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보건학석사 학위논문

Factor Analysis in Women's Autonomy Related to Pregnancy Loss in Indonesia

인도네시아 여성의 자율성과 관련된 유산의 요인분석

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**Factor Analysis in Women's Autonomy
Related to Pregnancy Loss in Indonesia**

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이 논문을 보건학석사 학위논문으로 제출함

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Abstract

Factor Analysis in Women's Autonomy Related to Pregnancy Loss in Indonesia

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Background: Little is known about the relationship between women's autonomy with pregnancy loss in Indonesia. This study aims to investigate the association of women's autonomy with pregnancy loss among Indonesian women and indicates which autonomy domain that plays the biggest role.

Methods: A cross-sectional study design involving a secondary analysis of data from the Indonesia 2012 Demographic and Health Survey was conducted in order to examine the relation of autonomy domain with pregnancy loss among currently married women living with their partner. Principal component factor analysis was conducted to construct three main domains of women's autonomy from several original questions in the survey, namely decision-making power, women's position in the household and attitude toward beating. The outcome of interest was pregnancy loss outcomes while the main independent variable was autonomy domain. Binary logistic regression was performed to

determine whether the women's autonomy was associated with pregnancy loss. Data were weighted and adjusted for the complex survey design.

Results: Prevalence of pregnancy loss among Indonesian women in this study was 17.8%. Binary logistic regression showed that two women's autonomy domains, women's decision-making power and women's attitude toward beating were remained significantly associated with pregnancy loss, even after adjusting for age, education, working status, age of first child bearing, literacy and area of residency. The decision-making power domain was negatively associated with pregnancy loss (OR 0.960(95% CI 0.929-0.992;p<0.05)) and similar figure was also found in the negative attitudes toward beating (OR 0.966(95% CI 0.935-0.998;p<0.05)) .

Conclusion: The result shows that the participation of women in household decision making process and negative attitude toward wife beating appear as an important role in order to decrease the pregnancy loss incidence in Indonesia. Supporting women's empowerment programs, particularly in older age group and campaign to strengthen women's role in the family should be included in women's health policy strategy through encouraging more visible involvement in the decision making process and prevention against domestic violence.

Keywords: Pregnancy Loss; Pregnancy Outcomes; Women's Autonomy; Autonomy; Women's Health; DHS; Indonesia

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1. Introduction

1.1. Background

In general, Indonesian women today have made a lot of progress. In the case of education, women have been freed from illiteracy, the participation of women and men are equal to primary education. Women's progress through public and political participation is also seen, they began to participate in the legislative or executive chairs as well as many women started working outside the home.

However, Indonesian women are actually still soluble in the dominant power. Patriarchal culture makes women socially marginalized, vulnerable to abuse and experience exploitation (Friedman, 2000; Saleem & Bobak, 2005). The hegemony of men over women seemed to have gained a strong cultural legitimacy in Indonesia. In the patriarchal society, men's position is superior to women. Women's role is boxed in the domestic realm while the public sphere is still men's role. In the domestic sector, though, women tend to be subordinate to men. Placement of women in unimportant positions means they do not have a source of control in the household (Code, 2000).

Emancipation problem still continues to haunt women in real life, even in the aspect of reproduction. If we observe their lives, most of them live in dependence and do not have many choices. In fulfillment of the reproductive health rights, they are in neglect, apathy and even go through self-destruction. Women have the right to manage her own body, following the family planning or not, decide when to become pregnant and have children, as well as their sexual life. Women are not just objects of men in their reproductive health (Saleem & Bobak, 2005).

The lack of women's autonomy has also appeared on the high Maternal Mortality Rate (MMR), unsafe abortions, stillbirth rate and miscarriage. In general, the factor that

causes all the high rates is due to a lot of social problems related to women's welfare boiling down in the patriarchal culture. Indirectly, the social position of women who are still having subordination in society, contributes to the high maternal mortality rate. In the context of patriarchal culture, gender often inhibits women to access and capitalize the adequate health facilities.

