

# Does a Husband's Education Matter in Antenatal Care Visits Involvement?: Study on the Poor in Indonesia

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## Research article

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# Abstract

**Background:** The husband's involvement in ANC is a form of the husband's responsibility for his wife's health. This study aims to analyze the effect of the husband's education level on the husband's involvement in ANC visits among the poor in Indonesia.

**Methods:** The study employed the 2017 Indonesian Demographic and Health Survey data. The unit of analysis was poor coupled with wives aged 15-49 years old and had been pregnant for the past five years. Samples of 6,414 couple were obtained. Besides the husband's education, other independent variables analyzed in this study were of the place of residence, age, occupation, and wife's parity. A binary logistic regression test was occupied in the final stage.

**Results:** The results showed that husbands who had primary education were 1.470 times more likely than no education husbands for husband's involvement in ANC visit. Husbands who have secondary education were likely 2.129 times compared to no education husband for husband's involvement. Meanwhile, a husband who has a higher education was probably 3.618 times compared to no education husband for husband's involvement. In addition to the education level, 3 other variables proved to be significantly influential on the husband's involvement in ANC visits among the people in Indonesia, namely place of residence, occupation, and wife's parity.

**Conclusion:** The husband's education level was a determinant of the husband's involvement in ANC visits among the poor in Indonesia. The better the education level, the more likely it is that husband's involvement in the ANC visit.

## Background

Maternal and neonatal mortality is an indicator of health in an area marked by access and quality of antenatal care services so that it is included in the focus of Sustainable Development Goals (SDGs) <sup>1</sup>. Based on data from the World Health Organization (WHO) in 2017, it was explained that the maternal mortality rate in South-Eastern Asia reached 137/100,000 live births. Indonesia's position is the second-highest in ASEAN after Laos in 2017 with an estimated number of maternal mortality cases of 305 cases per 100,000 live births <sup>2</sup>. This number is still far from the target set in the Millennium Development Goals (MDGs), which is 102 deaths per 100,000 live births and is then expected to achieve the SDGs target of 70 deaths per 100,000 live births <sup>3</sup>. Meanwhile, infant mortality in 2018 was 13 per 1000 live births <sup>4</sup>.

To reduce maternal and infant mortality rates, several programs have been implemented including the Safe Motherhood Program or "Mother's Love Movement" in 1990, then in the following decade the Making Pregnancy Safer Strategy program was implemented, and then the Expanding Maternal and Neonatal Survival program was implemented in 2012 which aims to improve the quality of obstetric and neonatal emergency services <sup>5</sup>. However, these efforts have not shown success <sup>6</sup>. Antenatal care (ANC) services have not been accessed as a whole, namely at least four times during pregnancy <sup>7,8</sup>. Research in

Pakistan also shows that pregnant women have very little access to ANC services<sup>9</sup>. ANC services in Southeast Asia also vary, data shows that ANC coverage in Indonesia is higher than the Philippines and Timor Leste, namely 92%. This also applies to the first ANC visit, namely Indonesia (86%), Cambodia (83%), and Myanmar (47%)<sup>10</sup>.

The condition that attracts attention to the high maternal and infant mortality rates in Indonesia is the strong patriarchal culture. Patriarchal culture places women as subordinate subjects in social status, so there is a very weak bargaining position in making decisions about domestic needs when compared to husbands/spouses<sup>11-13</sup>. The influence of a strongly patriarchal culture makes the husband an important figure to support his wife to access maternal and child health services in developing countries in addition to meeting the economic needs of the wife<sup>14,15</sup>.

The dominant role of the husband as a decision-maker is very important to save mothers in a critical condition during pregnancy and childbirth. However, the fact is that the majority of husbands have minimal knowledge regarding maternal health during pregnancy and childbirth and seem to underestimate critical antenatal conditions, especially when the family's economic conditions are weak<sup>16</sup>. Several literature studies in Indonesia explain that the husband has full autonomy in the decision to choose antenatal care<sup>12,17,18</sup>, If this condition is not balanced with a good level of education and knowledge, it will affect the quality of decision making<sup>1,19</sup>.

