

## DETERMINANTS OF DELAYS IN SEEKING CARE IN MATERNAL REFERRALS IN INDONESIA (ECOLOGICAL STUDIES)

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### ABSTRAK: DETERMINAN KETERLAMBATAN Mencari Perawatan dalam Rujukan Maternal di Indonesia: Studi Ekologi

Latar belakang: Keterlambatan rujukan dapat terjadi pada semua ibu hamil. Keterlambatan tahap pertama yaitu terlambat mencari perawatan. Penyebabnya yaitu kondisi social ekonomi, budaya, akses ke fasilitas kesehatan dan kualitas perawatan.

Tujuan: Mengidentifikasi determinan sosial dari individu dan lingkungan yang mempengaruhi keterlambatan mencari perawatan di Indonesia.

Metode: Desain yaitu studi ekologi menggunakan Laporan Riset Kesehatan Dasar 2018 dan Laporan Statistic Potensi Desa 2018 dengan unit analisis 34 Provinsi di Indonesia. Analisis bivariat menggunakan *Scatter plot* dan uji korelasi *Pearson*.

Hasil: Variasi keterlambatan rujukan antar Provinsi sangat lebar dengan rentang 33,50% - 73,6%. Hasil uji bivariat membuktikan semakin tinggi prevalensi ibu hamil dengan eklampsia, biaya BPJS, budaya persalinan dukun bayi dan tinggal di wilayah puncak atau lereng gunung maka semakin tinggi prevalensi keterlambatan rujukan. Sebaliknya semakin tinggi prevalensi kunjungan K4 ANC dan kemudahan akses ke Fasilitas kesehatan maka semakin rendah prevalensi keterlambatan rujukan.

Kesimpulan: Jenis komplikasi, kunjungan ANC, peserta BPJS, budaya persalinan dukun, akses ke fasilitas kesehatan dan topografi wilayah mempengaruhi keterlambatan rujukan

Saran: Fasilitas kesehatan lebih intensif melakukan deteksi dini pre-eklampsia, edukasi tanda bahaya pada keluarga, dan persiapan persalinan dalam pelayanan ANC agar komplikasi cepat ditemukan dan keluarga cepat mencari perawatan serta mencapai fasilitas kesehatan.

Kata Kunci: Maternal, Mencari perawata, Keterlambatan rujukan,

### ABSTRACT

Background: Delays in referral can occur in all pregnant women. The first stage of delay is late seeking care. The causes are socio-economic conditions, culture, access to health facilities and quality of care.

Objective: To identify social determinants specifically individual and environmental factors that influence delays in seeking care in Indonesia.

Method: Design is an ecological study using Basic Health Research 2018 Report and Village Potential Statistics 2018 Report with analysis units from 34 Provinces in Indonesia. Bivariate analysis used Scatter plot and Pearson correlation test.

Result: Variations in referral delays between provinces are very wide with a range of 33.50% - 73.6%. The bivariate test results that the higher the prevalence of pregnant women experiencing eclampsia, National health insurance participants, the culture of birth to TBAs and living in mountain peaks or slopes, the higher the prevalence of delay in referrals. On the other hand, the higher the prevalence of ANC visits (K4) and the ease of access to health facilities, the lower the prevalence of delay in referrals.

Conclusion: Types of complications, ANC visits, BPJS participants, culture TBAs, access to health facilities and regional topography influence referral delays

Suggestion: Health facilities are more intensive in carrying out early detection of pre-eclampsia, educating families about danger signs, and preparing for childbirth in ANC services so that complications are discovered quickly and families quickly seek care and reach health facilities

Keywords: Delay in referral, maternal, seeking care

## INTRODUCTION

Obstetric complications that lead to emergency conditions such as pre-eclampsia, eclampsia and bleeding are the biggest contributors to maternal death (Kemenkes RI, 2022). Handling these complications requires speed and accuracy of treatment (WHO, 2009). Speed of time is viewed from the speed at which the patient/family seeks treatment at the nearest health facility, after arriving at the health facility immediately receiving treatment and if unable to cope, immediately making a decision to refer to a more comprehensive health facility. If this does not go well then there will be a delay in referrals. Referral delays consist of three delays (Three Delays), namely delay decision making to seek care (type I), delay reaching a health facility (type II), and delay receiving appropriate care (type III) (Thaddeus & Maine, 1994). Delays in stages I and II are related to the patient's ability to seek care and reach health facilities, while stage III is related to the ability of health facilities to provide fast and appropriate treatment. Delays in referral have a negative impact on maternal outcomes, namely maternal near miss and maternal death (WHO, 2011).

