# Does Health Insurance Affect the Completeness of Antenatal Care?

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## Abstract

*The antenatal treatment has been ineffective in reducing maternal mortality. Therefore, this study aimed to examine health insurance effect on Indonesia's antenatal care quality. The 2017 Indonesian Demographic and Health Survey data were processed. Moreover, a sample size of 15,351 participants was selected using the analysis unit of study for women aged 15 to 49. In the final stage, Binary Logistic Regression was used, while other variables examined besides antenatal treatment included health insurance, residence, age, marital, education, parity, and wealth. Based on the complete category of antenatal care visits, women that did antenatal care visits were ≥ four, occupied by both types of health insurance ownership. The multivariable analysis indicated that health insurance ownership affects antenatal care completeness as insured women were 1.394 times higher than uninsured women (OR= 1.394; 95% CI= 1.257-1.546). Result showed other determinant variables, namely age, education, parity, and wealth were also found. In conclusion, health insurance gives Indonesian women a better possibility of receiving complete antenatal care.*

## INTRODUCTION

The Indonesian government has chosen the universal health coverage (UHC) scheme as one of the social insurance instruments to increase public access to health services. The government carried out the UHC adaptation through the new National Health Insurance System (NHIS or *JKN/Jaminan Kesehatan Nasional*). In October 2018, as social insurance *JKN* had at least 203 million members (Agustina et al., 2019). The government obtained many positive things since the government implemented *JKN*, although the community in the field does not find a few problems. *JKN* has increased people's access to health services. On the other hand, transportation costs are still a problem in some areas (Aveling et al., 2017; Jabbar, 2020). But the health

financing policy must be continued so that positive momentum to increase community access to health services can be maintained.

The latest report states that the maternal mortality rate (MMR) has dropped from 346 maternal deaths to 305 maternal deaths per 100,000 live births in 2015. However, this achievement is still below the Millennium Development Goals (MDGs) target of 102 per 100,000 births live in 2015 (Data and Information Center Ministry of Health, 2014). Moreover, compare the MDG's mark to the Sustainable Development Goals (SDG's) target. The SDG's target is under 70 per 100,000 live births (Communication and Community Service Bureau Ministry of Health, 2019). In general, MMR owned by Indonesia is higher when compared to countries in the

region. Indonesia has nine times the MMR compared to Malaysia, five times that of Vietnam, and almost two times that of Cambodia (World Health Organization, 2015; Achadi, 2019).

One of the Ministry of Health's main strategies to reduce MMR is Antenatal Care (ANC). ANC aims to keep track of the mother's and fetus' health and safety. In ANC services, pregnant women will get early detection of pregnancy complications, and if necessary, they take action. According to the Ministry of Health's recommendations, the frequency of complete ANC visits (at least 4 times) is crucial to detecting and preventing complications during pregnancy (Hijazi et al., 2018). The research results in several developing countries inform that there has been an increase in the use of ANC. However, geographic, demographic, financial, and sociocultural factors continue to cause inequalities (Chi et al., 2015; Bobo et al., 2017).

In 2018, the proportion of ANC visited increased throughout the country. In 2018, the first visit percentage was 96.1%, from the beginning of 2013 (95.2%). Moreover, in 2018 the percentage of fourth visits was 74.1%, from 2013 (70.0%). However, the achievement of the percentage of fourth visits still has not reached the target of 76%. The 2017 Strategic Planning (*Renstra*) stated this target (National Institute of Health Research and Development of The Indonesia Ministry of Health, 2019). Previous studies found that one of the barriers to achieving complete ANC is cost. Several studies that focus on overcoming these financing barriers are proven to increase a full ANC's achievement (Dixon et al., 2014; Sanogo & Yaya, 2020; Yaya et al., 2019)there is limited evidence on the effects of health insurance on use of maternal health care. In the present study our objective was to measure the prevalence of insurance ownership, types of services covered by the insurance and the association of insurance ownership with the utilization of respective maternal health services in Ghana. Methods This study was based on nationally representative Demographic and Health Survey in Ghana (GDHS 2014.

In the Indonesian context, the difficulty of increasing ANC coverage to health services also has challenges from health beliefs and traditions that encompass pregnancy and childbirth events. A Gayo woman in Aceh, for example, must hide her pregnancy until her stomach grows and they cannot hide anymore. They must be covered during pregnancy because evil spirits can not take it (Pratiwi et al., 2019). Muyu and Ngalum women in Papua must evacuate during menstruation and childbirth. They were living in a hut far from home. Local people believe that menstrual blood and delivery bring bad air that can affect health (Kurniawan et al., 2012; Lakso-

no et al., 2016). On the other hand, traditional birth attendants are also commonly found. The traditional birth attendants are still actively practicing checking for pregnancy and helping with childbirth (Laksono et al., 2014).

Based on the background description, we intended the research to analyze health insurance's effect on ANC's completeness in Indonesia. We hoped that the information provided as a result of this research could deliver clear and detailed guidance for maternal health policymakers. Moreover, the maternal health policy adopted can be following the needs outlined as a result of this study.

