



Effect of education level on delivery at home evidence from Eastern Indonesia

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ABSTRAK

Latar Belakang: Indonesia Timur merupakan daerah yang cenderung tertinggal dalam pembangunan kesehatan di Indonesia, termasuk pelayanan persalinan.

Tujuan: Penelitian ini bertujuan untuk menganalisis pengaruh tingkat pendidikan terhadap persalinan di rumah di Indonesia bagian timur.

Metode: Penelitian ini menggunakan data sekunder dari Survei Demografi dan Kesehatan Indonesia (SDKI) 2017. Sampel penelitian ini adalah wanita usia subur yang bekerja dalam lima tahun terakhir sebanyak 2.299 responden. Selain tingkat pendidikan sebagai variabel paparan, penelitian ini menggunakan tujuh variabel kontrol yaitu tempat tinggal, usia, pekerjaan, perkawinan, paritas, jaminan kesehatan, dan status kekayaan. Selain itu, penelitian ini menggunakan regresi logistik biner pada tahap akhir.

Hasil: Hasil penelitian menginformasikan ibu dengan pendidikan dasar memiliki kemungkinan 1,520 kali lebih tinggi dibandingkan ibu dengan pendidikan tinggi untuk melahirkan di rumah (AOR 1,520; 95% CI 1,520-1,521). Selain itu, wanita dengan pendidikan menengah 1,206 kali lebih mungkin dibandingkan wanita dengan pendidikan tinggi untuk melahirkan di rumah (AOR 1,206; 95% CI 1,206-1,207). Dengan demikian, hasil analisis ini menginformasikan semakin rendah tingkat pendidikan maka semakin tinggi kemungkinan melahirkan di rumah. Selain tingkat pendidikan, penelitian ini juga menemukan variabel kontrol lain yang berhubungan signifikan dengan persalinan ibu di rumah di Indonesia bagian timur. Terdapat tujuh variabel kontrol yang terbukti berhubungan dengan persalinan di rumah di Indonesia Timur. Pertama tinggal di pedesaan, kedua lebih muda, ketiga tidak bekerja, keempat mempunyai pasangan, kelima multipara, keenam tidak memiliki asuransi, dan yang ketujuh sangat miskin.

Kesimpulan: Penelitian menyimpulkan bahwa tingkat pendidikan mempengaruhi persalinan ibu di rumah di Indonesia bagian timur. Rekomendasi dari penelitian ini adalah perlu adanya kebijakan yang dapat meminimalisir keterbatasan kelompok rentan dalam memanfaatkan persalinan di rumah sakit.

KATA KUNCI: tingkat pendidikan; persalinan di rumah; sosiodemografi

ABSTRACT

Background: Eastern is an area that tends to be lagging in terms of health development in Indonesia, including delivery services.

Objectives: *The study aims to analyze the effect of education level on delivery at home in eastern Indonesia.*

Methods: *The study employed secondary data from the 2017 Indonesian Demographic and Health Survey (IDHS). The samples of this study were women of childbearing age, who labored in the last five years, and there were 2,299 respondents. Apart from education level as an exposure variable, the study used seven control variables, i.e., residence, age, employment, marital, parity, health insurance, and wealth status. In addition, the study employed binary logistic regression in the final stage.*

Results: *The results inform women with primary education have a 1.520 times higher probability than women with higher education to deliver at home (AOR 1.520; 95% CI 1.520-1.521). Moreover, women with secondary education are 1.206 times more likely than women with higher education to deliver at home (AOR 1.206; 95% CI 1.206-1.207). Thus, the results of this analysis inform the lower the education level, the higher the possibility for delivery at home. Apart from education level, the study also found other control variables significantly related to maternal delivery at home in eastern Indonesia. Seven control variables are proven to be related to home delivery in Eastern Indonesia. The first lives in the countryside, the second is younger, the third does not work, the fourth has a partner, the fifth is multiparous, the sixth has no insurance, and the seventh is very poor.*

Conclusions: *The study concluded that education level affects maternal delivery at home in eastern Indonesia. The recommendation from this research is the need for policies that can minimize the limitations of vulnerable groups in utilizing help in hospitals.*

