



ANALYSIS OF FAMILY PLANNING SERVICES FOR COUPLES OF REPRODUCTIVE AGES TOO YOUNG, TOO OLD, TOO CLOSE, AND TOO MANY (4T) WITH THE MATERNAL MORTALITY

Tahlillarani Widhianingrum^{a*}; Devi Arine Kusumawardani^b; Sofiyanti Miftakhurohmah^c

^{a,b} Faculty of Public Health, Jember University ; Kalimantan Street No 37 ; Jember 68121; Indonesia

^c Health Office of Jember Regency ; Srikoyo 1 Street No 3 ; Jember 68111 ; Indonesia

Abstract

Mothers who are too young, too old, have too many children or have birth spacing that is too close (mothers with 4T) are at a higher risk of experiencing maternal mortality. At the same time, the use of contraceptives in this group to prevent pregnancy was still low. This study aims to analyze family planning services for couples of reproductive age with 4T and cases of maternal death. This research method is quantitative and descriptive, using 58 data on reports of maternal deaths in Jember Regency for 2022. The study indicates that there are 20 (34.48%) maternal death cases that have at least one of the 4T criteria, with details of 10.34% of deaths in too young criteria, 15.51% of death in too old criteria, 8.60% of deaths in too many criteria; and 8.60% death in too close criteria. There were 20.69% of cases of death in unwanted pregnancies. The average achievement of family planning services for mothers with 4T is only 9.51%. This research can be used as material for evaluating family planning services for women with 4T so that it can reduce maternal mortality in Jember Regency.

Keywords: *Family planning; Maternal Mortality; Mother's with 4T*

1. Introduction

Family planning is essential to prevent pregnancy and decrease maternal mortality, but contraceptive use remains low in high-risk mothers (Chola, McGee, Tugendhaft, Buchmann, & Hofman, 2015). Maternal mortality is still a priority health problem in many countries. Maternal death is the death of a woman caused by pregnancy (including ectopic pregnancy), childbirth, abortion (including molar abortion), or the 42 days after the end of pregnancy, no

matter how far along she was. It does not include deaths caused by accidents or random events (Kementerian Kesehatan, 2020). In Indonesia, cases of maternal mortality are still high. In 2020 there were 4,627 deaths, which will increase to 7,389 in 2021 (Kementerian Kesehatan, 2022).

Jember is one of the regencies that has the highest maternal mortality cases. In 2020 there were 61 cases, while in 2021, maternal deaths increased to 115. Most maternal deaths occurred at the age of 20-34 years, with 69 deaths, 5 cases of maternal deaths at a young age <20 years, and 40 cases of maternal deaths at an old age > 35 years. The maternal mortality rate has increased

*) Corresponding Author (Tahlillarani Widhianingrum)
E-mail: tahlillarani@gmail.com

from 174 per 100,000 live births in 2020 to 334 per 100,000 live births in 2021. More than one-third (39.1%) of maternal death in 2021 were happened in mother with 4T (Dinas Kesehatan Kabupaten Jember, 2022).

There are special conditions for couples of reproductive age that can increase the risk of death during pregnancy and childbirth, namely mothers who are too young, too old, too close, and too many. This condition is known as mother 4T. First, too young mothers are mothers who experience pregnancy when they are less than 20 years old. Second, mothers who experience pregnancy when they are over 35 years old. Third, mothers who have pregnancies are too close together, with less than two years between births, or too frequently. Fourth, mothers with three or more offspring (BKKBN, 2017).

Mothers under 20 have 1.16 times the risk of dying from pre-eclampsia/eclampsia compared to those over 20. Mothers over 35 have a 1.12 times greater risk of dying than those under 35 due to preeclampsia/eclampsia. Those aged 20-35 years have a risk of dying of 0.87 times compared to the age group less than 20 years and over 35 years, so the ideal age for pregnancy is 20-35 years can have a preventive effect on dying from preeclampsia/eclampsia (Raharja & Martini, 2018).

Pregnancy at 15-19 years is more at risk of experiencing preeclampsia than pregnancy at adult age (Brosens et al., 2019). Meanwhile, in women who are too old, the primary muscles of the dial are no longer elastic, so complications can easily occur during pregnancy and childbirth, such as eclampsia, hypertension, diabetes mellitus, and anemia (Susanti, 2021). Parity is also related to the incidence of delivery complications (Komariah & Nugroho, 2020). Birth spacing of fewer than four years experienced more infant mortality than that of more than four years (Kurniawan & Melaniani, 2019).