The decision to seek immediate treatment at a health facility is the starting point for efforts to save the mother's life. Long time to get to a health facility due to delays in decision making contributes to maternal morbidity and mortality (Mgawadere et al., 2017) (Geleto et al., 2018). Delays in making decisions to seek immediate care were found in 75% of mothers who died from survey results on the island of Java (Serang and Jember) in 2018 with an average time of 12.5 hours and delays in reaching the right health facility, namely 76% due to visiting >1 Health Facility that is willing to accept patients (USAID-PPKS, 2019). A study in Karawang stated that the causes of maternal death were delay referral and inappropriate initial treatment and there was a significant role for patient factors, health workers and health facilities (Ati et al., 2019). Delays in making decisions and delays in reaching health facilities are influenced by the quality of antenatal care (ANC), namely the lack of preparation of mothers and families to face childbirth, namely determining the place of delivery, birth attendants, recognizing danger signs, providing funds, vehicles and blood donors (Sk et al., 2019)(Santoso et al., 2017) (Masturoh & Siswati, 2018). The data above shows that there are still many mothers who have problems with the referral process and even die after successfully reaching a health facility.

The three main factors associated with delays in maternal referral are patient factors, accessibility factors and quality of care factors (Thaddeus & Maine,

1994). Patient factors are related to stage I delays, accessibility factors are related to stage II delays, and quality of care factors are related to stage III delays. These factors are not only in the health sector but also outside the health sector such as social conditions, economic status, norms, culture and environment. The latest global issue trend is starting to pay attention to things outside the health sector which are thought to contribute to and influence the performance of the health service system. This is what was developed by WHO as a study on Social Determinants of Health at the World Conference on Social Determinants of Health in Rio de Janeiro, Brazil. The basic idea is the health determinants put forward by Dahlgren and Whitehead, 1991 which explain non-clinical factors, such as socio-economic and environmental conditions, that influence patient health outcomes (Dahlgren & Whitehead, 1991). WHO then developed this rationale into The Commission on Social Determinants of Health (CSDH) in 2010.

Previous research has stated that social factors from patients, service providers and the environment influence referral delays. The patient's social factors include education, economic ability, age, parity, religion, marital status, employment, women's autonomy, culture, health status can influence decisions to seek care and reach health service facilities (Kanyesigye et al., 2022);(Busumani & Mundagowa, 2021); (Pacagnella et al., 2014); (Prathiba et al., 2020). These factors are related to regional and population characteristics so that variations between regions such as provinces are very diverse. A deeper understanding of the factors that cause delays in referral based on regional and population characteristics is important to reduce maternal mortality. Mapping of referral delays based on regions, namely provinces in Indonesia, has never been done so this study aims to map referral delays in Indonesia and identify social factors from individual and the environment that are associated with referral delays. It is hoped that the research results will be used as material in developing effective and targeted strategies to increase the effectiveness of maternal referrals and reduce cases of maternal death in Indonesia.

## RESEARCH METHODS

The design is non-experimental using an ecological study, that using data from the Basic Health Research Report (Riskesdas 2018) and Village Potential Statistics (Podes 2018). The unit of analysis is 34 Provinces in Indonesia based on data collection on family and individual samples. The sample inclusion criteria are families that have women aged

10-54 years who gave birth to their last child in the period 1<sup>st</sup> January, 2013 until the interview. The dependent variable is delay in type I referral (seeking care) in terms of first aid efforts when the mother experiences complications in pregnancy. The independent variables are 1) individual factors consisting of health status (eclampsia), health behavior (ANC visit), treatment costs (National health insurance participants) and culture (delivery at a TBAs); 2) environmental factors consisting of access to Health Service Facilities (PHC/health worker practices) and regional topography (Peak Area/Mountain Slopes). Data analysis was carried out

bivariately using a scatter plot and Pearson correlation test (r).

## RESEARCH RESULTS

The distribution of the prevalence of late maternal referrals in Indonesia tends to be high in the eastern region, including Bali, Nusa Tenggara, Sulawesi, Maluku and Papua, while Java tends to be low (Figure 1). There is a wide gap in the prevalence of late referrals with the highest being 73.60% in Maluku and the lowest being 33.50% in Central Java (Table 1).

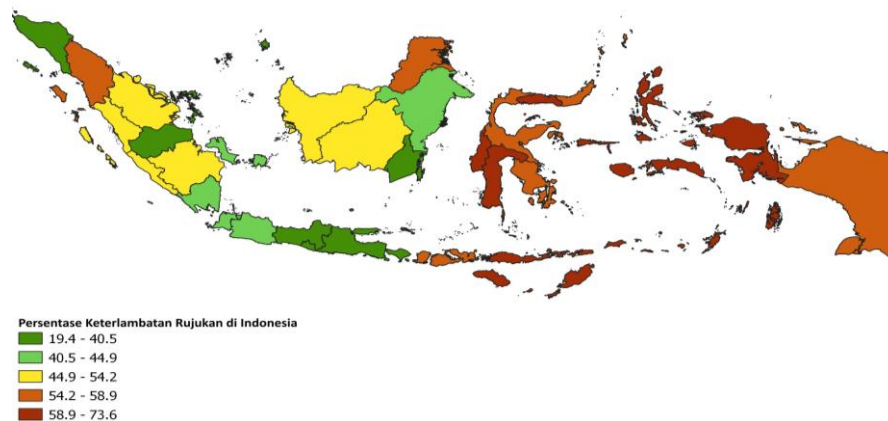


Figure 1.

