Socioeconomic Disparities of Facility-Based Childbirth in Indonesia

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ABSTRACT

Background: In Indonesia, only 74% of women give birth in health care facilities. This study was conducted to analyze the socioeconomic disparities of facilities-based childbirth in Indonesia.

Methods: The analysis in this study uses raw data from the 2017 Indonesia Demographic and Health Survey (IDHS). With stratification and multistage random sampling, 17,769 women aged 15-49 years with live births in the last 5 years were sampled. Data were analyzed using a Binary Logistic Regression test.

Results: Poorer women were 1.898 times more likely to use healthcare facilities for delivery than poorest women. Middle women were 2.669 times more likely to use healthcare facilities for delivery than poorest women. Richer women have 3.163 times more opportunities to use healthcare facilities for delivery than poorest women. The richest women were 6.566 times more likely to use healthcare facilities for delivery than the poorest women. Women who live in urban areas were 2.412 times more likely to use healthcare facilities for delivery than those who live in rural areas. Age, parity, level of education, ownership of health insurance, knowledge of the danger signs of pregnancy, and antenatal care, in maternity women the past five years significantly contribute to the utilization of healthcare facilities for delivery.

Conclusion: There was a significant disparity between socioeconomic in utilizing healthcare facilities for delivery in Indonesia. Women with better socioeconomic status have better possibilities for utilizing healthcare facilities for delivery.

Keywords: socioeconomic, wealth status, disparity analysis, facility-based childbirth

BACKGROUND

Maternal Mortality Rate (MMR) is still a priority health problem in the world, especially in several developing countries, including in Indonesia. MMR in Indonesia moves volatile. In the 2016 Annual Directorate of Family Health Report, MMR in Indonesia in 1994 reached 390 per 100,000 live births and tended to decrease to 228 in 2007. In 2012, the MMR increased again to 359 per 100,000 live births, and again dropped to 305 per 100,000 births lived in 2015. However, compared to countries in the South East Asia region, that number is still quite high (1).

Efforts to reduce maternal mortality need to begin with an in-depth study of the risk factors for complex maternal mortality. The factors causing MMR are divided into 2 groups of factors namely direct causes and indirect causes. Direct causative factors include uterine complications during the phases of pregnancy, childbirth and the puerperium (2). Indirect factors or intermediate factors include health service factors such as services during pregnancy, childbirth, and childbirth

(3)(4); education factor (5)(6)(7); economic factors (8)(9), and social factors, which are related to public trust in non-health workers, such as traditional birth attendants, as birth assistants (10)(11)(12).

The 2017 Indonesian Demographic Data Survey (IDHS) reports that 74% of women deliver in health care facilities in Indonesia. There were 42% of women who gave birth at first-level health service facilities, which included health centers and their networks, clinics, and practices of health workers. While those delivering to advanced referral service facilities or hospitals are 32% (13).

One of the basic principles of every health care system that must be pursued is equal access to health care facilities. Each individual must be given the opportunity to access health services in accordance with their health requirements, the poor are no exception (14). The government must be present to ensure equal access by reducing disparities in utilization of health service facilities (15). Disparity in the utilization of health service facilities in Indonesia still exists today. Disparities in utilization of health service facilities generally occur in the urban-rural category and between regions (16)(17)(18).

Based on the background, this article was compiled to analyze Socioeconomic Disparities of Facility-Based Childbirth in Indonesia. The analysis in this study is useful for policymakers in the field of maternal health to formulate more detailed policies according to the targets identified in the study results. This step is necessary to ensure more equal delivery of labor.

MATERIALS AND METHODS

Data Source.

Secondary data from the 2017 Indonesian Demographic Data Survey (IDHS) was used as analysis material in this study. The IDHS was part of the International Demographic and Health Survey (DHS) program conducted by the Inner City Fund (ICF). The 2017 IDHS was carried out by the Central Statistics Agency (BPS), in collaboration with the National Population and Family Planning Board (BKKBN) and the Ministry of Health. The 2017 IDHS sample was determined through stratification and multistage random sampling. The unit of analysis in this study was women aged 15-49 years old who had given birth in the last 5 years. The sample size of the 2017 IDHS used in this analysis was 17,769 women.

Procedure.

The 2017 IDHS has passed ethical tests from the National Institute of Health Research and Development of the Indonesian 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 use of the 2017 IDHS data for this study has received permission from ICF International through its website: <https://dhsprogram.com/data/new-user-registration.cfm>.

Data Analysis.

