Socioeconomic Disparities in Antenatal Care Utilisation in Urban Indonesia

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Living in urban areas brings its consequences for pregnant women, especially for those who are poor. The purpose of the study was to analyse socioeconomic disparities in ANCs in urban Indonesia. The samples used were women aged 15-49 years old who had given birth in the last 5 years in urban Indonesia. The sample size was 7,568 women. The variables analysed included antenatal care (ANC), socioeconomic, age, have a husband/partner, education, parity, and health insurance. The disparity was determined by binary logistic regression. Women in a socioeconomic poorer category were 1.306 times more likely than the poorest to make complete ANC visits. Women who have a socioeconomic middle category are 1.758 times more likely compared to the poorest to make complete ANC visits. Women who have socioeconomic richer categories were 2.618 times more likely than the poorest to make complete ANC visits. The richest women were 1.306 times as likely as the poorest women to make complete ANC visits. This information shows that the better the socioeconomic status of a woman in urban areas of Indonesia, the more likely it was to make a complete ANC visit. Other variables also found as predictors of ANC visits were age, have a husband/partner, education, parity, and health insurance. There was a significant disparity between socioeconomic groups in ANC utilisation in urban Indonesia. The better the socioeconomic status of a woman, the more likely she was to make a complete ANC visit.

Key words: *Socioeconomic, Antenatal Care, Urban Health, Maternal Health.*

Introduction

Maternal mortality is still a challenge for Indonesia. Indonesia reported 390 deaths per 100,000 live births in 1991, which then fell into 305 deaths per 100,000 live births in 2015 (Indonesian Ministry of Health, 2019). This slow reduction of maternal death could not help Indonesia achieve the Millennial Development Goals (MDGs) target by 2015 that set on 102 per 100,000 live births.

Globally, 295,000 deaths (211 deaths per 100,000 live births) were estimated to occur in 2017 (World Health Organisation, 2019). The highest number of maternal deaths in 2017 is estimated to have happened in Nigeria (67,000) and India (35,000), where the problem of socioeconomic disparities has existed for a long time. According to the poverty and equity data portal of the World Bank, at least 53.5% of Nigeria's population and 31.1% of India's population lived below the poverty line in 2009 (World Bank, 2020). Indonesia, with 5.7% of its population living below the poverty line, was estimated to have 8,600 maternal deaths (World Health Organisation, 2019). This number brings Indonesia in the sixth rank worldwide and the second rank in Asia as a country with the highest maternal death rates. Indonesia's position is only competitive with two other Asian countries, Pakistan and Bangladesh. Surprisingly, even though Indonesia has a better poverty headcount ratio, maternal death in Pakistan and Bangladesh is estimated to be less than Indonesia. Pakistan is estimated to have had 8,300 deaths and Bangladesh had 5,100 deaths (World Health Organisation, 2019).

Acknowledging that maternal death is preventable, Indonesia has implemented various health programs (Putri, 2020). Integrated antenatal care is one of the prominent programs regulated by the national government in preventing maternal death. This program aims to ensure a positive pregnancy experience by conducting early detection of maternal problems. Antenatal care is considered as an effective method to improve healthy pregnancy and babies (Laksono, Rukmini and Wulandari, 2020; Wulandari and Laksono, 2020a). An integrated antenatal care program in Indonesia requires expectant mothers to have at least four pregnancy visits to the primary health facility.

On the other hand, the utilisation of integrated antenatal care in Indonesia is hampered by many barriers to healthcare access (Ningsih, 2018; Sandra, 2018; Afrisal et al., 2020; Laksono and Sandra, 2020). Populations in urban areas have better access to healthcare services than rural, but the poor in an urban area has the worst access compared to all groups in rural and urban populations (Laksono, Wulandari and Soedirham, 2019b, 2019a; Laksono and Wulandari, 2020b; Laksono, Wulandari and Efendi, 2020). The government as a policymaker must be able to issue a policy to break the poverty chain that shackles the urban poor. One of the ways is by increasing the access equality for all groups of people to the healthcare facility in times of need (Fu et al., 2018; Gaskin et al., 2018).