Mothers with 4T are better off postponing pregnancy to lessen the risk of maternal mortality (Respati, Sulistyowati, & Nababan, 2019). The use of contraception is the primary key to reducing the risk of maternal mortality by preventing risky pregnancies in mothers with 4T. Using contraception through family planning programs is estimated to reduce maternal mortality in various countries from 6% to 60% (Utomo et al., 2021). There is no analysis between family planning services for reproductive age and maternal mortality in Jember Regency to reduce maternal mortality. Using contraception helps

reduce the risk of maternal death due to pregnancy and childbirth (WHO, 2019).

Therefore, to delay pregnancy in women with 4T, it is necessary to analyze family planning programs for reproductive age to build interventions and promotions related to family planning regarding the use of contraception for mothers with 4T.

2. Method

This type of research is quantitative with a descriptive design. This study uses secondary data on death reports available at the Jember regency health office, totaling 58 death reports during 2022. This study comprised all 58 maternal death reports. Other supporting data is on the achievement of family planning service programs for couples of reproductive age with criteria 4T. The public health service of the Jember health office had data. All of the information was analyzed using univariate methods. This investigation took place during January and February of 2023.

3. Result and Discussion

Family Planning Services for Couples in Reproductive Age With 4T

The target of the family planning service program for couples of reproductive age with 4T is married couples who are legally married, whose wives are between 15-49 years old, and who meet at least one of the criteria 4 (four) too within 1 (one) month. The source of projected data for couples of reproductive age with 4T comes from monthly reports of reproductive age. The target number of family planning services for couples of reproductive age with 4T per month in Jember Regency is 83,566. The highest achievement for family planning services for couples of reproductive age with 4T was in January, with 11.02%, while the lowest achievement for family planning services for couples of reproductive age with 4T was in February, with 8.43%. The data for couples of reproductive age with 4T used in determining service coverage is data from SUPAS. There is no evidence to define the aim of reproductive-age couples with 4T in Jember Regency.

The service target for couples of reproductive age with 4T following the National Medium Term Plan (RPJMN) is 80% of the target. Based on the service achievements of couples of reproductive age with 4T in 2022, each month is still far below the program's objective and tends

to fluctuate. The average service for couples of reproductive age with 4T during 2022 is only 9.51%.

Maternal Mortality in Jember Regency

In 2022 there were 58 cases of maternal death in Jember regency, with details of 20 patients (34.48%) of deaths in mothers who had at least one 4T criterion. Then, data on cases of maternal mortality were analyzed using each of the 4T criteria.

Table 1. Maternal Mortality in Mothers Too Young

Mother's Too Young	n	%
Yes	6	10.34
No	52	89.66
Total	58	100

Analysis of maternal deaths with the 'Too Young' criteria shows that mothers under 20 accounted for 10.34% of all deaths. Preeclampsia was the cause of two of the deaths in too-young mothers, while heart and kidney disorders, dyspnea, and hyperglycemia caused the others. Pregnancy at 15-19 years is more at risk of experiencing preeclampsia than pregnancy at an adult age. Preeclampsia is related to the uterus condition that is immature and irregular menstrual cycles which can cause preeclampsia (Brosens et al., 2019).

Table 2. Maternal Mortality in Mother's Too Old

Mother's Too Old	n	%
Yes	9	15.51
No	49	84.48
Total	58	100

Research on 300 pregnant women aged 13-35 showed that at the beginning of pregnancy, 13-19 years and 20-35 years had no health problems. Still, the group of married women at a young age was more at risk of experiencing premature birth due to amniotic fluid breaking early (Marković, Bogdanović, & Cerovac, 2020). Research in Brazil showed that the prevalence of anemia in pregnant women aged 10-19 years was 41.27%, with the category of 65.60% anemia, 33.86% moderate anaemia, and 0.52% severe anemia

(Pinho-Pompeu, Surita, Pastore, Paulino, & Pinto e Silva, 2017). Therefore, at fewer than 20 years old, it is necessary to use contraception to delay pregnancy until a safe age.

