Research Article

Characteristic of Midwives who Refer Complex Obstetrics Cases

Karakteristik Bidan yang merujuk Kasus Obstetri Komplek

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Abstract

Objective: To identify reasons for referring and characteristics of midwives who have an independent practice and its relation with the complication that manifested from the cases.

Methods: Descriptive analytic case-control. Medical records of patients referred directly to RSCM in January 2016-July 2017 were obtained, then information about midwives and obstetric cases, along with its complications, were collected. Interview and analysis of six characteristics of midwives were conducted. Characteristics analyzed were age, education, training, duration of work experience, number of patients ever treated, also distance and travel time of the referral process.

Results: All midwives refer due to inadequate facilities. There is a statistically significant correlation between duration of work experience and number of patients that has been managed, with the complication that manifested from referred cases, with OR 7.036 and 6.032, respectively.

Conclusions: Midwives refer due to inadequate facilities, and so patients can be treated immediately. Characteristics that affect midwives in referring are: duration of work experience and number of patients that has been managed. It is necessary to re-evaluate the position of midwives who practiced independently in BPJS, refresher programs, and monitoring by relevant agencies. A larger number of samples and data combination of midwives' and patients' characteristics in referral cases are needed for further research. Confounding and external factors are identified first in order to do a thorough analysis.

Keywords: characteristics, complicated cases, midwives, emidwives who practiced independently, referral, referral system.

Abstrak

Tujuan: Mengetahui alasan rujuk dan karakteristik bidan yang berpraktik mandiri serta hubungannya dengan kasus komplikatif yang dirujuk ke RSCM.

Metode: Deskriptif analitik kasus kontrol. Data diambil dari rekam medis pasien yang dirujuk langsung ke RSCM di bulan Januari 2016 hingga Juli 2017, kemudian informasi mengenai data bidan dan kasus obstetri beserta komplikasinya dikumpulkan. Dilakukan wawancara dan analisis enam karakteristik bidan. Karakteristik yang dianalisis yaitu usia, pendidikan, pelatihan, lama waktu berpraktik, jumlah pasien yang pernah ditangani, serta jarak dan waktu tempuh proses merujuk.

Hasil: Keseluruhan bidan merujuk karena fasilitas yang tidak memadai. Terdapat hubungan yang bermakna antara waktu praktik dan jumlah pasien yang pernah ditangani, dengan kasus komplikatif yang dirujuk langsung ke RSCM, dengan nilai OR 7,036 dan 6,032.

Kesimpulan: Bidan merujuk karena fasilitas tidak memadai dan agar pasien langsung ditangani. Karakteristik bidan yang mempengaruhi dalam merujuk yaitu lama waktu praktik dan jumlah pasien yang ditangani. Perlu dilakukan evaluasi ulang mengenai kedudukan bidan yang berpraktik mandiri di BPJS, program penyegaran bidan, serta monitoring oleh instansi terkait. Perlu penelitian lanjut dengan sampel lebih banyak serta menggabungkan karakteristik bidan dan pasien pada kasus-kasus rujukan. Faktor perancu dan eksternal diidentifikasi terlebih dahulu agar analisis dilakukan menyeluruh.

Kata kunci: bidan yang berpraktik mandiri, karakteristik bidan, kasus komplikatif rujukan, sistem rujukan.

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INTRODUCTION

Maternal mortality is still a problem that has received considerable attention from the Indonesian Government. Initially, through 5th goal of the Millennium Development Goals (MDGs) program, the government tried to reduce maternal mortality to 102 deaths in 100,000 live births. From 2003 to 2007, maternal mortality decreased to 228 deaths, but from 2008 to 2012, unfortunately maternal mortality was again increased to 359 deaths per 100,000 live births.[1] The latest data obtained in 2015 found there were 190 maternal deaths per 100,000 live births[2], which was far from MDG's target. in the present time, the Indonesian Government follows a United Nations (UN) program, which is the goal 3 of Sustainable Development Goals (SDG)[3], so the maternal mortality would fall to 70 deaths.

From a medical point of view, the most common causes of maternal death are divided into bleeding, infection, unsafe abortion, eclampsia, and prolonged labor.[4-8] The most common cause of maternal death is postpartum hemorrhage.[9] These five problems in pregnancy have complications that could cause death if it is not properly managed.