## METHODS
### Data Source
The study used 2017 Indonesian Demographic and Health Survey (IDHS) as the basis for analysis in this study. The IDHS was part of the global survey series Demographic and Health Survey (DHS) conducted by the Inner City Fund (ICF). In Indonesia, the 2017 IDHS was a national-scale survey. The study population was childbearing age women (15-49 years old) who had given birth in the last five years. The IDHS employed the stratification and multistage random sampling method; then, the study obtained 15,351 respondents.

### Procedure
The National Ethics Committee gave the 2017 IDHS a clean bill of health. The author removed all names of the respondents from the database. Respondents have given their written consent to participate in the report. Via the website, the author has received permission to use the 2017 IDHS data for this report (https://dhsprogram.com).

### Data Analysis
The study used ANC as a dependent variable. The Indonesia Ministry of Health recommended ANC visit at least four visits during pregnancy, consists of one visit during the first trimester, one visit during the second trimester, and two visits during the third trimester (National Population and Family Planning Board, Statistics Indonesia, Ministry of Health, & The DHS Program, 2018). Meanwhile, the study divided ANC into two categories, namely "<4" and "≥4".

The study employed health insurance as an independent variable. The respondent's recognition of life insurance ownership was health insurance. Health insurance ownership consists of two types: uninsured and insured. In addition to health insurance, other variables employed as independent variables were the type of residence, age group, marital status, education level, parity, and wealth status. Other variables were also analyzed to provide more detailed information for policymakers.

The type of place of residence consists of two categories: urban and rural. Age group consists of seven levels: "15-19", "20-24", "25-29", "30-34", "35-39", "40-44", and "45-49". Marital status consists of three types: "never in a union," "married/living with a partner," and "widowed/divorced." The respondent's education degree was determined by their acknowledgment of their most recent diploma.

Education level consists of four levels: "no education", "primary", "secondary", and "higher". The study referred to the number of living children as parity. Parity consists of two categories: "primiparous ($\leq$ 1)" and "multiparous ($\geq$ 2)".

The wealth quintile possessed by a household determined its wealth status. Households were graded on the number and types of things they owned,

Tabel 1. Statistics Descriptive of Respondents' Socio-Demographic (n=15,351)

| Variables | Covered by health insurance | | | | p |
| --- | --- | --- | --- | --- | --- |
| | Uninsured | | Insured | | |
| | n | % | n | % | |
| ANC | | | | | ***< 0.001 |
| < 4 | 851 | 14.6% | 969 | 10.2% | |
| ≥ 4 | 4988 | 85.4% | 8543 | 89.8% | |
| Type of Residence | | | | | ***< 0.001 |
| Urban | 2598 | 44.5% | 4970 | 52.2% | |
| Rural | 3241 | 55.5% | 4542 | 47.8% | |
| Age Group | | | | | ***< 0.001 |
| 15-19 | 178 | 3.0% | 238 | 2.5% | |
| 20-24 | 1047 | 17.9% | 1367 | 14.4% | |
| 25-29 | 1577 | 27.0% | 2270 | 23.9% | |
| 30-34 | 1440 | 24.7% | 2523 | 26.5% | |
| 35-39 | 1056 | 18.1% | 2000 | 21.0% | |
| 40-44 | 443 | 7.6% | 914 | 9.6% | |
| 45-49 | 98 | 1.7% | 200 | 2.1% | |
| Marital Status | | | | | ***< 0.001 |
| Never in union | 14 | 0.2% | 14 | 0.1% | |
| Married/Living with partner | 5587 | 95.7% | 9256 | 97.3% | |
| Divorced/Widowed | 238 | 4.1% | 242 | 2.5% | |
| Education Level | | | | | ***< 0.001 |
| No education | 87 | 1.5% | 117 | 1.2% | |
| Primary | 1650 | 28.3% | 2209 | 23.2% | |
| Secondary | 3563 | 61.0% | 5065 | 53.2% | |
| Higher | 539 | 9.2% | 2121 | 22.3% | |
| Parity | | | | | 0.001 |
| Primiparous | 1899 | 32.5% | 2856 | 30.0% | |
| Multiparous | 3940 | 67.5% | 6656 | 70.0% | |
| Wealth Status | | | | | ***< 0.001 |
| Poorest | 1677 | 28.7% | 2396 | 25.2% | |
| Poorer | 1292 | 22.1% | 1739 | 18.3% | |
| Midle | 1197 | 20.5% | 1693 | 17.8% | |
| Richer | 1018 | 17.4% | 1742 | 18.3% | |
| Richest | 655 | 11.2% | 1942 | 20.4% | |

Note: *p < 0.05; **p < 0.01; ***p < 0.001.

ranging from televisions to motorcycles or vehicles and housing characteristics, including drinking water supplies, toilet facilities, and the house's surface's essential construction materials. The study used principal component analysis to measure this ranking. The IDHS created national wealth quintiles using household scores for each person in the household and then grouped them into the same five groups depending on the distribution, accounting for 20% of the population. Wealth status consists of five categories: the poorest, poorer, middle, richer, and the richest (Wulandari et al., 2019).

At the initial stage, the analysis carried out the Chi-square test to perform a bivariate analysis. In the final stage, the research applied Binary Logistic Regression to determine health insurance's effect on ANC's completeness. The author carried out the entire analysis process through SPSS 22 software.

