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ORIGINAL ARTICLE

Relationship of Family Support and Referral Procedures for Delays in Maternal Emergency Referral at Tamiang Layang Hospital, East Barito Regency

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ABSTRACT

The case of late referral is one of the main problems with maternal and infant mortality in Indonesia. The maternal mortality rate in Indonesia is at the highest position in Southeast Asia, at 305 per 100,000 live births. The concept of three models of procrastination is a determinant that has a considerable role in the occurrence of maternal death in society. These delays include being late in recognizing red flags and making decisions, being late in reaching health facilities, and being late in getting help. When a maternal emergency occurs, the rapid decision- making by the mother or family to decide on referral approval is a contributing factor to the success of medical interventions to prevent mortality. In addition, survival depends on the fast and appropriate initialmanagement and implementation of referral procedures by the midwife or referring health center. This study aims to determine how the relationship between family support and referral procedures for delays in maternal emergency referrals with delays in decision making as intervening variables. This type of research is analytical with a cross- sectional design. A sample of 92 respondents was taken using accidentalsampling techniques using inclusion and exclusion criteria. Data were obtained by distributing family support questionnaires to referral patientsand structured interviews for referring midwives to explore referral procedures. The data were analyzed using chi-squere tests and path analysis. Of the 92 referral cases, 57 respondents (61.9%) experienced delays in making decisions and 8 cases (8.7%) experienced delays in referrals. The results of statistical tests on predisposing factors were found to have no meaningful relationship with delays in maternal emergency referrals with a p value of > α 0.05. The results of the path analysis on 2 independent variables, namely family support and referral procedures for delays in decision making and their impact on referral delays showed varying results. There is a significant relationship in several pathways, namely: family support with late referrals, family support for late decision making, referral procedures with delays in decision making, delays in decision making with late referrals, referral procedures with delays in referrals, and family support and referral procedures for late referrals through delays in decision making with a value of p<0.05. Meanwhile, in several other pathways, no significant relationship (p>0.05) was obtained, namely: predisposing factors (age, education, income, parity, frequency of pregnancy examinations) to late referrals

Keywords: Family Support Referral Procedures Emergency Referral Delays

INTRODUCTION

The case of late referral is one of the main problems with maternal and infant deaths in Indonesia. Maternal Mortality Rate (MMR) and Infant Mortality Rate (AKB) are a picture of the success of the health sector, especially the quality of maternal and child health [1]. In 2016, MMR in Indonesia was reported to amount to 305 per 100,000 live births, which placed Indonesia as the country with the highest MMR in Southeast Asia [2]. In Central Kalimantan Province, maternal death cases in 2015-2019 experienced fluctuations. In 2015, the number of maternal deaths was reported 80 cases, in 2016 74 cases were reported, in 2017 there were 54 cases, while in 2018 and 2019 there were 81 and 82 cases, respectively. The causes of maternal death in Central Kalimantan in 2019 were: 34 cases caused by bleeding, 24 cases due to hypertension during pregnancy, 20 cases of miscellaneous causes, 3 cases of circulatory system disorders, 2 cases of infection, and 1 case due to metabolic disorders [3].

The concept of three models of procrastination is a determinant that has a considerable role in the occurrence of maternal death in society. These delays include being late in recognizing red flags and making decisions, being late in reaching health facilities, and being late in getting help. The delay in making the decision to approve a mother's referral when experiencing an emergency occurs due to a long negotiation process at the family level [4]. This can be influenced by manyreasons, such as the inability of the mother / family to recognize dangers, not knowing where to seek help, cultural factors, decisions that depend on the husband, delays in finding means of transportation, and concerns about the amount of costs that need to be paid for transportation and hospitalization [5] . Delays in achieving access to quality care in the scope of handling obstetric complications in East Barito Regency in 2019 which stood at 41.6%. This figure is below the provincial averagepercentage, which is 51.8% [3].

Tamiang Layang Regional General Hospital (RSUD) is the only public hospital located in East Barito Regency, which receives referral cases from all areas of East Barito Regency and from several areas of South Barito Regency and South Kalimantan Province which is directly adjacent to East Barito Regency. Emergency case services at Tamiang Layang Regional Hospital during 2021 amounted to 276 cases, and 221 of them (80.07%) were referral cases. Of the total emergency referral cases, 29 cases were recorded that experienced complications in the mother and fetus due to delays in referrals. Complications in the mother reported 4 cases, consisting of 3 cases of hemorrhagic shock due to post partum hemorrhage, and 1 case of eclampsia. Of the 4 cases of complications experienced by the mother, there were 2 people who died (1 persondue to hemorrhagic shock, 1 person due to eclampsia). Complications in infants recorded 25 cases, consisting of 12 cases of Intra Uterine Fetal Death (IUFD), 11 cases of fetal distress, and 3 cases of severe asphyxia (1 ofwhich died).

