HEALTH BEHAVIORS OF PREGNANT WOMEN FROM FARMING FAMILIES AND NON-FARMING FAMILIES IN INDONESIA

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Abstract

Farming families are thought to have different health behaviors than non-farming families. Health behavior of pregnant women influences the health of babies and pregnant women. This study aims to analyze differences in the behavior of pregnant women from farming families compared to non-farming families. This research is a cross-sectional study using secondary data from Indonesian Demographic and Health Survey (IDHS) Indonesia 2017. The proportion of pregnant women in farming families who perform antenatal care (ANC) as recommended (≥4 times) is lower than non-farming (90.3% vs 95.4%; $p<0.05$). Pregnant women in farming families who visited doctors and midwives for ANC are lower than non-farmers (7.1% and 38.5% vs. 23.9% and 37%), while ANCs with nurses have the same percentage (0.1%). Proportion of pregnant women in farming families who took iron supplement was lower than non-farming (38.2% vs. 54.6%). Taken together, this study indicates that pregnant women from farming families have different behavior than non-farming families that may result in unfavorable effects to their children. This requires more attention from the government and related parties.

Keyword: health behavior, pregnant women, antenatal care, iron supplement

1. Introduction

Health behavior is defined as patterns of individual or population behavior, actions, and habits related to health maintenance, health restoration, and health promotion (1). Health behavior or health-related behavior, may not only improve health but also interfere with well-being of an individual and the population. There are various types of health-related behavior, such as diet, sexual activities, smoking, drugs/supplement consumption, health care seeking, etc. (2). Besides personal factor, other components such as social and financial background also play important roles on health behavior (2).

Farming families have distinct characteristics than non-farming families, and there might be differences in health behavior between the two. Farmers, who generally are in lower class economy, have limited access to health care and information. As the results, farmers are at higher risks of poor health status (3). Furthermore, lower education level, culture, and social background among farming family will also lead to unhealthy behavior (4).

A study conducted in rural New York with 9.612 respondents revealed that farm and non-farm population have different health behavior, such as insurance ownership, health care seeking behavior, and medical check-up frequency (3). Farmer rarely had a regular visit to doctor

(OR:0.53, 95% CI:0.39-0.71), less likely owned health insurance (OR:1.38, 95% CI: 1.04-1.83), less vaccinations, and had less health screening (3). The highest difference between the two groups was the frequency of regular doctor visit. Farmers tend to avoid seeking health care help until their disease made them unable to work (3). On the contrary, individuals coming from non-farming family tend to look after their health for preventive reason (3).

Health behavior has major influences on pregnant women and their infant, as well as social and surrounding environments (5). Study by Dadan *et al.*(6) revealed that health behavior among pregnant women such as antenatal care, drugs/supplement consumption, and post-natal check-ups, were crucial for infant health status and poor health behavior may have a further consequence on infant mortality(6). Poor health behavior might be categorized into harmful substances exposure, poor nutrition, and lack of antenatal care examination (7). Complications and death in birth and pregnancy are caused by several factors, including previous and current health issues, and inadequate health behavior (8).

Pregnant women in farming families have distinct health behavior than those in non-farming family. Centers for Disease Control and Prevention (CDC) reported that pregnant women from Hispanic farming family had late prenatal care and low weight gain (9). In line with the report, study from Kelley *et al.* concluded that pregnant women from farming family were less likely to do Antenatal Care, with first-ANC happened between 9-24 gestation weeks, while some others did not perform any examination until delivery (10). These findings indicate that pregnant women from farming families are less aware of prenatal care (10). Study from Jones *et al.* indicated that the obstetrician was concentrated on the city area, while rural (farming) area was lacking(11). This could make antenatal care in farming family become less comprehensive, and abnormalities in pregnancy could not be detected early (11).

Indonesia is an agricultural country with more than 33.4 million population working in agriculture sector (12). Considering this high number, health status of this group is a significant factor that determine the health status of the nation as a whole. The different characteristics between farming and non-farming family may result in difference in health behavior among pregnant women which is a major key that will determine maternal and child health. To our knowledge, there has been no report regarding health behavior among pregnant women in farming families and how they are different from those from non-farming families in Indonesia. Thus, we aim to analyze if there is any difference between Indonesian pregnant women from farming family and non-farming family in terms of their health behaviors.

2. Methods

We analyzed data from Indonesia Demographic and Health Survey (IDHS) 2017 which used cross sectional design and two stage-stratified sampling. The ethical approval for IDHS 2017 were obtained from Institutional Review Board Findings Form number 132989.0.000.

Subjects in this study were selected based on inclusion and exclusion criteria. Pregnant women coming from farming family (father and/or mother's occupation as a farmer) is included as a subject. We identified some variables that became indicators of healthy behavior in pregnant women. Seven variables were used in this study, including maternal age, level of education, wealth index, ANC frequency during pregnancy, health workers addressed for ANC, places to perform ANC, and iron supplementation consumption. Those with incomplete data were excluded.

Data were analyzed using SPSS version 23.0. Health characteristics and behavior of pregnant women in farming and non-farming families were tested using Mann-whitney.

3. Results

The total number of subjects involved was 6281. Based on the data analyzed, we found that characteristics and health behavior of pregnant women from farming and non-farming family are generally different, as shown on **Table 1.**

As shown on **Table 1**, most pregnant women from farming family and non-farming are between 26-45 years old (80.5% and 81.8%),

with mean age for farming and non-farming are 32.0±6.6 and 31.5±6.0 respectively. Difference between maternal age in both groups are statistically significant (*p= 0.01)*. This was aligned with study in rural China, with mean of maternal age was 26.7±4.3 (7).