### Map of the distribution of type I referral delays (seeking care) among pregnant women in Indonesia

The health status of mothers who experience eclampsia has a positive relationship with delays in referral (Figure 2.A). The results of the Pearson correlation test show statistically significant results, namely P-Value = 0.005. Meanwhile, K4 ANC visits

have a negative relationship with referral delays (Figure 2.B). The results of the Pearson correlation test show statistically significant results, namely P-Value = 0.007.

Table 1

### Descriptive statistics of delay in type I referral for pregnant women in Indonesia and related variables

Variable	N	Min	Max	Mean	SD
Delays in referral	34	33.50	73.60	50.6471	11.03030
Health status (eclampsia)	34	1.20	6.40	3.2353	1.55756
Health behavior (ANC visits)	34	43.80	90.20	67.2765	11.71699
Treatment cost (JKN participants)	34	28.70	81.50	49.8500	14.47037
Culture (delivery at TBAs)	34	0.8	42.90	14.0941	11.03933
Topography (mountain peaks/slopes)	34	0	47.50	14.5669	11.90343
Access to PHC	34	34.20	125.70	75.4088	21.18393

Source of care costs has a positive relationship with delay in referral (figure 2.C). The results of the Pearson correlation test show statistically significant results, namely P-value=0.0005. Meanwhile, the birth culture of traditional birth attendants shows a positive relationship with delay in referral (figure 2.D) and the

results of the Pearson correlation test show statistically significant results, namely P-value = 0.003.

Access to Community Health Centers/Clinics/Nakes Practices has a negative relationship with referral delays (figure 2.E). The results of the Pearson correlation test show

statistically significant results, namely P-value = 0.0005. Meanwhile, topography in the form of mountain slopes/mountain peaks shows a positive relationship with referral delays (figure 2.F). The

results of the Pearson correlation test show statistically significant results, namely P-value = 0.016.

