

ACCELERATION OF MATERNAL MORTALITY RATE IN BATANG DISTRICT: CYCLE BASED HEALTH PROBLEM SOLVING

Rr. Vita Nurlatif¹, Ardiana Priharwanti²

Public Health Study Program, Faculty of Health Sciences Pekalongan University

¹rr.vitanurlatif@gmail.com

ABSTRACT

Maternal mortality in Batang Regency is still a health problem that supports immediately, because the level of maternal and child health is an indicator of a country's public health status which determines the country's health status. A high degree of maternal and child health indirectly indicates good health services and a good level of welfare. The new habit period changed the budgeting pattern and the pattern of health interventions, so that this also affected the MMR reduction acceleration program in Batang Regency. Situation analysis of the acceleration program for the decrease in MMR in Batang Regency was carried out with the aim of assessing the situation of the accelerated decrease in MMR in Batang Regency in the last three years as the first step in the MMR problem step with the 10-step PSC (Problem solving cycle) approach. The research method used was a research design using an exploratory research design with a qualitative approach. The research subjects for qualitative data included the main informants, namely the holders of the MCH program in all puskesmas in Batang district with a total of 21 respondents, the accompanying informants, namely the holders of the MCH program at the Batang District Health Office, with a total of 2 respondents. The sampling technique used purposive sampling. The research instrument used in-depth interviews containing 16 questions. Collecting data using in-depth interviews which are analyzed with qualitative data processing by drawing pattern answers (pattern matching). The **results** showed that MMR (Maternal Mortality Rate) is still a major issue in Batang Regency, even though it is in the context of a pandemic. The MMR case in Batang Regency was caused by severe PEB / pre-eclampsia, the acceleration program was carried out through activating pregnant women classes, handling adolescent anemia through the offering of smart smart pills, PIK-R. Cross-sectoral collaboration is still being pursued by cooperating with the Ministry of Communication and Information (to provide health interventions with a cultural approach, besides collaborating with the Village Government to implement an independent mother class program. Obstacles to the accelerated reduction in MMR in Batang Regency are Funding and Refocusing on pandemic financing. Suggestions for activating pregnant women classes, initiating independent village classes for pregnant women, and holding pregnant women classes as adaptation of the new era.

Key word : situation analysis, maternal mortality rate, problem solving cycle

INTRODUCTION

Starting in 2016, the 2015–2030 Sustainable Development Goals (SDGs) formally replace the Millennium Development Goals (MDGs) 2000–2015. The SDGs contain a set of agreed - upon transformative goals that apply to all nations without exception. SDGs contains 17 Goals . The 17 goals are 1) eradicating poverty, 2) ending hunger, 3) health and welfare, 4)

good quality education, 5) gender equality, 6) clean water and sanitation, 7) access to affordable energy, 8) economic growth, 9) innovation and infrastructure, 10) reducing inequality, 11) sustainable development, 12) sustainable consumption and production, 13) preventing the effects of climate change, 14) protecting marine resources, 15) protecting terrestrial ecosystems, 16) peace and justice, 17) revitalization and global

partnerships. Which has 169 targets with approximately 300 indicators.

The 2015–2030 Sustainable Development Goals (SDGs) officially replace the 2000–2015 Millennium Development Goals (MDGs). However, in the 8 millennium development goals that have 63 MDGs indicators, it is recorded that 13 indicators have been achieved, 36 indicators are in the process of achievement, while 14 indicators have not been achieved. Several indicators that were not achieved in the MDGs related to the health sector include a reduction in the maternal mortality rate (MMR), infant mortality rate (IMR), neonates mortality rate (AKN), HIV / AIDS, TB and malaria, access to reproductive health services, family planning, and coverage of drinking water and sanitation.

Maternal mortality according to the WHO definition is death during pregnancy or within a period of 42 days after the end of pregnancy, due to all causes related to or aggravated by pregnancy or its treatment, but not caused by an accident / injury.

