings are different from other studies in south Asia. According to the researcher, it is due to inadequate implementation and insufficient coverage of intervention</p> <p>-number of pregnant women who received tetanus toxoid immunization 2 times were decreased in both arms, it could be associated with shortage of supply from the government</p> <p>-local context and epidemiology is important in determining the intervention (Bangladesh does not promote TBA training program)</p>

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Hodgins S, McPherson R, Suvedi BK, Shresta RB, Silwal RC, Ban B, Neupane S, Baqui AH. 2010. Testing a scalable community-based approach to improve maternal and neonatal health in rural Nepal. Journal of Perinatology, 30, pp 388-95.</p>	<p>Pre- and post-intervention survey 18 months intervention</p>	<p>To determine the feasibility of improved maternal and neonatal care seeking and household practices using an approach scalable under Nepal's primary health care services</p>	<p>-paramedical staffs and locally hired community health workers, -female community health volunteers (FCHVs), -pregnant women, other family members (husbands and mothers-in-law)</p>	<p>-antenatal home based counseling by FCHVs to pregnant women and other family members -FCHVs tasked with dispensing of iron, folate and vitamin A -a post natal home visit by FCHVs</p>	<p>-there was only slight increased of delivery at health facility -increased of antenatal receipt of iron/folate 29.1% and post partum vitamin A 90.2% -increased of care seeking following recognition of danger signs in newborn -positive changes in practices and behaviors in all targeted household -there were decreased of neonatal deaths from 36 per 1,716 live births at baseline to 24 per 1,723 live births at endline</p>	<p>Community based interventions using the available resources in government's primary health care is feasible and scalable to improve services utilization and household practices as well as has potential to reduce neonatal mortality</p>	<p>-transport and geographic factors were significant barriers in accessing emergency care</p>

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Midhet F, Becker S. 2010. Impact of community-based interventions on maternal and neonatal health indicators: Results from a community randomized trial in rural Balochistan, Pakistan. Journal of reproductive health, 7:30.</p>	<p>Cluster-RCT Project during 1998-2002</p>	<p>To assess the impact of a community based intervention package on reducing maternal and neonatal mortality in a rural district of Balochistan province of Pakistan</p>	<p>-female volunteers as IEEC (Information and education for empowerment and change) facilitators, women, husbands, traditional birth attendants, local owner of public transport vehicles.</p>	<p>-IEEC for women and their husbands through support groups</p> <p>-training of TBAs in clean home delivery and early recognition of obstetric and newborn danger signs</p> <p>-providing telecommunication (VHF wireless telecommunication systems) and transportation services for women in need of emergency obstetric and neonatal care.</p> <p>-advance training for obstetricians, pediatricians and anesthetists working at district hospital.</p>	<p>-the proportion of pregnant women visited health facility was significantly higher in control arms and the husband IEEC arms than women's IEEC only</p> <p>- fewer women reported an illness during pregnancy, childbirth and post partum period, more pregnant women received tetanus immunization and iron pills in intervention arms than control arms</p> <p>-greater percentage of pregnant women improve their diet and reduced household chores in intervention arms particularly in the husband IEEC arms than control arms</p> <p>-greater proportion of pregnant women delivered in district hospital in intervention arms than control arms</p> <p>-perinatal and early neonatal mortality decreased in intervention arms</p>	<p>-community based intervention has positive impact on neonatal mortality in rural area of Pakistan</p> <p>-involving husband in IEEC can improve women's health during pregnancy</p>	<p>-since it is a trial, it was difficult to control external factors which may influence the impact of the interventions (example contamination to control arm)</p> <p>-the interventions has better impact if involves husband</p> <p>-IEEC materials are pictorial booklet and audiocassette</p> <p>-efforts to reduce maternal and neonatal mortality should include both demand and supply side</p>