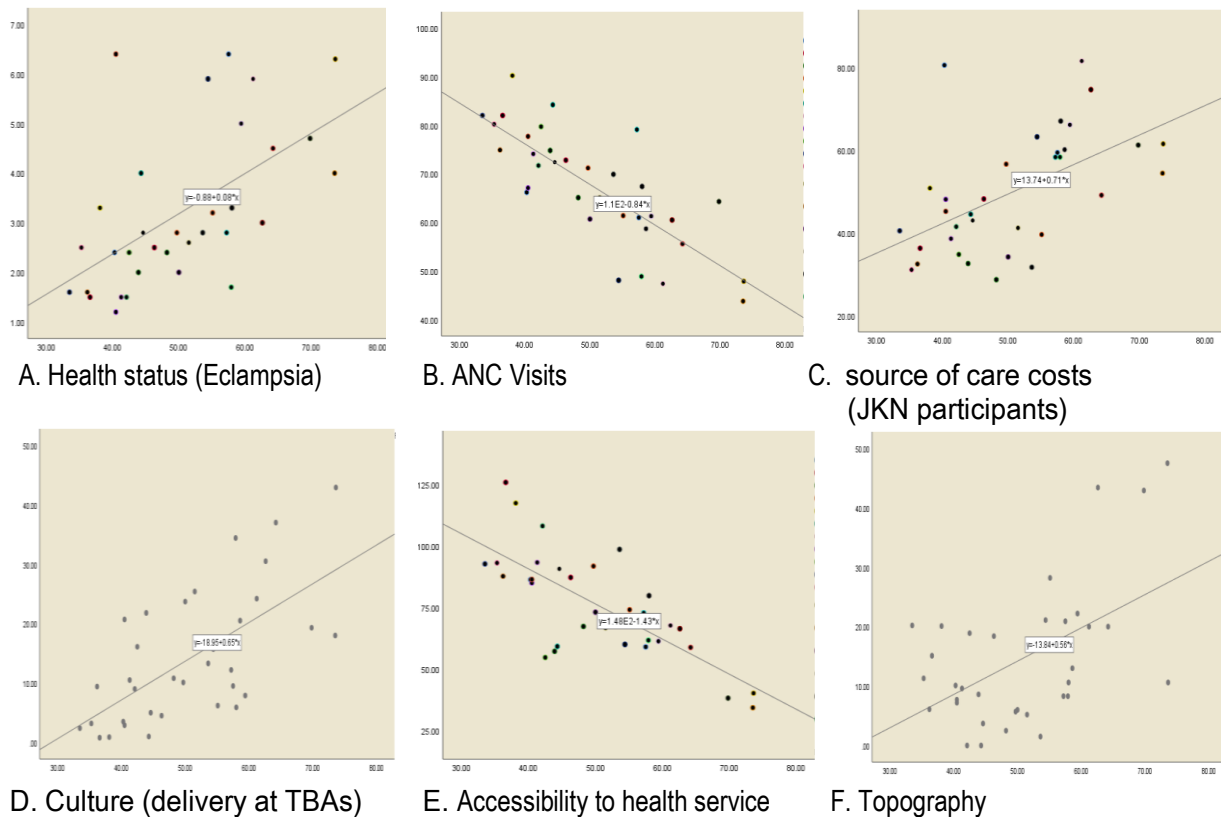


Figure 2

Scatter plot of delay in type I referral (seeking treatment) with Health status, ANC Visits, source of care costs, culture /traditional birth attendants, accessibility to health facilities and topography in Indonesia

## DISCUSSION

### Delay in Referrals

The distribution of the prevalence of late maternal referrals in Indonesia tends to be high in the eastern region because it is an archipelagic region with geographical conditions in the form of mountains, lowlands and coastal areas (Badan Pusat Statistik, 2022). The big obstacles in the referral process are accessibility and population mobilization. The characteristics of the population in the eastern region are also different from other regions. Poor people in Indonesia are more numerous in the eastern region, namely Papua, Maluku and East Nusa Tenggara, which causes inability to pay for treatment, thus slowing down the decision to seek treatment. Lingering cultural factors can also influence health behavior, such as belief in traditional practices which prevent mothers from not having ANC and giving birth to a traditional birth attendant (Kemenkes RI, 2022). The adequacy of health human resources and the availability of health

service facilities in the eastern region also still have not reached the ratio of health workers and health facilities (Kemenkes RI, 2018). This causes inequality in obtaining health services for the community.

### Individual Factors

Eclampsia is a condition of sudden seizures in mothers during pregnancy, childbirth or postpartum who have previous symptoms of preeclampsia and can quickly progress to shock and coma (Kemenkes RI & HOGSI, 2013). Eclampsia can be prevented if the mother and family know the symptoms of pre-eclampsia and are aware of the dangers of this condition. Ignorance of danger signs is the biggest cause of delays in referrals in seeking care (Sk et al., 2019)(Masturoh & Siswati, 2018). The husband or family taking the decision to take the mother to a health facility is also the cause of the delay in referral. They assume that mothers who experience symptoms of preeclampsia

are considered a normal condition due to lack of knowledge, which causes the mother to arrive at the health facility already in serious condition (Arihta T & Kristina, 2019). Increasing knowledge among mothers and families from the start of pregnancy can prevent delays in seeking care and thus prevent maternal death (Nsemo & J. Offiong, 2016)(Yosef & Tesfaye, 2021).

Pregnant women who make ANC visits <4 times have a higher risk of death than women who make ANC visits >4 times (Sesunan, 2021) (Kebede et al., 2021). One of the aims of ANC visits is to detect early abnormalities/illnesses/disorders suffered by pregnant women and carry out management of abnormalities/diseases/disorders in pregnant women as early as possible or refer cases to health service facilities in accordance with the existing referral system (Kementerian Kesehatan RI, 2020). The more pregnant women make regular ANC visits, the more complications can be identified as early as possible so they can be treated quickly. During ANC visits, mothers and families are provided with knowledge about danger signs so that they can immediately seek treatment if the mother experiences danger signs so that there is no delay in seeking care. ANC coverage for K4 in the eastern region of Indonesia is still very low with a range of 43.8%-64.3% compared to the western region which is in the range 61.4%-90.2%. This low coverage is mostly due to environmental factors, namely the distance from the patient's house to the health facility and the ease of reaching the health facility (Oliveira, 2019). The availability of health facilities such as Community Health Centers in the eastern provinces of Indonesia is available at least 1 per sub-district except Papua (Kemenkes RI, 2018).. However, due to geographical conditions where the majority of people live on mountain slopes and inadequate transportation infrastructure which is damaged and impassable during the rainy season, this makes it difficult for pregnant women to reach community health centers (Kemenkes RI, 2018).