Based on the Indonesian Demographic and Health Survey (IDHS) 2016, the maternal mortality rate in Indonesia is still high at 359 per 100,000 live births. This figure when compared with the MDGs achievement which targets to be able to reduce the maternal mortality rate to 102 per 100,000 live births is *off track*, meaning that it has not been achieved and requires serious effort and work to achieve it.

The government together with the community is responsible for ensuring that every mother has access to quality maternal health services, starting from the time of pregnancy, delivery assistance by trained health personnel, and postpartum care for mothers and babies, special care and referral in case of complications, as well as access against family planning. Besides, it is also important to intervene towards the upstream, namely to adolescents and young adults in an effort to accelerate the reduction in MMR.

The maternal mortality rate (MMR) in Indonesia (2019) was recorded as 305/100 live births, in Batang Regency in 2017, 16 maternal deaths were recorded, while in 2018 to December there were 20 cases. Maternal deaths usually occur because they do not have access to quality maternal health services, especially timely emergency services that are motivated by being late in recognizing danger signs and making decisions, being late in reaching health facilities, and being late in getting services at health facilities. In addition, the cause of maternal death is also inseparable from the mother's condition and is one of the 4 "too" criteria, namely too old at delivery (> 35 years), too young at delivery (<20 years), too many children. (> 4 children), too tight birth spacing / parity (<2 years).

Accelerating the reduction in the MMR (Maternal Mortality Rate) or maternal mortality rate is needed considering that the program that has been prepared has not been able to collaborate and elaborate on activities in a penta helix involving government, society, the private sector and elements of higher education.

This research is part of a research on the acceleration strategy for decreasing the *Maternal Mortality Rate* (Spatial Analysis of Risk Areas and the SWOT Program) in Batang Regency: Optimizing the Unical Role in the Improvement of Public Health. This study uses the PSC (Problem Solving Cycle) approach which contains 10 stages of solving health problems, including: situation analysis, identification of health problems, priority problems, objectives, alternative problem solving, preparation of operational plans, implementation & mobilization, monitoring, supervision & control, and evaluation.

This study aims to analyze the situation of the acceleration program for reducing the incidence of MMR (*Mother Mortality Rate*) based on the problem solving cycle approach.

RESEARCH METHODS

The research design used an *exploratory* research design with a qualitative approach. The research subjects for qualitative data included the main informants, namely the holder of the MCH program in all health centers in Batang Regency with a total of 21 respondents, the accompanying informants, namely the holder of the MCH program in the Health Office of the Kabupaten Batang, a number of 2 respondents. The sampling technique used purposive sampling. The research instrument used in-depth interview guidelines containing 16 question items. Data collection using interviews in-depth analysis by processing qualitative data through withdrawal response pattern pattern (pattern matching) done in interactive and ongoing basis continues constantly until completely through the process of simplification of the data, the selection of the baseline data corresponding to the focus of research. By way of research data is very much able to have appropriate linkages with the purpose of research, so the existence of the data can be analyzed with ease.

RESULTS AND DISCUSSION

The situation analysis of the accelerated MMR (*Mother Mortality Rate*) reduction program in Batang was carried out by assessing research informants through 16

items of in-depth interview guidelines which include: MMR situation in the district in the last three years, the number of MMR deaths in the last one year in Batang Regency, mapping of the area puskesmas work that has the highest and lowest prevalence of MMR, determinants of the causes of MMR in Batang Regency, programs related to efforts to accelerate the decrease in MMR in Batang Regency, program effectiveness and efficiency in reducing MMR, common obstacles faced by the Health Office in efforts to reduce MMR, program development accelerated decrease in MMR in Batang Regency in the last three years (2017-2021), cross-sectoral cooperation in efforts to reduce MMR, profile of referral patterns in emergency cases of pregnancy and childbirth, several health centers that are included in PONEB (Basic Essential Neonatal Obstetric Service), factors pen Encourage and strengthen the acceleration program for the decline in MMR in Batang Regency, mentoring activities by universities related to MMR in Batang Regency, and the expectations of informants regarding the incidence of MMR in Batang Regency.