Seeing the very important role of husbands in preventing maternal and infant mortality, the Indonesian government in 2000 launched the "*SUAMI SIAGA*" program (Alert Husband). *SIAGA* is an abbreviation which means '*Slap*' or awake/alert, meaning that the husband delivers and accompanies the mother to antenatal care during pregnancy or childbirth. obstetric and gynecological emergencies, and '*jaGA*' which means looking after the wife during pregnancy and with the wife after childbirth<sup>20,21</sup>. To support this program, husbands are expected to have knowledge and understanding regarding antenatal care, emergency obstetric gynecology services, availability of transportation access to reach referral health services, and costs for accessing services<sup>21</sup>. Another study explained that the husband's knowledge regarding the process of preparing for childbirth was related to frequent access to information from the internet<sup>14</sup>. Not only that, but the husband's high education also has implications for promotion to access ANC services<sup>15</sup>.

Education and economic status are like interconnecting links. A study in India explains that poverty is a challenge in accessing maternal and child health services<sup>22</sup>. The level of someone's wealth is a factor that influences the pattern of access to health services, including institutional delivery<sup>23,24</sup>. The higher the level of wealth, the better education and knowledge that will influence behavior patterns in accessing health services<sup>25,26</sup>. Based on the dynamics of these problems, this study aims to analyze the effect of the husband's education level on the husband's involvement in ANC visits among the poor in Indonesia.

## Methods

## Data Source

The study was conducted using the 2017 Indonesian Demographic Data Survey (IDHS) data. The unit of analysis in this study was poor childbearing age couples. Couple with a wife aged 15-49 years old and had a pregnancy in the last five years before the interview. Samples were taken using stratification and multistage random sampling methods. A sample of 6,414 couples was collected.

## Data Analysis

The husband's involvement was the respondent's acknowledgment of the husband's role in accompanying his wife during ANC visits. The poor were quintiles 1 and 2 of the family's wealth index. The wealth index was calculated based on wealth (number and type of goods owned). The wealth that counts was television to bicycle or car, and housing characteristics, such as sources of drinking water, toilet facilities, and the main building materials for the floor of the house. This score was calculated using principal component analysis. The national wealth quintile was compiled based on the household score for each person in the household and then divided by distribution into the same five categories, each accounting for 20% of the population <sup>27</sup>.

The education level was determined based on the last educational certificate the husband has. Education level was divided into 4 criteria, namely no education, primary, secondary, and higher. Other variables analyzed as independent variables were the type of place of residence, age group, occupation of husband, and parity of wife. The type of place of residence was divided into two categories, namely urban and rural. The division of the two categories of the type of place of residence follows the criteria determined by the Central Statistics Agency. Age was the respondent's acknowledgment of the husband's last birthday that has passed. The age group was divided into 5 categories, namely < 21, 21 – 30, 31 – 40, 41 – 50, and > 50. The husband's occupation type was the respondent's recognition of the type of field of work of the husband. Occupation type consists of 8 categories, namely did not work, professional/technical/managers/administration, clerical, sales, services, agricultural – self-employed, industrial worker, and other. The parity of wife was the respondent's acknowledgment of the number of live babies born to his wife. Parity is divided into 3 criteria, namely primiparous (< 2), multiparous (2 – 4), and grand multiparous (> 4).

At the initial stage, a collinearity test was carried out to ensure that there was no collinearity between the dependent and independent variables. Then the bivariate test was carried out using the chi-square test to see the relationship between the education level of husband and other variables. In the final stage, a binary logistic regression test was performed to determine the determinant and calculate the odds ratio. The entire analysis process uses the help of SPSS 22.