**RESULTS AND DISCUSSION**

Table 1 displays descriptive statistics from the socio-demographic of childbearing age women born in Indonesia in the last five years. Based on the completeness category of ANC visits, women who make ANC ≥ 4 visits occupied the two types of health insurance ownership. Based on the residence type, uninsured women predominantly live in rural areas, while insured women mostly live in urban areas.

Table 1 informs that uninsured are dominated by the age group 25-29 years old, while insured women are 30-34 years old. Based on marital status, married women or living with partners dominated the two categories of health insurance ownership. Based on the education level, women who have secondary education control the two types of health insurance ownership. Meanwhile, based on parity, multiparous women tend to dominate the two categories of health insurance ownership. Finally, based on wealth status, the poorest women ruled the two types of health insurance ownership.

Figure 1 shows the interaction between three variables, namely ANC visits, health insurance ownership, and education level. The model found that the higher the type of education, the more significant the proportion of pregnant women who receive complete ANC visits (4). This condition applies to both categories of health insurance ownership, both uninsured pregnant women and insured pregnant women.

Table 2 shows the binary logistic regression results of ANC among childbearing age women who gave birth in Indonesia's last five years. It appears that ownership of health insurance affects the completeness of the ANC. Insured women were 1.394 times more likely than uninsured women to do ANC ≥ 4 visits (OR 1.394; 95% CI 1.257-1.546).

Based on the results, The analysis informed that health insurance gives Indonesian women a better chance to complete ANC ≥ 4 visits. This information shows that the ideals implicit in *JKN* to improve public access to health services are increasingly closer to reality. The implementation is on the right track, following what is the goal of universal health insurance (Agustina et al., 2019; Anindya et al., 2020; Johar et al., 2018).
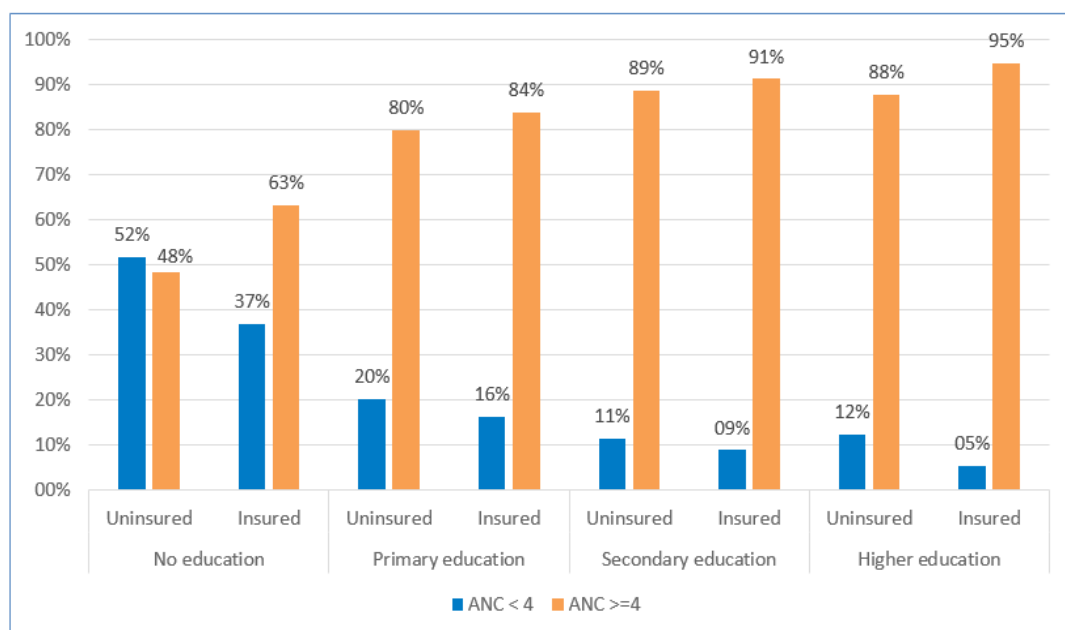


Figure 1. Interaction diagram of 3 variables (ANC visits, health insurance, and education level) (n=15,351)

Table 2. The Binary Logistic Regression Result of ANC Visits (n=15,351)

| Predictor | ANC ≥ 4 visits | | | |
|---|---|---|---|---|
| | P-values | OR | 95% CI | |
| | | | Lower Bound | Upper Bound |
| Covered by health insurance: No (Ref.) | - | - | - | - |
| Covered by health insurance: Yes | ***< 0.001 | 1.394 | 1.257 | 1.546 |
| Place of Residence: Urban | 0.257 | 1.071 | 0.951 | 1.206 |
| Place of Residence: Rural (Ref.) | - | - | - | - |
| Age group: 15-19 | ***< 0.001 | 0.477 | 0.316 | 0.720 |
| Age group: 20-24 | 0.819 | 1.041 | 0.736 | 1.474 |
| Age group: 25-29 | *0.033 | 1.435 | 1.030 | 1.999 |
| Age group: 30-34 | **0.008 | 1.554 | 1.120 | 2.157 |
| Age group: 35-39 | *0.027 | 1.452 | 1.044 | 2.019 |
| Age group: 40-44 | 0.507 | 1.124 | 0.795 | 1.589 |
| Age group: 45-49 (Ref.) | - | - | - | - |
| Marital status: Never in union (Ref.) | - | - | - | - |
| Marital status: Married/Living with partner | 0.348 | 1.503 | 0.642 | 3.517 |
| Marital status: Divorced/Widowed | 0.495 | 0.737 | 0.307 | 1.770 |
| Education Level: No education (Ref.) | - | - | - | - |
| Education Level: Primary | ***< 0.001 | 2.677 | 1.989 | 3.604 |
| Education Level: Secondary | ***< 0.001 | 3.702 | 2.743 | 4.996 |
| Education Level: Higher | ***< 0.001 | 3.202 | 2.284 | 4.490 |
| Parity: Primaparous (Ref.) | - | - | - | - |
| Parity: Multiparous | ***< 0.001 | 0.618 | 0.533 | 0.717 |
| Wealth status: Poorest (Ref.) | - | - | - | - |
| Wealth status: Poorer | ***< 0.001 | 1.828 | 1.593 | 2.098 |
| Wealth status: Midle | ***< 0.001 | 2.399 | 2.048 | 2.811 |
| Wealth status: Richer | ***< 0.001 | 3.359 | 2.780 | 4.059 |
| Wealth status: Richest | ***< 0.001 | 4.819 | 3.808 | 6.100 |