Indonesia is a country with diverse tribes and cultures. More than 500 ethnic groups have their own health beliefs, including health beliefs related to pregnancy and childbirth. For example, the Gayo women in Aceh Province must hide their pregnancy, because it is believed that their foetus will be taken by an evil spirit if the pregnancy is known to someone (Pratiwi et al., 2019). On the other hand, the presence of shamans still exists in some areas, not only doing prenatal care, but also providing birth assistance (Sudrajat, Fahriani and Soerachman, 2016). This variety of local wisdom also becomes a challenge for health workers to be able to realise adequate pregnancy care, according to the standards set by the Ministry of Health.

Based on the background description, this study is aimed at analysing socioeconomic disparities in ANC utilisation in urban Indonesia. The results of the analysis in this study are important for policymakers in maternal health in Indonesia. The results of the analysis can provide clear and directed guidance on the targets that require intervention to accelerate the improvement of ANC utilisation in Indonesia.

Methods
Data Source

The study was conducted using the 2017 Indonesian Demographic Data Survey (IDHS) data. The IDHS was part of the global Demographic and Health Survey (DHS) program conducted by the Inner City Fund (ICF) program. Unit analysts in this study were women aged 15-49 years old who had given birth in the last 5 years in urban Indonesia. The sampling method uses stratification and multistage random sampling, so we get 7,568 respondents.

Data Analysis

The determination of urban areas refers to the criteria issued by the Indonesian Central Statistics Agency. The Ministry of Health of the Republic of Indonesia recommends that the ANC during pregnancy be performed at least 4 times, namely, 1 time in the first trimester, 1 time in the second trimester, and 2 times in the third trimester (Laksono, Rukmini and Wulandari, 2020). ANC visits were divided into 2 categories; ANC visits that are incomplete (<4 times), and complete ANC visits (≥ 4 times).

Socioeconomic ranking was based on the wealth quintile owned by a household. Households were scored based on the numbers and types of items they had, from televisions to bicycles or cars, and housing characteristics, such as drinking water sources, toilet facilities, and main building materials for the floor of the house. This score was calculated using principal component analysis. National wealth quintiles were arranged based on household scores for

each person in the household and then divided by the distribution into the same five categories, with each accounting for 20% of the population (BKKBN, 2018).

Besides socioeconomic factors, other independent variables analysed included age group, have a husband/partner, education level, parity, and health insurance. Because all variables are dichotomous variables, the Chi-Square test was used to test the relationship between socioeconomic and other variables. In the final stage, the determination of disparity was performed using binary logistic regression because of the nature of the dependent variable. All statistical analyses were carried out using SPSS 22 software.

Results

Figure 1 shows that in all categories the parity of women who did not complete ANC visits was dominated by poor women. In the category of women who perform complete ANC (≥ 4), it is dominated by rich women.

Table 1 displays the results of the collinearity test between the dependent variable and the independent variable. The analysis results inform that the tolerance value of all variables is greater than 0.10, and the value of VIF for all variables is less than 10.00. This information shows that there were no symptoms of multicollinearity in the regression model.

Table 2 presents descriptive statistics of socioeconomic versus socio-demographics of women of childbearing age who gave birth in the last five years in urban Indonesia. It can be seen that based on the completeness of ANC visits, all socioeconomic categories are dominated by women of childbearing age who make complete ANC visits (≥ 4 times).

By age group, Table 2 shows that all socioeconomic categories are dominated by women of childbearing age in the 30-34 age category, except for the poorest socioeconomic category, which is dominated by the 25-29 age group. Based on the have a husband/partner category, all socioeconomic categories are dominated by women of childbearing age who have a husband/partner.

Table 2 informs that based on education level, all socioeconomic categories are dominated by women of childbearing age who have secondary education level. Based on parity, all socioeconomic categories are dominated by multiparous women of childbearing age (2-4). Based on health insurance ownership, all socioeconomic categories are dominated by women of childbearing age who have health insurance.