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Mushi D, Mpembeni R, Jahn A. 2010. Effectiveness of community based safe motherhood promoters in improving the utilization of obstetric care. The case of Mtwara rural district in Tanzania.	Pre-post comparison study Two years intervention	To assess the effectiveness of a community based safe motherhood intervention in increasing the utilization of obstetric care in Mtwara rural district of Tanzania	Mothers and husbands, village leaders, religious and opinion leaders, village health workers, school teacher, traditional birth attendants and traditional healers to consult study plans, implementations and findings.	-Training of safe motherhood promoters/SMPs (females and males) -health education on danger signs and pregnancy complication for pregnant women, their husband and key community members through home visits -Community meeting and video show to increase awareness on maternal health aspects	-skilled attendance at birth increased by 17.3% -ANC visits in study areas increased -increased of knowledge on safe motherhood, but was not statistically significant -12% SMPs (6 person) dropped out during study period	-the use of community volunteers in promoting access to obstetric care is feasible and can be efficient -functioning health facilities is crucial in community intervention to promote obstetric use -linking community volunteers and health provider is critical for making a program successful	-Involving men in the SMPs team is important and contributed to the effectiveness of interventions -12% of SMPs dropped out in 2 years, thus arises the sustainability question.

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
Schiffman J, Darmstadt GL, Agarwal S, Baqui AH. 2010. Community based intervention packages for improving perinatal health in developing countries: A review of the evidence. The Elsevier seminars in perinatology, 34, pp 462-76.	Review of RCT	<p>-to systematically identify large scale, control studies that test a community based intervention package with primary focus on family-community care interventions</p> <p>-to describe the positive and negative findings of the studies identified</p> <p>-to summarized the lesson learned</p>	-each studies involved different level of community members	Community mobilization integrated in CBIPs (Community based intervention packages)	<p>-4 out of 6 studies included different strategies of community mobilization and other combination in intervention packages which led to statistically significant decrease neonatal mortality rate</p> <p>-the evidence suggest that there was an independent association between promotion of care seeking and neonatal mortality rate or perinatal mortality rate</p>	<p>-Family-community care interventions have significant effect on neonatal and perinatal mortality.</p> <p>-Frontline worker has the key role in facilitating the interventions.</p>	-BCC (behavior change communication) is the main element of family community care in order to promote care seeking behavior.

Study	Design	Objectives	Community member involved in the study	Interventions	Results	Conclusions	Lessons learned/Note
<p>Turan JM, Tesfagiorghis M, Polan ML. 2011. Evaluation of community intervention for promotion of safe motherhood in Eritrea. Journal of midwifery and women's health, 56, pp 8-17.</p>	<p>Quasi-experimental design 2005-2007</p>	<p>To evaluate a community based intervention to promote safe motherhood, focusing on knowledge and behavior that may reduce maternal mortality and birth complications</p>	<p>Community volunteers, married women, married men, elder women, traditional birth attendant and community leader (only to consult the study site)</p>	<p>-participatory health education sessions on safe motherhood topics for women and men facilitated by female and male community volunteers</p>	<p>-knowledge of danger signs and birth complications was significantly improved in intervention areas</p> <p>- great increase of percentage of women who reported making birth preparedness in intervention and comparison areas</p> <p>- ANC visits increased significantly in intervention area</p> <p>- the percentage of women who reported giving birth in a health facility increased by 44% in intervention areas compared to only 11% in comparison areas</p> <p>-the proportion of women who reported having obstetric complication and newborn problems decreased significantly in intervention areas</p>	<p>-a low cost, community based intervention was associated with significant improvements in knowledge of safe motherhood practices and use of essential maternity services</p>	<p>-Although many confounding factors tried to control in the study, many other social factors cannot be controlled and measured</p>

Discussion

Community participation strategies which were identified in the review section have varied effectiveness in increasing institutional delivery. Community health education, women's group, home visits by CHWs and forming village health committees were found as effective strategies in improving maternal and neonatal outcomes, while community loan funds and transport systems strategy were ineffective in increasing health facility birth. The discussion is divided in two sections. In the first section, I discuss crosscutting issues in the studies including local context, degree of involvement, involving men and integration with existing health systems. Then the relevance of the results within the Indonesian contexts is discussed in the second part of discussion.

The interest in using community participation strategies to improve population health, particularly maternal and child health is growing. A number of studies indicate that community participation can be a feasible and effective method to increase the proportion of women using skilled attendance at birth and to improve maternal and neonatal outcomes. The evidence is however not very strong, while similar strategies implemented in different settings sometimes show very different effects. This indicates that the success of particular strategy is very context dependent and that scaling up maybe complicated.