Note: *p < 0.05;**p < 0.01;***p < 0.001.

The positive effects of health insurance in Indonesia which have a positive impact on increasing public access to health services, have also been reported in several previous studies in various countries (Sanogo & Yaya, 2020; Taylor et al., 2020; Wu et al., 2020)insurance coverage remains lower among women in Medicaid nonexpansion states. We compared health care use and adverse birth outcomes by insurance status among women giving birth in a large health system in a Medicaid nonexpansion state. Materials and Methods: We conducted a population-based retrospective cohort study using data for 9,613 women with deliveries during 2014-2015 at six hospitals associated with a large vertically integrated health care system in North Carolina. Adjusted logistic regression and zero-inflated negative binomial models examined associations between insurance status at delivery (commercial, Medicaid, or uninsured. Exemplary health insurance implementation, especially social insurance, can overcome barriers to finance access to health services. Health insurance participants do not need to worry anymore about the high cost of services at health facilities because there is already a transfer of risk through an insurance mechanism (Szigeti et al., 2019; Alo et al., 2020; Laksono & Wulandari, 2020). The health financing policy issued by the Indonesian government through *JKN* is a step forward. However, we encountered many challenges in its implementation, especially to attract participants who do not have a steady income (Jabbar, 2020; Media, 2019). Moreover, a financing intervention policy is still needed

to reduce the transportation cost barrier to health service facilities (Laksono, 2016; Pratiwi et al., 2014; Rukmini et al., 2013). The central government needs to involve local governments to overcome transportation obstacles to health facilities. Local governments can guarantee the availability of means of transportation or provide special subsidies for transportation costs.

Table 2 informs that women in the 15-19 age group were 0.477 times more likely than women in the 45-49 age group to have ANC ≥ 4 visits (OR 0.477; 95% CI 0.316-0.720). Women in the 25-29 age group are 1.435 times more likely than women in the 45-49 age group to have ANC ≥ 4 visits (OR 1.435; 95% CI 1.030-1.999). Women in the 30-34 age group are 1.554 times more likely than women in the 45-49 age group to have ANC ≥ 4 visits (OR 1.554; 95% CI 1.120-2.157). Women in the 35-39 age group are 1.542 times more likely than women in the 45-49 age group to have ANC ≥ 4 visits (OR 1.542; 95% CI 1.044-2.019).

Several other studies also found the same results: age is one of the determinants of completeness of ANC ≥ 4 visits. Often younger people are informed that they have a lower chance of completing ANC (Dey et al., 2018; Hattar-Pollara, 2019). This condition is likely due to a lack of experience, making it difficult to decide (Paul & Chouhan, 2019). In the Indonesian context, parents or older relatives also influenced pregnancy's decision-making process (Laksono et al., 2016; Pratiwi et al., 2019).

Table 2 reveals that women with primary education are 2.677 times more likely without schooling to have at least four ANC visits (OR 2.677; 95% CI 1.989-3.604). Women with secondary education are 3.702 times more likely without schooling to have at least four ANC visits (OR 3.702; 95% CI 2.743-4.996). Women with higher education have 3.202 times more than no education women for ANC ≥ 4 visits (OR 3.202; 95% CI 2.284-4.490).

Based on the study results, the research informed that women who have education in any category are more likely to have complete ANC ≥ 4 visits. Information obtained in other studies also found that education was one of the decisive factors influencing the completeness of ANC (Ba et al., 2019; Jafaralilou et al., 2019; Teye-Kwadjo, 2019). The level of education a person has a role in one's perception of the quality of services available or received (Maślach et al., 2020; Hijazi et al., 2018).

Several prior studies have shown that higher levels of schooling lead to higher program success levels in the health sector. Better education makes it easier for someone to understand their needs and what is best for them (Ipa et al. 2020; Megatsari et al., 2020; Seran et al., 2020; Wulandari & Laksono,

2020). Meanwhile, poor education is related to the barrier to achieving higher quality health program performance (Laksono & Wulandari, 2020; Rohmah et al., 2020).