Based on the results of an interview with the head of the Obstetrics Emergency Room at Tamiang Layang Hospital, the problem that almost always arises in the referral process in this region is the late decision making to be referred. Negotiations between family members (parents, husbands, children, or relatives) are quite time-consuming in deciding on consent, causing delays that result in the mother and or baby falling into poor condition. In addition to these problems, maternal emergency cases that fail to be handled are generally causedby the improper implementation of emergency referral procedures by midwives or referring health centers.

Emergency referrals are referrals that must be done as soon as possible, because if not handled quickly, it will cause severe pain, even lead to death [6]. Whena maternal emergency occurs, the rapid decision- making by the mother or family to decide on referral approval is a contributing factor to the success of medical interventions to prevent mortality. In addition, survival depends on the fast and appropriate initial management and implementation of

referral procedures by the midwife or referring health center. The results of research by Handriani and Melaliani (2018), stated that the referral process had an effect on maternal mortality, which was shown in the results of an analysis that found that a poor referral process had a risk of death 3,965 times greater [7].

Based on the background of the above problems, the researcher was interested in conducting a study with the title "Family Support Relationships and Referral Procedures for Delays in Maternal Emergency Referrals at Tamiang Layang Hospital, East Barito Regency".

RESEARCH METHOD

The type of research used in this study is analytical observational research with a cross- sectional research design. This research was conducted in March-May 2022 at the Regional General Hospital of East Barito Regency, Indonesia. This type of research emphasizes the time of measurement or observation of data of independent variables and dependent variables only once at the same time. The respondents or samples in this study were maternal emergency cases who were referred to Tamiang Layang Hospital with a total of 92 people, and the samples used were taken by accidental sampling techniques. This study used samples that met the following criteria:

a. Inclusion criteria

1) Cases of maternal emergency (pervaginam bleeding in pregnancy, disturbed ectopic pregnancy, eclampsiaa / pre-eclampsia, stalled labor, shoulder dystoxia, umbilical cord inflated, fetal distress, kala II with abnormalities in the location of the fetus, post partum hemorrhage, sepsis, post-abortion complications) are referred to Tamiang Layang Hospital by the village midwife, independent practice of midwives or health centers.

2) Willing to be a respondent by signing an informed consent sheet

b. Exclusion criteria:

1) Emergency cases referred by obgyn specialists to Tamiang Layang Hospital

The instruments used in this study were questionnaires and checklists. This questionnaire contains questions about sociodemographic characteristics such as age, last education, occupation, income, parity, and antenatal care frequency. In addition, it uses questionnaires related to the role of family support in making referral decisions, and checklists related to referral procedures and delays filled out through structured interview techniques by researchers with referring midwives. The family support questionnaire was previously tested for validity and reability to determine whether the statements in the questionnaire were declared valid and feasible or not for use in this study. The data analysis used is univariate analysis and bivariate analysis with chi-squere test and multivariateanalysis with path analysis.

This research is approved by Ethics Committee of the Polytechnic Health Kemenkes Palangka Raya with the number of registration 060/IV/KE.PE/2022

RESULTS AND DISCUSSION

Distribution of Respondent Characteristics

Table 1: Characteristics of Respondents on Maternal Emergency Referrals (n=92)

Variable	Sum	Percentage
Age		
- < 18 years old	4	4,3
- 18-35 years	71	77,2
- > 35 years old	17	18,5
Education		
- Primary School	17	18,5
- Secondary School	27	29,5
- High School	38	41,3
- Academies/Colleges	10	10,9
Work		
- Not Work	69	75
- Work	23	25
Family income per month		
- < Rp. 2.900.000,-	44	47,8
- ≥ Rp. 2.900.000,-	48	52,2
Parity		
- 0	35	38
- 1-4	54	58,7
- >4	3	3,3
ANC Frequency		
- Less than 4 times	18	19,6
- 4 times or more	74	80,4

Table 2:

Variable	Sum	Percentage
Family Support		
- Good	44	47,8
- Enough	40	43,5
- Lack	8	8,7
Referral Procedures		
- Good	59	64,1
- Enough	31	33,7
- Lack	2	2,2

The table above shows that of the 92 respondents, the majority of respondents were aged 18-35 years (77.2%), the last high school education (41.3%), not working (75%), family income per month ≥ Rp. 2,900,000,-(52.2%), parity 1- 4 (58.7%), and an ANC frequency ≥ times (80.4%). The results of the description of family support and referral procedures show that the majorityof respondents that had good family support, namely 44 people (47.8%) and at least 8 respondents (8.7%) had less support. In the referral procedure variable, the most respondents were with good referral procedures, namely 59 people (64.1%) and the least, namely 2 respondents (2.2%) found less referral procedures.