Although some of those strategies did not yield positive impacts, it is difficult to conclude that one strategy is better than the others because of implementation in different settings. For example, two trials using community mobilizations with women's group approaches were reported in Nepal (Manandhar, 2004) and in Bangladesh (Azad, 2010). In the study in Nepal (Manadhar, 2004), the women's group strategy reduced neonatal mortality by

30% and maternal mortality ratio by 80%, while the study in Bangladesh (Azad, 2010) found that this strategy had no impact in averting maternal and neonatal mortality. In fact, different culture and climatic condition might have contributed to the observed different result of these two studies. In 2007, one of the intervention areas in Bangladesh was severely affected by flood, thus prevented the facilitators from traveling to attend women's group meetings. In addition, gender based barriers also caused low participation of women group in three rural districts in Bangladesh (Azad, 2010). As a lesson, Rifkin (2009, pg 32) stated that "...it was not realistic to define or pursue a standard model for creating community participation in health programmes. History and culture were strong defining elements of the value, structure and sustainability of any community health programme, with or without community participation..."

Additionally, William and Satoto (1983) also argued that it is very difficult to replicate a community based programme from one district to the next in the same area of the country without encountering major problems. Therefore, it is important to consider local context and to conduct a pilot study to identify appropriate approaches in designing community participation in maternal and child health programmes. Moreover, tailoring an intervention to the local context will promote not only acceptability but also sustainability of the programme. The solutions to the health problems which arise from the community itself and which are in accordance with local culture will be considered as a part of local life and more likely to be sustained over time.

Furthermore, evidences also showed that a community participation strategy with high level of community engagement is more likely to succeed than a strategy with low level engagement. Once communities are actively engaged in identifying and prioritizing the

problems, planning the solution, and implementing and conducting evaluations of the intervention, the sense of ownership to the programme will increase. The knowledge and skills which are obtained from the active participatory process will not only increase awareness and healthy behaviours but also enable the communities to take some control to their life. In other words, the community is empowered to solve their own health problems with all resources and capacities they have. In this sense, the women's group strategy can be categorized as high level of community participation. Women's group strategies with participatory learning and action (PLA) allowed women to gain maternal and child health knowledge and improve their confidence. With strong engagement with the group, women were enabled to build local capacity to take action for improvement of maternal and child health in their community (Morrison, 2010).

In contrast to such comprehensive empowerment approach, conventional health education such health campaigns --in which the community is viewed as a target of prescribed interventions by health planners-- can be considered as a low level of community engagement. In such approach, the community is give a rather passive role and are seen as beneficiaries rather than active participants of the programme. Moreover, consultancy with the community is often merely aimed at gaining acceptance of a specific intervention or with the expectation of contributions of the community to the programme which has been defined by the planners (Rifkin, 1996). It appears that empowerment approach of community participation is more effective to improve maternal and neonatal outcomes than the target-oriented approach.

However, it should be noted that there are several factors such as gender, age, education and socio-economic status which determine individual participation in community

development. In a study in Indonesia, age, education and literacy, residence and economic status influenced whether an individual would contribute their time or money in community development efforts (Beard, 2005). Women aged 31-45, literate (at least having elementary school level education), residing in rural areas and not belonging to either the highest or lowest economic category were more likely to become involved in civil society. The women's group strategy could thus be an effective approach to initiate participation of women of reproductive age in rural areas, but it would be a challenge for women who are illiterate and from the poorest households, because involvement in women's group activities might require reading and writing skills. Moreover, women from the poorest families have scarce resources which would prevent them from contributing to community development efforts. In the Makwanpur study, there was no data on the education level of women's group members but the authors noted less poverty in intervention areas than in control areas (Manandhar, 2004). Meanwhile, the association between the education level and participation in women's groups in Nepal context need to be explored.