Table 2 shows that multiparous women have 0.618 times more likely than primiparous women to have ANC ≥ 4 visits (OR 0.618; 95% CI 0.533-0.717). According to the findings of this report, primiparous women are more likely to attend ANC 4 visits. This result is in line with other studies in several countries that inform that the number of live children ever born is one of the variables of the ANC's completeness (Mumtaz et al., 2019; Tikmani et al., 2019). Women who give birth for the first time, or the second time, maybe more alert to look after their pregnancy. While multiparous women may be less alert because they feel they have experience (Jiwani et al., 2020; Laksono et al., 2020; You et al., 2019).

Table 2 informs that women with wealth status in the poorer category are 1.828 times more likely than the poorest women to have ANC ≥ 4 visits (OR 1.828; 95% CI 1.593-2.098). Women with wealth status in the middle category are 2.399 times more likely than the poorest women to have ANC ≥ 4 visits (OR 2.399; 95% CI 2.048-2.811). Women with wealth status in the richer category were 3.359 times more likely than the poorest women to have ANC ≥ 4 visits (OR 3.359; 95% CI 2.780-4.059). Women with wealth status in the richest category were 4.819 times more likely than the poorest women to have ANC ≥ 4 visits (OR 4.819; 95% CI 3.808-6.100).

The results show that the higher a woman's wealth status, the greater the possibility to conduct a complete ANC ≥ 4 visits. Several researchers found similar results in studies conducted in Uganda, Nigeria, Pakistan, and Ethiopia (Mekonnen et al., 2019; Olaitan et al., 2017; Wilson et al., 2019; Zakar et al., 2017). In line with the level of education, wealth status positively influences ANC's completeness and positively affects one's access to other health services (Laksono et al., 2020; Wulandari et al., 2020; Wulandari et al., 2019).

## CONCLUSION

Based on the results of this study concluded that health insurance affects the completeness of the ANC. Women who have health insurance more likely to make ANC ≥ 4 visits. This study's results indicate that the aim of *JKN* to increase public access to health facilities is in a positive direction. It also found four other variables that could affect the completeness of the ANC. These four were age group, education level, parity, and wealth status.

**REFERENCES**

Achadi, E.L. 2019. *Maternal and Neonatal Death in Indonesia. Rakerkernas 2019.* Jakarta. Retrieved from http://www.depkes.go.id/resources/download/info-terkini/rakerkesnas-2019/SESI_I/Kelompok_1/1-Kematian-Maternal-dan-Neonatal-di-Indonesia.pdf.

Agustina, R., Dartanto, T., Sitompul, R., Susiloretni, K.A, Suparmi, Achadi, E.L., et al. 2019. Universal Health Coverage in Indonesia: Concept, Progress, and Challenges. *The Lancet*, 393 (10166): 75–102. https://doi.org/10.1016/S0140-6736(18)31647-7.

Alo, C.N., Okedo-Alex, I.N. & Akamike, I.C. 2020. Determinants of Willingness to Participate in Health Insurance amongst People Living with HIV in a Tertiary Hospital in South-East Nigeria. *The Nigerian Postgraduate Medical Journal*, 27 (3): 196–201. https://doi.org/10.4103/npmj.npmj_11_20.

Anindya, K., Lee, J.T., McPake, B., Wilopo, S.A., Millett, C. & Carvalho, N. 2020. Impact of Indonesia's National Health Insurance Scheme on Inequality in Access to Maternal Health Services: A Propensity Score Matched Analysis. *Journal of Global Health*, 10 (1): 1–12. https://doi.org/10.7189/JOGH.10.010429.

Aveling, E., Martin, G., Herbert, G., Armstrong, N. 2017. Optimising the Community-based Approach to Healthcare Improvement: Comparative Case Studies of the Clinical Community Model in Practice. *Social Science and Medicine,* 173: 96-103. https://dx.doi.org/10.1016%2Fj.socscimed.2016.11.026.

Ba, D.M., Ssentongo, P., Agbese, E., & Kjerulff, K.H. 2019. Prevalence and Predictors of Contraceptive use among Women of Reproductive age in 17 Sub-Saharan African Countries: A Large Population-based Study. *Sexual and Reproductive Healthcare*, 21: 26–32. https://doi.org/10.1016/j.srhc.2019.06.002.

Bobo, F.T.F.T., Yesuf, E.A.E.A. & Woldie, M. 2017. Inequities in Utilization of Reproductive and Maternal Health Services in Ethiopia. *International Journal for Equity in Health*, 16 (105): 1-8. https://doi.org/10.1186/s12939-017-0602-2.

Chi, P. C., Bulage, P., Urdal, H., & Sundby, J. 2015. A Qualitative Study Exploring the Determinants of Maternal Health Service Uptake in Post-conflict Burundi and Northern Uganda.

*BMC Pregnancy and Childbirth*, 15 (18): 1-14. https://doi.org/10.1186/s12884-015-0449-8.

Communication and Community Service Bureau Ministry of Health. 2019. *4 Health Targets Must Be Achieved by 2019 (4 Target Kesehatan ini Harus Tercapai di 2019).* Retrieved from http://www.depkes.go.id/article/view/18030700008/4-target-kesehatan-ini-harus-tercapai-di-2019.html.