KEYWORDS: *level of education; delivery at home; sociodemography*

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INTRODUCTION

The Maternal Mortality Rate (MMR) is still a health problem in Indonesia. In Indonesia, there is still a disparity in maternal mortality. There is a gap in intermediate factors between districts/cities, with the highest risk of maternal death occurring in Eastern Indonesia (1). The most influencing factor for maternal mortality is population density with and delivery by health workers. The risk of maternal death is high in districts/cities with low coverage of the fourth pregnancy visit (K4), low coverage of deliveries by health workers, low coverage of postpartum visits, a high average number of children, the low average length of schooling for women of childbearing age, and poverty

high (1). Maluku (33.4%), North Maluku (26.1%) and, East Nusa Tenggara (16.1%) provinces were the highest provinces with the proportion of births by traditional birth attendants(2).

Childbirth assisted by skilled personnel is a key strategy for reducing maternal mortality in low- and middle-income countries. Delivery assistance by skilled workers in Indonesia has reached 83%, but the maternal mortality rate (MMR) in Indonesia is still one of the highest in Southeast Asia (3). In 2017, the MMR in Indonesia was still 177 per 100,000 live births. This means that in 2017 the MMR in Indonesia was 6.1 times higher than the MMR

in Malaysia and 22.1 times higher than in Singapore. Several countries at the global have achieved the SDGs 2030 target (70 per 100,000 live births). Including Australia 5, Belgium 5, China 29, Finland 3, and Germany 7 per 100,000 live births.

The most common causes of MMR in 2019 were bleeding, hypertension in pregnancy, (4) infection, lower contraceptive prevalence, births at parity > 4 times, poor households, higher density of traditional birth attendants, and living outside the island of Java and Bali [2,-5]. Another study states that the highest risk of maternal death is adolescents who are pregnant under the age of 15 years, most occur during the puerperium, hypertensive disorders in pregnancy, complications during labor and delivery problems, and 31.3 percent occur at home (6). Delivery at home is one of the causes of AKI that requires attention.

The phenomenon of home delivery in Eastern Indonesia is still high compared to other regions. One study stated that access and characteristics of health services accounted for 23% of the difference in maternal mortality ratios between high and low-performing provinces. The most important contributors were the number of doctors working in the Community Health Center, the number of doctors in the village, and the distance to the nearest hospital.

Distance to Community Health Centers and the number of midwives at Community Health Centers and Integrated Service Posts are not significant contributors. The maternal mortality rate outside Java-Bali is predicted to be avoided at 44 per 100,000 live births, if the level of access to doctors and hospitals is equivalent to access on the island of Java and

Bali(7). The health challenge in Indonesia is the disparity between the rapidly growing central regions of Java-Bali and big cities, and the poorer regions of Eastern Indonesia, rural areas, and remote areas (8). Indonesia is a vast archipelago. Eastern Indonesia is the region farthest from the central government. The eastern region is in the form of islands that are far from each other. The terrain is quite difficult to reach because it is located in the mountains or the middle of a dense forest. Based on the population, the distribution of doctors is very low in the eastern region so they have to serve more because of the limited number of doctors(8). This situation makes the development of health infrastructure unable to be provided as quickly as in Western Indonesia.

Globally, higher levels of maternal education are associated with better health behaviors at birth. Education is useful for improving and providing information and understanding regarding healthy childbirth behavior. People who have a higher level of education will usually have a more scientific mindset. Education level is also related to self-confidence in decisions about carrying out a healthy birth. Education level is also believed to improve the quality of providing quality maternity care.

The mayor of the studi was to analyzes the effect of education level on delivery at home in eastern Indonesia.

MATERIALS AND METHODS

Data Source

The study employed secondary data from the 2017 Indonesian Demographic and Health Survey (IDHS). The IDHS was part of a worldwide survey performed by the Inner

City Fund as part of the Demographic and Health Survey (DHS) program (ICF). The IDHS employed stratification and multistage random sampling to select the required samples. Women of reproductive age (15-49 years) who had given birth in eastern Indonesia in the previous five years made up the study's analytic unit. The total number of women who took part in the poll was 2,299 in total. Eastern Indonesia was the southernmost region, consisting of five provinces: East Nusa Tenggara, North Maluku, Maluku, West Papua, and Papua(9).