Table 3 shows the results of the binary logistic regression test of ANC utilisation in urban Indonesia. Table 3 shows that socioeconomic rank has a very strong influence on the

completeness of ANC visits in women of childbearing age in urban Indonesia. Women who have the socioeconomic level in the poorer category are 1.306 times more likely than the poorest women to have complete ANC visits (OR 1.306; 95% CI 1.001-1.703). Women who have the socioeconomic level in the middle category are 1.758 times more likely than the poorest women to have complete ANC visits (OR 1.758; 95% CI 1.341-2.304). Women who have the socioeconomic level in richer categories are 2.618 times more likely than the poorest women to make complete ANC visits (OR 2.168; 95% CI 1.963-3.491). The richest women were 1.306 times more likely than the poorest women to have complete ANC visits (OR 3.564; 95% CI 2.582-4.917). The results of this analysis inform that the better the socioeconomic level of a woman in urban areas of Indonesia, the more likely she is to make a complete ANC visit.

Table 3 informs that women of childbearing age in the 15-19 age group are 0.264 times more likely to make complete ANC visits than women of childbearing age in the 45-49 age group (OR 0.264; 95% CI 0.129-0.544). While this age group did not show a significant difference compared to the age group 45-49. The results of this analysis inform that all age groups in urban Indonesia have a better chance than the 15-19 age group of making complete ANC visits. Table 3 shows that based on having a husband/partner, women of childbearing age who have a husband/partner are 2.535 times more likely to make complete ANC visits than women of childbearing age who have no husband/partner (OR 2.535; 95% CI 1.809-5.552). The results of this analysis inform that not having a husband/partner is a risk factor for incomplete ANC visits in urban Indonesia.

Table 3 informs that based on education level there is no difference between women of childbearing age and primary education compared to women of childbearing age with no education in making complete ANC visits. Women of childbearing age with secondary education have a probability of 3.013 times compared to women of childbearing age with no education to make complete ANC visits (OR 3,013; 95% CI 1,352-6,715). The results of this analysis inform that the better the education level of women of childbearing age in urban Indonesia, the more likely she is to make a complete ANC visit.

Table 3 shows that primiparous women were 5.689 times more likely than grande multiparous women to have complete ANC visits (OR 5.689; 95% CI 3.963-8.165). Multiparous women were 3.888 times more likely than grande multiparous women to have complete ANC visits (OR 3.888; 95% CI 2.949-5.127). The results of this analysis inform that the fewer children mothered by women of childbearing age in urban Indonesia, the more likely she is to make a complete ANC visit.

Table 3 informs that women of childbearing age who are covered by health insurance are 1.407 times more likely to make complete ANC visits than women of childbearing age who are not covered by health insurance (OR 1.407; 95% CI 1.182-1.675). The results of this analysis

inform that not having health insurance is one risk factor for the incompleteness of ANC visits in urban Indonesia.

Discussion

The results inform that the better the socioeconomic situation of a woman, the more likely she is to make a complete ANC visit. The finding of a link between socioeconomic status and access to health services is in line with the results of previous studies in several European countries (Doganis et al., 2018), Bangladesh (Boulton et al., 2018), and the United States of America (Yuan et al., 2018), including in Indonesia (Wulandari et al., 2019; Laksono, Paramita and Wulandari, 2020). This information shows that there has not been an adequate improvement in the health service system, which can provide equal access to health services for all socioeconomic groups in the community.

Regarding poor people's access to healthcare facilities, the Indonesian government has released a national health coverage policy through the National Health Insurance (NHI) since 2014. The poor have received premium assistance in this NHI membership mechanism, (Nasution, Mahendradhata and Trisnantoro, 2020) so that socioeconomic disparities in access to health services should be minimised.