Data and Information Center Ministry of Health. 2014. *Mother's Day: Maternal Health Situation.* Jakarta. Retrieved from: http://www.depkes.go.id/download.php?file=download/pusdatin/infodatin/infodatin-ibu.pdf

Dey, A., Hay, K., Afroz, B., Chandurkar, D., Singh, K., Dehingia, N., et al. 2018. Understanding Intersections of Social Determinants of Maternal Healthcare Utilization in Uttar Pradesh, India. *PLoS ONE*, 13 (10): 1-14. https://doi.org/10.1371/journal.pone.0204810.

Dixon, J., Tenkorang, E.Y., Luginaah, I.N., Kuuire, V.Z. & Boateng, G.O. 2014. National Health Insurance Scheme Enrolment and Antenatal Care among Women in Ghana: Is There any Relationship?. *Tropical Medicine and International Health*, 19 (1): 98–106. https://doi.org/10.1111/tmi.12223.

Hattar-Pollara, M. 2019. Barriers to Education of Syrian Refugee Girls in Jordan: Gender-Based Threats and Challenges. *Journal of Nursing Scholarship*, 51 (3): 241–251. https://doi.org/10.1111/jnu.12480.

Hijazi, H.H., Alyahya, M.S., Sindiani, A.M., Saqan, R.S. & Okour, A.M. 2018. Determinants of Antenatal Care Attendance among Women Residing in Highly Disadvantaged Communities in Northern Jordan: a Cross-sectional Study. *Reproductive Health*, 15 (106): 1-18. https://doi.org/10.1186/s12978-018-0542-3.

Ipa, M., Widawati, M., Laksono, A.D., Kusrini, I. & Dhewantara, P.W. 2020. Variation of Preventive Practices and its Association with Malaria Infection in Eastern Indonesia: Findings from Community-based Survey. *PLoS ONE*, 15 (5): 1-18. https://doi.org/10.1371/journal.pone.0232909.

Jabbar, L.D.A.A.A. 2020. Pertanggung Jawaban BPJS Kesehatan terhadap Pelayanan Asuransi Kesehatan Masyarakat. *Jurist-Diction*, 3 (2): 387–400. https://doi.org/10.20473/jd.v3i2.18194.

Jafaralilou, H., Zareban, I., Hajaghazadeh, M., Matin, H. & Didarloo, A. 2019. The Impact of Theory-based Educational Intervention on Improving Helmet use Behavior among Workers of Cement Factory, Iran. *Journal of the Egyptian Public Health Association*, 94

(1): 1-7. https://doi.org/10.1186/s42506-018-0001-6.

Jiwani, S.S., Amouzou, A., Carvajal-Aguirre, L., Chou, D., Keita, Y., Moran, A.C., et al. 2020. Timing and Number of Antenatal Care Contacts in Low and Middle Income Countries: Analysis in the Countdown to 2030 Priority Countries. *Journal of Global Health*, (1): 1-12. https://doi.org/10.7189/jogh.10.010502.

Johar, M., Soewondo, P., Pujisubekti, R., Satrio, H.K. & Adji, A. 2018. Inequality in Access to Health Care, Health Insurance and the Role of Supply Factors. *Social Science and Medicine*, 213: 134–145. https://doi.org/10.1016/j.socscimed.2018.07.044.

Kurniawan, A., Ayomi, I., Keliduan, P.M.M.S., Lokobal, E. & Laksono, A.D. 2012. *The 2012 Ethnographic Series of Maternal and Child Health Books, Ngalum Ethnic, Oksibil District, Pegunungan Bintang Regency, Papua Province (Buku Seri Etnografi Kesehatan Ibu dan Anak 2012 Etnik Ngalum, Distrik Oksibil Kabupaten Pegunungan Bintang, Provinsi Papua*. Surabaya: Pusat Humaniora, Kebijakan Kesehatan dan Pemberdayaan Masyarakat. Retrieved from https://www.scribd.com/doc/142715053/Buku-Seri-Etnografi-Kesehatan-Ibu-dan-Anak-2012-Etnik-Ngalum-Distrik-Oksibil-Kabupaten-Pegunungan-Bintang-Provinsi-Papua.

Laksono, A.D. 2016. *Health Care Accessibility (Aksesibilitas Pelayanan Kesehatan). In S. Supriyanto, D. Chalidyanto, & R. D. Wulandari (Eds.), Aksesibilitas Pelayanan Kesehatan di Indonesia*. Yogjakarta: PT Kanisius.

Laksono, A.D., Paramita, A. & Wulandari, R.D. 2020. Socioeconomic Disparities of Facility-Based Childbirth in Indonesia. *International Medical Journal*, 25 (1): 291–298. http://dx.doi.org/10.31227/osf.io/7b2su.

Laksono, A.D., Pranata, S. & Astuti, W.D. 2014. *Positioning for Shaman (Positioning Dukun Bayi)*. Yogyakarta: PT Kanisius.

Laksono, A.D., Rukmini, R. & Wulandari, R.D. 2020. Regional Disparities in Antenatal Care Utilization in Indonesia. *PLoS ONE*, 15 (2): 1-13. https://doi.org/10.1371/journal.pone.0224006

Laksono, A.D., Soerachman, R. & Angkasawati, T.J. 2016. Case Study of Muyu Ethnic's Maternal Health in Mindiptara District-Boven Digoel (Studi Kasus Kesehatan Maternal Suku Muyu di Distrik Mindiptana, Kabupaten Boven Digoel). *Jurnal Reproduksi Kesehatan*, 07 (03): 145–155. http://dx.doi.org/10.22435/kespro.v7i3.4349.145-155.