Variables

The study used maternal delivery at home as an output variable. Therefore, the study referred respondents' acknowledgment of maternity sites in the previous five years as "maternal delivery at home." The location of maternal birth at home consists of two categories: no and yes. The study employed education level as an exposure variable. There were three levels of education: primary, secondary, and higher education. Meanwhile, the study involved seven variables as control variables: the type of residence, age groups, employment status, marital status, parity, health insurance, and wealth status. The type of residence consists of two types: urban and rural. The age group is divided into seven categories: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, and 45-49. In terms of employment status, there were two options: unemployed and employed. Never in a union, married/ living with a partner, and divorced/ widowed are the three marital statuses. There are three forms of parity: primiparous (one), multiparous (two to four), and grand multiparous (more than four). There are two

forms of health insurance: uninsured and insured.

The IDHS calculated the family's wealth status based on the wealthy quintiles. The survey looked at the quantity and kind of everyday items like televisions, bicycles, vehicles, and housing amenities like drinking water, sanitation, and the most common flooring materials in homes. The study used critical factor analysis to evaluate the consequences of these variables. Based on household scores, national wealth quintiles were arranged for each family member and then divided into the same five groups by distribution. The survey divides wealth status into five, each of which accounted for 20% of the population, namely quintile 1 (poorest), quintile 2 (poorer), quintile 3 (middle), quintile 4 (richer), and quintile 5 (richest).

The instrument used in IDHS is a questionnaire. The Women of Childbearing Age Questionnaire collects information from women aged 15-49 years. Topics asked include: age, education, birth history, employment status, marital status, parity, health insurance, type of residence, and wealth status.

Data Analysis

To analyze differences in maternal delivery at home proportions, the authors used chi-square. Furthermore, for multivariable analysis, the study employed binary logistic regression. In addition, for all statistical studies, the author used the SPSS 22 software.

Ethical Statement

The research used secondary data from the 2017 IDHS for its materials analysis.

The 2017 IDHS passed the ethical test and received ethical approval from the National Institute of Health Research and Development of the Republic of Indonesia's Ministry of Health. Because this study employed anonymized secondary data, there was no need for informed consent. Moreover, the field staff and the 2017 IDHS had received informed consent from all participants.

RESULTS AND DISCUSSION

RESULTS

Table 1 shows the descriptive statistics of respondents' demographic characteristics of maternal deliveries at home in eastern Indonesia. The result informs women who did not give birth at home occupied women with secondary and higher education. On the contrary, women who gave birth at home ruled a group of women with primary education. Based on the type of residence, women who live in rural areas dominated all education level groups. Regarding age group, the 25-29 age group ruled all education level types, except primary education group, that occupied by the 30-34 age group.

Table 1 shows employed women held the group of primary and higher education. On the other side, unemployed women ruled the secondary education group. Based on marital status, married or women living with a partner occupied all education levels. Regarding parity, multiparous women ruled all the education level groups. Meanwhile, insured women also led all the education level groups. Moreover, the poorest women also occupied all the education level groups.

Table 2 shows the binary logistic regression test result of the maternal delivery at home in eastern Indonesia Indonesia. The study chose the "maternal delivery: not at home" category as a reference in the final analysis. Table 2 shows women with primary education have a 1.520 times higher probability than women with higher education to deliver at home (AOR 1.520; 95% CI 1.520-1.521). Moreover, women with secondary education are 1.206 times more likely than women with higher education to deliver at home (AOR 1.206; 95% CI 1.206-1.207). Thus, the results of this analysis inform the lower the education level, the higher the possibility for delivery at home.