Socioeconomic was the wealth status of respondents compiled based on the index of goods ownership quintile stated by the respondent. The five categories were poorest (quintile 1), poorer (quintile 2), middle (quintile 3), richer (quintile 4), and richest (quintile 5). Delivery at a health service facility was a delivery at a health center, clinic or maternity hospital, the practice of health workers and hospitals (19). The 2017 IDHS data was obtained through a structured questionnaire. Variables analyzed included childbirth facility, wealth status, place of residence, age, education

level, work status, marital status, parity, health insurance, the autonomy of family finances, the autonomy of health, knowledge of pregnancy, knowledge of delivery, and antenatal care.

Statistical analysis using Chi-Square was carried out for dichotomous variables and t-test for continuous variables. This statistical analysis was conducted to assess whether there were differences in childbirth facility that were statistically significant between the category of wealth status. Estimates were performed using Binary Logistic Regression because of the nature of the dependent variable. All statistical analyses were carried out using SPSS 19 software.

RESULTS

Researchers conducted a co-linearity test before carrying out a binary logistic regression test. Table 1 informs the results of the co-linearity test which shows that there is no co-linearity between the dependent and independent variables. Table 1 informs that the tolerance value of all variables is greater than 0.10. While the VIF value for all variables is less than 10.00. Then referring to the basis of decision making in the multicollinearity test it can be concluded that there were no symptoms of multicollinearity in the regression model.

Table 1. Results for a co-linearity test of Facility-based Childbirth in Indonesia

Variables	Collinearity Statistics	
	Tolerance	VIF
Wealth status	0.611	1.637
Place of Residence	0.765	1.307
Age	0.586	1.705
Education level	0.723	1.383
Work status	0.935	1.070
Marital status	0.814	1.228
Parity	0.539	1.856
Health insurance	0.962	1.040
The autonomy of family finances	0.797	1.255
The autonomy of health	0.719	1.392
Know the dangers of the pregnancy	0.899	1.113
Antenatal care	0.881	1.135

*Dependent Variable: Childbirth Services

Table 2 shows that there are differences between women who use healthcare facilities for delivery based on wealth status for all characteristics observed that are statistically significant, except autonomy for family financial. Table 2 informs that in all wealth categories the status of women who use healthcare facilities for delivery is more dominant than those who deliver at nonhealthcare facilities.

Table 2. Descriptive Statistics of Facility-Based Childbirth by Socioeconomic in Indonesia