Laksono, A.D. & Wulandari, R.D. 2020. The Barrier to Maternity Care in Rural Indonesia. *Journal of Public Health (Berl.): From Theory to Practice*. https://doi.org/10.1007/s10389-020-01274-3.

Maślach, D., Karczewska, B., Szpak, A., Charkiewicz, A. & Krzyżak, M. 2020. Does Place of Residence Affect Patient Satisfactionwith Hospital Health Care?. *Annals of Agricultural and Environmental Medicine*, 27 (1): 86–90. https://doi.org/10.26444/aaem/116574.

Media, Y. 2019. Implementasi Program Jaminan Kesehatan Nasional dan Permasalahannya dalam Penurunan Angka Kematian Ibu (Studi di Kabupaten Solok, Provinsi Sumatera Barat). *Jurnal Ekologi Kesehatan*, 18 (1): 48–59. https://doi.org/10.22435/jek.18.1.1367.48-59.

Megatsari, H., Laksono, A. D., Ibad, M., Herwanto, Y. T., Sarweni, K. P., Geno, R. A. P., & Nugraheni, E. 2020. The Community Psychosocial Burden during the COVID-19 Pandemic in Indonesia. *Heliyon*, 6 (10): 1-5. https://doi.org/10.1016/j.heliyon.2020.e05136

Megatsari, H., Laksono, A.D., Ridlo, I.A., Yoto, M. & Azizah, A.N. 2018. Community Perspective about Health Services Access. *Bulletin of Health Systems Research (Buletin Penelitian Sistem Kesehatan)*, 21, 247–253. http://dx.doi.org/10.22435/hsr.v2Ii4.231.

Mekonnen, T., Dune, T., Perz, J. & Ogbo, F.A. 2019. Trends and Determinants of Antenatal Care Service Use in Ethiopia between 2000 and 2016. *International Journal of Environmental Research and Public Health*, 16 (748): 1-15. https://doi.org/10.3390/ijerph16050748.

Mumtaz, S., Bahk, J. & Khang, Y.-H. 2019. Current Status and Determinants of Maternal Healthcare Utilization in Afghanistan: Analysis from Afghanistan Demographic and Health Survey 2015. *PLoS ONE*, 14 (6): 1-14. https://doi.org/10.1371/journal.pone.0217827

National Institute of Health Research and Development of The Indonesia Ministry of Health. 2019. *The 2018 Indonesia Basic Health Survey (Riskesdas): National Report*. Jakarta: Balitbangkes Kemenkes RI. Retrieved from http://labmandat.litbang.depkes.go.id/images/download/laporan/RKD/2018/Laporan%7B%5C_%7DNasional%7B%5C_%7DRKD2018%7B%5C_%7DFINAL.pdf.

National Population and Family Planning Board, Statistics Indonesia, Ministry of Health, & The DHS Program. 2018. *The 2017 Indonesia Demographic and Health Survey*. Jakarta. Retrieved from https://www.dhsprogram.com/

pubs/pdf/FR342/FR342.pdf.

Olaitan, T., Okafor, I.P., Onajole, A.T. & Abosede, O.A. 2017. Ending Preventable Maternal and Child Deaths in Western Nigeria: Do Women Utilize the Life Lines?. *PLoS ONE*, 12 (5): 1-18. https://doi.org/10.1371/journal.pone.0176195.

Paul, P. & Chouhan, P. 2019. Association between Child Marriage and Utilization of Maternal Health Care Services in India: Evidence from a Nationally Representative Cross-sectional Survey. *Midwifery*, 75: 66–71. https://doi.org/10.1016/j.midw.2019.04.007.

Pratiwi, N.L., Fitrianti, Y., Nuraini, S., Rachmawati, T., Laksono, A.D., Afreni, M., et al. 2019. Concealed Pregnant Women or Kemel of Gayo Ethnic in Blang Pegayon District, Gayo Lues District, Aceh. *Bulletin of Health System Research*, 22 (2): 81–90. https://doi.org/10.22435/hsr.v22i2.1693.

Pratiwi, N. L., Suprapto, A., Laksono, A. D., Rooshermiati, B., Rukmini, Puto, G., et al. 2014. Policy Review on the Distribution of Health Operational Assistance Funds in Support of Achieving Maternal and Child Health (MDG's 4,5) in Three Districts, Cities in East Java Province (Kajian Kebijakan Penyaluran Dana Bantuan Operasional Kesehatan dalam M. *Buletin Penelitian Sistem Kesehatan*, 17(4), 395–405. https://media.neliti.com/media/publications/20919-ID-a-policy-review-on-the-distribution-of-health-operational-aid-funds-in-achieving.pdf.

Rohmah, N., Yusuf, A., Hargono, R., Laksono, A.D., Masruroh, Ibrahim, I. & Walid, S. 2020. Determinants of Teenage Pregnancy in Indonesia. *Indian Journal of Forensic Medicine and Toxicology*, 14 (3): 2080–2085. https://doi.org/10.37506/ijfmt.v14i3.10736.

Rukmini, Rachmawaty, T. & Laksono, A.D. 2013. The Analysis of Jampersal Implementationin Sampang District Health Office. *Bulletin of Health System Research*, 16 (2), 154–167. http://ejournal.litbang.kemkes.go.id/index.php/hsr/article/view/3306.