Table 1. Descriptive statistic of demographic characteristics of the maternal delivery at home in eastern Indonesia (n=2,299)

Demographic characteristics	Education level			p-value
	Primary (n=720)	Secondary (n=1,156)	Higher (n=423)	
Maternal delivery at home				*0.000
No	41.20%	55.20%	73.10%	
Yes	58.80%	44.80%	26.90%	
Type of residence				
Urban	7.50%	24.10%	40.10%	
Rural	92.50%	75.90%	59.90%	
Age groups				*0.000
15-19	1.80%	5.40%	0.40%	
20-24	12.80%	19.60%	14.90%	
25-29	18.30%	25.50%	35.30%	

30-34	26.90%	23.80%	30.30%	
35-39	21.60%	18.20%	14.00%	
40-44	12.90%	5.90%	4.30%	
45-49	5.60%	1.60%	0.80%	
Employment status				*0.000
Unemployed	39.10%	54.60%	28.40%	
Employed	60.90%	45.40%	71.60%	
Marital status				*0.000
Never in union	0.70%	1.50%	1.40%	
Married/living with a partner	95.90%	93.80%	92.70%	
Divorced/widowed	3.40%	4.70%	5.90%	
Parity				*0.000
Primiparous	13.00%	28.10%	45.40%	
Multiparous	55.50%	57.50%	52.30%	
Grand multiparous	31.60%	14.40%	2.40%	
Health insurance				*0.000
Uninsured	35.90%	39.30%	28.70%	
Insured	64.10%	60.70%	71.30%	
Wealth status				*0.000
Poorest	92.10%	64.00%	30.80%	
Poorer	6.00%	17.60%	26.10%	
Middle	1.40%	9.20%	13.50%	
Richer	0.40%	5.70%	17.00%	
Richest	0.10%	3.40%	12.50%	

Note: * $p < 0.001$

Table 2. Binary logistic regression of the maternal delivery at home in Eastern Indonesia (n=2,299)

Predictor	Maternal delivery at home			
	p-value	AOR	95% CI	
			Lower bound	Upper bound
Education level: Primary	*0.000	1.52	1.52	1.521
Education level: Secondary	*0.000	1.206	1.206	1.207
Education level: Higher (ref.)	-	-	-	-
Residence: Urban (ref.)	-	-	-	-
Residence: Rural	*0.000	1.735	1.734	1.736
Age group: 15-19	*0.000	4.061	4.055	4.066
Age group: 20-24	*0.000	3.163	3.16	3.166
Age group: 25-29	*0.000	2.312	2.31	2.315
Age group: 30-34	*0.000	1.575	1.573	1.576
Age group: 35-39	*0.000	1.046	1.045	1.047
Age group: 40-44	*0.000	1.071	1.07	1.073
Age group: 45-49 (ref.)	-	-	-	-
Employment: Unemployed	*0.000	1.059	1.058	1.059
Employment: Employed (ref.)	-	-	-	-

Marital status: Never in union (ref.)	-	-	-	-
Marital status: Married/living with a partner	*0.000	2.151	2.148	2.154
Marital status: Divorced/widowed	*0.000	2.96	2.955	2.965
Parity: Primiparous (ref.)	-	-	-	-
Parity: Multiparous	*0.000	2.709	2.707	2.71
Parity: Grand multiparous	*0.000	7.531	7.527	7.536
Health insurance: Uninsured	*0.000	1.572	1.571	1.572
Health insurance: Insured(ref.)	-	-	-	-
Wealth status: Poorest	*0.000	2.76	2.758	2.763
Wealth status: Poorer	*0.000	1.639	1.637	1.641
Wealth status: Middle	*0.000	1.563	1.561	1.564
Wealth status: Richer	*0.000	1.52	1.518	1.522
Wealth status: Richest (ref.)	-	-	-	-

Note: * $p < 0.001$

Apart from education level, the author also found other control variables significantly related to maternal delivery at home in eastern Indonesia. For example, women in rural areas are 1.735 times more likely than women in urban areas to experience delivery at home (AOR 1.735; 95% CI 1.734-1.736). Thus, living in a rural area is a risk factor for women in eastern Indonesia to experience delivery at home.