Figure 3.1: Decision-Making Delays

The results of the description of the delay in making decisions are presented in figure 1.2 the majority of respondents, namely 37 people (40.2%) experienced delays >30 minutes, and at least 20 respondents (21.7%) percent experienced delays of 15-30 minutes.

Figure 3.2: Referral Delay

Figure 1.3 presents the reference delay variable. The most respondents experienced a delay of 30-60 minutes, totaling 41 people (44.6%) and at least 8 respondents (8.7%) experienced delays >120 minutes.

Direct Relationship of Predisposing Factors (Age, Education, Income, Parity, Frequency ofPregnancy Examinations) with Delay in Maternal Emergency Referral

Table 3: Comparison of Predisposing Factors in Delayed Referral of Maternal

Variable	Late Referral				p-value
	Not		Yes		
	(n=92)		(n=92)		
	n	%	n	%	
Age					
- < 18 years old	1	1,1	3	3,2	0,981
- 18-35 years	16	17,4	55	59,8	
- > 35 years old	5	5,4	12	13,1	
Education					
- Primary school	0	0	17	18,5	0,069
- Secondary school	3	3,3	24	26,0	
- High School	16	17,4	22	23,9	
- Academies/Colleges	3	3,3	7	7,6	
Family income per month					
- < Rp. 2.900.000,-	5	5,4	39	42,4	0,098
- ≥ Rp. 2.900.000,-	17	18,5	31	33,7	
Parity					
- 0	10	10,9	25	27,1	0,527
- 1-4	11	12,0	43	46,7	
- >4	1	1,1	2	2,2	
ANC Frequency					
- Less than 4 times	2	2,2	16	17,4	0,455
- 4 times or more	20	21,7	54	58,7	

The table above shows the relationship of respondents' characteristics with delays in maternal emergency referrals tested using chi squared tests with the variable results of age, education, income, parity, and ANC frequency having a value of p>0.05 so that it can be concluded that there is no meaningful relationship between age, education, employment, income, parity, and anc frequency with delays in maternal emergency referrals.

Direct Relationship of Family Support with Delayed Maternal Emergency Referral Table 3 Direct Relationship of Family Support with Delayed Maternal Emergency Referrals

Table 4:

Free variables	Bound variables	Mediation variables	Path coefficient	t	p	Description
Family support	Referral delay	-	0,293	2,905	0,005	Significant

The table above shows the results of the path test on the relationship between family support for referral delays obtained a path coefficient of 0.293 with a calculated t value of 2.905 and a significance value of

0.005. For comparison obtained the table t value of 1.960. The results show that the calculated t value is greaterthan the table t value (t hit > t table) and the significance value is less than 0.05 (sig < 0.05) so it is stated that there is a significant influence between family support and referral delay, meaning that the better the family support provided, the faster the time to make a referral.

Direct Relationship of Referral Procedure with Delayed Maternal Emergency ReferralTable 4 Direct Relationship of Referral Procedure with Maternal Emergency Referral Delay

Table 5:

Free variables	Bound variables	Mediation variables	Path coefficient	t	p	Description
Referral procedure	Referral delay	-	0,315	3,147	0,002	Significant

The table above shows the results of the path test on the influence between the reference procedure on the delay in referral obtained a path coefficient of 0.315 with a calculated t value of 3,147 and a significance value of 0.002. For comparison obtained the table t value of 1.960. The results show that the calculated t value is greater than the table's t value (t hit > t table) and the significance value is more than 0.05 (sig < 0.05) so it isstated that there is significant influence between the reference procedure and the referral delay, meaning that the better the referral procedure given will have a significant effect on the speed of the referral time.