## Results

Information about the results of the collinearity test can be seen in Table 1. The results of the analysis show that the tolerance value for all variables, between the dependent and independent variables, is >

0.10. Otherwise, the VIF value is <10.00. Based on the results of the analysis, it can be concluded that there are no multicollinearity symptoms in the regression model.

**Table 1** Results for collinearity test of husband's involvement in ANC visits among the poor in Indonesia (n=6,414)

Variables	Collinearity Statistics	
	Tolerance	VIF
Education level	0.895	1.117
Type of Place of Residence	0.994	1.006
Age group	0.711	1.407
Occupation	0.924	1.082
Parity of wife	0.711	1.405

\*Dependent Variable: Husband's involvement in ANC visit

Table 2 displays the results of the bivariate test between the education level of husband and other related variables. Table 2 informs that all education levels are dominated by husbands involved in ANC visits, except for no education husbands which are dominated by those who were not involved. Based on the type of place of residence, all education levels are dominated by husbands who live in rural areas. Meanwhile, based on the age group, all education levels were dominated by husbands in the 31-40 age group.

Based on the occupation of husband, all education levels are dominated by husbands who have an occupation in the agriculture - self-employed, except for husbands in the higher education category, which are dominated by professional/technical, managers and administration. Meanwhile, based on the parity of wife, all education levels are dominated by husbands with multiparous wives.

**Table 2** The Results of Bivariate Analysis (n=6,414)

Characteristics	Education Level								P
	No Education		Primary		Secondary		Higher		
	n	%	n	%	n	%	n	%	
<b>Husband's involved in ANC visit</b>									*** 0.000
- No	89	57.1%	1132	43.1%	1050	32.2%	82	22.3%	
- Yes	67	42.9%	1495	56.9%	2213	67.8%	286	77.7%	
<b>Type of place of residence</b>									*** 0.000
- Urban	25	16.0%	605	23.0%	1003	30.7%	78	21.2%	
- Rural	131	84.0%	2022	77.0%	2260	69.3%	290	78.8%	
<b>Age groups</b>									*** 0.000
- < 21	1	0.6%	18	0.7%	41	1.3%	1	0.3%	
- 21 – 30	33	21.2%	649	24.7%	1148	35.2%	160	43.5%	
- 31 – 40	63	40.4%	1245	47.4%	1484	45.5%	160	43.5%	
- 41 – 50	39	25.0%	618	23.5%	514	15.8%	42	11.4%	
- > 51	20	12.8%	97	3.7%	76	2.3%	5	1.4%	
<b>Occupation</b>									*** 0.000
- Did not work (ref.)	3	1.9%	10	0.4%	27	0.8%	16	4.3%	
- Professional/technical, managers and Administration	2	1.3%	41	1.6%	155	4.8%	137	37.2%	
- Clerical	1	0.6%	8	0.3%	117	3.6%	62	16.8%	
- Sales	9	5.8%	195	7.4%	305	9.3%	17	4.6%	
- Services	15	9.6%	344	13.1%	603	18.5%	43	11.7%	
- Agricultural – self-employed	94	60.3%	1349	51.4%	1149	35.2%	55	14.9%	
- Industrial worker	31	19.9%	667	25.4%	880	27.0%	33	9.0%	
- Others	1	0.6%	13	0.5%	27	0.8%	5	1.4%	
<b>Parity of wife</b>									***

									0.000
- Primiparous (ref.)	26	16.7%	596	22.7%	1078	33.0%	172	46.7%	
- Multiparous	91	58.3%	1699	64.7%	1889	57.9%	174	47.3%	
- Grandemultiparous	39	25.0%	332	12.6%	296	9.1%	22	6.0%	