To avoid the occurrence of further complications, excellent and appropriate management are needed where a good referral system supports. The Indonesian Government has established a referral system, where a health service facility can refer a case of pregnancy that can not be managed or not in its competences ,to a health facility that has more authority to manage a more complicated case. This referral system is structured in stages, starting with primary health services with general practitioners and dentists as their health workers, specialists in secondary health services, and sub-specialists in tertiary health services.[10]

A few years ago, midwives, as one of the health workers trained in the scope of maternal and child health, are still part of the primary service, along with general practitioners and dentists.[10] However, the latest referral system prepared by the agency that organized the social security called BPJS, do not include midwives in the referral system.[11] Midwives, in general, should only refer to general practitioners or dentists who work in primary facilities.[12] The new referral system is qcomplicated for midwives because the regulations regarding the position of midwives are not clearly explained. The referral system for emergency cases originating from the midwife's independent practice is not clearly explained in the referral system prepared by the BPJS.

Dr. Cipto Mangunkusumo hospital as the tertiary health facility and also as the national referral center (Type A Hospital according to the Decree of the Minister of Health of the Republic of Indonesia Number 1204/MENKES/SK/X/2004), until now still receives referrals directly from midwives which skips the referrals to primary and also secondary health services. According to data from 2013, the Emergency Room (ER) of Obstetrics and Gynecology in RSCM which is located on the 3rd floor, was receiving approximately 250 referrals from midwives who were practicing independently. Among those referrals, there are a quite number of cases with complications that may appeared due to the delay in making a decision to refer, the delay in referral processes and delay in management.

Complications could be prevented if the mother could perform a good antenatal care and the could recognize the initial signs of a problem in pregnancy and also work as its authority, which are primary survey and stabilization of the emergency cases properly and appropriately recognize these cases as referral cases.[13, 14] In addition, it is also necessary to outline some characteristics that influence a midwife's decision in referring a case directly to the emergency room of Cipto Mangunkusumo Hospital. Therefore this study is conducted to determine the reasons in referring cases and characteristics of those midwives who were practicing independently, as well as their relationship with the manifested complication.

METHODS

A case-analytic descriptive design was conducted for this study. Data was taken from January 2016 to July 2017. Subjects were all midwives who practice independently and have referred any case of preeclampsia, Premature Rupture of Membranes (PROM) and bleeding and/or its complications to RSCM Jakarta from January 2016 to July 2017 who meet the inclusion and

exclusion criteria. Inclusion criteria include: all midwives who are practicing independently; refer one or all cases of preeclampsia, PROM, as well as bleeding and/or its complications such as eclampsia, infection, and hemorrhagic shock from January 2016 to July 2017; refer directly to Cipto Mangunkusumo Hospital that has skipped primary or secondary service facilities; and willing to participate in research and fill out informed consent. Whereas for exclusion criteria: if there is no reference letter attached to the medical record. Subjects were taken by consecutive sampling. Analysis of six characteristics of midwives was conducted, which were divided into two types of characteristics, demographic and geographic characteristics. The demographic characteristics were age, education, training, duration of work experience, and number of patients that has been managed. While the geographic characteristics were distance and travel time of referral process. Then all analyzes were carried out using SPSS 20.0.

RESULTS

In the study conducted in January 2016 until July 2017, there were 1,351 cases of preeclampsia, PROM, and bleeding referred to RSCM. Ninety-five of these cases referred directly from midwives who were practicing independently. Based on inclusion and exclusion criteria, tthere were 82 cases from different midwives which have an independent practice. Of the total of 82 cases, there were 29 cases of preeclampsia (35.3%), 40 cases of PROM (48.8%), and 13 cases of bleeding (15.9%); among those cases, 28 of the cases (34.1%) were with complication and 54 cases (65.9%) were not.

Based on a brief interview conducted by the researcher, the entire midwife (100%) referred, due to inadequate facilities. In addition, according to the authority of midwife that has been mentioned in the Regulation of the Minister of Health of the Republic of Indonesia number 28 in 2017, the midwives should immediately refer to primary facility. But unfortunately, they immediately refer to RSCM because the assumption that by referring directly to Cipto Mangunkusumo Hospital, patients could be immediately managed. Distribution data of demographic characteristics of midwives who practice independently are attached in table 1.

Table 1. Demographic Characteristics of Midwives who Practice Independently who Refer the Complicated and Non-complicated Cases to Dr. Cipto Mangunkusumo Hospital

Midwives' Characteristics	Non-complicated (N = 54)	Complicated (N = 28)	N = 82 (%)
Age (y.o)			
< 36	37 (68.5)	18 (64.3)	55 (67.1)
≥ 36	17 (31.5)	10 (35.7)	27 (32.9)
Education			
≤ D3	42 (77.8)	22 (78.6)	64 (78)
> D3	12 (22.2)	6 (21.4)	18 (22)
Training			
Never	17 (31.5)	9 (32.1)	26 (31.7)
APN/PONED/etc	29 (53.7)	16 (57.1)	45 (54.9)
APN + PONED	8 (14.8)	3 (10.8)	11 (13.4)
Duration of practice (years)			
< 11	43 (79.6)	10 (35.7)	53 (64.6)
≥ 11	11 (20.4)	18 (64.3)	29 (35.4)
Number of patients			
< 50	40 (74.1)	9 (32.1)	49 (59.8)
≥ 50	14 (25.9)	19 (67.9)	33 (40.2)

Data on the distribution of geographic characteristics of midwives who practice independently are attached in table 2 below.

