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THREE STRATEGIC AREAS INTERVENTION WITH THEIR RESPECTIVE INDICATORS HAVE BEEN IDENTIFIED THAT MAY BE CONSIDERED KEY DRIVERS REDUCTION OF MATERNAL MORTALITY IN INDONESIA

SARDJANA ATMADJA

Department of Obstetrics and Gynecology Syarif Hidayatullah State Islamic University, Jakarta, Indonesia

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Key words : *Working ethos variable, The contribution of blood facilities is 36, The contribution of communication facilities, Clinical Management model.*

Abstract – The main objective is to assess the progress made in reducing maternal morbidity and mortality in Indonesia and to help to implement the corrective measures needed at implement the corrective measures needed at different stages. This requires strengthening of the on- going monitoring system. Data will be verified using sources such as an Operational Research System Analysis (ORSA), and was carried out in government-owned type C hospitals in Indonesia. The main variables observed were a) working ethos b) blood facilities c) communication facilities. Three strategic areas to accurate the reduction of maternal mortality, interventions with their respective indicators have been indentified and prioritized. There are 3 determinants factors that may be considered key drivers in the reduction of maternal mortality, there are also specific potential measures directly aimed at reducing maternal mortality that can be adopted in the health sector. The contribution of working ethos variable is 36.8 %, the contribution of blood facilities is 36.7 % and the contribution of communication facilities is 26.3% in Clinical Management model in order to reduce maternal mortality in government-owned type C hospitals. Based on the official data provided by Minister of Health Indonesia, the region's maternal mortality rates decreased 35% in late 2015. Approximately 90% of maternal mortality could be prevented using knowledge already available in this country.

INTRODUCTION

Programs and interventions to improve access to maternal health services have not succeeded in reducing the Maternal Mortality Rate (MMR) is 390 per 100,000 live births. Compared to other countries, the MMR in Indonesia is 15 times the MMR in Malaysia, 10 times higher than Thailand or 5 times higher than the Philippines.

MMR in Indonesia varies from the lowest, which is 130 per 100,000 live births in Yogyakarta, 490 per 100,000 live births in West Java to the highest of 1,340 per 100,000 live births in West Nusa Tenggara. According to UNICEF, 80% of maternal deaths occur in referral hospitals. Maternal health services are influenced by many factors, but work ethics (midwives, doctors, obstetricians), blood facilities and communication facilities are the main factors.

MATERIALS AND HOW TO WORK

Research studies try to separate variables based on operational research, namely input, process and output variables (Sardjana, 2003), input variables have the following main indicators: characteristics of obstetric cases; type of case based on reference; type of case based on diagnosis; the type of case is based on when it comes; types of cases based on patient education level; types of cases based on the profession / occupation of the patient. Process variables include: characteristics of human resources in hospitals; work ethic in the management process; institutional; Hospital facilities (operating room facilities, isolation and special care rooms, delivery room facilities, obstetric ward facilities); communication facilities; blood facilities; laboratory facilities and capabilities; other diagnostic

supporting facilities; icu supporting facilities; means of transportation; organization and management (availability of procedures, socialization of procedures and policies, implementation of procedures or policies), and output variables, namely maternal mortality.

Specific analysis carried out to reduce bias in the identification of research studies, found three main variables, namely work ethos, blood facilities and communication facilities.

RESULTS AND DISCUSSION

In the optimal modeling of clinical management the main reference used is identification of variables to present a standard theoretical model. The results of the study show that the model does not have to involve complex variables, but models that comprehensively provide optimal solutions. The identification results using confirmatory factors are presented in the following picture.