The source of treatment costs is one of the causes of delays in referrals. The government has made efforts to reduce delays in referrals by providing assistance with treatment costs through the JKN program. The results of this research are different from the results of previous research, in that the national health insurance program in the form of BPJS health membership can prevent delays in referrals due to cost constraints, especially for poor communities (Diba et al., 2019). However, this is different from research in Kalimantan and West Java which explains that the source of costs, whether from

the government (BPJS) or private, has no effect on the referral process (Darmayanti et al., 2018)(Armini et al., 2018). Law no. 40 of 2004 mandates that social security is mandatory for the entire population, including National Health Insurance (JKN) through a Social Security Organizing Agency (BPJS). JKN which was developed in Indonesia is part of the National Social Security System (SJSN) which is implemented through a social insurance mechanism which aims to ensure that the entire Indonesian population is protected by the insurance system so that they can meet their basic health needs. This protection is given to everyone who has paid contributions or whose contributions are paid by the government (Kemenkes RI, 2014). The Indonesian government has issued a policy on guaranteeing health costs for the poor through providing assistance with BPJS health participant contributions taken from central and regional government funds. This is expected to reduce the gap in receiving health services for all levels of society. Maternity insurance program (jampersal) for poor communities specifically for pregnant women to receive adequate services during pregnancy, childbirth and postpartum. However, unfortunately there are still many JKN participants who are not on target. It is still found that poor people are not JKN participants so they are constrained by the cost of treatment.

A traditional birth attendants (TBAs) is a person who is considered skilled and trusted by the community to assist with childbirth and care for mothers and children according to community needs (Departemen Kesehatan RI, 1994). People who still believe in traditional care, the role of a midwife cannot be ignored, their presence and services in pregnancy, childbirth and postpartum care. The number of TBAs in Indonesia in 2018 was still around 49 thousand, which is almost the same as the number of midwives. The largest number of TBAs is in the island of Java, namely Central Java, West Java and East Java. However, in all regions of Indonesia there are still birth attendants and the provinces with the lowest number of birth attendants are DKI Jakarta and Bali (BPS, 2018). The highest number of traditional delivery provided by TBAs was in Maluku Province (42.9%) and the lowest was in Bali (0.8%) (Kementerian Kesehatan, 2018). TBAs are part of the community living in the area. The TBAs better understands the traditions or culture passed down from generation to generation in the area because he grows and develops in society. The shaman uses local language, interacts daily with the community, cares for pregnant women from pregnancy until the postpartum period ends and is ready to be called at

any time, thereby creating a sense of comfort and trust in the TBAs (Ramli & Habari, 2020). another reason is because TBAs have prayers or "jampe-jampe" which according to people's beliefs can facilitate childbirth, TBAs always routinely care for mothers from giving birth to bathing the baby until the baby's umbilical cord falls off, washing clothes and massaging mother and baby (Lail & Sufiawati, 2018).

### Environmental factor

Accessibility is the opportunity that individuals have to identify health service needs, seek health services, obtain or use health services and to fulfill health service needs (Levesque et al., 2013). The five indicators used in assessing accessibility are approachability, availability and accommodation, acceptability, affordability, feasibility (Levesque et al., 2013). The accessibility factor of health services is one of the biggest causes of maternal death as a result of type II delays, namely reaching health facilities (Chavane et al., 2018). Individuals' ability to reach health facilities is caused by geographical conditions and poor transportation facilities, both road and vehicle infrastructure (Chen et al., 2017). Equal distribution of the availability of health facilities, especially health facilities capable of providing basic obstetric neonatal emergency services (PONED), is not yet evenly distributed in Indonesia with an average travel time of more than 6 hours for the eastern region of Indonesia with mountainous geographical conditions (Nimun et al., 2022). Future health development is expected to increase cross-sectoral cooperation in building road infrastructure and providing public transportation facilities so that delays in reaching health facilities do not occur again.

Topography is the condition of the earth's surface in an area or area (Badan Pengembangan dan Pembinaan Bahasa, 2016). In general, mountainous areas have difficult access to health facilities with steep roads and long travel times. The results of this study show a correlation with referral delays. Road infrastructure in mountain slope areas is generally inadequate with roads in damaged condition, with holes and even dirt. This makes it difficult for vehicles to pass through, not to mention climates such as the rainy season which increase the severity of road damage and are prone to landslides. The government has attempted to overcome these obstacles by issuing a policy to establish birth waiting homes (RTK) in areas with difficulty in accessing health service facilities as stated in the Regulation of the Minister of Health of the Republic of Indonesia Number 82 of 2015. Geographical factors are one of the causes of death Mothers, to overcome this

problem, we need a special place close to basic health care facilities or a hospital that can be occupied temporarily by pregnant women before delivery arrives, called a Birth Waiting House (RTK), which has an important function as a temporary residence for mothers. pregnancy until delivery (WHO, 1996). Pregnant women who have been detected as non-high risk are recommended to occupy a birth waiting home located near the village health post or PONED health center, while pregnant women with high risk who are expected to require specialist medical treatment during delivery must be sent to a waiting home near the hospital (Kemenkes, 2014). The Birth Waiting Home Program is expected to reduce the number of maternal deaths, increase coverage of deliveries by health workers and at the same time increase coverage of deliveries in health service facilities and adequate emergency services. Several studies have shown that RTK can prevent maternal deaths in remote areas by increasing access to health care facilities and reducing perinatal deaths (Yoon & Kim, 2021);(Zuanna et al., 2021);(Tiruneh et al., 2019).