Based on age group, all age group has a higher probability of giving birth at home. On the other hand, unemployment is also a risk factor for women in eastern Indonesia to experience delivery at home.

Table 2 informs married women or women who live with partners have 2.151 times more likely than women who never in the union to experience delivery at home (AOR 2.151; 95% 2.148-2.154). Meanwhile, divorced/widowed women are 2.960 times more likely than women who have never been in the union to experience delivery at home (AOR 2.960; 95% CI 2.955-2.965).

DISCUSSION

Regarding parity, women with two to

four children are 2.709 times more likely than primiparous women to experience delivery at home (AOR 2.709; 95% CI 2.707-2.710). Moreover, women with more than four children are 7.531 times more likely than primiparous women to experience delivery at home (AOR 7.531; 95% CI 7.527-7.536). The result indicates that the more children a woman in eastern Indonesia has, the more likely it is to give birth at home.

Uninsured women are 1.572 times more likely than insured women to experience delivery at home (AOR 1.572; 95% CI 1.571-1.572). This analysis provides information that not having health insurance is a risk factor for women in eastern Indonesia to experience delivery at home.

Moreover, based on wealth status, the analysis results found that the better the wealth status, the less likely it is to give birth at home. Thus, the study indicates poverty is a risk factor for women in eastern Indonesia to experience delivery at home.

Better education gives women a better understanding. Women become more independent to make decisions, or determine, what is best for the health of themselves and

their families (10,11). It can be confirmed from this study result. The lower the education level, the higher the possibility for delivery at home. Education is a factor affecting a women mind set. Higher education will expand their knowledge and insight so that they will be able to consider various good and bad effects on herself regarding the decision she made. In a family context, women with higher education tend to has the same position as their husband in terms of decision making. The higher level of education, the more she will understand her role and duties, and she also has broader insight so that she can actively discuss with her husband in making the decision for the family including her maternal health(12).

It is in line with the results of a study conducted in Ethiopia which stated that the possibility of a woman to deliver at home would decrease as the women educational level are going higher. A higher education will make a woman has a wider access to various health information and on the other hand will make her get a greater income (13). Another study in Eritrea conducted in 2018 stated that a husband with higher education tend to have a positive perception about health facilities usage, making a better communication patterns with their wives, provide wider autonomy to their wives and tend to choose health facilities over home delivery for their wives(14).

The study informs living in a rural area is a risk factor for women in eastern Indonesia to experience delivery at home. Infrastructure development in western Indonesia are much better than eastern Indonesia. As a results people in eastern Indonesia, especially those living in rural areas, has limited access to

health service. As stated in a study that people in rural area generally live in areas that difficult to reach, causing limited access to gain source of health information (15). On the other hand many health workers are reluctant to be placed in remote villages due to the difficulty to access the village.

In general people in rural area are engage to the culture and customs. Traditional birth attendants has a central figure and gain respect from the communities so that her position is closer to the women than midwives as health workers. There are many beliefs about childbirth and traditional birth attendants that develop in rural areas. People in rural area believe that childbirth is natural process than a medical process, so delivering the baby at home with the help of a birth attendants is a common thing to happen. Another belief stated that if a woman has to deliver in a health facility, it means that she has a fault with her husband so that the delivery is difficult and need to go to the health facility. Meanwhile when the childbirth is assisted by a traditional birth attendants, she believe that the delivery is progress smoothly and facilitated by the prayers and support of her husband. There are also suggestive factors such as assuming that being close to the traditional birth attendant will comfort the women since she believe in the ritual taken by the traditional birth attendants.

Another study stated that women in rural area tend to choose traditional birth attendants to facilitating their delivery at home because they has more experience is assisting childbirth and more patient in caring for women in labor. Traditional birth attendants will wait for women from the initiation phase of the delivery process until

the baby's umbilical cord falls off. While the health workers, in this case are midwives, are feel less attentive and less friendly in providing services since midwives are often unavailable when they needed. In addition, the rural communities consider the midwives on duty are too young and unmarried so that has no experience in childbirthing(16).