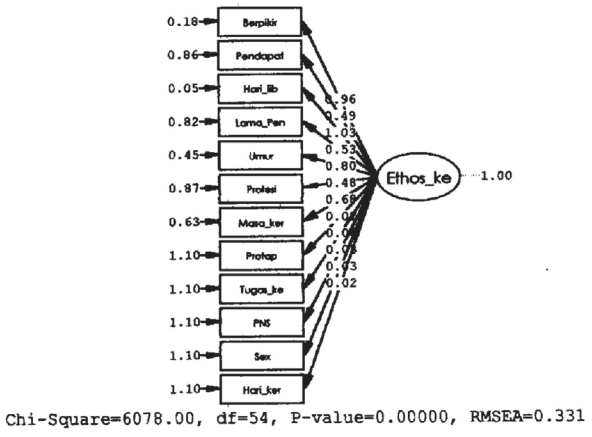


Fig. 1. Model Confirmation Results for Work Ethos Variables

The model to be built is only based on the contribution of a significant sub variable, the value of lambda (λ) in this analysis shows the contribution of the formation (loading factor).

Revenue is the dominant sub-variable in the characteristics of work ethos variables as an implication of performing tasks in accordance with the function and subject of work. The thinking model is the subject's perspective on the problem or problem faced at the highest level to the lowest level. All subjects in the management model have the ability to analyze and provide solutions to the problems faced. Holidays are a significant sub-variable that forms the work ethos variable, cases of maternal death that occur in type C hospitals are mostly due to the unavailability of medical personnel at the time of the incident, this indicates that the cases that occur correlate with working days and holidays .

Blood facilities are the availability of blood and the form of services to facilitate activities in the operating room and PMI. Subjects related to this activity are doctors, midwives, nurses and administrative officers and PMI officers.

The sub variables that underlie this variable are linear thinking, budgeting system, blood count, blood type, blood quality, delivery system, fixed donor, autotransfusion and blood needs.

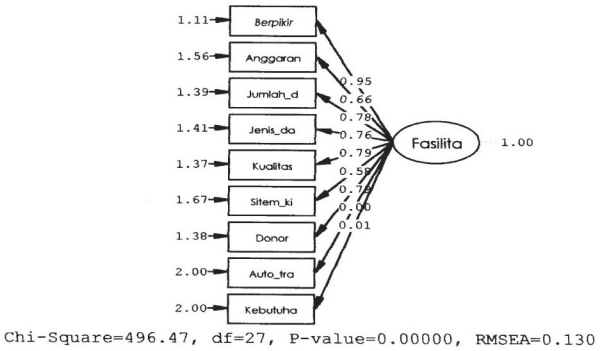


Fig. 2. Model Confirmation Results for Blood Facility Variables

The results of the confirmation on the sub model with the main variables of blood facilities for subjects of doctors, midwives, nurses and PMI employees showed that the model with four sub-variables (the amount of blood, linear thinking, budget and blood needs) provided simple sub-model construction with a predictive accuracy much higher (big fited value). The construction of a simple (simple) model, especially in the prediction model will have implications for accuracy and predictions.

The results of the analysis for the model with the main variables of communication facilities, in principle provide almost uniform results namely a simple model with several sub-variables (linear thinking, budget and team agreement). A summary in the form of a confirmatory is presented in the following picture

The results of the analysis in Picture 3 show a relationship model based on measurements and observations giving model construction that will be used as a reference for making optimization. The modeling results are presented in the following picture.

In Fig. 4 it appears that the constructed model is good enough with a probability value p = 0.47743. This means that this model can be used to optimize the objective function that has been formulated.