Table 2. Geographic Characteristics of Midwives who Practice Independently who Refer the Complicated and non-complicated Cases to Dr. Cipto Mangunkusumo Hospital

Midwives' Characteristics	Non-complicated (N = 54)	Complicated (N = 28)	N = 82 (%)
Distance and travel time			
< 10 km & < 60 minutes	32 (59.2)	19 (67.9)	51 (62.2)
≥ 10 km & ≥ 60 minutes	22 (40.8)	9 (32.1)	31 (37.8)

Bivariate analysis is presented using Chi-square. This analysis aims to see the relationship between midwife's characteristics and cases with complication, and also to see the magnitude of probability value that presented with Odd Ratio (OR). The p-value of bivariate analysis that <0.05 shows a significant correlation between midwife's characteristic and complicated cases. From all of the analysis, the characteristic that significantly related to complicated cases are duration of work experience and number of patients that ever handled during their work period. Result of bivariate analysis are shown in table 3 and 4.

Table 3. Relationship between Demographic Characteristics of Midwives who Practice Independently and Complicative Cases

Midwives' Characteristics	Non-complicated		Complicated		P-value	OR (CI 95%)
	N	%	N	%		
Age (y.o)						
< 36	37	68.5	18	64.3	0.699	OR= 1.209
≥ 36	17	31.5	10	35.7		(CI95% 0.462-3.167)
Education						
≤ D3	42	77.8	22	78.6	0.934	OR = 0.955
> D3	12	22.2	6	21.4		(CI 95% 0.315 – 2.889)
Training						
Never	17	31.5	9	32.1	1.000	OR=0.970
APN/PONED/etc	29	53.7	16	57.1		(CI 95% 0.364-2.582)
APN +PONED	8	14.8	3	10.8		
Duration of practice (years)						
< 11	43	79.6	10	35.7	0.001	OR=7.036
≥ 11	11	20.4	18	64.3		(CI 95% 2.543-19.472)
Number of patients						
< 50	40	74.1	9	32.1	0.001	OR = 6.032
≥ 50	14	25.9	19	67.9		(CI 95% 2.220-16.391)

Table 4. Relationship between Geographic Characteristics of Midwives who Practice Independently and Complicative Cases

Midwives' Characteristics	Non-complicated		Complicated		P-value	OR (CI 95%)
	N	%	N	%		
Distance and travel time						
<10 km & <60 minutes	32	59.2	19	67.9	0.446	OR = 0.689
≥10 km & ≥60 minutes	22	40.8	9	32.1		(CI 95% 0.264-1.801)

From the results of the bivariate tests that have been done before, it is known that from the six variables, there are two demographic characteristics, duration of experience and the number of patients that have been managed, which are related to the number of cases with complication that referred directly to RSCM. Then a multivariate analysis is performed on these variables.

From the multivariate analysis, there is a significant relationship between the duration of practical experience and the number of complicated cases with p=0.011. Then there is also a statistically significant relationship between the number of patients that has been managed by midwives and the number of complicated cases that referred directly to Cipto Mangunkusumo Hospital, with p=0.031. From these two variables,

shows that the most dominant variable in referring directly the cases with complication to RSCM is the number of patients that have been managed by midwives, where the p-value of this variable is greater than other variables, which is p=0.031. Therefore, the number of patients that have been handled by midwives more than or equal to 50 patients, would more often refer a case with complication to the hospital as many as 0.294 times compared to midwives who have managed fewer than 50 patients during their experience in independent practice.