The study results indicate all age group has a higher probability of giving birth at home. The tendency to give birth at home does not lead to a certain age. Generally people throughout the country, especially in rural area, has a patriarchal structure. So that the choice of place and the facilitator in delivering process is strongly influenced by the husband, the parents in law and communities (16). Early marriage under the age of 18 causes young women are not ready to face married life and childbearing experience at the same time and it brings various health – related consequences to socioeconomic problems such as gender inequality, financial dependence and the risk of childbirth complication(17).

The study found unemployment is also a risk factor for women in eastern Indonesia to experience delivery at home. Economic development in western Indonesia are growing faster than the east. Most of people in eastern Indonesia are live below the poverty line with sufficient education. The community believes that the traditional birth attendants will not set a price in providing their services, which is different from health workerd which already set a price for every services(18).

The study shows women who have never been in the union have a lower risk to experience delivery at home. Marital status is not directly related to education level.

However, a higher level education will slow down a women marriageable age (19). The age of first marriage refer to be the age at which a woman is faced with married life. One of the purposes of a marriage is to have children. So it can be said that the age of first marriage is the same as the age at which woman enters the period of taking care in children. Early marriage is common at many developing countries in Asia and Africa. At that age, teen girl are not physically and mentally ready to be a mother. They should be affiliated in a school to get education. When they become a mother in young age, most of them are no longer continue their education. Low level education lead them to have no autonomy regarding to their health and finally pay less attention to their reproductive health. A study in India stated that delaying one year of age marriage will reduce the risk of giving birth at hime by 2,2%. It means that marriage in a mature age will provide more oppotunities for women to receive education and improving awareness for their maternal health(20).

The more children a woman in eastern Indonesia has, the more likely it is to give birth at home. Parity are less or more affecting the choice of delivery services. Previous experience of childbirth that went smoothly at home will make women tend to choose home delivery for the next labor. The success of a labor then become a factor that strengthens the women's motivation in choosing birth attendants(16).

Another study stated that the assistance delivered by traditional birth attendants are located in women own home so they will stay at their home close to their family(8). It will enabling her to carry out their

responsibilities at home, including taking care of their other children. A study stated that most women in Tanzania who choose to deliver at home are having more than one child and some of them are having 7 children. All of their labor were assisted by traditional birth attendants. And it affect their belief that the labor assisted by traditional birth attendants is save and has no risk at all(21).

The result of this study is also informs that health insurance ownership is a risk factor for women in eastern Indonesia to experience delivery at home. Middle low economic status lead the family to concern on their primary needs including clothing, food and home. While health are consider as secondary or tertiary needs. It mean that family should afford a greater cost to access health facilities. A traditional birth attendants never set a price, their service can be paid in instalments and easy to access since the service located near the women's home. It makes the traditional birth attendants become the main choice. It means that the government should take a big effort to make health services accessible especially in the remote area.

A study conducted in Indonesia at 2018 stated that health insurance ownership are contribute to the increase of 5 – 11 % of maternal health service usage (22). But another study stated that in an area with high mortality rate, many pregnant women with health insurance ownership, both beneficiary and non beneficiary participants, tend to choose to give birth at home(23). It means that the cost is not the only factor for the pregnant women to determining the birth attendant, the quality of service provided by the health worker is also play a big role.

Finally, the study found poverty is a risk factor for women in eastern Indonesia to experience delivery at home. Economic refer to the overall income derived from the work undertaken by the head of the family and other members that can affect the use of antenatal care service. The higher level of the family's economy, the easier access to health services will be. Families with low income are unable to provide funds for antenatal care until delivery(18).

This results is in line with the study in Tanzania which stated that women tend to choose to deliver at home even though the cost of giving birth in health service is payless. Because when deciding to deliver at health services means that family should prepare the other costs for transportation and cost related to childbirth such as the needs for the baby. This is an unpleasant condition for those with low income. The family will be embarrassed if they cannot meet all the necessary cost. So to avoid embarassment, delivery at home will always be a good choice for them(13).