Characteristics	Wealth Status					All	P
	Poorest	Poorer	Middle	Richer	Richest		
Place of Delivery							0.000
- Nonhealthcare Facilities	2683 (54.39%)	1033 (29.77%)	629 (19.37%)	441 (14.13%)	184 (6.14%)	4970 (27.97%)	
- Healthcare Facilities	2250 (45.61%)	2437 (70.23%)	2619 (80.63%)	2681 (85.87%)	2812 (93.86%)	12799 (72.03%)	
Place of Residence							0.000
- Urban	832 (16.86%)	1387 (39.97%)	1836 (56.53%)	2176 (69.70%)	2492 (83.18%)	8723 (49.09%)	
- Rural	4101 (83.13%)	2083 (60.03%)	1412 (43.47%)	946 (30.30%)	504 (16.82%)	9046 (50.91%)	
Age (mean)	4933 (30.31)	3470 (30.31)	3248 (30.78)	3122 (31.11)	2996 (32.19)	17769 (30.85)	0.000
Education level							0.000
- No education (ref.)	217 (4.40%)	32 (0.92%)	12 (0.37%)	5 (0.16%)	3 (0.10%)	269 (1.51%)	
- Primary	2201 (44.62%)	1004 (28.93%)	693 (21.34%)	380 (12.17%)	153 (5.11%)	4431 (24.94%)	
- Secondary	2255 (45.71%)	2066 (59.54%)	2123 (65.36%)	2019 (64.67%)	1416 (47.26%)	9879 (55.60%)	
- Higher	260 (5.27%)	368 (10.61%)	420 (12.93%)	718 (23.00%)	1424 (47.53%)	3190 (17.95%)	
Work status							0.000
- No work (ref.)	2781 (56.38%)	2080 (59.94%)	1824 (56.16%)	1551 (49.68%)	1248 (41.66%)	9484 (53.37%)	
- Work	2152 (43.62%)	1390 (40.06%)	1424 (43.84%)	1571 (50.32%)	1748 (58.34)	8285 (46.63%)	
Marital status							0.000
- Never married (ref.)	23 (0.47%)	2 (0.06%)	3 (0.09%)	1 (0.03%)	0 (0.00%)	29 (0.16%)	
- Married/Living with Partner	4724 (95.76%)	3361 (96.86%)	3152 (97.04%)	3034 (97.18%)	2941 (98.16%)	17212 (96.87%)	
- Divorced/Widowed	186 (3.77%)	107 (3.08%)	93 (2.86%)	87 (2.79%)	55 (1.84%)	528 (2.97%)	
Parity (mean)	4933 (2.95)	3470 (2.45)	3248 (2.32)	3122 (2.24)	2996 (2.31)	17769 (2.51)	0.000
Health insurance							0.000
- No (ref.)	2037 (41.29%)	1469 (42.33%)	1321 (40.67%)	1137 (36.42%)	737 (24.60%)	6701 (37.71%)	
- Yes	2896 (58.71%)	2001 (57.67%)	1927 (59.33%)	1985 (63.58%)	2259 (75.40%)	11068 (62.29%)	
The autonomy of family finances							0.058
- No (ref.)	1312 (26.60%)	933 (26.89%)	850 (26.17%)	798 (25.56%)	718 (23.97%)	4611 (25.95%)	
- Yes	3621 (73.40%)	2537 (73.11%)	2398 (73.83%)	2324 (74.44%)	2278 (76.03%)	13158 (74.05%)	
The autonomy of health							0.000
- No (ref.)	754 (15.28%)	496 (14.29%)	425 (13.08%)	408 (13.07%)	335 (11.18%)	2418 (13.61%)	
- Yes	4179 (84.72%)	2974 (85.71%)	2823 (86.92%)	2714 (86.93%)	2661 (88.82%)	15351 (86.39%)	
Know the danger signs of the pregnancy							0.000
- No (ref.)	2544 (51.57%)	1358 (39.14%)	1075 (33.10%)	824 (26.39%)	563 (18.79%)	6364 (35.82%)	
- Yes	2389 (48.43%)	2112 (60.86%)	2173 (66.90%)	2298 (73.61%)	2433 (81.21%)	11405 (64.18%)	
Antenatal care							0.000
- < 4 times (ref.)	1774 (35.96%)	807 (23.26%)	618 (19.03%)	533 (17.07%)	507 (16.92%)	4239 (23.86%)	
- ≥ 4 times	3159 (64.04%)	2663 (76.74%)	2630 (80.97%)	2589 (82.93%)	2489 (83.08%)	13530 (76.14%)	

Note: Chi-Square test was used for dichotomous variables; T-test for continuous variables.

Table 2 informs that the poorest women predominantly live in rural areas. While the richest women are more dominant in urban areas. Table 2 shows that the average richest woman is slightly older than other wealth status categories. Indonesian women who gave birth in the last five years were also dominated by those who had secondary education in all wealth status categories.

Table 2 informs that Indonesian woman who gave birth in the last five years were dominated by those who did not work in all categories of wealth status, except for the richest women who were more dominated by women who worked. As for the Marital status category, women are dominated by married / living with partner status in all wealth status categories.

Table 2 shows that in all wealth categories the status of Indonesian women who gave birth in the last five years in urban areas had a parity of between 2-3. In the category of health insurance ownership, Indonesian women who gave birth in the last five years were dominated by those covered by health insurance in all wealth status categories.

The autonomy of the family financial category is dominated by women who have autonomy in all wealth status categories, but the autonomy of the family finances category is not statistically significant. While the autonomy of the health category is dominated by women who have autonomy in all wealth status categories, and this autonomy of the health category is statistically significant.

Table 2 shows Indonesian women who gave birth in the last five years in all wealth status categories dominated by those who knew about the danger signs of the pregnancy, except the poorest women. Indonesian women who gave birth in the last five years in all wealth status categories were dominated by women who had antenatal care more than 4 times.

Table 3. Binary Logistic Regression of The Use of Healthcare Facilities for Delivery in Indonesia (n=17,769).

