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Maternal outcomes following delivery at community health centers in Dili, 2018

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Abstract---Background: Maternal death is a big problem around the world and it is often preventable. Almost every country faced the same problem although the Maternal Mortality Ratio (MMR) varies between countries. Maternal death is tragedy for individual women, for families, and for communities because maternal death has implications for the whole family and an impact that rebounds across generations. According to data from the WHO, everyday in 2017, approximately 810 women died from preventable causes related to pregnancy and child birth (WHO, 2019). Over the last twenty years, there has been good progress worldwide to decrease maternal mortality (Sai *et al*, 2014). In Timor-Leste the maternal mortality rate decreased from 557 per 100,000 livebirths in 2010 to 218 per 100,000 livebirths in 2015. However, this is still very high. This MMR is still

one of the highest in the world. (DHS TL 2010 and DHS TL 2015). Establishment of Basic Emergency Obstetric Care (BEmOC), poor road condition, limitation of staff capacity for caesarian section are considered as contributable factors to the maternal death in Timor-Leste. Objectives: The aim of this research project is to identify outcome of mother who attend for delivery the baby at the four CHC in Dili during 2018. Methods: The study design is *observational cross sectional (cases series)* study with retrospective data collection and descriptive data analysis to describe the outcome of the mother who attended for delivery baby at four CHC in Dili during 2018. The data will collected form logbook of four CHC in Dili town which registered the mother who admitted to the CHC for deliver the baby. Results: there were 1535 samples collected from available maternal logbook in four CHC in Dili, for period January – December 2018. Only one CHC which has limited available maternal logbook because of changing of their workplace. The mothers' age is ranged from 14 to 44 years old with mode 25 years old. Number of children by mother was ranged from 1 – 9 with average 2.55 children. There were registered 147 abortions which experienced by the mothers who selected in this research. Proportion of mothers who successfully deliver the baby and discharge home was 97.5%. Mothers who referred to hospital was 2.5% with various reasons like baby low birth weight, baby asphyxia, mother pre-eclampsia, baby needed to be further treatment, retention placenta, etc. There were no mother who died during attended delivery baby at the CHC in Dili during 2018. Conclusion and Suggestion: There were mothers with less than 20 years old and more than 35 years old which deliver the baby in Dili. Almost all mothers who attended baby delivery in Dili were successfully going home and only few which referred to the hospital with various reasons. No mother who died during attended delivery baby at CHC in Dili for 2018. It is better for each pregnant women to deliver baby at the health facility.

Keywords--delivery, baby outcome, Dili.

Background

Maternal death is one of the biggest problems for almost every country around the world with different Maternal Mortality Ratio (MMR). Maternal death is burden for individual women, for families, and for communities because maternal death has implications for the whole family and an impact that rebound across generations. According to WHO, approximately 810 women died per day in 2017 from preventable causes related to pregnancy and child birth (WHO, 2019). Over the last twenty years, there has been good progress worldwide to decrease maternal mortality (Sai *et al*, 2014). In Timor-Leste the maternal mortality rate decreased from 557 per 100,000 livebirths in 2010 to 218 per 100,000 livebirths in 2015. However, this is still very high. This MMR is still one of the highest in the world (DHS TL 2010 and DHS TL 2015). According UNFPA and MOH Timor-Leste, 2017, there is an expectation that Basic Emergency Obstetric Care (BEmOC) should be established at every Health Center across the country and Comprehensive

Emergency Obstetric Care (CEmOC) should be established at every referral hospital and health center with beds. Standard capabilities for delivering BEmOC according to WHO include administration of parenteral antibiotics or anticonvulsants, administration of intravenous fluid, using a vacuum extractor or forceps to assist vaginal birth, manual removal of the placenta or product of conceptions following a miscarriage or abortion. Centers providing CEmOC should be capable of performing cesarean section surgery to deliver a baby and giving a blood transfusion if needed. Based on the Timor-Leste situation, there is no availability of BEmOC in some health facilities across the country. Therefore when obstetric emergencies occur, the staff wouldn't anticipate all complications quickly at the health center level and it could be considered as causes behind the maternal death.

Limitation of health staff capacity to do an advance service like caesarian section also considered as factor which could contribute maternal deaths in Timor-Leste. The mother sometimes has achieved at the health facilities with complication delivered baby but there is no availability of health staff with adequate capacity and unavailability of BEmOC facilities make the mothers die before they are able to be referred. Data from DHS only described MMR across the country but could not clearly specify the places where the mother delivered was. Therefore, this study will describe maternal outcomes for mother who delivered in the CHC level in Dili. Dili has been the capital of Timor-Leste since the Portuguese colonial period. During the period of Indonesia rule (1976 – 1999), Dili was divided into three sub districts which consists of: Dili Barat, Dili Timur and Atauro. After Timor-Leste restored their independence in 2002, Dili divided into six sub districts which consists of Dom Aleixo, Veracruz, Nain Feto, Cristo Rei, Metinaro and Atauro.