According to World Health Organization (WHO) report, in 2008, an estimated 21.6 million women undergo unsafe abortions each year, about 18.5 million occurred in developing countries. While 2.6 million stillbirths occur globally, with more than 8,200 incidences of stillbirths occur per day. It is not surprising that 98 % of these deaths occurred in poor and developing countries, with two-thirds of which, occurred in Southeast Asia and Africa, and about 55% were experienced by families living in the rural areas (Organization, 2011). Despite the decline in the trends of stillbirth rate by 14% from 1995 to 2009, the progress of stillbirth and unsafe abortion rate reduction is still very slow in developing countries. However, stillbirths, abortion and miscarriage are still not recognized as a major international burden of diseases, such as the Millennium Development Goals(MDG) or the global disease burden of disease estimate. The pregnancy loss often called as a neglected tragedy (WHO, 2011), because of it absent from the MDG, still missing in the Sustainable Development Goals (SDG), invisible policies and programs, hidden and need urgent of attention.

There is no difference about this situation in Indonesia, as the country ranked 123 among 193 countries which have low stillbirth rate, counting 14.7 stillbirths per 1000 births. Even among Southeast Asian countries, Indonesia ranks second with the highest stillbirth after Philippines (WHO, 2011). Refer to WHO report (WHO,2011) on the current status of stillbirth, it is estimated that 66% (approximately 1.8 million stillbirths) occur in just 10 countries: India, Pakistan, Nigeria, China, Bangladesh, Democratic Republic of the Congo, Ethiopia, Indonesia, Afghanistan and the United Republic of Tanzania.

According to the 2012 Indonesia Demographic and Health Survey (IDHS, 2013), perinatal mortality rate was estimated at 26 per 1,000 live births. This perinatal mortality rate has a similar figure like the level observed in the 2007 and 2002-2003 IDHS (25 deaths and 24 deaths per 1,000 pregnancies, respectively). Looking at the trend of perinatal mortality rate in Indonesia, can be concluded that there were not many changes and progress for approximately 10 years. Most of these deaths occurred in mothers who are too young and those who aged 40-49 years. Rural areas have higher perinatal mortality than urban areas (33 compared with 20 deaths per 1,000 pregnancies). While there is no reliable evidence of induced abortions and miscarriage in Indonesia, previous study estimate that about two million of induced abortions happened each year and the deaths represent 14-16 % of maternal deaths in Southeast Asia (Sedgh, G., & Ball, H, 2008). On the other hand, miscarriage incidence was reported by 4 percent nationally, with 6.54 percent of them are unsafe abortions (Pranata & Sadewo, 2012).

Evaluation and assessment of the pregnancy loss incidence related to women's autonomy have not been much done in Indonesia. Several previous studies were more focused on maternal and infant mortality rates, since it is one of the Millennium Development Goals priorities and included in the global disease burden of disease estimate. Nevertheless, the poor pregnancy outcomes, such as pregnancy loss is also an important indicator in reflecting maternal health status and services.

Some reports which described Indonesian health profile such as Indonesia Demographic and Health Survey, Basic Health Research (BPS, 2015) and Indonesian Health Profile (*Kementrian Kesehatan*, 2015) were using a representative sample of the entire provinces. However, a thorough survey of induced abortions, miscarriage and stillbirth have not been done until now, so the certain incidence of abortion, miscarriage and stillbirth are not yet known. Several practical barriers also happened, especially in the

case of under reporting, poor health surveillance and inconsistent definitions of miscarriage and stillbirth.

1.2. Objective

Describing women's autonomy is always complicated. Up until now, there is no common agreement about the aspects and how to measure women's autonomy. Identifying and calculating the constraints which operate on women's ability to make a decision and act in accordance with what really matters to them are difficult and complex.

However, several health surveys nowadays included some questions in order to investigate the aspect of women's autonomy. Demographic and Health Survey (DHS) has that aspect in their section of women's empowerment, demographic and health outcomes, including participation in decision making, women's position in the household and also attitude toward wife beating. Using the survey questions in the 2012 Indonesian Demographic and Health Survey (IDHS), this study tries to see the correlation between the women's autonomy domains and pregnancy loss in Indonesia. Furthermore, it aims to determine which autonomy domain that plays the biggest role for influence the incidence of pregnancy loss.

2. Literature Review and Hypothesis

2.1. Literature Review

2.1.1. *Women's Autonomy and Health*

Women's autonomy plays a big role in their health and reproduction rights. The concept of women's autonomy is very important in sociology and social studies for more than two decades (Agarwala & Lynch, 2006). Early literature defined autonomy as "the degree of access to and control over material and social resources within the family, in the community and in the society at large". Recently, the definition of autonomy has been broadened to include "the ability to influence and control one's personal environment" or "the ability to obtain information and make decisions about one's private concerns and those one's intimates"(Anwar, Shoaib, & Javed, 2013). Among women, attaining such control is viewed as a key to improve their living conditions.