Analysis of maternal deaths with the 'Too Old' criteria shows that mothers over 35 accounted for 15.51% of all deaths. Preeclampsia was the cause of three of the deaths in too-old mothers; four were caused by hemorrhagic postpartum, one was attributable to tuberculosis, and septic shock caused one. At too old age, the pelvic floor muscles are no longer elastic, so complications can easily occur during pregnancy and childbirth, such as eclampsia, hypertension, diabetes mellitus, and anemia (Susanti, 2021). A mother's age is too old puts the mother at risk of experiencing complications and maternal death. It is in line with research, which shows that pregnant women over 35 are at risk of experiencing maternal death 2.54 times (Respati et al., 2019).

Table 3. Maternal Mortality in Mothers Too Many

Mother's Too Many	n	%
Yes	5	8.60
No	53	91.40
Total	58	100

Analysis of maternal deaths using the "too many" criteria shows that 8.60% of all mothers who died had given birth to 3 or more children. Preeclampsia caused the deaths of two mothers who matched too many criteria, two deaths were caused by hemorrhagic postpartum, and cancer mammae caused one death. If the mother has more than three children, the risk of maternal death is 22% (Respati et al., 2019). The research shows a relationship between parity and the incidence of pregnancy complications in third-trimester pregnant women. The more parity a mother has, the higher the risk of pregnancy complications in pregnant women. Parity is also related to the incidence of delivery complications (Komariah & Nugroho, 2020). In other studies, parity greatly influences a person's acceptance of knowledge; the more experience a mother has, the easier acceptance of knowledge will be. There is a relationship between sources of information and high-risk pregnancies that knowledge of pregnant women can have the possibility of high-risk pregnancies (Yusuf, 2019).

Table 4. Maternal Mortality in Mothers Too Close

Mother's Too Close	n	%
Yes	5	8.60
No	53	91.40
Total	58	100

Analysis of maternal deaths with the criteria of 'too close' shows that there are 8.60% of cases of death in mothers who have too close pregnancies. The causes of death in mothers with too close criteria were infection, cardiogenic shock, pneumonia, preeclampsia, and cancer mammae. Spacing of births under 4 years experienced more infant mortality than the birth spacing of more than 4 years parity; Relationships between delivery attendants and birth spacing and infant mortality rate (Kurniawan & Melaniani, 2019).

Since 2005, WHO has been trying to make recommendations for ideal birth spacing. This distance is at a vulnerability of two years between births, and this aims to prepare if you want to start a pregnancy while reducing the risks that might occur if you have another pregnancy. Mothers can have enough time to heal from their pregnancies and deliveries and be able to optimize nursing for the following kid by spacing out births by one or two years after giving birth. The distance between births can be regulated using contraception (Habimana-Kabano, Broekhuis, & Hooimeijer, 2016).

Analysis of the relationship between maternal mortality and wanting to get pregnant shows that 20.69 percent of maternal deaths happen to women who do not wish to be pregnant. Three deaths in unwanted pregnancies were caused by preeclampsia, two deaths were caused by hemorrhagic postpartum, an infection caused one death, and infections, kidney disorders, systemic lupus erythematosus, adhesive small bowel obstruction, and diarrhea caused the rest. One of the causes of unwanted pregnancies is the failure of contraceptives. It can also be due to an unmet need for contraception due to low coverage of family planning services. In developing countries with a middle to lower economic class, discontinuing contraceptive use is relatively common. It is influenced by various factors such as the type of contraceptive method,

user characteristics, and quality of contraceptive services (Dana et al., 2021).

Table 5. Maternal Mortality and Pregnancy Status

Pregnancy Status	n	%
Unwanted	12	20.69
Wanted	32	55.17
Unidentified	14	24.14
Total	58	100

Factors related to unwanted pregnancies include parity, where pregnant women who experience unwanted pregnancies are higher in women with a history of ideal parity or a history of parity of more than two children. The higher the history of parity, the higher the likelihood of experiencing an unwanted pregnancy. In addition, women who have given birth three times or more have a higher risk of having an unwanted pregnancy than women who have just had one birth (Nisa, Mawarni, & Winarni, 2021).

Unwanted pregnancies can be prevented by maximizing contraception, especially for women with 4T. The prevalence of contraceptive use significantly reduces maternal mortality and is a protective factor against maternal death. Improving the health system that is responsive to the needs of pregnant women and reducing disparities in maternal health services is urgently needed to reduce maternal mortality (Aryanty et al., 2021).