DISCUSSION

We found 1351 obstetric cases including preeclampsia, PROM, and bleeding both antepartum and postpartum hemorrhage, referred to RSCM, where 95 cases of them (7.03%) referred directly by midwives who work independently. The number is significantly smaller compared to the data from Department of Obstetrics and Gynecology in 2013 that stated 14% of cases were referred by midwives who practice independently. It shows that the BPJS referral system in 2016 were running better compared to 2013. From 95 midwives who referred the cases, there are 82 midwives who met the research's inclusion criteria. The data distribution of obstetric cases that are referred were 29 cases of preeclampsia (35.3%), 40 cases of PROM (48%) and 13 cases of bleeding (15.9%). The main reason of all referral were due to inadequate facilities in their practice. Of all cases that are referred, there were complications that manifest such as eclampsia, intrauterine infection, and hypovolemic shock. The total number of complications that appeared from those referred cases was 28 cases (34.1%). Then the demographic and geographic characteristics of the midwives who refer those cases with manifested complication were seen and analyzed. There are five demographic characteristics analyzed, which are age, education, trainings that have been participated, duration of practical experience and the number of patients ever treated during that have been managed. While the geographic characteristics that are analyzed are the distance and travel time oin the process of referring.

Of the overall characteristics mentioned above, a correlation between each characteristic and complication that manifested from the cases is examined. Based on age, it is found that there is no statistically significant relationship with the number of complication that appeared from the referred cases. This finding is on the contrary to the research conducted by Wahyuningsih and colleagues which stated that there was a relationship between the characteristics of midwives in the form of age, years of service, and education of midwife with the accurate decision in referring a patient.[15]

Similar to age, years of service, education, along with motivation and attitude influence the performance of midwives in referring the obstetric emergency cases[16]. It is also inconsistent with the idea that the possibility of an individual's performance will decline along with increased age of a midwife. They would have more experience or skill in performing their duties.

Besides that, there is also no statistically significant relationship between education of a referring midwife and the complication that were appeared from the cases referred directly by the midwives to Cipto Mangunkusumo Hospital. The statement from above previous researches is also inconsistent in this study. The lowest education for a midwife who can have an independent practice is a midwife who has taken diploma degree which is D3. Whereas midwives who have studied higher than D3 degree can be called as a professional midwives and can also work as a manager, educator, and educational contributor to other midwives.[17] Based on the result of this research, it can be said that the midwives' decision in referring a patient is not affected by their educational degree.

Regarding the characteristic of trainings that have been participated, there were no significant association with the complication that appeared from its cases. In this study, there are 26 midwives who stated that they had never attended any training during their practical period and 56 midwives had participated in any training. (From 56 midwives who had attended any training, all midwives who have participated in a training stated that they attended the PONED training. Only 11 midwives participated in any other additional trainings other than PONED. This trainings include Normal Delivery Care (Asuhan Persalinan Normal - APN), Midwifery

Update (MU), Obstetric Neonatal Emergency Management Training (Pelatihan Penanganan Gawat Darurat Obstetric Neonatus - PPGDON), Basic Life Support (Bantuan Hidup Dasar - BHD), Contraception Training Update (CTU), and others. PONED and APN training aim to enable the midwife to provide health services according to established standards. However, based on the result, there were no strong relationship between the trainings that have been attended with the number of complication that arose from the referred cases. The weak relation between both parameters showed that the midwives' ability of making decision in referring a patient is not solely depend on the trainings that have been participated by themselves.

Based on the duration of work experience, there was a significant relationship with the number of complications that were appeared, where p=0.001 with OR 7.036 and a CI 95% of 2.543-19.472 were obtained. This could be interpreted that midwives with more than or equal to 11 years of practical experience would 7.036 times more in referring a case with already manifested complication. This is inversely proportional to the initial thinking of the researcher, where a longer period of work experience will make a midwife to refer less number of the cases that complication has appeared because the experience of the midwife can figure out which cases should be referred immediately so that the complication would not manifest before the arrival at the referring hospital. Based on interview with several midwives who have referred directly to Cipto Mangunkusumo Hospital, the midwives knew that the conditions of the patients were in need of the better facilities so that they would like their cases to be bypassed and managed directly at the tertiary health center (Cipto Mangunkusumo Hospital) rather than being firstly managed in the Regional General Hospital (RSUD) or secondary health center, according to the pathway that has been established by BPJS. There are also external factors that influence this condition, such as patients who come to the midwife is already in a complicated state, or prefer to come to the midwife because there is a high level of trust in midwives with a long working period. In addition, these patients were not performing their ANC routinely in the midwife, so the history of their pregnancy is not known. Thus they only refer patients when they believe that they are unable to provide any further management. There is also the possibility that midwives with a longer working experience have surfeited and causing a decrease in performance, which could lead to reduced awareness for their patient's conditions. Thus resulting in lateness in referring these patients and eventually a complication manifests. Therefore, refresher trainings or re-trainings are needed.