Furthermore, the question on who should be involved in community based health programme to reduce maternal and neonatal mortality merits consideration. Should only women of reproductive age be involved, or other family members or even other community members? The growing evidence shows that involving men (husbands/partners) in community participation in reducing maternal and neonatal mortality will improve the effectiveness of the programme. In many cultures, a husband decides care for his wife during pregnancy and delivery (Midhet, 2010). By actively being involved in community participation in health programmes, husbands can reduce delay of decision to seek medical care, and arrange

transportation and finance in case of obstetric emergency. A husband can also encourage and facilitate his wife to attend antenatal care, ensure a healthy diet during pregnancy and postpartum period as well as arrange a health facility birth (Midhet, 2010). Thus, it is essential to involve husbands in the efforts to reduce maternal and neonatal mortality. However, it might be a challenge to encourage men from low economic status and rural area to involve in maternal and child health programmes, as they may have other priority such as livelihood activities to generate incomes or are reluctant to involve in the programme due to cultural or social barriers.

Involving other members of the community is also important in maternal and child health programmes. Heads of villages, community leaders and religious leaders are often key persons in the community who can mobilize available resources and capacity to support maternal and child health programmes. They are also seen as influential people in the community who can promote programme acceptability and sustainability.

A community health worker is another key figure who influences the success and sustainability of community participation programmes. A community health worker is a trained local community member who is selected by the community to facilitate a community health intervention. Their position as a member of the community and their knowledge on local background allow community health worker to more easily persuade a community to accept a health intervention. In many studies, selected females were made community health workers in promoting mother and child health. Although men have strong influence in decision making, being heard and being respected, they are rarely involved in activities to promote safe motherhood. Some evidence suggested that involvement of men as motherhood promoters

may contribute to the effectiveness of the intervention (Mushi, 2010). Moreover, involving men in safe motherhood programmes may not only increase acceptability, but also accelerate the process of behaviour change in favour of healthy maternity and newborn care.

In addition, the existence of community health workers strongly influences sustainability of the programme. There are complex factors that need to be addressed in maintaining CHWs long term performance. Factors such as national socioeconomic and political conditions, community and health systems support, and donor and international macroeconomic policies determine community health worker motivation and performance (Haines, 2007). For an instance, female community cadres reduced their participation in *Posyandu* activities during the Indonesian economic crisis 1997 (Frankenberg, 1999). Therefore, collaboration between all stakeholders is needed to maintain performance of community health worker in order to achieve sustainability of community participation in health programmes.

Furthermore, another strategy to gain sustainability of community participation programmes in reducing maternal and neonatal mortality is by integrating the programme into existing health systems. The integration could be done through involving health workers as facilitators in community health education sessions, as supervisors of community health workers, or as a part of a network of safe motherhood teams. By linking the health personnel with the other actors (such as community health workers and traditional birth attendants) in community participation programmes, community trust to the health systems can be increased and the referral systems strengthened. Thus, it may increase health facility utilization by pregnant women and ultimately reduce maternal and neonatal mortality. In addition, integration also can be built on the existing government's community health programme. For

instance, a study in Pakistan developed a community based programme by involving Lady Health Workers (LHWs) (Bhutta, 2008). The LHWs programme was initiated by the government in 1994 to increase antenatal care, family planning, and immunization coverage. The study expanded the LHWs programme by incorporating community mobilization, basic newborn care, and group counselling into the programme. The intervention resulted in decreasing maternal and neonatal deaths in intervention areas. The integration allowed support from government and health systems which can promote sustainability of the programme.

The relevance of the results within the Indonesian context

In this section, I will discuss the relevance of community participation strategies, men's involvement, and integration of community participation with existing Indonesian health systems.

As reported in included studies, global experiences in incorporating community participation into maternal and neonatal health programmes are varied. The impact of different strategies in reducing maternal and neonatal mortality may be related to strategy chosen, the implementation challenges encountered, or to the context in which strategy was implemented. Community participation strategies are by definition anchored in a community with local characteristics related to culture, religion, gender relation, infrastructure and the like. Despite contextual factors which strongly influence whether a method is feasible in a community, there are commonalities which can be drawn as a lesson from the experiences. Incorporating community participation into maternal and neonatal health programmes is feasible to be implemented in Indonesia since this strategy has been a part of the country's health

development policy. Pro-community participation policy is reflected in programmes which have been implemented since 1975. However, due to political and socioeconomic conditions in the country, the implementation of the programmes has been inconsistent. Community participation also has relevance with Indonesian culture, particularly with the concept of *Gotong royong* (means reciprocity or mutual aid). *Gotong royong* is an indigenous concept of moral obligation, generalized reciprocity, and community solidarity (Noble, 2009). In many villages, particularly in rural areas, *gotong royong* still strongly exist, in which a community cooperates and acts collectively to solve their own problems using available resources and capacity in the villages. The *gotong royong* value is also continuously present in traditional customs and cultural ceremonies amongst village communities.