The autonomy implied by economic development and modernization theories is likely to be mediated by the kinship structures within which women live and the culture-specific gender and age-stratification systems of which they are a part. Indeed, the degree of women's exposure to modern ideas, their freedom of movement outside the home, their access to modern education, and their involvement in the economic production process will all be guided to a lesser or greater extent by what is considered socially and culturally appropriate for women. In most predominantly patriarchal societies that emphasize women's dependence on male kin, culturally appropriate behavior for women is not likely to encourage expressions of autonomy of either decision-making or action. Indeed, Dixon-Mueller (Dixon-Mueller, 1994) describes the "essence" of patriarchy as a system in which "girls and women have little control over the circumstances under which

they work the returns for their labor, their sexuality, and the timing and number of their children”. However, the extent to which the normative assumptions about appropriate female behavior are adhered likely to depend on several aspects of the kinship structure and on how these aspects impinge on women's individual circumstances. Several factors that embodied by patriarchal controls are the post-marital residential arrangements, marriage rules, and the roles of female fertility and having a son in woman's status attainment and autonomy.

In her paper, Gupta (Gupta, 1995) examined the female autonomy related to their health outcomes in northern European family; it said that in spite of the gender inequality, young wives had considerable their autonomy and power in the household in order to maintain their own health and health of their children. In her study, women’s marginalization will worsen women’s health and worsening the demographic consequences for them.

The female disadvantage in less-developed countries with regard to health and well-being has been documented abundantly (Malhotra, Vanneman, & Kishor, 1995). Up until now, women are still being marginalized particularly in economic and reproductive rights sector. The health status of both women and children suffers in areas where patriarchal kinship and economic systems still limit women’s autonomy.

2.1.2. Women’s autonomy and Pregnancy Loss

Pregnancy loss refers to fetal death during pregnancy and delivery. In this case, pregnancy loss could be classified by the time women lose their pregnancy. According to Center of Disease Control and Prevention (CDC, 2015), early pregnancy loss

(miscarriage or spontaneous abortion) and stillbirth are terms describing pregnancy loss, but they differ according to when the loss occurs.

Miscarriage is also known as spontaneous abortion. Miscarriage defined as the loss of a baby before the 20th week of pregnancy. More than 80% of miscarriages occur in the first trimester and occurs in 50% of all pregnancies. There are many causes that affect the incidence of miscarriage such as stress, smoking, and even ignorance about the pregnancy (Fortner, 2007). Various factors that could cause a miscarriage described as follows: (1) Unknown Pregnancy. If a pregnant woman does not know that she is pregnant, she can do things that can cause harm to her pregnancy. Pregnant women also cannot implement a way of keeping young people to healthy pregnancies and miscarriages. (2) Chronic illnesses such as renal impairment, diabetes and lupus. (3) Older maternal age during pregnancy. (4) Infection (Human Papillomavirus, Fungal Infection, HIV, Toxoplasmosis, Rubella). (5) Close pregnancy interval. (6) Miscarriage in the previous pregnancy history and (7) bad lifestyle such as smoking, alcohol and drug (Fortner, 2007; Garcia-Enguidanos, Calle, Valero, Luna, & Dominguez-Rojas, 2002).

Meanwhile, there is no universally accepted definition of when a fetal death is called a stillbirth, and the meaning of this term varies internationally. This lack of a consistent definition of stillbirth often makes it difficult to compare data on how frequently it occurs. As recommended by WHO, stillbirth is defined as a baby born with no signs of life at or after 28 weeks of gestation. According to Center of Disease Control, stillbirth is further classified as either early, late or term. An early stillbirth is defined as a fetal death occurring between 20 and 27 completed weeks of pregnancy, a late stillbirth occurs between 28 and 36 weeks and a term stillbirth occurs between 37 or more completed pregnancy weeks. Intrauterine death occurs either before the onset of labor (ante-partum death) or during labor (intra-partum death). Fetuses may die intra utero, before onset of

labor, because of pregnancy complications or maternal diseases; however, no special reason can be found for many antepartum intrauterine deaths.