### CONCLUSION(S)

Factors that influence referral delays in seeking care are health status (having eclampsia), source of treatment costs (JKN participants), ANC visits (K4), culture (delivery at a TBAs) and access to health facilities, while regional topography has no effect on referral delays.

### SUGGESTION

The government is expected to be able to improve services at all levels of health facilities by providing resources to increase early detection of complications through pre-eclampsia screening, education for mothers and families to improve health behavior in carrying out ANC visits and childbirth among health workers, monitoring and evaluating the implementation of national health insurance so that there is no gap in the quality of health services received by the community using JKN health funds as well as increasing the availability of health facilities in rural areas so that they are easily accessible to the community

### REFERENCES

- Arihita T, D., & Kristina, R. (2019). Perilaku Suami dalam Pengambilan Keputusan pada Ibu Bersalin ada Kasus Kegawat Daruratan Maternal di RSUD Koja Tahun 2018. *Majalah Kesehatan Pharmamedika*, 10(2), 092.

- <https://doi.org/10.33476/mkp.v10i2.728>  
Armini, L. N., Susanto, H., & Hilmanto, D. (2018). The Effect Referral Barriers to Barriers Delay in Perinatal Mortality in Karawang. *Journal of Global Research in Public Health*, 3(2), 131. <https://doi.org/10.30994/jgrph.v3i2.57>
- Ati, J., Wirakusumah, F. F., Sukandar, H., Husin, F., Hidayat, Y. M., & Yumatmo, U. (2019). Analisis Peran Faktor Penyebab Kematian Maternal Yang Dapat Dicegah Terhadap Keterlambatan Rujukan Dan Penanganan Di Kabupaten Karawang Provinsi Jawa Barat. *Indonesian Trust Health Journal*, 2(2), 214–225. <https://doi.org/10.37104/ithj.v2i2.38>
- Badan Pengembangan dan Pembinaan Bahasa. (2016). *KBBI Daring*. [https://kbbi.kemdikbud.go.id/entri/masa kerja](https://kbbi.kemdikbud.go.id/entri/masa%20kerja)
- Badan Pusat Statistik. (2022). Statistik Indonesia 2022. In *Badan Pusat Statistik*. <https://www.bps.go.id/publication/2020/04/29/e9011b3155d45d70823c141f/statistik-indonesia-2020.html>
- BPS, S. I. (2018). *STATISTIK POTENSI DESA INDONESIA 2018*.
- Busumani, W., & Mundagowa, P. T. (2021). Outcomes of pregnancy-related referrals from rural health facilities to two central hospitals in Harare, Zimbabwe: a prospective descriptive study. *BMC Health Services Research*, 21, 1–11. <https://doi.org/https://doi.org/10.1186/s12913-021-06289-4>
- Chavane, L. A., Bailey, P., Loquiha, O., Dgedge, M., Aerts, M., & Temmerman, M. (2018). Maternal death and delays in accessing emergency obstetric care in Mozambique. *BMC Pregnancy and Childbirth*, 18(1), 1–8. <https://doi.org/10.1186/s12884-018-1699-z>
- Chen, Y. N., Schmitz, M. M., Serbanescu, F., Dynes, M. M., Maro, G., & Kramer, M. R. (2017). Geographic access modeling of emergency obstetric and neonatal care in Kigoma Region, Tanzania: Transportation schemes and programmatic implications. *Global Health Science and Practice*, 5(3), 430–445. <https://doi.org/10.9745/GHSP-D-17-00110>
- Dahlgren, G., & Whitehead, M. (1991). Policies and strategies to promote social equity in health. Background document to WHO – Strategy paper for Europe. In *Institute for Futures Studies* (Issue September 1991).
- Darmayanti, D., Mukhtar, M., & Setiawati, E. (2018). Studi Analisis Sistem Rujukan Berdasarkan Sistem Determinan Kasus Maternal di Provinsi Kalimantan Selatan. *Jurnal Penelitian Kesehatan (JPK)*, 28(2), 83–94. <https://doi.org/10.35882/jpk.v19i1.1>
- Departemen Kesehatan RI. (1994). *Pedoman Supervisi Dukun Bayi*.
- Diba, F., Ichsan, I., Muhsin, M., Marthoenis, M., Sofyan, H., Andalas, M., Monfared, I., Richert, K., Kaplan, L., Rogge, L., Doria, S., Samadi, S., & Vollmer, S. (2019). Healthcare providers' perception of the referral system in maternal care facilities in Aceh, Indonesia: A cross-sectional study. *BMJ Open*, 9(12), 1–8. <https://doi.org/10.1136/bmjopen-2019-031484>
- Geleto, A., Chojenta, C., Musa, A., & Loxton, D. (2018). *Barriers to access and utilization of emergency obstetric care at health facilities in sub-Saharan Africa : a systematic review of literature*. 1–15.
- Kanyesigye, H., Kabakyenga, J., Mulogo, E., Fajardo, Y., Atwine, D., MacDonald, N. E., Bortolussi, R., Migisha, R., & Ngonzi, J. (2022). Improved maternal–fetal outcomes among emergency obstetric referrals following phone call communication at a teaching hospital in south western Uganda: a quasi-experimental study. *BMC Pregnancy and Childbirth*, 22(1), 1–10. <https://doi.org/10.1186/s12884-022-05007-0>
- Kebede, T. T., Godana, W., Utaile, M. M., & Sebsibe, Y. B. (2021). Effects of antenatal care service utilization on maternal near miss in Gamo Gofa zone, southern Ethiopia: retrospective cohort study. *BMC Pregnancy and Childbirth*, 21(1), 1–10. <https://doi.org/10.1186/s12884-021-03683-y>
- Kemkes RI. (2014). *Peraturan Menteri Kesehatan RI No.28 Tahun 2014 Tentang Pedoman Pelaksanaan Jaminan Kesehatan Nasional*.
- Kemkes RI. (2018). Profil Kesehatan Indonesia 2018. In *Health Statistics*. Kementerian Kesehatan RI. <https://www.kemkes.go.id/downloads/resources/download/pusdatin/profil-kesehatan-indonesia/profil-kesehatan-indonesia-2018.pdf>
- Kemkes RI. (2022). Profil Kesehatan Indonesia 2021. In *Kementrian Kesehatan Republik*.
- Kemkes RI, & HOGSI. (2013). *BUKU SAKU Pelayanan Kesehatan Ibu di Fasilitas Kesehatan Dasar dan Rujukan* (Pertama). Kemenkes RI.
- Kementerian Kesehatan. (2018). Laporan Nasional RISKESDAS 2018. In *Badan Penelitian dan Pengembangan Kesehatan* (p. 198).