The results of the transcript of the main informant's answers are presented in the transcript table of the in-depth interviews as follows:

Table 1. Transcripts of the results of interviews with key informants from the Batang District Health Office.

NO	QUESTION ITEMS	I1 (promkes)	I2 (kesga)	<i>Pattern matching</i>
A	Situation Analysis			
1	How is the situation of MMR in Batang District	The MMR case is still a concern of the Batang Regency government, even though at this time the world is concentrating on the Covid-19 case, for sure	Now I happen to be making a death report, it just so happens that for the year 2021 to this day there have been 2 cases, Batang Regency is still a concern besides	Case MMR remains a health issue in Batang Government

		data is not anti - grievance, huh ..	stunting and also covid-19	
2	Prevalence in the last 3 years?	For the data later, please	In 2018 there were 20 cases, 14 cases in 2019 and 2020 and lastly from January 2021 there were 2 cases, and the highest area was in Banyuputih puskesmas	In 2018 there were 20 cases, 14 cases in 2019 and 2020 and lastly from January 2021 there were 2 cases, and the highest area was in Banyuputih puskesmas
B	Identification of problems			
1 .	Dead cause	Regarding death later, who understand more about kesga	Most of the cases were due to PEB (6 cases), bleeding (3 cases) comorbidities (4) and also infection (1 case)	Most of the cases were due to PEB (6 cases), bleeding (3 cases) comorbidities (4) and also infection (1 case)
2 .	Programs that have been done	Many .. especially us in the installation .. such as mother class, posyandu. however, it has been 9 months since the activities had stopped due to the pandemic. Initially, the mother class started with the mother and the husband, but because there are still cultural potentials and myths that affect the health of pregnant women, we invite the elderly (grandmother or mother or in-laws) to educate us. There are 1230 posyandu, with 5 cadres for each posyandu.	We have made many mothers, youth classes, elderly classes. In fact, it is not only about MMR that we focus on but also adolescent anemia, here the prevalence is quite high, 34%. So we created a smart beauty pill program which we usually pack in drinking together on Sundays or Fridays but because of the pandemic we only send blood booster pills (FE) to our respective puskesmas.	The programs that have been pursued to accelerate the decrease in MMR in Batang Regency are carried out through: activating pregnant women classes, handling adolescent anemia through giving smart smart pills, PIK-R.
3 .	Linsek support	There is no concrete support yet, it is still being done with the communication and information technology (health	There are no linsek support only a few villages that have been able to independently	Striving is still being made by cooperating with the Ministry of Communication and Information (for providing health

		program intervention through a cultural aspect approach), it's just that from the village there are several villages that independently make their own mother class to finance their own cadres, of course the size cannot be the same between regions, including there is no collaborative activity with PT		interventions with a cultural approach), in addition to collaborating with the Village Government to implement an independent mother class program.
4 .	Resistance	Funding	Funding and pandemics	Pandemic Financing and Refocusing.
5 .	Hope	Virtual mother class can materialize	Virtual mother class can materialize	Virtual mother class can materialize

Based on the transcript presentation in the table above, it can be concluded that the results of the situation analysis of the MMR reduction acceleration program in Batang Regency obtained 5 major conclusions, namely:

1. MMR (*Mother Mortality Rate*) is still a major issue in Batang Regency, even though it is in the context of a pandemic.
2. The number of MMR cases in Batang Regency in 2018 was 20 cases, 14 cases in 2019 and 2020 and lastly from January 2021 there were 2 cases, and the highest area was in Banyuputih puskesmas .
3. Most cases of MMR happening because right PEB / severe pre-eclampsia (6 cases), hemorrhage (3 cases) comorbidities (4) and infection (1 case) .
4. The programs that have been pursued to accelerate the decrease in MMR in Batang Regency are carried out through: activating pregnant women classes, handling adolescent anemia through giving smart smart pills, PIK-R.
5. Cross-sectoral cooperation is still being pursued by cooperating with the Ministry of Communication and Information (for

providing health interventions with a cultural approach), in addition to collaborating with the village government to implement independent mother class programs.