Information on the results of the study found that all age groups of women of childbearing age in urban Indonesia have a better chance than the 15-19 age group to make complete ANC visits. Although pregnant women aged 15-19 years are included in the high-risk group, the utilisation of ANC is still very low. Teenage pregnancy groups that live below the poverty line even tend to choose not to do ANC (Ernawaty and Putri, 2014; Laksono, Rukmini and Wulandari, 2020). This causes early detection during pregnancy to not be done properly.

Pregnancy in adolescence has long been identified as having a high risk of maternal death but also poor neonatal outcome (Demirci et al., 2016; Wemakor et al., 2018; Laksono and Wulandari, 2020a). The unsatisfaction antenatal care elements in this group are closely related to health decision making during pregnancy and childbirth. This age group tends to not consume enough nutrients during pregnancy (Marvin-Dowle, Burley and Soltani, 2016). Antenatal satisfaction in teenage pregnancy also increases the decision by mothers to choose home childbirth (Adewuyi et al., 2019).

The analysis results inform that having not a husband/partner is a risk factor for incomplete ANC visits in urban Indonesia. In the context of Indonesia, getting pregnant without a partner is a disgrace, especially in the age group of teenagers who are pregnant without a husband (Itriyati and Asriani, 2014). This group experienced a difficult and traumatic pregnancy from the psychological side which resulted in low motivation to carry out pregnancy care (Malik,

Astuti and Yulianti, 2015). This explains why the adolescent age group in this study had low ANC utilisation.

This level of knowledge has long been identified as a determinant of the decision to conduct an ANC (Fitriani, Handayani and Lubis, 2019; Panjaitan, Santosa and Utama, 2019; Wulandari and Laksono, 2020b). The results of previous studies also show the same thing but can better explain how the intersection between the level of education and urban-rural factors influences the utilisation of ANC. This study shows that the higher the education level of women of childbearing age in urban Indonesia, the more likely she is to make complete ANC visits. Several studies found that education is a positive predictor of health status output. Mothers with these characteristics are easier to get information from about utilisation (Pratiwi and Basuki, 2016; Noh et al., 2019; Ipa et al., 2020).

Another characteristic that significantly influences ANC visit satisfaction is parity. The results of this study inform that the lower the parity of women of childbearing age in urban Indonesia, the more likely they are to make a complete ANC visit. This information is in line with findings in countries with other high maternal mortality rates (Muyunda et al., 2016; Wekesa et al., 2018; Daryanti, 2019; Tekelab et al., 2019). Mothers with high parity tend to delay ANC until the end of pregnancy (Muyunda et al., 2016; Tesfaye et al., 2017).

Previous studies have shown that not having health insurance has proven to be significant as one of the risk factors for incomplete ANC visits in urban Indonesia. Mothers who live in urban areas and have health insurance will only have difficulty accessing the use of ANC services when there are administrative complexity problems in utilising social health insurance. (Putri, Wulandari and Damayanti, 2018). The gap between poor and rich groups in the utilisation of ANC will be smaller in countries with high universal health coverage (Neal et al., 2015; Wagstaff and Neelsen, 2020). The existence of NHI will help mothers in utilising maternal health facilities in Indonesia. The World Bank report states that the still low readiness of health facilities, especially in eastern Indonesia, must be accounted for so that the NHI can help overcome the problem of socioeconomic disparity in maternal health (World Bank, 2014).

Conclusions

Based on the analysis of the results of the study it could be concluded that there was a significant disparity between socioeconomic groups in ANC utilisation in urban Indonesia. The better the socioeconomic status of a woman of childbearing age in urban areas of Indonesia, the more likely it is she will make complete ANC visits. Other variables also found as predictors of ANC visits are age group, have a husband/partner, education level, parity, and health insurance.

Ethic and Consent

The 2017 IDHS has received ethical approval from the national ethics commission at the Ministry of Health. 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 to use the 2017 IDHS data from ICF International through its website: https://dhsprogram.com/data/new-user-registration.cfm.