In 2009, there were over 2.6 million stillbirths globally, with more than 8,200 deaths a day. Still, the majority of these deaths around 98 percent happened in low and middle income countries (WHO, 2011). The causes for many stillbirths and perinatal deaths are remained unknown and in some cases remain poorly understood (Frøen et al, 2011). Several factors are predicted to affect the incidence of stillbirth and perinatal mortality are as follows (Fortner, 2007): (1) Childbirth complication. Complications arising during birth, such as prolonged labor, bleeding and infections are the main cause of death among almost all infants who were alive when labor started, but were born dead. (2) Maternal disorders (especially hypertension and diabetes). Some chronic illnesses in the mother can complicate pregnancy and make a threat to the unborn baby. Pregnant mothers with hypertension and diabetes are considered high-risk. If diabetes is not properly controlled the chance of having miscarriage and stillbirths, pregnancy induced hypertension and birth defects. Chronic poorly-controlled high blood pressure before and during pregnancy puts a pregnant woman and her baby at risk for problems. It is associated with an increased risk for maternal complications such as preeclampsia, placental abruption (when the placenta separates from the wall of the uterus), and gestational diabetes. (3) Fetal growth restriction, refers to a condition in which a fetus is unable to achieve its genetically determined potential size and (4) is congenital abnormalities.

Apart from the biological aspect, the incidence of stillbirths and perinatal mortality is also closely related to socioeconomic condition, ethnicities and mother's habits and behavior. As reported in a study conducted in the United States, being black race, a teenager, 35 years of age or older, unmarried, obese, smoking cigarettes during pregnancy

and having a previous pregnancy loss are more likely to have stillbirths than their counterparts (Bahtiyar et al., 2008).

Although the causes of pregnancy loss are not completely understood, it is associated with conditions that are inherently dangerous to women's health: environmental and occupational risks and also underlying infections and diseases (Delbaere et al., 2007; Rosenberg, Garbers, Lipkind, & Chiasson, 2005; Sebire et al., 2001; Siu et al., 2001; Vollset et al., 2000). In addition, the incidence of pregnancy loss also closely related to the social factors (Savitz et al., 2004;Kramer, Seguin, Lydon, & Goulet, 2000).

As reported from several studies, women's autonomy including desired family size, pregnancy order (a variable inextricably linked to maternal age) and pregnancy spacing (both very close spacing and involuntary infertility), all of which may be affected by cultural and socio-economic circumstances, low educational level, low income and poor economic conditions, living in rural areas with difficult access to health facilities are important social determinants for poor pregnancy outcomes such as pregnancy loss (Stephansson, Dickman, Johansson, & Cnattingius, 2001;Kramer et al., 2000).

Figure 1 below explains the possible mechanism of women's autonomy affecting pregnancy outcomes. Some of the key components of reproductive health care, family planning and antenatal care, can help reduce maternal mortality and improving overall maternal health. Improving maternal health means reducing the risk of having poor pregnancy outcomes, including pregnancy loss in women. Reducing the level of pregnancy loss depends on increasing use of reproductive and maternal health services.

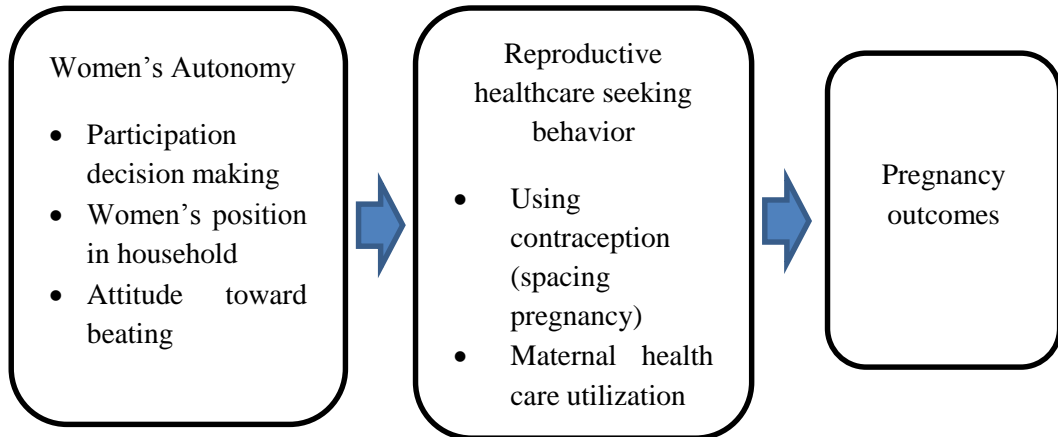


Figure1. Possible Mechanism of Women's Autonomy Affects Pregnancy Outcomes.