6. The obstacle to the accelerated reduction in MMR in Batang Regency is funding and refocusing on pandemic financing.
7. The hope for an accelerated MMR reduction program in Batang Regency in a pandemic situation and a new habit period is that the virtual mother class can be realized , where this idea was generated from researchers who were expected to be realized by the research informants.

One indicator of the level of welfare of a country is shown by the health status of mothers and children, so that MMR is an indicator to assess the quality of health services as well as the health status of the community. MMR is the main issue for indicators of the degree of a country and its various determinants in line with the results of the literature review on the issue of MMR in several countries in the following research:

The literature review is compiled by collecting several articles using search access PubMed, MesH, Google Scholar, Health Evidence. The articles collected were

20 articles, then filtered, it was obtained five articles that met the inclusion criteria, then the results of the merger were obtained as a systematic review matrix as follows:

Article	Idea	Data	Research result
<p>Promoting psychological activity: development and testing of self-determination theory based interventions (Frontier, 2012)</p>	<p>Self-determination adoption process model for behavior change through intervention consists of 6 stages. Self determinant (SDT) is part of theori planned behavior of the approach formulated by Bandura.</p>	<p>The notion of self-determinant (SDT) can influence behavior change as evidenced in three studies of Canadian PAC, Empower UK, and PESO. (presented on pages 4 & 5)</p>	<p>Recently, researchers began using SDT to promote adoption and maintenance of an active lifestyle. In this review, we aim to highlight how researchers and practitioners can draw from an AnGR framework to develop, implement, and evaluate intervention efforts that are centered on physical improvement activity levels in different contexts and different populations. In this paper, the reasons for using SDT for fostering physical activity involvement was reviewed briefly before special attention was given to three recent studies randomized controlled trial, the Canadian Physical Activity Counseling Trial (PAC), the UK's Empowerment trial, and the Portuguese PESO (Health Promotion and Exercise Obesity) trials, each of which focuses on promotion physical activity behavior. The components of SDT-based interventions, procedures, and participants are highlighted, and key findings derived from these three trials are presented. Lastly, we outline a few</p>

			<p>limitations of the work done to date in this area and we acknowledge the challenges that have arisen at the time</p> <p>trying to design, deliver, and test AnGR-based interventions in the context of promoting physical activity.</p>
<p>Excercise, physical activity, and self determinations theory (a systematic review) (Teixeira, 2012)</p>	<p>The self-determinant theory consisting of intrinsic and extrinsic factors in this SR study was shown to be correlated with motivation to do physical activity and physical exercise.</p>	<p>In this SR study it was proven that SDT correlates with motivation to carry out exercise and physical activity.</p> <p>(data is presented on pages 5-15)</p>	<p>Background: Motivation is an important factor in supporting sustained exercise, which in turn is associated with important health outcomes. Thus research on training motivation is seen from the perspective of self-determination theory (SDT) has developed rapidly in recent years. Previous reviews have been largely narrative and theoretical in nature.</p> <p>Aiming to review the empirical data more comprehensively, this article discusses the empirical literature on the relationship between primary SDT-based constructs and exercise outcomes and physical activity behavior.</p> <p>Methods: This systematic review includes 66 empirical studies published through June 2011, including experimental, cross-sectional, and prospective studies that have measured the causality orientation of exercise, autonomy / need support and requires satisfaction, exercise motive (or goal content), and self-regulation and motivation training. We also studied SDT-based interventions aimed at improving exercise</p>