- [http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan\\_Nasional\\_RKD2018\\_FINAL.pdf](http://labdata.litbang.kemkes.go.id/images/download/laporan/RKD/2018/Laporan_Nasional_RKD2018_FINAL.pdf)
- Kementerian Kesehatan RI. (2020). *Pedoman Pelayanan Antenatal Terpadu Edisi Ketiga*.
- Lail, N. H., & Sufiawati, W. (2018). Pemilihan Tenaga Penolong Persalinan Di Desa Panancangan Kec. Cibadak Kab. Lebak Prov. Banten Tahun 2017. *Jurnal Akademi Keperawatan Husada Karya Jaya*, 4(1), 21–40. <http://ejurnal.husadakaryajaya.ac.id/index.php/JAKHKJ/article/viewFile/71/64>
- Levesque, J.-F., Harris, M. F., & Russell, G. (2013). Patient-centred access to health care: conceptualising access at the interface of health systems and population. *International Journal for Equity in Health*, 12(18), 1–9. <https://doi.org/10.1002/cber.189502803178>
- Masturoh, S. E. B., & Siswati, S. (2018). Path Analisis: Tiga Keterlambatan Penyebab Kematian Maternal Di Kabupaten Brebes. *Pena Medika Jurnal Kesehatan*, 8(1), 1–8. <http://jurnal.unikal.ac.id/index.php/medika/article/view/744/580>
- Mgawadere, F., Unkels, R., Kazembe, A., & van den Broek, N. (2017). Factors associated with maternal mortality in Malawi: Application of the three delays model. *BMC Pregnancy and Childbirth*, 17(1), 1–9. <https://doi.org/10.1186/s12884-017-1406-5>
- Nimun, K. I. D., Rambu Ngana, F., Warsito, A., & Tanesib, J. L. (2022). Modeling Accessibility to Emergency Obstetric Care in Mountain Region on Adonara Island, Eastern Indonesia. *Journal of Applied Geospatial Information*, 6(2), 700–704. <https://doi.org/10.30871/jagi.v6i2.4522>
- Nsemo, A., & J. Offiong, D. (2016). Knowledge of Obstetric Danger Signs Among Women of Child-Bearing Age in the Rural Communities of Cross River State, Nigeria. *International Education Scientific Research Journal*, 2(February), 21–38.
- Oliveira, F. A. O. (2019). Analisis Faktor-faktor yang Mempengaruhi Perilaku Ibu untuk Melakukan Kunjungan ANC (K4) di Wilayah Kerja Centro Saúade Comunitaria Letefoho Posto Administrativo Letefoho Municipio Ermera Timor Leste. *Media Kesehatan Masyarakat*, 1(1), 21–30. <https://doi.org/10.35508/mkm.v1i1.1523>
- Pacagnella, R. C., Cecatti, J. G., Parpinelli, M. A., Sousa, M. H., Haddad, S. M., Costa, M. L., Souza, J. P., & Pattinson, R. C. (2014). Delays in receiving obstetric care and poor maternal outcomes: results from a national multicentre cross-sectional study and the Brazilian Network for the Surveillance of Severe Maternal Morbidity study group. *BMC Pregnancy and Childbirth*, 14(159), 1–15.
- Prathiba, Niranjana, R., Kumar, M. D., & Subitha, L. (2020). Referral chain of patients with obstetric emergency from primary care to tertiary care: A gap analysis. *Journal of Family Medicine and Primary Care*, 9(1), 347–353. <https://doi.org/10.4103/jfmpc.jfmpc>
- Ramli, & Habari, N. (2020). Bidan atau Dukun? Pilihan Ibu Hamil Dalam Pertolongan Melahirkan (Studi pada Ibu Hamil di Wilayah Kerja Puskesmas Sulamadaha Kota Ternate). *Journal of Ethnic Diversity and Local Wisdom*, 2(2), 52–58. <http://jurnal.umm.ac.id/index.php/jedilwisdom/article/view/619>
- Santoso, H. Y. D., Supriyana, S., Bahiyatun, B., Widyawati, M. N., Fatmasari, D., Sudiyono, S., Widyastari, D. A., & Sinaga, D. M. (2017). Android Application Model of “Suami Siaga Plus” as an Innovation in Birth Preparedness and Complication Readiness (BP/CR) Intervention. *Journal of Family & Reproductive Health*, 11(1), 30–36. <http://www.ncbi.nlm.nih.gov/pubmed/29114266> <http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC5664987>
- Sesunan, A. S. (2021). Maternal Mortality in Klaten Regency (Determinant Factors Analysis). *Journal of Maternal and Child Health*, 6(2), 183–196. <https://doi.org/10.26911/thejmch.2021.06.02.06>
- Sk, M. I. K., Paswan, B., Anand, A., & Mondal, N. A. (2019). Praying until death: Revisiting three delays model to contextualize the socio-cultural factors associated with maternal deaths in a region with high prevalence of eclampsia in India. *BMC Pregnancy and Childbirth*, 19(1), 1–11. <https://doi.org/10.1186/s12884-019-2458-5>
- Thaddeus, S., & Maine, D. (1994). Too far to walk: Maternal mortality in context. *Social Science and Medicine*, 38(8), 1091–1110. [https://doi.org/10.1016/0277-9536\(94\)90226-7](https://doi.org/10.1016/0277-9536(94)90226-7)
- Tiruneh, G. T., Getu, Y. N., Abdukie, M. A., Eba, G. G., Keyes, E., & Bailey, P. E. (2019). Distribution of maternity waiting homes and their correlation with perinatal mortality and direct obstetric complication rates in Ethiopia. *BMC Pregnancy and Childbirth*, 19(1), 1–11.