CONCLUSION AND RECOMMENDATION

Based on the results, the study concluded that education level affects maternal delivery at home in eastern Indonesia. The lower the women's education level, the higher the possibility for the women to experience delivery at home. Apart from education level, the study also found other control variables significantly related to maternal delivery at home in eastern Indonesia. There are seven other variables proven to be associated with home birth in Eastern Indonesia. The first lives in a rural area, the second is younger, the third does not

work, the fourth has a partner, the fifth is multiparous, the sixth has no insurance, and the seventh is very poor. The recommendation from this study is that there needs to be a policy that can minimize the limitations of vulnerable groups in utilizing hospital births.

REFERENCES

1. Nurriszka RH, Wahyono TYM. Disparitas Kematian Maternal di Indonesia: Studi Ekologi dengan Analisis Spasial. *Media Kesehatan Masyarakat Indonesia* [Internet]. 2018;14(2):119. Available from: <http://dx.doi.org/10.30597/mkmi.v14i2.3630>
2. Kemenkes RI. *Profil Kesehatan Indonesia tahun 2019*. Jakarta Indonesia: Kementerian Kesehatan Republik Indonesia; 2020. 497 p.
3. Ahmed S, Fullerton J. Challenges of reducing maternal and neonatal mortality in Indonesia: Ways forward. *International Journal of Gynecology & Obstetrics* 2019;144(Suppl. 1):13. Available from: <https://doi.org/10.1002/ijgo.12728>
4. WHO. Maternal mortality ratio (modeled estimate, per 100,000 live births) - Indonesia. UNICEF, UNFPA, World Bank Group, and the United Nations Population Division. 2019. p. 1.
5. Aryanty RI, Romadlona NA, Besral B, Panggabean EDP, Utomo B, Makalew R, et al. Contraceptive use and maternal mortality in Indonesia: a community-level ecological analysis. *Reproductive Health*. 2021;18(1):19. Available from: <https://doi.org/10.1186/s12978-020-01022-6>
6. Affah T, Tejayanti T, Saptarini I, Rizkianti A, Usman Y, Senewe FP, et al. Maternal Death in Indonesia: Follow-Up Study of the 2010 Indonesia Population Census. *Jurnal Kesehatan Reproduksi*. 2016;7(1):113. Available from: <https://www.neliti.com/id/publications/108207/maternal-death-in-indonesia-follow-up-study-of-the-2010-indonesia-population-cen>
7. Cameron L, Suarez DC, Cornwell K. Understanding the determinants of maternal mortality: An observational study using the Indonesian Population Census. *PLoS One*. 2019;14(6):118. Available from: <https://doi.org/10.1371/journal.pone.0217386>
8. Atukunda EC, Mugenyi GR, Obua C, Musiimenta A, Agaba E, Najjuma JN, et al. Womens Choice to Deliver at Home: Understanding the Psychosocial and Cultural Factors Influencing Birthing Choices for Unskilled Home Delivery among Women in Southwestern Uganda. *Journal of Pregnancy*. 2020;2020. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7290878/>
9. Ipa M, Widawati M, Laksono AD, Kusriani I, Dhewantara PW. Variation of preventive practices and its association with malaria infection in eastern Indonesia: Findings from community-based survey. *PLoS One*. 2020;15(5):e0232909. Available from: <https://doi.org/10.1371/journal.pone.0232909>
10. Laksono AD, Ibad M, Mursita A, Kusriani I, Wulandari RD. Characteristics of mother as predictors of stunting in toddler. *Pakistan Journal of Nutrition* 2019;18(12):11016. Available from: <https://doi.org/10.3923/pjn.2019.1101.1106>
11. Wulandari RD, Laksono AD. Education as predictor of the knowledge of pregnancy danger signs in Rural Indonesia. *International Journal of Innovation, Creativity and Change*. 2020;13(1):103751.