Direct Relationship of Family Support to Decision Making Delays

Table 6: The Direct Relationship of Family Support to Decision-Making Delays

Free variables	Bound variables	Mediation variables	Path coefficient	t	p	Description
Family support	Decision-making delays	-	0,356	3,611	0,001	Significant

The table above shows the results of the path test on the direct relationship between family support for delayed decision making obtained a path coefficient of 0.356 with a calculated t value of 3,611 and a significancevalue of 0.001. For comparison obtained the table t value of 1.960. The results show that the calculated t value is greater than the table t value (t hit > t table) and the significance value is less than 0.05 (sig < 0.05) so it is stated that there is a significant influence between family support on decision-making delays, meaning that the better family support provided will affect the speed of decision-making time.

Direct Relationship of Referral Procedure with Decision Making DelayTable 6 Direct Relationship of Family Support to Decision-Making Delays

Table 7:

Free variables	Bound variables	Mediation variables	Path coefficient	t	p	Description
Referral procedure	Decision-making delays	-	0,320	3,205	0,002	Significant

The table above shows the results of the path test on the influence between the reference procedure on the delay in decision making obtained a path coefficient of 0.320 with a calculated t value of 3,205 and a significance value of 0.002. For comparison obtained the table t value of 1.960. The results show that the calculated t value is greater than the table t value (t hit > t table) and the significance value is less than 0.05 (sig

< 0.05) so it is stated that there is a significant influence between the reference procedure and the decision- making delay, meaning that the better the reference procedure given, the more it will affect the speed of decision making time.

Direct Relationship of Decision Making Delays with Delays in Maternal Emergency Referrals Table 7 Direct Relationship of Decision-Making Delays with Delays in Maternal Emergency Referrals

Table 8:

Free variables	Bound variables	Mediation variables	Path coefficient	t	p	Description
Decision-making delays	Referral delay	-	0,316	3,161	0,002	Significant

The table above shows the results of the path test of a direct relationship between the delay in decision making and the delay in referral obtained a path coefficient of 0.316 with a calculated t value of 3,161 and a significance value of 0.002. For comparison

obtained the table t value of 1.960. The results show that the calculated t value is greater than the table's t value (t hit > t table) and the significance value is less than 0.05 (sig < 0.05) so it is stated that there is a significant influence between the delay in decision making and the delay in referral, meaning that the faster the decision making will affect the speed of time to make the referral.

Relationship of Family Support and Referral Procedures with Delays in Maternal EmergencyReferrals through Delays in Decision Making

Table 9: Relationship of Family Support and Referral Procedures with Delayed Maternal EmergencyReferrals through Delayed Decision Making

Free variables	Bound variables	Mediation variables	F	p	Description
– Family support – Referral procedure	Referral delay	Decision-makingdelays	6,152	0,001	Significant

The table above shows the results of a simultaneous test between family support and referral procedures for late referrals through late decision making obtained a calculated F value of 6.152 and a significance value of

0.001. The results showed that the significance value was less than 0.05 (sig<0.05) so it was stated that there was a significant influence between family support and referral procedures on simultaneous referral delays.

Path Chart: The magnitude of the direct and indirect relationship between family support variable and referral procedures with delays in maternal emergency referrals through delays in decision making presented in the two path models as follows:

Model 1: direct relationship of family support and referral precedures to refferal delay

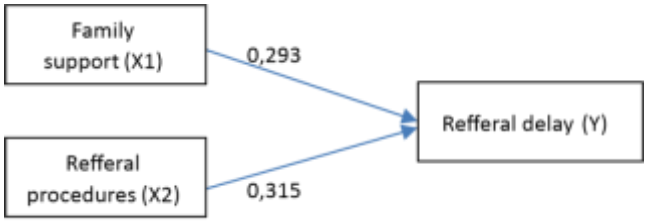

Figure 3.3: Model path diagram 1

The magnitude of the direct relationship of family support (X1) to refferal delay (Y) is the value of beta X1to Y, namely 0,293. Whereas The magnitude of the direct relationship of refferal procedures (X2) to refferal delay (Y) is the value of beta X2 to Y, namely 0,315.

Model 2: indirect relationship of family support and referral procedures with delayed maternal emergencyreferrals through delayed decision making

Figure 3.4: Model path diagram 2

The magnitude of the indirect relationship of family support (X1) to refferal delay (Y) through decision making delays (Z) is the multipication of the value of beta X1 to Z with the value of beta Z to Y, namely: 0,356 x 0,316 = 0,112. Whereas indirect relationship of refferal procedures (X2) to refferal delay (Y) through decision making delays (Z) is the multipication of the value of bta X1 to Z with the value of beta Z to Y, namely: 0,320 x 0,316 = 0,101.