During independence period it is divided into five sub districts which consist of: Veracruz, Nain Feto, Cristo Rei, Dom Aleixo, Atauro and Metinaro. As a capital, it is a center of financial circulation in Timor-Leste, therefore, most of Timorese people from other Municipalities come to Dili for sustain their daily life. The Community Health Center (CHC) is the primary health care which provide health care to the community at the Sub District level. There are six CHC for Dili Municipality to provide health care for people from four Sub districts and only two CHC's which located out site of Dili. This study therefore aims to investigate the outcomes of the mothers who deliver the baby at four CHC's in Dili to observe the mothers who i) successfully delivered the baby and discharge home, ii) referred to the hospital, and (3) died in an year 2018.

Aim and Objectives

The aim of this research project is to identify outcome of mother who attend for delivery the baby at the four CHC in Dili during 2018. The objectives of this study are:

- To describe the characteristics of mothers who attended for delivery at CHC in Dili.
- To determine the outcomes for mothers who attend for delivery at the CHCs in Dili.

- Proportion of mothers who successfully delivered baby and discharged home.
- Proportion of mothers who were referred to the National Hospital.
- Proportion of mothers who died.
- To identify and describe the reasons behind the maternal deaths and their referrals.

Methods

A retrospective *observational case series* was designed to retrospectively collect data and analyze to describe characteristics and determine the outcomes of the mother who attended for delivery baby at four CHC in Dili during January to December 2018. The data were collected from registration logbooks of four CHC in Dili that kept records of mothers who were admitted to the CHC for deliver the baby. Information collected included: initials, CHC, Age of the mother, parity and number of children and the outcome variables which mentioned above. Data collected into a database in Microsoft excel and analyzed.

Ethics approval

the study was approved by ethics committee INS and approval letter has been issued with no: Ref.: 334 MS-INS/GDE/III/2020, March 4, 2020. This research conducted due to the collaboration among the Ministry of Health, Menzies School for Health Research, and UNTL.

Results of the research

Mothers' Characteristic who attend for delivery the baby at CHC in Dili

Table 1
Distribution of the mother characteristics

Characteristics	Frequency	%
Community Health Centre where mothers received services from		
• Comoro	567	36.9
• Veracruz	78	5.1
• Formosa	187	12.2
• Becora	703	45.8
Age risk for pregnancy		
• <20 and >35	195	12.7
• 20 – 35	1340	87.3
Total number of delivery including current delivery		
• Less than five	1332	86.8
• Five above	203	13.2
Number of pregnancy including current pregnancy		
• Less than five	1321	86.0

• Five above	214	14.0
Total number of living Children		
• Less than five	1348	87.8
• Five above	187	12.2
Ever Experienced an Abortion		
• Yes	130	8.5
• No	1405	91.5

The outcomes for mothers who attend for delivery

Table 2

The outcomes for mothers who attend for delivery at the CHCs in Dili

Outcome	Frequency	%
• Successful Delivery	1497	97.5
• Referred to Hospital	38	2.5
• Death	0	0.0

There were 1535 women who were documented to have attended for deliveries in four Community Health Centers (CHC) in Dili, for period January – December 2018. The data were collected based on the availability of maternal register which registering all mothers who attended deliver baby in the four CHC's Dili. The number of samples by CHC were Becora 703 (45.8%), Comoro 567 (36.9%), Formosa 187 (12.2%) and Veracruz 78 (5.1%) (Table 2). Becora CHC was registered highest number among the four because they have more complete maternal register and also they have biggest coverage of health service area compared to the three other CHC.