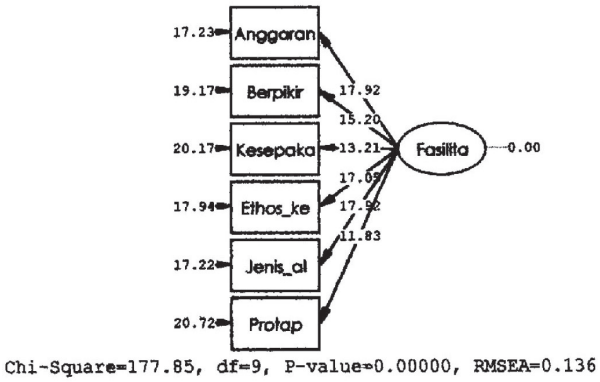
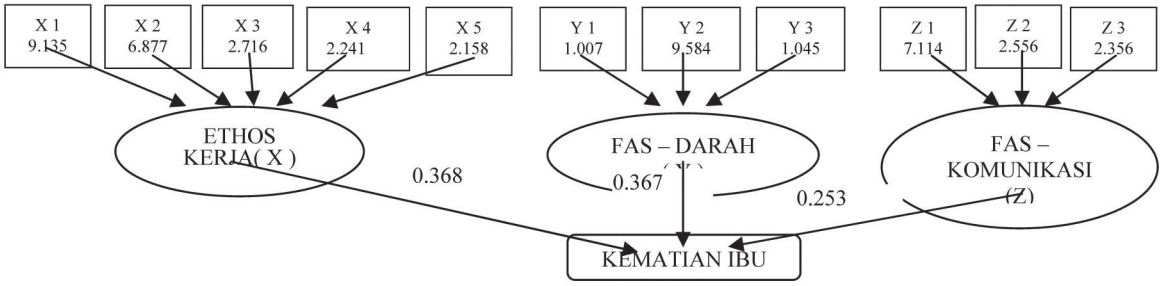


Fig. 3. Model Confirmation Results for Blood Facility Variables

From Table 2 above it can be seen that the sub variable linear thinking for the subject of the doctor contributed 0.235% to the total contribution of the model 45.35%, this result was obtained by multiplying the value (value) 0.45 with the coefficient (c = 5). The value of slack or surplus indicates that the linear thinking capacity of the subject of the doctor can still be increased to 4.52%. From these results it was also found that the capacity of linear thinking for the subject of midwives, nurses and PMI employees had reached the maximum value (value = 5), with the value of slack or surplus was zero.

Government policies in handling maternal mortality rates are more focused on midwives, nurses and medical personnel, whereas in fact the ability of obstetricians is not optimal, this can be seen from the results of the analysis which shows that the sub-variables think linear only used 20%. If an ability that is 80% can be used optimally, then maternal mortality will decrease significantly. In this optimization, it can be seen that for the sub-variables of income, holidays, length of education and age in the subject of the doctor does not have much effect on the reduction of maternal mortality, meaning that if income is increased to a certain level, it does not significantly affect the performance of obstetricians. Likewise for the sub-variables of holidays, length of education and age. Empirical experience shows that the income of obstetricians outside government hospitals is much greater, so it is very possible if the income in government hospitals is increased, it will still not affect the performance of doctors in government hospitals. Sub-variables of holidays do not have a significant effect indicating that



Chi-Square = 48.89 P = Value = 0.47743 RMSEA = 0.000

Fig. 4. Confirmation Result of the Path Analyst Model for the Three Main Variables

Table 2. Summary of Optimization Results for Work Ethos Variables

Variable	Function Object Value ®											
	DOKTOR			MIDWIFE			NURSE			PMI EMPY		
	V	c	s/s	V	C	s/s	v	c	s/s	v	c	s/s
Linier Thinking (x1)	.476		4.52	5.00		0.00	5.00		0.00	5.00		0.00
Income (x2)	.000		5.00	.223		4.77	5.00		0.00	5.00		0.00
Day off (x3)	.000		5.00	5.00		0.00	5.00		0.00	.736		4.26
Education (x4)	.000		5.00	5.00		0.00	.075		4.92	5.00		0.00
Age (x5)	.000		5.00	5.00		0.00	5.00		3.49	1.51		5.00

Note : v = value c = coefisien s/s = slack or surplus

obstetricians work indefinitely.

Sub variable income for the subject of midwives, nurses and PMI officers have a significant effect on work ethos in the management model, this implies that income for the subject of midwives, nurses and PMI employees if increased will be able to improve their performance in the management model which has implications for increasing the value of functions aim.

Sub education variables for nurse subjects and PMI employees are sub-variables that can still be improved to optimize the goals to be achieved.