In terms of community participation approaches, there are no clear tendencies favouring the target-oriented and empowerment approaches in Indonesian experiences in implementing community participation in maternal and child health programme. This is reflected in the *Desa Siaga* programme which has components of both the target-oriented and empowerment approach. Although communities were empowered to map out their own village, analyse their problems and list their resources, the empowerment process was started with stimulation and assistance from the government. For example, the establishment of the five key alert systems is supported by government, then maintenance of the *Desa Siaga* systems are the responsibility of the community at large (Birdsall, 2011). Moreover, stimulation could be in the form of health education to improve awareness, community capacity building in the problem solving cycle and even building infrastructure. Therefore, it could be argued that stimulation and assistance are needed at some stages of the community participation process.

The five community participation methods which are identified in the study -- community loan funds and transport systems, women's groups, community education, home visits by CHWs and village health committees-- are relevant with the Indonesian context. In Indonesia, community participation strategies to address the financial barriers in accessing health facilities during pregnancy and childbirth are pregnancy saving and community health insurance schemes. In some *Posyandu*, female community cadres organize a pregnancy saving programme to assist pregnant women in birth preparedness (MoH, 2011a). A pregnant woman in the village makes regular contribution of small amount of money during pregnancy period and collects the money upon delivery. Meanwhile, in some *Desa siaga*, community also organized financial support systems in the form of saving and community health insurance schemes (Birdsall, 2011). Despite no data was reported on community loan funds to improve maternal and neonatal health in Indonesia, it appears that this method is relevant with Indonesian context. Village level microcredit has existed in Indonesia since a century ago (DeLoach, 2011). *Badan Kredit Desa* (BKD) is a village owned institutions which established and managed by community. In 1980s and 1990s, microfinance scheme was expanded to rural areas of Indonesia, allowing low income families to access the loans. Since then, small microfinance institutions, credit unions and cooperative in the village level mushroomed in many villages of the country. In most poor household, majority of loan money are used to maintain household consumption. Although the loans provided by the institutions were not particularly aimed at improving health outcome, a study by DeLoach et al (2011) showed that these microfinance has improved child health outcomes in Indonesia. Thus, to roll out the community loan funds in addressing financial constraint in Indonesia may not face a lot of challenges. In addition,

transport system has been incorporated in the *Desa Siaga* programme. In this programme, village facilitator identify vehicle owner and encourage them to voluntarily providing transportation for pregnant women in case of emergency (Birdsall, 2011).

Women played a vital role in health care development in Indonesia (Roestam, 1994). One of the women empowerment programme which actively involves in health care development is the *Penggerak Kesejahteraan Keluarga (PKK)*, the Family welfare movement). The first PKK initiative was launched in Central Java province in 1967 (PKK Pusat, 2012). Due to their success story in promoting family and community participation to improve family welfare, in 1972 Indonesian Ministry of Home Affairs established the PKK teams in all level of administrations; national, provincial, district, sub-district and village. In the village level, this organization is led by a wife of head of village. Together with female community cadre, the PKK team organized monthly health services in *Posyandu* and other health activities in the village (MoH, 2011a). Members of this team also actively promote healthy behaviour and practise through health education programme. Indonesia also has many religious women's groups in their community. These women's groups may help in promoting maternal and child health in the country. In a project involving 12 religious women groups, child health messages were incorporated into normal activities of the groups such as Quran reading classes, Sunday schools and Bible classes (Munir, 1989). Therefore women's group strategy is relevant within the Indonesian context.

In Indonesia, antenatal and post natal visits are conducted in health facilities and *Posyandu*. A home visit carried out by a health worker only in a special case. Female community cadres in *Posyandu* programme carried out various tasks including organize monthly

health activities, coordinate with health workers, monitor child growth, conduct health education sessions and counselling, record and report of *Posyandu* programme coverage in the village. They are trained on basic knowledge of maternal and child health. With their knowledge, they may be able to undertake antenatal and postnatal home visits. However, it will increase their workload which ultimately influences their performance. Moreover, rivalry may develop between health workers and cadres when cadres perform a task which used to be carried out by health workers.