There were 24.14% of maternal deaths that were unidentified, whether the pregnancy was wanted or not, because the maternal death report was incomplete. The unfinished report was due to the responsible midwifery in their region, who did not search for this information. Incomplete maternal death reports were common and caused difficulty in identifying cases of maternal deaths. Globally, the sensitivity and specificity of maternal death were different within countries (Peterson et al., 2022).

A study in Hong Kong found that the database failed to capture 90.5% of maternal deaths from public health hospitals (Cheung et al., 2023). Another study in Banten found that the odds of a maternal death during delivery being missed was 70% less than a maternal death during pregnancy being missed. It might lead to incorrect assumptions about the characteristics of maternal deaths, including the status of

pregnancy and other vital factors (Qomariyah et al., 2020). Maternal deaths report would be helpful for surveillance to create effective prevention, but the current measurement of reporting maternal death is still inconsistent, incomplete, and inaccurate (Studnicki, Reardon, Harrison, Fisher, & Skop, 2019).

4. Conclusion and Suggestion

It can be concluded that more than one-third of cases of maternal death in Jember Regency in 2022 happened in women with 4T criteria. Family planning services for couples of reproductive age with 4T are still low and have not reached the set targets. Mothers with 4T have a higher risk of experiencing maternal death. Therefore, family planning services for couples of reproductive age with 4T are needed to delay pregnancy, regulate birth intervals, and limit the number of children.

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6. References

- Aryanty, R. I., Romadlona, N. A., Besral, B., Panggabean, E. D. P., Utomo, B., Makalew, R., & Magnani, R. J. (2021). Contraceptive use and maternal mortality in Indonesia: a community-level ecological analysis. *Reproductive Health, 18*(1), 1–9. <https://doi.org/10.1186/s12978-020-01022-6>
- BKKBN. (2017). *Regulation of the Head of the National Population and Family Planning Agency Number 24 of 2017 concerning Postpartum and Post-Miscarriage Family Planning Services*. Indonesia. Retrieved from https://jdih.bkkbn.go.id/public_%0Aasset s/file/b46495c55893d8086a6fa2b5c2929af9.%0Apdf
- Brosens, I., Muter, J., Ewington, L., Puttemans, P., Petraglia, F., Brosens, J. J., & Benagiano, G. (2019). Adolescent Preeclampsia: Pathological Drivers and Clinical Prevention. *Reproductive Sciences, 26*(2), 159–171. <https://doi.org/10.1177/1933719118804412>
- Cheung, K. W., Seto, M. T. Y., Wang, W., So, P. L., Hui, A. S. Y., Yu, F. N. Y., ... Ng, E. H. Y. (2023). Characteristics of Maternal Mortality Missed by Vital Statistics in Hong Kong, 2000-2019. *JAMA Network Open, 6*(2), E230429. <https://doi.org/10.1001/jamanetworkopen.2023.0429>
- Chola, L., McGee, S., Tugendhaft, A., Buchmann, E., & Hofman, K. (2015). Scaling Up Family Planning to Reduce Maternal and Child Mortality: The Potential Costs and Benefits of Modern Contraceptive Use in South Africa. *PloS One, 10*(6), e0130077. <https://doi.org/10.1371/journal.pone.0130077>
- Dana, O. S., Wood, S. N., Linnea, A. Z., Karp, C., Makumbi, F., Kibira, S. P. S., & Moreau, C. (2021). *The role of partner influence in contraceptive adoption, discontinuation, and switching in a nationally representative cohort of Ugandan women*. 1–15. <https://doi.org/10.1371/journal.pone.0238662>
- Dinas Kesehatan Kabupaten Jember. (2022). *Profil Kesehatan Jember Tahun 2021*. In *Dinkes Jember*. Jember.
- Habimana-Kabano, I., Broekhuis, A., & Hooimeijer, P. (2016). THE EFFECT OF PREGNANCY SPACING ON FETAL SURVIVAL AND NEONATAL MORTALITY IN RWANDA: A HECKMAN SELECTION ANALYSIS. *Journal of Biosocial Science, 48*(3), 358–373. <https://doi.org/10.1017/S0021932015000231>
- Kementerian Kesehatan. (2020). *Indikator Program Kesehatan Masyarakat Dalam RPJMN dan Renstra Kementerian Kesehatan Tahun 2020-2024*. Indonesia. <https://doi.org/978-623=301-002-3>
- Kementerian Kesehatan. (2022). *Profil Kesehatan Indonesia 2021*. In *Pusdatin.Kemendes.Go.Id*. Jakarta.
- Komariah, S., & Nugroho, H. (2020). Hubungan Pengetahuan, Usia Dan Paritas Dengan Kejadian Komplikasi Kehamilan Pada Ibu Hamil Trimester Iii Di Rumah Sakit Ibu Dan Anak Aisyiyah Samarinda. *KESMAS UWIGAMA: Jurnal Kesehatan Masyarakat, 5*(2), 83–93. <https://doi.org/10.24903/kujkm.v5i2.835>
- Kurniawan, R., & Melaniani, S. (2019). Hubungan Paritas, Penolong Persalinan dan Jarak Kehamilan dengan Angka Kematian Bayi di Jawa Timur. *Jurnal Biometrika Dan Kependudukan, 7*(2), 113. <https://doi.org/10.20473/jbk.v7i2.2018.113>