Predictor	Healthcare Facilities		
	OR	Lower Bound	Upper Bound
Wealth status: poorer	*** 1.898	1.719	2.095
Wealth status: middle	*** 2.669	2.383	2.989
Wealth status: richer	*** 3.163	2.779	3.601
Wealth status: richest	*** 6.566	5.495	7.847
Place of Residence: Urban	*** 2.412	2.214	2.627
Age	*** 1.039	1.031	1.047
Education level: Primary	* 1.375	1.025	1.845
Education level: Secondary	*** 1.875	1.396	2.517
Education level: Tertiary	*** 1.720	1.257	2.354
Work status: work	0.949	0.877	1.027
Marital status: Never Married	0.540	0.237	1.229
Marital status: Married/Living with Partner	0.559	0.241	1.295
Parity	*** 0.789	0.764	0.815
Health insurance: Yes	*** 1.438	1.332	1.553
The autonomy of health: Yes	1.016	0.901	1.145
Know the danger signs of pregnancy: Yes	*** 1.513	1.400	1.635
Antenatal care: ≥ 4 times	*** 1.734	1.590	1.890

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

Table 3 displays the results of the binary logistic regression test to illustrate the disparity in the utilization of healthcare facilities for delivery between socioeconomic status in Indonesia. As a reference, the chosen category is "nonhealthcare facilities". Table 3 shows the significant differences between all socioeconomic status in utilizing healthcare facilities for delivery.

Table 3 informs that poorer women are 1.898 times more likely to use healthcare facilities for delivery than poorest women (OR 1.898; 95% CI 1.719-2.095). Middle women are 2.669 times more likely to use healthcare facilities for delivery than poorest women (OR 2.669; 95% CI 2.383-2.989). Richer women were 3.163 times more likely to use healthcare facilities for delivery than poorest women (OR 3.163; 95% CI 2.779-3.601). Richest women have the possibility of 6.566 times more utilizing healthcare facilities for delivery than poorest women (OR 6.566; 95% CI 5.495-7.847).

Table 3 shows that women who live in urban areas are 2.412 times more likely to use healthcare facilities for delivery than those living in rural areas (OR 2.412; 95% CI 2.214-2.627). Table 3 informs that age and parity in women significantly contribute to the utilization of healthcare facilities for delivery.

Table 3 shows that women with tertiary education levels were 1.720 times more likely to use healthcare facilities for delivery than those without education (OR 1.720; 95% CI 1.257-2.354). While work status and marital status did not show a significant effect.

Table 3 informs that women who are covered by health insurance are 1.438 times more likely to use healthcare facilities for delivery than women who do not have health insurance (OR 1.438; 95% CI 1.332-1.553). While the autonomy of the health category does not have a significant effect on the utilization of healthcare facilities for delivery.

Table 3 shows that women who know the danger signs of pregnancy are 1.513 times more likely to utilize healthcare facilities for delivery than women who do not know the danger signs of pregnancy (OR 1.513; 95% CI 1.400-1.635). While women who did antenatal care ≥ 4 times were 1.734 times more likely to use healthcare facilities for delivery than women who did antenatal care <4 times (OR 1.735; 95% CI 1.590-1.890).

DISCUSSION

The results showed that in Indonesia there is still a socioeconomic disparity in the utilization of health care facilities for childbirth. The richer a woman is, the more she chooses to deliver in a health care facility. The poorest women have the lowest utilization of health care facilities for childbirth. This is in line with the results of recent research in several countries that take the theme of socioeconomic disparity, namely in Zimbabwe (20), China (21), Spain (22), Germany (23), and USA (24)(25)(26).

The results found that women with tertiary education more utilized healthcare facilities for delivery than those who did not attend school. In general, poor people have the characteristics of lack of education, so the level of education is directly proportional to socioeconomic. Similar results were also found in studies in several countries (27)(28)(29), including in Nigeria who found that not only low educational status but also beliefs about illness, significantly affected the low utilization of health services in rural communities (30).

Women who have health insurance are proven to use healthcare facilities for delivery more than those who do not have health insurance. The results of this study are in line with several studies that take the same theme to evaluate the impact of health insurance on the utilization of health care facilities. Health insurance is the most common weapon that is effective for improving healthcare utilization (31) (32)(33).

In the Indonesian context, the government has issued a policy to subsidize membership contribution assistance for the poor in the National Health Insurance (34). The results of this study indicate that the policy has not yet had a satisfying impact. Utilization of health care facilities for childbirth among the poorest women still has the lowest coverage.

The Indonesian government's policy to subsidize membership contribution assistance for the poor in the National Health Insurance is appropriate (35)(9). But it needs to be coupled with more intense socialization policies, so that poor women know their rights, and want to take advantage of the benefits package offered in the National Health Insurance for delivery.

CONCLUSIONS

Based on the results of the study it can be concluded that there is a significant disparity between socioeconomic in utilizing healthcare facilities for delivery in Indonesia. Women with better socioeconomic have better possibilities to utilize healthcare facilities for delivery.

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Conflict of Interest

The authors declare no conflict of interest, financial or otherwise.

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