High rates of maternal, neonatal, and child mortality are associated with inadequate utilization of family planning and maternal health care services (Prata, Passano, Sreenivas & Gerdts,2010; AbouZahr & Wardlaw, 2003; Graham, Bell & Bullough,2001;Simkhada, Teijlingen &Porter, 2008; Raatikainen, Heiskanen & Heinonen, 2007; Oyerinde, 2013).

Previous study suggests that women's active participation in the domestic decision making is a reflection of their power within the household, and may increase their chances of making right reproductive choices, including utilizing health services and hence will decrease the chance of having poor outcomes in their pregnancy. Another study also suggested that women's empowerment is a key pathway through which education influences fertility and women's autonomy in decision making is positively associated with their age, employment and number of their living children (Jejeebhoy 1995;Dev R Acharya, 2010).

2.2. Hypotheses

The main purpose of this study is to denote the pregnancy loss outcomes among Indonesian women in the sample with their autonomy as the main predictor. Refer to the

study objective, the research hypotheses for this study are: (1) Women who highly participate in the household decision making process will decrease the risk of pregnancy loss (2) Women who have better position in the household will decrease the risk of pregnancy loss (3) Women who have a negative attitude toward wife beating will decrease the risk of pregnancy loss.

3. Methods

3.1. Data

The 2012 IDHS was carried out by Statistics Indonesia (*Badan Pusat Statistik-BPS*) in collaboration with the National Population and Family Planning Board (*Badan Kependudukan dan Keluarga Berencana Nasional - BKKBN*) and the Ministry of Health (MOH). Funding for the local costs of the survey was provided by the government of Indonesia. International Coach Federation provided technical assistance through the United States Agency for International Development (USAID)-funded Demographic and Health Surveys (MEASURE DHS) program (Indonesia, 2003; Rutstein & Rojas, 2006).

The target population for the DHS survey is all women age 15-49 and children under five years of age living in residential households. Most surveys also include all men ages 15-59. The MEASURE DHS program utilizes a convenient and practical sample selection procedure for household based surveys developed on the basis of experience from past surveys—a two-stage cluster sampling procedure. At the first stage, a stratified sample of Enumeration Areas (EAs) is selected with probability proportional to size (PPS): in each stratum, a sample of a predetermined number of EAs is selected independently with probability proportional to the EA's measure of size. In the selected EAs, a listing

procedure is performed such that all dwellings/households are listed. At the second stage, after a complete household listing is conducted in each of the selected EAs, a fixed (or variable) number of households is selected with equal probability systematic sampling in the selected EAs. In each selected household, a household questionnaire is completed to identify women age 15-49, men age 15-59 (15-54 or 15-49 in some surveys) and children under age five. Every eligible woman will be interviewed with an individual questionnaire, and every eligible man will be interviewed with an individual men's questionnaire in those households selected for the men's interview (Aliaga & Ren, 2006).

The 2012 IDHS used multiple-stage sampling, stratified by urban (two stages) and rural areas (three stages) in all 33 Indonesian provinces, both in urban and rural settings. The Primary Sampling Unit was Census Block (CB). At the first stage, systematic sampling was employed to select CBs in urban areas while in rural areas, sampling was conducted on the second stage following the selection of sub-districts with probability proportional to the number of households (Indonesia, 2003).

In this study, the individual data from woman questionnaire was used and analyzed. Out of a total sample of 45.607 women aged 15-49, woman who currently married, living with their partner and ever had pregnancy were selected, resulted 26.670 women as the sample size.

3.2. Framework and Measurement

3.2.1. *Conceptual Framework*

The conceptual framework in this study is a modification of some theories related to women's autonomy and maternal health. The factor component in women's autonomy

that affect the pregnancy loss outcomes were analyzed according to the personal or individual factor. This study is using cross sectional study design.

Figure 2 shows the conceptual framework of the study. The domain of women's autonomy was measured by women's participation in household decision making, women's position in the household and attitudes towards wife beating, as all of these indicators were mentioned in the DHS report in women's empowerment section (IDHS, 2013). The first part of the study aimed to construct a latent variable of women's autonomy derived from IDHS survey questions using factor analysis procedure. The second part of the study was focused to see the correlation of pregnancy loss with women's autonomy after the latent variables constructed.