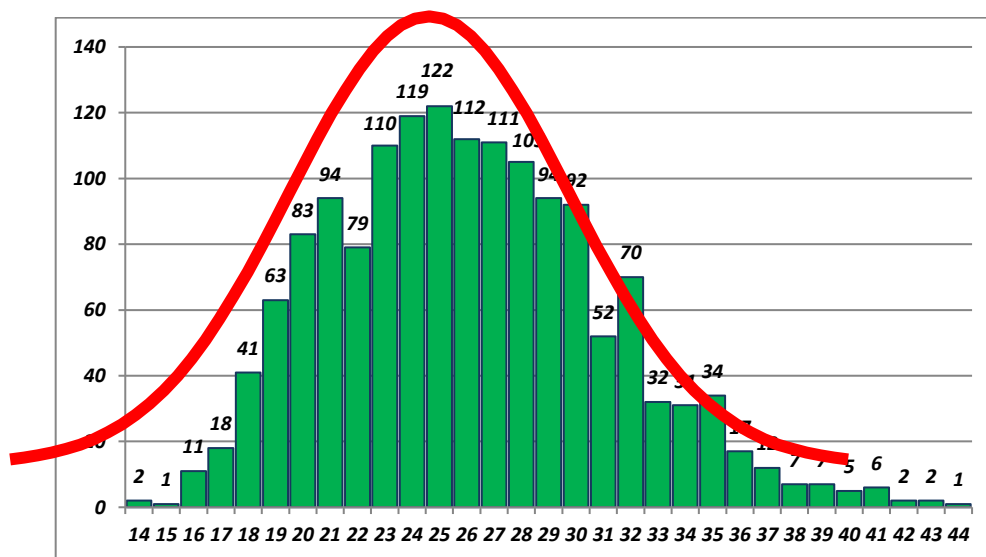


Figure 1. Number of mother delivered baby at CHC by age, 2018

The results of this research showed that the age of mother ranged between 14 and 44 years old with average was 26.07 years old, maximum 44 years old and the

minimum was 14 years old (standard deviation was 5.04). The figure 1 showed distribution of the mother by age. The majority (87.3%) of the mothers were between 20 – 35 years of age, which is the age range where risks are lower. There were various parities among the mother which ranged from one to 11. The mean of mothers' parity was 2.62 with standard deviation 1.64 times. In the other hand, number of children by mothers was various between one to nine persons per mother with average 2.55 (standard deviation 1.57). Proportion of mothers with number of delivery less than five is 86.8%. In addition, proportion of mothers who pregnant less than five were 86.0% and proportion of mother with living children less than five is 87.8%. There were registered 147 abortions which experienced by the mothers who selected in this research. The numbers of abortions experienced by the mothers were between one to three times. Total mother who had experienced abortions were 130 (8.5%) mothers.

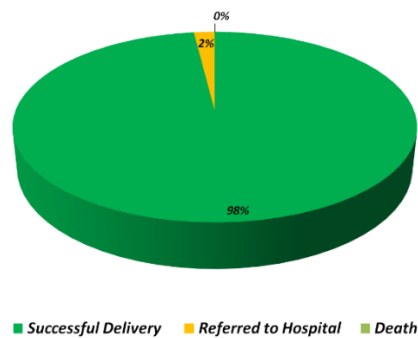


Figure 2. Proportion of outcomes for mothers who attend for delivery at the CHCs in Dili

Mothers who successfully deliver the baby and discharge home in Dili during 2018 was 1497 (97.52%). Only few of them referred to the hospital 38 (2.8%) with various reasons. There was no maternal death during delivered babies at all four CHC during 2018. There were various reasons behind the referrals which consists of baby low birth weight, baby asphyxia (10.5%), mother pre-eclampsia (5.3%), baby needed further treatment, retained placenta (2.6%), and other reasons. Generally, the reasons behind referred mothers to the hospital divided into two groups which consists of reasons related to the mothers and reasons related to the babies (Figure 3).

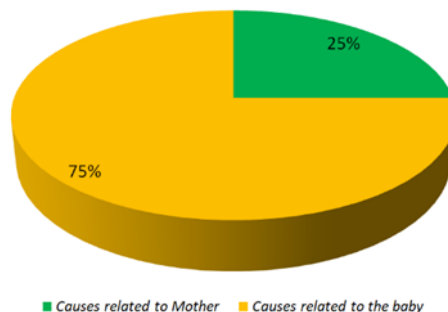


Figure 3. Proportion of the reasons behind referred mothers to the hospital from the CHCs in Dili

There are 75% causes for referred related to the babies and only 25% causes related to the mothers.

Discussion

The majority of women who delivered were aged between 20 and 35 years old. Only very few were very young or very old, and that is not a problem. According to some literatures which spread out around the world, the best age to get pregnant for a woman is 20 years old because at this time, the woman has a highest number of good quality eggs and pregnancy risk are lowest. The risk for miscarriage or spontaneous abortion and genetic abnormalities also begins to rise after age 35. Woman might face more complications in their pregnancy or during delivery having a baby later in life. Over time, the quantity and quality of woman eggs decline. Older eggs can have more chromosome problems, which increases the odds of having a baby with a birth defect. Most women in their 40 years old can still have a healthy pregnancy and baby, but the risks increase significantly during this time. These risks include: C-section delivery, premature birth, low birth weight, birth defects and stillbirth. Generally, Medical conditions, like diabetes and high blood pressure, are more common in women after age 35 years old. These can lead to pregnancy complications like gestational diabetes and preeclampsia. After age 40 years old, the midwife or doctor may do extra testing and monitoring to look for possible complications.