Table 1. Characteristics and Health Behavior of Pregnant Women from Farming Family and Non-Farming Family

Table 2. Variables	Farming families (n=1874)		Non-farming families (n=4407)		*p- value**
	n	%	n	%	
Maternal Age (year)					
Adolescent (12-25)	329	17.6	762	17.3	
Adult (26-45)	1509	80.5	3605	81.8	0.010
Elderly (46-55)	36	1.9	40	0.9	
Mean±SD	32.0± 6.6		31.5± 6.0		
Level of education					
None	64	3.4	17	0.4	
Elementary	741	39.5	615	14	<0.001
High school	896	47.8	2299	52.2	
College	173	9.2	1476	33.5	
Wealth Index					
Very poor	1017	54.3	443	10.1	
Poor	410	21.9	708	16.1	
Middle	235	12.5	893	20.3	<0.001
Wealthy	147	7.8	1095	24.8	
Very wealthy	65	3.5	1268	28.8	
ANC frequency (time)					
As recommended (≥4)	1692	90.3	4204	95.4	<0.001
Not as recommended (<4)	182	9.7	203	4.6	
Median (Q1-Q3)	7 (5-9)		9 (7-11)		
Health workers addressed for ANC					
Doctor	133	7.1	1052	23.9	<0,001
Midwives	722	38.5	2073	47	<0,001
Nurse	2	0.1	5	0.1	0,942
Places for ANC					
House	44	2.3	33	0.7	
Primary health care	1034	55.2	1573	35.7	
Hospital	183	9.8	845	19.2	<0,001
Clinic	50	2.7	330	7.5	
Mobile clinic	199	10.6	115	2.6	
Other	67	3.6	41	0.9	
Iron supplementation (pills)					
As recommended (≥90)	715	38.2	2406	54.6	
Not as recommended (<90)	1159	61.8	2001	45.4	
Median (Q1-Q3)	50 (20-120)		90 (30-200)		<0.001

*Mann-Whitney difference test between characteristics and health behaviors of pregnant women in farming and non-farming families, significant at p<0.05

3. Discussion

Subject Characteristics

1) Maternal Age

Study from Ketterlinus, *et al.* revealed that pregnant women with younger age tend to have later antenatal care(13). Other study concluded that maternal age determined various risks in pregnancy, such as premature birth, birth defects, or even mortality due to immaturity of reproductive organs in adolescent mother(14). It was stated that woman aged 12-19 did not have enough knowledge on early marriage and pregnancy to infant mortality(14).

2) Level of Education

Pregnant women from farming family have lower education level than non-farming, with higher proportion of none and elementary school (3.4% and 39.5%). Level of education between both groups are different and statistically significant ($p<0.001$).

Education level in pregnant women closely allied with healthy behavior(7). Study conducted by Page concluded that subject with low educational level in pregnant women is associated with health risk(15).

3) Wealth Index

Pregnant women from farming family have less wealth index than the contrary, with higher proportion of very poor and poor (54.3%, 21.9% vs 10.1%, 16.1%). Wealth index between pregnant women from farming family and non are different and statistically significant.

Pregnant women with low socioeconomic status was associated with health risk(15). Discrepancy in health outcome between pregnant women from farming family and non-farming might be explained with this(15). Study in Cambodia also had similar result, where the pregnant women with higher wealth index had more frequent ANC than the opposite (7 times) (16).

Health Behavior

1) ANC Frequency in Pregnant Woman

Pregnant women from farming family are less likely to do ANC than opposite group (90.3% vs 95.4%). There are significant differences between both group in the terms of ANC frequency. This findings were in contrast with study conducted in rural Northwestern China, where the proportion of pregnant women who met the minimum antenatal frequency reached 79.1% (7).

A study conducted by Dadan *et al.*(6) stated that ANC frequency during pregnancy was related to infant mortality. Most infant deaths occurred in mother who performed ANC less than 3-5 times(6). The rationalization for this was with infrequent ANC, condition of pregnancy would not be monitored and management for emergency condition would be delayed(6). This phenomenon also seen on agricultural village in Ratanakiri province, Cambodia, with only 24% pregnant women met the WHO recommendation for minimal ANC frequency (>4 times), compared to urban area in Phnom Penh with 96%(16).

2) Access to Health Service (health workers addressed for ANC and places to perform ANC)

More than half proportion of pregnant women from farming family did not seek health professional help for ANC (54.3%). Most of pregnant women from non-farming family go to midwife and doctor to have ANC examination (47.0% and 23.9%).

Pregnant women from farming family tend to do ANC on primary health care, mobile clinic, and house (55.2%, 10.6%, 2.3% respectively), while the contrary choose primary health care, hospital and clinic (35.7%, 19.2%, 7.5%). There are significant differences between both group in the terms of health workers who perform ANC and places to perform ANC.

Places to perform ANC was also associated with infant mortality(6). Mother who performed ANC at home would have a delay in emergency management due to inadequate medical equipment(6).

3) Iron Supplementation Consumption

Only one third population (38.2%) of pregnant women from farming family reaches the

recommended amounts of iron supplementation. On the opposite, more than half (54.6%) pregnant women from farming family meet the iron supplementation recommendation. There are major differences between both groups in the terms of iron supplement consumption. This was in line with study in South-Saharan Africa, where only 28.7% of pregnant women met the recommended amounts of iron supplementation(17).

5. Conclusion

Pregnant women from farming family have different health behavior than non-farming. Health behavior of pregnant women from farming family are inferior than non-farming. Thus, it may result in unfavorable effects to their infants. Actions from the government and related parties are taken into account to this problem.

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