Figure 1. Distribution of antenatal care utilisation based on parity and wealth status in urban Indonesia, 2017
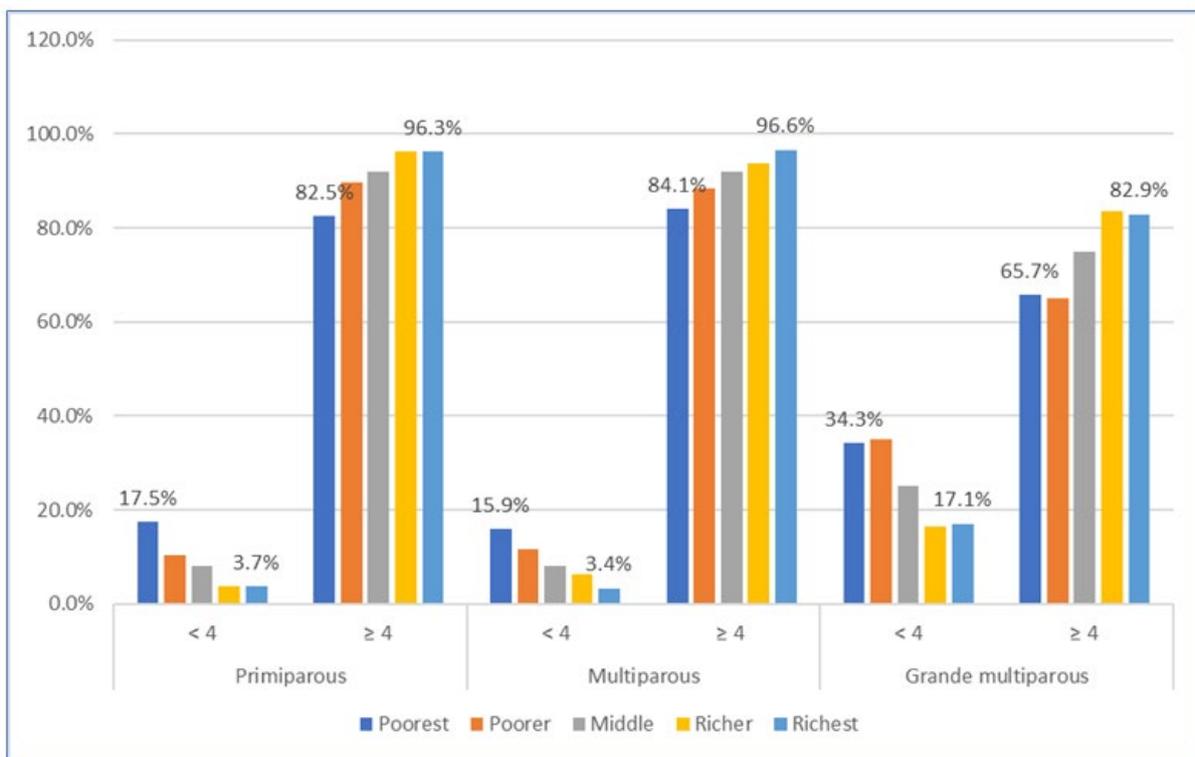
Table 1: Results for the Co-Linearity Test of ANC Utilisation in Urban Indonesia, 2017 (n=7,568)

Variables	Collinearity Statistics	
	Tolerance	VIF
Socioeconomic	0.804	1.244
Age group	0.667	1.499
Have a husband/partner	0.990	1.010
Education level	0.796	1.257
Parity	0.661	1.513
Covered by health insurance	0.960	1.042

Dependent Variable: ANC

Table 2: The Result of Descriptive Statistics of Socioeconomic and Socio-demographic of Respondents (n=7,568)