		<p>behavior. In all studies, actual or self-reported exercise / Physical activity, including attendance, was analyzed as the dependent variable. The findings are summarized based on quantitative analysis of evidence. Results: The results show consistent support for a positive relationship between the more autonomous forms of motivation and exercises, with identified regulatory trends that predict early / short-term adoption more strongly than Intrinsic motivation, and intrinsic motivation are more predictive of long-term exercise adherence. Literature is also consistent in competency satisfaction and more intrinsic motives in positively predicting exercise participation across various samples and settings. Mixed evidence is found regarding the role of other types of motives (for example, health / fitness and body-related), as well as the specific nature and consequences of the regulations incorporated. That The majority of studies have used descriptive (ie, non-experimental) designs but similar results were found throughout cross-sectional, prospective, and experimental designs. Conclusion: Overall, the literature provides good evidence on the value of SDT in understanding exercise behavior, demonstrated the importance of autonomic regulation (identified and intrinsic) in promoting physical activity. However, there are still some inconsistencies and mixed</p>
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			<p>evidence regarding the relationship between the specifics</p> <p>SDT construction and training. Specific limitations regarding the different associations are explored in the literature discussed in order to improve the application of SDT for exercise and promotion of physical activity, and integrate this with avenues for future research</p>
<p>Exercise and physical activity in the prevention of pre-eclampsia: systematic review (Kasawara, 2012)</p>	<p>In this SR, it was found that the results of the study showed that exercise and physical activity were related to or had a positive effect (as a protective factor) in preventing the incidence of Pre Eclampsia, however the limitations of the research were due to the variety of physical activities and exercises under study weakened ES suggestions. intervention.</p>	<p>Data are presented on pages 1150-1154 of the article</p> <p>In this study, it was proven that exercise can contribute to lowering blood pressure, reduce stress, stimulate blood circulation and placental growth and prevent endothelial dysfunction.</p>	<p>Exercise and physical activity have been studied and suggested as ways to reduce or minimize the effects of pre-eclampsia. Our goal is to evaluate these associations between exercise and / or physical activity and the onset of pre-eclampsia. We conducted an electronic search without the year of publication and language restrictions.</p> <p>This is a systematic review designed according to PRISMA. Different databases accessed are as follows: PubMed R; Latin American and Caribbean literature in Health Sciences (LILACS); Online Scientific Electronic Library (SciELO); Physiotherapy Evidence Database (PEDro); and the ISI Knowledge web BC</p> <p>.TheMedical Subject Headings (MeSH) are as follows: ("exercise" OR "motor activity" OR "physical activity") AND ("pre-eclampsia" OR "eclampsia" OR "hypertension, induced pregnancy "). The inclusion criteria were studies conducted on adults</p>

			<p>engaging in some physical activity. Methodological selection and evaluation conducted by two independent reviewers. Risk assessments are based on opportunities ratio (OR) and the incidence of preeclampsia in the population who do physical activity / exercise. A total of 231 articles were found, 214 of which were excluded based on title and full text, leaving 17. Comparison of six case-controls studies show that physical activity has a protective effect on development pre-eclampsia [OR 0.77, 95% confidence interval (CI) 0.64-0.91, p <0.01]. That The 10 prospective cohort studies showed no significant difference (OR 0.99, 95% CI 0.93–1.05, p = 0.81). The only randomized clinical trial showing a protective effect on the development of pre-eclampsia in the stretching group (OR 6.34, 95% CI 0.72–55.37, p = 0.09). This systematic review shows a trend toward protection effect of physical activity in the prevention of pre-eclampsia.</p>
<p>Review article: Targeting vascular (endothelial dysfunction) (Daiber, 2017)</p>	<p>Endothelial dysfunction is one of the risk factors and triggers / triggers of hypertension, which also includes the incidence of Pre Eclampsia. So that the theory of biomedica that</p>	<p>Data are presented on page 1595</p>	<p>Cardiovascular disease is a major contributor to global mortality and years of life adjusted for disability, with significant hypertension risk factors for all causes of death. The endothelium lining the inner walls of blood vessels regulates essential hemostatics functions, such as blood vessel tone, blood cell circulation,</p>