DISCUSSION

Emergency situations really need the accuracy of the initial handling and the speed of referral. The basic principle of emergency management is the determination of diagnosis and the main problem. Relief measures should be carried out calmly but quickly and precisely, not affected by the panic atmosphere that may be generated from the patient's family or his introduction. Midwives play an important role in the initial handling of maternal emergency cases. One of the initial treatments in emergency cases is the stabilization of pre-referral patients, using oxygen, medicamentose, and fluid therapy. The midwife must also ensure that the patient's airway is smooth, improve the functioning of the respiration and circulation systems, stop bleeding, replace lostbody fluids, perform resuscitation in the mother and baby with continuous equipment and overcome pain and anxiety that may be experienced by the patient [8]. When an emergency has occurred, of course, midwives andfamilies focus on the safety of the mother's life and strive for the mother to be referred immediately. Therefore, it is important for a midwife to always communicate referral planning for each pregnant woman, at the time before an emergency occurs so that the delivery of information can be done in calm conditions to prepare the mother and family if at any time the mother needs to be referred. This referral planning has been stated in thelabor planning and complication prevention (P4K) program [9]. P4K aims to record the status of pregnant women and install P4K stickers in every pregnant woman's home. The sticker contains information about the address of residence of the pregnant woman, the identity of the pregnant woman, the estimated date of delivery, the plan for childbirth assistance and companions, the facilities of the delivery site, transportation and includes the provision of prospective blood donors [10].

Along with the development of service standards and the application of health ethics, decision-making, which was originally still centered on health workers, has now undergone changes. Currently, health workers are obliged to respect the right of patients to play an active role and give them the authority to accept, reject, or change certain health decisions. So that further referral efforts by health workers can only be carried out if they have obtained approval from patients and or their families [6]. Because referral approval is the main requirement in making referrals, if the process of making a decision on approval to be referred by patients or their families takes a long time, it will slow down the implementation of referrals. In carrying out the referral procedure, the midwife is obliged to carry out persuasive communication to the patient and his family about the patient's condition, the reasons and motivations for the referral, the possible risks that will arise if the patient is not referred, and planning the departure to the referral place [6].

The provision of persuasive information and communication by midwives causes information to be easily received by pregnant women and families so that it is possible not to spend a long time agreeing to be referred [11]. Family support unearthed in this study included emotional support, informational , instrumental, appreciation/assessment, and decision-making support. Late decision-making is generally caused because the patient is still conducting family meetings before approving a referral. interviews with respondents in this study also found that the economic helplessness of a non-working mother makes the role of the husband as a decision maker dominant. This is supported by the assumption that only the husband has the right to make a referral decision. Not only by husbands, decision-making is dominated by mothers and daughters-in-law because they have previous experiences when experiencing pregnancy and childbirth. The opinions of the mother and daughter-in-law were strongly listened to at the time of deliberations to determine the consent of the referral.

The results of this study are also in line with the theory of three models of reference delay by Thaddeus and Maine (1994). In this theory, the obstacles of the patient factor are related to socioeconomic and cultural factors that cause a delay in phase 1, namely a delay in making the decision to seek treatment. Barriers to healthsystem factors, including referral procedures, indicate that these factors are related to accessibility and quality of care. Health system factors can not only cause phase 1 delays but can also lead to phase 2 2 delays i.e. reaching adequate health facilities and phase 3 delays i.e. receiving adequate care at those facilities. The three models ofdelay are the causes of delays in referring mothers to referral health facilities, which are determining factors thathave a considerable role in the occurrence of maternal deaths in the community [4].

The statistically significant relationship of family support and referral procedures to late referrals throughlate decision making is an important input for midwifes, to continue to improve the quality of health workers in conducting proximity and education to the community, especially at the family level and improving the quality of referral procedures so that delays emergency referrals can be prevented.

CONCLUSION

The results of the path analysis on 2 independent variables, namely family support and referral procedures for delays in decision making and their impact on referral delays showed varying results. There is a significant relationship in several pathways, namely: family support with late referrals, family support for late decision making, referral procedures with delays in referrals, referral procedures with delays in decision making, delays in decision making with late referrals and family support and referral procedures for late referrals through delays in decision making with a value of $p<0.05$. Meanwhile, in several other pathways, no significant relationship ($p>0.05$) was obtained, namely: predisposing factors (age, education, income, parity, frequency of pregnancy examinations) to late referrals.

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