- Available from: https://www.ijcc.net/images/vol_13/13163_Wulandari_2020_E_R.pdf
12. Setiawati E, Malihah E, Komariah S. Faktor-Faktor Yang Mempengaruhi Perempuan Berpendidikan Tinggi Berperan Sebagai Pengambil Keputusan Dalam Keluarga Di Kelurahan Isola. *Sosietas*. 2017;7(1): 329334. Available from: <https://ejournal.upi.edu/index.php/sosietas/article/view/10345/6396>
 13. Moshi F V., Mbotwa CH. Determinants for choice of home birth over health facility birth among women of reproductive age in Tanzania: an analysis of data from the 2015-16 Tanzania demographic and health survey and malaria indicator survey. *BMC Pregnancy and Childbirth*. 2020;20(1):561. Available from: <https://doi.org/10.1186/s12884-020-03266-3>
 14. Kifle MM, Kesete HF, Gaim HT, Angosom GS, Araya MB. Health facility or home delivery? Factors influencing the choice of delivery place among mothers living in rural communities of Eritrea. *Journal of Health, Population and Nutrition* 2018;37(1):115. Available from: <https://doi.org/10.1186/s41043-018-0153-1>
 15. Lestari W, Auliyati Z, Pusat A, Dan P, Humaniora P, Kesehatan M, et al. Meta-Etnografi Budaya Persalinan Di Indonesia Meta-Ethnography of Delivery Cultures in Indonesia. *Jurnal Masyarakat & Budaya*. 2018;20(1):4960. Available from: <https://doi.org/10.14203/jmb.v20i1.511>
 16. Nurhidayanti S, Margawati A, Kartasurya MI. Kepercayaan Masyarakat terhadap Penolong Persalinan di Wilayah Halmahera Utara. *The Indonesian Journal of Health Promotion (Jurnal Promosi Kesehatan Indonesia)*. 2018;13(1):46. Available from: <https://doi.org/10.14710/jpki.13.1.46-60>
 17. Adewuyi EO, Khanal V, Zhao Y, David L, Bamidele OD, Auta A. Home childbirth among young mothers aged 15-24 years in Nigeria: A national population-based cross-sectional study. *BMJ Open*. 2019;9(9). Available from: <https://doi.org/10.1136/bmjopen-2018-025494>
 18. Gobel FA, Multazam AM, Asrina A AE. Prosiding Seminar Nasional 2018 Persalinan Pada Suku Bajo Pomalaa Sulawesi Tenggara Seminar Nasional Sinergitas Multidisiplin Ilmu Pengetahuan dan Teknologi 322 Prosiding Seminar Nasional 2018 Seminar Nasional Sinergitas Multidisiplin Ilmu Pengetahuan dan. 2018;1(April):910.
 19. Pinnelli A. Marital fertility and the changing status of women in Europe. *Genus. Journal of Population Sciences*. 2020;76(1). Available from: <https://doi.org/10.1186/s41118-020-0072-z>
 20. Chari A V., Heath R, Maertens A, Fatima F. The causal effect of maternal age at marriage on child wellbeing: Evidence from India. *Journal of Development Economics*. 2017;127:4255. Available from: <https://doi.org/10.1016/j.jdeveco.2017.02.002>
 21. Moshi F, Nyamhanga T. Understanding the preference for homebirth; An exploration of key barriers to facility delivery in rural Tanzania. *Reproductive Health*. 2017;14(1):19. Available from: <https://doi.org/10.1186/s12978-017-0397-z>
 22. Kusumaningrum F, Soewondo P. Peran Jaminan Kesehatan Terhadap Pemanfaatan Tenaga Kesehatan Sebagai Penolong Persalinan Di Indonesia (Analisis Data Susenas 2017). *Jurnal Kesehatan*

- Reproduksi. 2018;9(2):10924. Available from: <https://doi.org/10.22435/kespro.v9i2.1092.109-124>
23. Widodo Y, Amanah S, Pandjaitan NK, Susanto D, Upaya PP, Masyarakat K, et al. Pengaruh Faktor Sosial Ekonomi Dan Budaya Terhadap Perilaku Persalinan Di Perdesaan Daerah Angka Kematian Ibu Rendah Dan Tinggi. *Jurnal Kesehatan Reproduksi*. 2017;8(1):7788. Available from: <https://doi.org/10.22435/kespro.v8i1.6753.77-88>