	<p>explains endothelial dysfunction is needed in research on pre eclampsia to determine the appropriate form of intervention.</p>		<p>inflammation and platelet activity. Endothelial dysfunction is early predictors of atherosclerosis and future cardiovascular events. We reviewed prognostic values to obtain measurements endothelial function, clinical techniques for its determination, the mechanisms leading to endothelial dysfunction, and therapeutic treatment for endothelial dysfunction. Because vascular oxidative stress and inflammation are the main determining factors endothelial function, we also discuss current antioxidant and anti-inflammatory therapies. Remembering the latest data Questioning the prognostic value of endothelial function in healthy human cohorts, we also discuss alternative diagnostic parameters such as vascular stiffness index and intima / media thickness ratio. We also recommend assessing vascular function, including that of smooth muscle and even perivascular adipose tissue, may be an appropriate parameter for clinical examination</p>
<p>Endothelial Dysfunction: an important mediator in the pathophysiology of hypertension during pre eclampsia (La Marca 2012)</p>	<p>In this study, it was found that endothelial dysfunction was a mediator in the pathophysiology of hypertension during the incidence of pre-eclampsia.</p>	<p>Data in the form of explanations of substance and the concept of endothelial dysfunction throughout the body of the article.</p>	<p>Preeclampsia is defined as new onset hypertension with proteinuria during pregnancy. It affects about 5% of pregnancies in the US with some of them progressing to be more severe a form of the disease, known as HELLP or eclampsia. Preeclampsia associated with intrauterine</p>

			<p>growth inhibition, chronic immune activation and multi-organ endothelial dysfunction contribute to the clinically visible increase in maternal blood pressure. The end result is increased infant and maternal morbidity and mortality thereby contributing to crude health care national expenditure. Although the cause of this disease is still unknown, the most common causes</p> <p>the well-accepted hypothesis is that placental ischemia / hypoxia results from an inadequate uteroplacenta.</p> <p>vascular remodeling, which results in decreased placental blood flow. Ischemic placenta releasing factors such as soluble VEGF-1 receptor (sFlt-1), angiotensin II receptor type-1 autoantibodies (AT1-AA), and cytokines such as TNF-α and Interleukin 6 that cause endothelial dysfunction characterized by increased circulating endothelin (ET-1), reactive oxygen species (ROS), and increases vascular sensitivity to angiotensinII. These factors act together</p> <p>decrease kidney function and cause hypertension during pregnancy. Understand the relationship between Placental ischemia, endothelial dysfunction and hypertension during pregnancy will improve prediction, prevention and treatment strategies for women and children affected by this devastating effect disease</p>
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Based on the systematic review above, various determinants that affect the prevention of pre-eclampsia as a trigger for maternal mortality have been shown to significantly prevent maternal mortality, such as giving physical activity interventions, strengthening self-determinants, compliance with ANC examinations and other programs that support accelerated reduction in maternal mortality. The results of this systematic review become one of the research road map studies that will be one of the references in formulating an accelerated strategy for reducing maternal mortality in Batang Regency.

SUGGESTION

The results of the research regarding the situation analysis of the acceleration of the decrease in MMR in Batang Regency resulted in several suggestions, including:

1. It is necessary to reactivate the mother class by involving husbands and parents-in-law or family-based as a reinforcing factor (driving) behavior change in pregnancy and healthy childbirth.
2. The need for developing partnerships with villages for the formation of independent village class for pregnant women.
3. It is necessary to implement a virtual breakthrough class for pregnant women to accelerate the decrease in MMR in Batang Regency.

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