Variables	Socioeconomic										P
	Poorest		Poorer		Middle		Richer		Richest		
	n	%	n	%	n	%	n	%	n	%	
ANC											0.000***
• <4 (ref.)	131	19.0%	156	13.1%	143	8.9%	112	5.8%	85	3.9%	
• ≥4	557	81.0%	1039	86.9%	1465	91.1%	1811	94.2%	2069	96.1%	
The age group of respondents											0.000***
• 15-19	30	4.4%	46	3.8%	39	2.4%	36	1.9%	16	0.7%	
• 20-24	121	17.6%	213	17.8%	266	16.5%	257	13.4%	169	7.8%	
• 25-29	161	23.4%	290	24.3%	395	24.6%	508	26.4%	534	24.8%	
• 30-34	160	23.3%	304	25.4%	407	25.3%	519	27.0%	629	29.2%	
• 35-39	131	19.0%	216	18.1%	338	21.0%	410	21.3%	533	24.7%	
• 40-44	72	10.5%	103	8.6%	137	8.5%	165	8.6%	224	10.4%	
• 45-49 (ref.)	13	1.9%	23	1.9%	26	1.6%	28	1.5%	49	2.3%	
Have a husband/partner											0.000***
• No (ref.)	42	6.1%	50	4.2%	50	3.1%	62	3.2%	45	2.1%	
• Yes	646	93.9%	1145	95.8%	1558	96.9%	1861	96.8%	2109	97.9%	
Education Level											0.000***
• No education (ref.)	10	1.5%	9	0.8%	6	0.4%	4	0.2%	3	0.1%	
• Primary	301	43.8%	325	27.2%	325	20.2%	229	11.9%	97	4.5%	
• Secondary	344	50.0%	765	64.0%	1115	69.3%	1321	68.7%	1070	49.7%	

• Higher	33	4.8%	96	8.0%	162	10.1%	369	19.2%	984	45.7%	
Parity											0.000***
• < 2	183	26.6%	369	30.9%	511	31.8%	656	34.1%	680	31.6%	
• 2 - 4	403	58.6%	729	61.0%	1021	63.5%	1188	61.8%	1398	64.9%	
• > 4 (ref.)	102	14.8%	97	8.1%	76	4.7%	79	4.1%	76	3.5%	
Covered by health insurance											0.000***
• No (ref.)	277	40.3%	511	42.8%	625	38.9%	681	35.4%	504	23.4%	
• Yes	411	59.7%	684	57.2%	983	61.1%	1242	64.6%	1650	76.6%	

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

Table 3: Binary Logistic Regression of ANC Utilisation in Urban Indonesia (n=7,568)

Predictor	≥4 ANC visits			
	P	OR	Lower Bound	Upper Bound
Socioeconomic: Poorest	-	-	-	-
Socioeconomic: Poorer	*0.049	1.306	1.001	1.703
Socioeconomic: Middle	***0.000	1.758	1.341	2.304
Socioeconomic: Richer	***0.000	2.618	1.963	3.491
Socioeconomic: Richest	***0.000	3.564	2.582	4.917
Age group of respondents: 15-19	***0.000	0.264	0.129	0.544
Age group of respondents: 20-24	0.262	0.697	0.371	1.310
Age group of respondents: 25-29	0.655	0.873	0.480	1.587
Age group of respondents: 30-34	0.697	0.891	0.497	1.596
Age group of respondents: 35-39	0.768	1.091	0.611	1.950
Age group of respondents: 40-44	0.925	0.972	0.535	1.766
Age group of respondents: 45-49	-	-	-	-
Have a husband/partner: No	-	-	-	-
Have a husband/partner: Yes	***0.000	2.535	1.809	3.552
Education Level: No education	-	-	-	-
Education Level: Primary	0.052	2.227	0.994	4.990
Education Level: Secondary	**0.007	3.013	1.352	6.715
Education Level: Higher	*0.015	2.830	1.229	6.515
Parity: < 2	***0.000	5.689	3.963	8.165
Parity: 2 - 4	***0.000	3.888	2.949	5.127
Parity: > 4	-	-	-	-
Covered by health insurance: No	-	-	-	-
Covered by health insurance: Yes	***0.000	1.407	1.182	1.675

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

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