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

**Table 3** Binary logistic regression of husband's involvement in ANC visit among the poor in Indonesia (n=6,414)

Predictors	Husband's Involvement in ANC visit			
	Sig.	OR	Lower Bound	Upper Bound
Education level: No education	-	-	-	-
Education level: Primary	** 0.025	1.470	1.050	2.058
Education level: Secondary	*** 0.000	2.129	1.520	2.982
Education level: Higher	*** 0.000	3.618	2.352	5.566
Type of place of residence: Urban	-	-	-	-
Type of place of residence: Rural	*** 0.000	0.796	0.701	0.904
Age group: < 21	-	-	-	-
Age group: 21 – 30	0.892	1.039	0.596	1.811
Age group: 31 – 40	0.312	1.335	0.763	2.335
Age group: 41 – 50	0.438	1.254	0.708	2.219
Age group: > 50	0.901	0.961	0.512	1.804
Occupation: Did not work	-	-	-	-
Occupation: Professional/technical, managerial and administration	0.203	1.478	0.810	2.697
Occupation: Clerical	* 0.016	2.216	1.158	4.239
Occupation: Sales	** 0.002	2.564	1.418	4.635
Occupation: Services	* 0.021	1.963	1.106	3.485
Occupation: Agricultural – self-employed	0.126	1.555	.884	2.735
Occupation: Industrial worker	* 0.016	2.011	1.139	3.551
Occupation: Other	0.135	1.905	0.818	4.436
Parity: Primiparous	-	-	-	-
Parity: Multiparous	*** 0.000	0.589	0.512	0.677
Parity: Grand multiparous	***	0.269	0.216	0.333

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

Table 3 displays the results of the binary logistic regression of the husband's involvement in ANC visits among the poor in Indonesia. Based on the education level, it can be seen that husbands who have a primary education level are 1.470 times more likely than no education husbands for husband's involvement in ANC visits (OR 1.470; 95% CI 1.050-2.058). Husbands who have secondary level education have a probability of 2.129 times compared to no education husband for husband's involvement in ANC visits (OR 2.129; 95% CI 1.520-2.982). Meanwhile, husbands who have a higher education level category are 3.618 times more likely than no education husbands for husband's involvement in ANC visits (OR 3.618; 95% CI 2.352-5.566). This information shows that the better the education of a husband, the greater the likelihood of the husband's involvement in ANC visits among the poor in Indonesia.

Apart from the education level, 3 other variables proved to be significant to influence the husband's involvement in ANC visits among the poor in Indonesia. First, type of place of residence. Husbands living in rural areas were 0.796 times more likely than husbands living in urban areas for the husband's involvement in ANC visits (OR 0.796; 95% CI 0.701-0.904). The results of this analysis indicate that husbands who live in urban areas have a higher probability of husband's involvement in ANC visits among the poor in Indonesia.

Second, the occupation of the husband. Husbands with occupation in the clerical category were 2.216 times more likely than husband did not work for husband's involvement in ANC visits (OR 2.216; 95% CI 1.158-4.239). Husbands with occupation in the sales category were 2.564 times more likely than husband did not work for husband's involvement in ANC visits (OR 2.564; 95% CI 1.418-4.635). The husband with occupation service category had 1.963 times probability than husband did not work for husband's involvement in ANC visit (OR 1.963; 95% CI 1.106-3.485). On the other hand, husbands with occupation in the industrial worker category had a probability of 2.011 times compared to husband did not work for husband's involvement in ANC visit (OR 2.011; 95% CI 1.139-3.551).

Third, the parity of wife. Husbands with multiparous wives were 0.589 times more likely than husbands with primiparous wives for husband's involvement in ANC visit (OR 0.589; 95% CI 0.512-0.677). Meanwhile, husbands with grand multiparous wives were 0.269 times more likely than husbands with primiparous wives for husband's involvement in ANC visit (OR 0.269; 95% CI 0.216-0.333). These findings inform that the more children a couple has, the less likely it is for the husband's involvement in ANC visits among the people in Indonesia.