The optimization results for the blood facility variable shows that there is a difference in the understanding of the importance of this variable in the management model, this is indicated by the existence of significant variations in the value for the sub variable number of blood and linear thinking sub-variables. According to the doctor's subject the amount of blood has no effect, meaning that whatever amount of blood is available, it must be used for the benefit of the operation. On the other hand the view that the amount of blood is very important is the subject of midwives, nurses and PMI employees. This shows that knowledge or education level has a very strong influence in making decisions. Medical services cannot be separated from the main supporting facilities, one of the facilities identified as the dominant variable in clinical management is blood facilities. The optimization results on this variable indicate that the budget sub variable has a significant and not optimal influence to achieve the objective function, this means that an increase in the budget will have an indirect effect on the management model built.

From Table 4 above it can be seen that the sub-variables of linear thinking for the subject of the doctor give the maximum contribution to the total contribution of the model 45.35%, this result is obtained by multiplying the value 5 by the coefficient (c = 1). The value of slack or surplus indicates that the linear thinking capacity of the subject of the doctor cannot be increased anymore. From these results it was also found that the capacity of linear thinking for the subject of midwives, nurses and PMI employees cannot be increased by the value of slack or surplus is zero. The thing that stands out from this result is the sub variable of the team agreement, from the subject of the doctor still needs to be increased to reach the maximum capacity. These results indicate that the fixed procedure for communicating between medical teams is still not well adapted. Socialization of the fixed procedure is needed in communicating to the lowest level.

CONCLUSION

From the results of the analysis and discussion in the previous chapter, the researchers concluded several things as follows.

(1) Findings of optimal clinical management models in order to reduce maternal mortality in type c hospitals in the East Java provincial

Table 3. Summary of Optimization Results for Blood Facility Variables

variabel	Function Object Value ®											
	DOKTOR			MIDWIFE			NURSE			PMI EMPY		
	V	c	s/s	V	C	s/s	v	c	s/s	v	c	s/s
Amount of Blood (y1)	.000		0.00	5.00		4.62	.379		0.00	5.00		5.00
Linier Thinking (y2)	.000		4.06	.393		0.00	5.00		0.00	5.00		1.56
Budget (y3)	3.43		0.00	5.00		0.00	5.00		5.00	.000		5.00

Note : v = value c = coefisiens/s = slack or surplus

Table 4. Summary of Factor Optimization Results for Communication Facility Variables

variabel	Function Object Value ®											
	DOKTOR			MIDWIFE			NURSE			PMI EMPY		
	v	c	s/s	V	C	s/s	v	c	s/s	v	c	s/s
Budget (z1)	.000		0.00	2.36		5.00	5.00		0.00	5.00		0.00
Team Agreement (z2)	1.93		4.90	5.00		5.00	.000		0.00	5.00		0.00
Linier Thinking (z3)	5.00		0.00	.990		0.00	.000		0.00	5.00		0.00

Note : v = value c = coefisien s/s = slac or surplus

government. The total contribution of the clinical management model which involves work ethos variables, blood facilities and communication facilities in order to reduce maternal mortality in type c hospitals in the East Java provincial government is 45.36% or in real terms this can reduce up to 7 deaths from 12 maternal deaths in each district per 100,000 live births. This management model can still be increased up to 57.73% by maximizing the sub-variables in the management model and predicted to reduce maternal mortality by up to 4 deaths from 12 maternal deaths in each district.

(2) The contribution of the work ethos variable to the clinical management model in order to reduce maternal mortality in the Government Type C Hospital is 36.8%, this value means that the contribution of this variable can still be increased to 57.99%.

(3) The variable contribution of blood facilities to the clinical management model in order to reduce maternal mortality in the Government Type C Hospital is 36.7%, this value means that the contribution of this variable can still be increased to 34.73%.

The variable contribution of communication facilities to the clinical management model in order to reduce maternal mortality in the Government Type C Hospital is 25.3%, this value means that the contribution of this variable can still be increased to 34.38%.

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