In *Desa Siaga* programme, the village facilitators together with representatives from all elements in the community such as the head of sub villages, members of the village parliament, representative of the District Health Office, the village midwife, health centre staff, the village women's organization, religious leaders and other influential members of the community involve in serial meetings to establish the five alert systems (Birdsall, 2011). The aim of the community meetings is to gain consensus on each of *Desa Siaga* system in accordance with village tradition. It can be seen that village community members are willing to sit together to solve the health problems in the community. Therefore, to create a village health committee may not encounter significant challenges. Finally, it may be concluded that the five strategies of community participation are relevant with the Indonesian context, however further study need to conduct to assess the feasibility of the strategies being implemented in Indonesia.

Involving husbands in maternity and infant care is essential. As in many cultures, in Indonesia, men are also the key persons in deciding care for their wives during pregnancy and childbirth. The idea of involving men in safe motherhood programmes in Indonesia has been evident since 1999, through a programme called the *Suami Siaga* (alert husband) campaign

(Shefner-Rogers, 2004). The aims of the campaigns were to call the husbands to be alert and to take action when confronting a danger sign during pregnancy and delivery, to accompany their wives in attending four antenatal care visits and to be with their wives during and after delivery. Moreover, the *Suami Siaga* also built a network with religious leaders and midwives to promote safe motherhood in *Desa Siaga* programme areas. However, no data on the percentage of husbands in rural areas and from poor household who are actively involved as an alert husband has been documented. Further study on factors influencing men's decision in rural area and who are from low economic status to be an alert husband merits consideration.

As discussed above, community participation in maternal and child health programmes is relevant within the Indonesian context and is aligned with the government priorities. Female community cadres and midwives as part of the health systems has been actively involved in community based maternal and child health programmes. Therefore, integration of the programme with existing health systems would not encounter significant challenges. However, Indonesia's achievements in averting maternal and neonatal mortality are not adequate. Thus, the gap between policy and implementation of community participation in maternal and neonatal health programmes in Indonesia needs further investigation. Moreover, Indonesia is facing a challenge to scale up the coverage of the programme. In 2011, coverage of the *Desa Siaga* programme was only 31%, while the government targets 80% coverage of the programme by 2015 (MoH, 2011b). It appears that the target will be difficult to achieve. Finally, this raises a question on whether the government have to improve coverage of the programme in all villages in the country, or whether it is better to focus on areas where maternal and neonatal mortality are high.

Concluding Remarks

There is growing evidence that community participation is an effective strategy in reducing maternal and neonatal mortality in rural areas. Various methods of community participation in maternal and child health programmes have been studied globally. Several important lessons can be drawn from the experiences. *First*, considering local context is important in designing a maternal and neonatal health programme. *Secondly*, involving men and wider community members will improve the effectiveness of the programme, and *lastly*, integration with the existing health system will improve sustainability of the programme.

However, it should be noted that communities are not homogenous, thus to encourage participation may be not easy and require a long process. Therefore, continuous supports from all stakeholders are needed to maintain community participation in the community. Moreover, communities are dynamic and constantly evolving, while old strategy may be no longer appropriate with new context in the community.

Global experience in implementing community participation strategies is relevant with the Indonesian context. Indonesia has incorporated strategies to involve men and wider community members, considering local context and integration with existing health systems into their maternal and child health programme. Although Indonesia has made great strides in implementing well-design community participation in health but the country has not met its goal. Indonesia should not only focus their efforts to scale up the existing programme but also to investigate the gap between policy and implementation. Moreover, greater collaboration between countries or researchers or governments to share knowledge and information about

how to successfully design 'inclusive' community participation strategy aimed at reducing maternal and neonatal mortality in rural and poor settings are also important.

This study has some limitations. Comparison between global and Indonesian experiences could not be made due to lack of studies in Indonesian context and analysis made based on policy documents. The studies included in the review were conducted in different settings and used different designs. This has made it difficult to draw generalisation from the studies since they are very context-specific. However, it increased the opportunities to learn the complex nature of community participation and positive and negative aspects of each community participation strategy in increasing access to health facilities during pregnancy and delivery.

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