- <https://doi.org/10.1186/s12884-019-2356-x>  
USAID-PPKS, F. U. (2019). *Every Mother and Newborn Counts Study - USAID Jalin Project* (Issue December).  
[https://pdf.usaid.gov/pdf\\_docs/PA00X87N.pdf](https://pdf.usaid.gov/pdf_docs/PA00X87N.pdf)
- WHO. (2009). *Monitoring Emergency Obstetric Care*. WHO Library.  
<https://doi.org/10.3109/01443611003791730>
- WHO. (2011). The WHO Near-Miss approach for Maternal Health. In *World Health Organization*.  
[www.who.int/reproductivehealth/](http://www.who.int/reproductivehealth/)  
[http://apps.who.int/iris/bitstream/10665/44692/1/9789241502221\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/44692/1/9789241502221_eng.pdf)
- Yoon, H. sang, & Kim, C. S. (2021). Maternity waiting home as a potential intervention for reducing the maternal mortality ratio in El Salvador: an observational case study. *Archives of Public Health*, 79(1), 1–9.  
<https://doi.org/10.1186/s13690-021-00752-8>
- Yosef, T., & Tesfaye, M. (2021). Pregnancy danger signs: Knowledge and health-seeking behavior among reproductive age women in southwest Ethiopia. *Women's Health*, 17, 1–8.  
<https://doi.org/10.1177/17455065211063295>
- Zuanna, T. D., Fonzo, M., Sperotto, M., Resti, C., Tsegaye, A., Azzimonti, G., Manenti, F., Putoto, G., & Bertocello, C. (2021). The effectiveness of maternity waiting homes in reducing perinatal mortality: a case-control study in Ethiopia. *BMJ Global Health*, 6(4).  
<https://doi.org/https://doi.org/10.1136/bmjgh-2020-004140>