## Discussion

The results of the analysis found that the better the education of a husband, the greater the possibility of the husband's involvement in ANC visits among the poor in Indonesia. These findings inform that awareness and responsibility as a husband is in line with the level of education one has. The better the level of education, the better it is to understand the risk of pregnancy hazards that are currently undergoing the wife. Understanding more and more that pregnancy is not only women's business<sup>28,29</sup>. A study in Tanzania found that the involvement of the husband in ANC visits is a lifestyle that is considered modern<sup>30</sup>. Husband involvement was also found to encourage wives to use maternal services with better and more skilled midwives<sup>31,32</sup>.

Higher education level is known to be the main positive determinant of program performance in the health sector as indicated in several previous studies<sup>33-35</sup>. Otherwise, lower levels of education were found to be a barrier to program performance in the health sector<sup>36,37</sup>.

Husbands living in urban areas have a better chance of husband's involvement in ANC visits among the poor in Indonesia. This condition is possible because couples who live in urban areas have the opportunity to be exposed to better health information than couples who live in rural areas<sup>34,38</sup>. Additionally, several studies have informed that living in urban areas provides opportunities for better access to various health care facilities<sup>39,40</sup>.

The results of the analysis inform that occupation of the husband is one of the determinants of the husband's involvement in ANC visits among the poor in Indonesia. Specifically, a study in Pakistan states that the husband's involvement in ANC visits is influenced by income level. Lower-income has a lower probability of a husband's involvement in the ANC visit<sup>28</sup>. For poor families, the time that the husband has is more prioritized for seeking additional income than having to take the wife for ANC visits. Another study conducted in Myanmar found that the involvement of the husband is higher in financial support, but the involvement of the husband is lower in terms of maternity care and preparation for delivery<sup>32</sup>.

Finally, the results of the analysis show that the more children a couple has, the less likely it is for the husband's involvement in ANC visits among the poor in Indonesia. The previous study also informed the similar findings that parity is a determinant of the husband's involvement in the ANC visit<sup>32</sup>. Meanwhile, a study in Tanzania informs different findings. Husbands with grand multiparous wives were 1.658 times more likely than husbands with primiparous wives for husband's involvement in ANC visit<sup>41</sup>.

The limitation of this study is that it does not include cultural factors as one of the predictors that might influence the husband's involvement in ANC visits among the poor in Indonesia. Several previous studies have suggested that cultural factors are often found as a barrier to the husband's involvement in maternal health services<sup>42,43</sup>. On the other hand, in the context in Indonesia, it is often assumed that pregnancy and childbirth are the affairs of women, not men<sup>11</sup>.

## Conclusions

Based on the results of the study, it could be concluded that there was an education level of the husband which was a determinant of the husband's involvement in ANC visits among the poor in Indonesia. The better the husband's education level, the greater the chance for the husband's involvement in the ANC visit. Apart from education level, 3 other variables were also found as determinants of the husband's involvement in ANC visits among the poor in Indonesia. The three variables were the type of place of residence, occupation of husband, and parity of wife.

## **Declarations**

### **Ethics approval and consent to participate**

The 2017 IDHS has passed ethical clearance from the National Ethics Committee. The respondents' identities have all been deleted from the dataset. Respondents have provided written approval for their involvement in the study. The author has obtained permission for the use of data for this study through the website: <https://dhsprogram.com/data/new-user-registration.cfm>.

### **Consent for publication**

Not applicable

### **Competing interests**

The authors declare that they have no competing interests

### **Funding**

Not applicable

### **Availability of data and materials**

Data cannot be shared publicly because of the data are owned by a third party and authors do not have permission to share the data. The 2017 IDHS data set name requested from the ICF ('data set of childbearing age women') are available from the ICF contact via <https://dhsprogram.com/data/new-userregistration.cfm>) for researchers who meet the criteria for access to confidential data.

### **Authors' contributions**

ADL developed the proposal, analyzed and interpreted the patient data. RDW was a major contributor in conducting study, interpreting the data and writing the manuscript. RM was a major contributor in conducting study, interpreting the data and writing the manuscript. All authors read and approved the final manuscript.

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