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- Marković, S., Bogdanović, G., & Cerovac, A. (2020). Premature and preterm premature rupture of membranes in adolescent compared to adult pregnancy. *Medicinski Glasnik*, 17(1), 136–140. <https://doi.org/10.17392/1052-20>
- Nisa, R., Mawarni, A., & Winarni, S. (2021). Hubungan Beberapa Faktor dengan Kehamilan Tidak Diinginkan di Indonesia Tahun 2017 (Analisis Data Sekunder SDKI Tahun 2017). *Jurnal Riset Kesehatan Masyarakat*, 1(2), 1–10.
- Peterson, E., Chou, D., Moller, A. B., Gemmill, A., Say, L., & Alkema, L. (2022). Estimating misclassification errors in the reporting of maternal mortality in national civil registration vital statistics systems: A Bayesian hierarchical bivariate random walk model to estimate sensitivity and specificity for multiple countries and years with missing data. *Statistics in Medicine*, 41(14), 2483–2496. <https://doi.org/10.1002/sim.9335>
- Pinho-Pompeu, M., Surita, F. G., Pastore, D. A., Paulino, D. S. M., & Pinto e Silva, J. L. (2017). Anemia in pregnant adolescents: impact of treatment on perinatal outcomes. *Journal of Maternal-Fetal and Neonatal Medicine*, 30(10), 1158–1162. <https://doi.org/10.1080/14767058.2016.1205032>
- Qomariyah, S. N., Sethi, R., Izati, Y. N., Rianty, T., Latief, K., Zazri, A., ... Achadi, E. L. (2020). No one data source captures all: A nested case-control study of the completeness of maternal death reporting in Banten Province, Indonesia. *PLoS ONE*, 15(5), 1–13. <https://doi.org/10.1371/journal.pone.0232>

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- Raharja, S. M., & Martini, S. (2018). Pengembangan Basis Data Program Keluarga Berencana Tingkat Puskesmas. *Jurnal IKESMA*, 11(1), 3–12.
- Respati, S. H., Sulistyowati, S., & Nababan, R. (2019). Analisis Faktor Determinan Kematian Ibu di Kabupaten Sukoharjo, Jawa Tengah, Indonesia. *Jurnal Kesehatan Reproduksi*, 6(2), 52–59. <https://doi.org/10.22146/jkr.43463>
- Studnicki, J., Reardon, D., Harrison, D., Fisher, J., & Skop, I. (2019). Improving the Metrics and Data Reporting for Maternal Mortality: A Challenge to Public Health Surveillance and Effective Prevention. *Online Journal of Public Health Informatics*, 11(2). <https://doi.org/10.5210/ojphi.v11i2.10012>
- Susanti, S. (2021). Gambaran Komplikasi Persalinan Pada Ibu Hamil. *Journal of Midwifery and Public Health*, 2(2), 91–96.
- Utomo, B., Sucahya, P. K., Romadlona, N. A., Robertson, A. S., Aryanty, R. I., & Magnani, R. J. (2021). The impact of family planning on maternal mortality in Indonesia: what future contribution can be expected? *Population Health Metrics*, 19(1), 1–13. <https://doi.org/10.1186/s12963-020-00245-w>
- WHO. (2019). Contraception. In WHO. Switzerland. <https://doi.org/10.1136/bmj.2.3892.265>
- Yusuf, S. F. (2019). Pengaruh Paritas dan Sumber Informasi Terhadap Kehamilanresiko Tinggi pada Ibu Hamil di Kecamatan Panyabungan. *Jurnal Kesehatan Ilmiah Indonesia*, 4(2), 130.