Based on the number of patients that has been managed during their work period, there is also a significant relationship with the number of patients with a complication that manifested, where p=0.001 with an OR of 6.032 and a CI 95% of 2.220-16.391. This shows that midwives who have managed more than or equal to 50 patients, are 6.032 times more often to refer a case which a complication would appeared. This result is also not in line with the initial thought of the researcher, where the number of cases that were managed has a directly proportional direction to the knowledge of midwives in referring patients[18]. Based on the results of this study, several possibilities that led to differences in results from initial thinking could be thought. One of which is the midwives' believe that they could manage a case due to the number of patients that they have had during their work period, even though the case had to be referred in the beginning. However, when they handled these cases and turned out that there were no any improvement, then the midwives referred those patients directly to Cipto Mangunkusumo Hospital.

As for the geographic characteristics such as distance and travel time to referral hospital, there was no statistically significant relationship with complication that manifested. This is on contrary to a statement in this study that said patients who have been delayed to seek medical assistance or any delay in referral process are one factor that could significantly affect the maternal mortality rate. [19] In addition, time and distance are also factors that contribute to the referral process.[20,21] The distance and travel time to the referred health facility affect the outcome of labor.

The multivariate analysis found two independent characteristics of midwives that could be accounted for. The number of patients that have been managed and the

duration of midwife's work experience, where the p-value of both variables was <0.25. The multivariate analysis aims to get the best model in determining or predicting the parameters of midwives' characteristics who refer the case whose complication has manifested to Cipto Mangunkusumo Hospital in 2016-2017. The results of analysis through logistic regression revealed that there are two final variables of midwives' characteristic that are influential in referring the cases, which complication has been developed, are duration of their work experience, and the number of patients that they have been managed. Furthermore, logistic regression analysis is carried out to find the most dominant variable in the referral of case with the complication has arised. The scale of influence between variables is indicated by the odds ratio (Exp (B)), where the largest Exp (B) is in the variable number of patients. This means that midwives who have been handled more than or equal to 50 patients, would more often refer cases with a complication to the hospital as many as 0.294 times compared to midwives who have only managed fewer than 50 patients during their work experience.

This study has limitation in analyzing the relationship between several demographic or geographic characteristics and the complication developed from a case. This is due to many external factors and confounding factors of research that need to be analyzed further. In addition, the small number of samples may not be representative of the characteristics of midwives who practice independently around Indonesia. However, this research shows that although the number of referral from midwife is less than the number in 2013, there are still a lot of midwives that are practicing in independent practice who refer cases directly to Cipto Mangunkusumo Hospital, which does not comply with the BPJS referral system. And finally, it can be seen that there are two characteristics of midwives, which are duration of their work experience and the number of patients contribute to the number of complication that manifested from cases.

CONCLUSION

Ninety-five self-employed midwives referred the obstetric cases (preeclampsia, PROM, and bleeding) directly to RSCM from January 2016 to July 2017, where there was a 50% less number from previous data in 2013, which the total of 267 midwives referred to Cipto Mangunkusumo Hospital. Eighty-two midwives among them agreed to take part in the study. All of them refer their obstetric cases directly because of inadequate facilities. The cases has been referred directly to Cipto Mangunkusumo Hospital and have skipped primary or secondary service facilities in order to be medically treated immediately. More than one third of the cases that are being referred (34.1%) were the complication of the cases that manifested further in the process of referring a patient.

In conclusion, there was a significant relationship between demographic characteristics of midwives who practice independently with the complication manifested from cases that were referred directly to Cipto Mangunkusumo Hospital, which were the duration of midwife's practice and the number of patients that have been managed during the midwife's work period. Based on the duration of experience, 64.3% of midwives who have practiced for more than 11 years were potentially 7.036 times more often in referring a case that a complication has been manifested. Whereas based on the number of patients that were treated during the work period, 67.9% of midwives who managed more than 50 patients were 6.032 times more often in referring a case that a complication has been manifested. For other midwives characteristics such as age, education, trainings that have been participated, as well as distance and travel time to referred hospital, there was no statistically significant correlation with the manifested complication that arose from the referred cases.

A re-evaluation of BPJS referral system is needed regarding the position of midwives who have an independent practice because currently only midwives who practice independently and has collaborated with primary health care facilities or Pratama clinic, could make a referral to a higher health care facilities, according to BPJS referral system. Periodic monitoring and evaluation of midwives, carried out by relevant institutions (Indonesian midwives society, public health care, ministry of health), should be further improved. Good cooperation between health workers at various levels of health care facilities needs to be well established. In addition, refresher programs

for midwives need to be held annually.

Further research could be carried out a form that combining the characteristics of midwives and patient characteristics in referral cases, so they can be identified thoroughly. In analyzing the characteristics of midwives, it is also necessary to identify confounding and external factors that can influence the analytical process. And lastly, larger number of samples is needed in order to represent the population of midwives who practice independently in Indonesia.

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