Sanogo, N. A. & Yaya, S. 2020. Wealth Status, Health Insurance, and Maternal Health Care Utilization in Africa: Evidence from Gabon. *BioMed Research International*, 1-12. https://doi.org/10.1155/2020/4036830.

Seran, A.A., Laksono, A.D., Sujoso, A.D.P., Masruroh, Ibrahim, I., Marasabessy, N. baharia, … Adriyani, R. (2020). Does Contraception Used Better In Urban Areas?: An Analysis of The 2017 IDHS (Indonesia Demographic And Health Survey). *Systematic Reviews in*

*Pharmacy*, 11 (11): 1892–1897. https://doi.org/10.31838/srp.2020.11.266.

Szigeti, S., Evetovits, T., Kutzin, J. & Gaal, P. 2019. Tax-funded Social Health Insurance: An Analysis of Revenue Sources, Hungary. *Bulletin of the World Health Organization,* 97 (5): 335-348. https://dx.doi.org/10.2471%2FBLT.18.218982.

Taylor, Y.J., Liu, T.L. & Howell, E.A. 2020. Insurance Differences in Preventive Care Use and Adverse Birth Outcomes among Pregnant Women in a Medicaid Nonexpansion State: A Retrospective Cohort Study. *Journal of Women's Health*, 29 (1): 29–37. https://doi.org/10.1089/jwh.2019.7658.

Teye-Kwadjo, E. 2019. Risky Driving Behaviour in Urban Ghana: the Contributions of Fatalistic Beliefs, Risk Perception, and Risk-taking Attitude. *International Journal of Health Promotion and Education*, 57 (5): 256–273. https://doi.org/10.1080/14635240.2019.1613163.

Tikmani, S. S., Ali, S. A., Saleem, S., Bann, C. M., Mwenechanya, M., Carlo, W. A., et al. 2019. Trends of Antenatal Care during Pregnancy in Low- and Middle-Income Countries: Findings from the Global Network Maternal and Newborn Health Registry. *Seminars in Perinatology*, 43 (5): 297–307. https://doi.org/10.1053/j.semperi.2019.03.020.

Wilson, M., Patterson, K., Nkalubo, J., Lwasa, S., Namanya, D., Twesigomwe, S. & Anyango, J. 2019. Assessing the Determinants of Antenatal Care Adherence for Indigenous and Non-Indigenous Women in Southwestern Uganda. *Midwifery*, 78: 16–24. https://doi.org/10.1016/j.midw.2019.07.005.

World Health Organization. 2015. *Trends in Maternal Mortality: 1990 to 2015: Estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division.* Geneva. Retrieved from https://apps.who.int/iris/bitstream/handle/10665/194254/9789241565141_eng.pdf;jsessionid=AB201B62E0913D576E5CF9430F900F98?sequence=1

Wu, R., Li, N. & Ercia, A. 2020. The Effects of Private Health Insurance on Universal Health Coverage Objectives in China: A Systematic Literature Review. *International Journal of Environmental Research and Public Health*, 17 (6): 1-21. https://doi.org/10.3390/ijerph17062049.

Wulandari, R.D. & Laksono, A.D. 2020. Education as Predictor of the Knowledge of Pregnancy Danger Signs in Rural Indonesia. *International Journal of Innovation, Creativity and*

*Change*, 13 (1): 1037–1051. http://dx.doi.org/10.13140/RG.2.2.22029.90084.

Wulandari, R.D., Putri, N.K. & Laksono, A.D. 2020. Socioeconomic Disparities in Antenatal Care Utilisation in Urban Indonesia. *International Journal of Innovation, Creativity and Change*, 14 (2): 498–514. https://www.ijicc.net/images/Vol_14/Iss_2/14234_Wulandari_2020_E_R.pdf.

Wulandari, R.D., Qomarrudin, M.B., Supriyanto, S. & Laksono, A.D. 2019. Socioeconomic Disparities in Hospital Utilization among Elderly People in Indonesia. *Indian Journal of Public Health Research and Development*, 10 (11): 1800–1804. https://doi.org/10.5958/0976-5506.2019.03885.3.

Yaya, S., Da, F., Wang, R., Tang, S. & Ghose, B. 2019. Maternal Healthcare Insurance Ownership and Service Utilisation in Ghana: Analysis of Ghana Demographic and Health Survey. *PLoS ONE*, 14 (4): 1–13. https://doi.org/10.1371/journal.pone.0214841.

You, H., Yu, T., Gu, H., Kou, Y., Xu, X.-P., Li, X.-L., et al. 2019. Factors Associated With Prescribed Antenatal Care Utilization: A Cross-Sectional Study in Eastern Rural China. *Inquiry (United States)*, 56: 1-8. https://doi.org/10.1177/0046958019865435.

Zakar, R., Zakar, M.Z., Aqil, N., Chaudhry, A. & Nasrullah, M. 2017. Determinants of Maternal Health Care Services Utilization in Pakistan: Evidence from Pakistan Demographic and Health Survey, 2012–13. *Journal of Obstetrics and Gynaecology*, 37 (3): 330–337. https://doi.org/10.1080/01443615.2016.1250728.