Dili as a capital which accessed a lot of information and services from various sources, still faced mother who deliver baby with age for risk (less than 20 and more than 35:12.7%) at the same time rural area with contrary situation in Dili such less information, limited health services access, can be predicted with worst number of mother with risk age to deliver baby. Although parity and number of children by mother is still low but based on the World Population Review 2022, Timor-Leste (4) still have high TFR (Total Fertility Ratio), comparing to the neighbor countries such Australia (1.7), Indonesia (2.3), Papua New Guinea (3.6), Vietnam (2), Philippines (2.6). The data also showed that the number of children and parities are low due to 100% of women in this research are in the reproductive age because they are able to have babies.

Most of the mother who attended deliver baby at the CHC in Dili were successfully deliver and discharge home. There were only 2% of them which referred to the National Hospital for further services. The potential reasons of 98% mothers who successfully delivered their babies at CHC in Dili during 2018 were: (1) all CHC in Dili have a sufficient number of midwives who are ready for 24 hours to attend the mother in terms of delivery baby and other treatment necessary for pregnant women; (2) almost all midwives who attended the mothers at all four CHCs in Dili for deliver baby have been trained the Basic Emergency Obstetric Care (BEmOC), (3) geographically, the four CHC's in Dili have more opportunity to refer their patients to the National Hospital more quickly compared to the other CHC who located out site of Dili. As mentioned in other research that health facility delivery is associated with living in urban area (Berhan and Berhan, 2014), (4) Dili Municipality Health Services also noted as high coverage of Ante Natal Care (ANC) during 2017 (ANC1: 91%). The important things which perhaps has to be considered that low antenatal care utilization might have

contributed to the high maternal mortality because having antenatal care at the health facility level would be considered as early detection related complications during pregnancy and labour baby (Berhan and Berhan, 2014). In the other hand, chance to easily access to any methods of contraception in Dili considered as positive components behind the maternal death. Almost all health facilities and some private clinic are providing contraceptive methods services for women. Providing and encouraging women to use any contraceptive is considered as one of biosocial factors to prevent maternal death in developing countries (Olusanya O, Amiegheme N, 1988).

The reasons behind refer the mothers to the hospital is mainly because of the baby situation (75%), only few reasons (25%) which related to the mothers. The staffs or midwife has to refer the pregnant women to the advance level of treatment because they sometimes have inability to manage childbirth of woman with high risk conditions and complications (Singh et al, 2019). On the other hands, unavailability of appropriate facilities also contributed to the high number of referral patients from low level health care facilities to advance level. There were no mothers which die during deliver baby at the CHC in 2018. Therefore, conclusion of this study can be mothers who deliver baby at the CHC is mostly successful and discharge home and only few of them where referred to the National Hospital.

The limitations of the research

Some limitations of this research are: (1) incomplete of all data at each of the CHC, therefore some important information was not be able to found in this research, (2) We only accessed the mothers' and babies' data from the CHC, and not from the National Hospital, therefore we do not know the outcomes of the women and babies who were referred for higher level of care. (3) Mother Deliver Logbook only registered deliver time therefore, we could not conclude time duration start from mother admitted to the health center and discharged from there.

Conclusion

Most of mothers successfully delivered their babies and went home (97.5%) and only few of them (2.5%) were referred to the hospital. There was no mother which died at the CHC during delivery. The majority of women who delivered were aged between 20 and 25 years of age.

Recommendations

Researchers team recommend to the relevant sectors: (1) the Ministry of Health staffs particularly midwife, for maintaining 'zero' maternal death at the CHC level in Dili (2) other researchers to conduct further research for identifying reasons behind zero maternal death in Dili, (3) the Ministry of Health for enhancing reproductive health promotion for adolescents to avoid early pregnancy; (4) the Ministry of Health staffs particularly midwife, for enhancing reproductive health education for husbands and wife to avoid pregnant after wife gotten 35 years old; (5) other researchers to conduct further research to identify factors behind early

and late pregnancy in Timor-Leste particularly in Dili; (6) the Ministry of Health staffs particularly midwife for necessary establish interconnection between referral system, therefore maternal death after referred to the high level treatment will be able to identify.

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