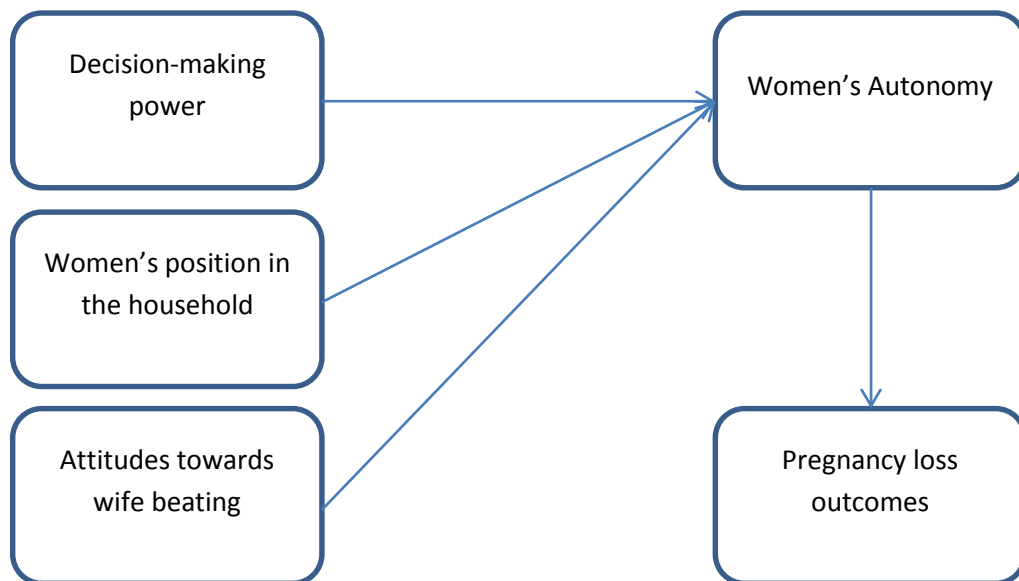


Figure 2. Conceptual Framework

3.2.2. *Sample weights and complex sample design*

In every DHS data, sampling weights is a mandatory procedure before running the analysis. A DHS sample is a representative sample that randomly selected from the population target. In order for any statistical inferences to be valid, the representativeness of the sample must be considered into account. Sampling weights are used for keeping the weighted sample distribution close to the target population (Rutstein & Rojas, 2006)

In order to correct and reduce the bias by non-response or other non-sampling errors in this study, women’s individual sample weight was used. Sample design (weighting, clustering and stratification) is also used in the analysis that performed significance testing or confidence interval.

3.2.3. *Measurements*

The first part of the study focused on making three domains of women’s autonomy, constructed by latent variable resulted from factor analysis. The latent variables were derived from several questions related to involvement of women’s opinion and participation in the household decision making process.

The first domain of autonomy that this study pointed out, namely ‘Decision-making Power’ was assessed based on women’s responses to four separate questions from the survey related to their participation in the household decision process, as listed in the table 1 below.

Table 1. ‘Decision-making Power’ Related Questions

Questions	Responses
Who usually decides on large household purchases (1)	Respondent alone

Who usually decides on visits to family or relatives	(2)	Husband/partner alone
Who usually decides what to do with money husband earns	(3)	Respondents & husband /partner jointly
Who usually decides on respondents health care	(4)	Someone else
	(5)	Other

In each of these four questions, a woman was given five options to answer: (1) respondent alone (2) husband/partner alone (3) respondents and husband/partner jointly (4) someone else (5) other. These variables were further re-categorized and coded in accordance with research questions. The coding was binary as follows: "0" if a woman had no say in decision making and "1" if she had a say. This coding was referred to several previous studies that showed the same methods (OlaOlorun & Hindin, 2014; Woldemicael & Tenkorang, 2010)

The second domain of autonomy is 'Women's Position in the Household'. A total three separate questions were chosen to construct this domain. Table 2 shows each of the questions and how they responded to the survey.

Table 2. 'Women's Position in The Household' Related Questions

Questions		Responses
Getting permission to go get medical help	(1)	Big Problem
Getting money needed for treatment	(2)	Not a big problem
Ask for a companion to go outside		

For these three questions, a woman was given 2 options: (1) Big problem, then coded as "0", (2) Not a big problem, coded as "1". The code "0" showing that if women

had difficulty to get permission and women would get higher code “1” if there was no problem to get the permission from the husband.

The third and last domain is ‘Attitude Toward Beating’, which made from five separate questions about whether beating by husband towards wife is justified on situations in which they considered it acceptable for a husband to beat his wife. Table 3 below tells the five questions including how the women responded.

Table 3. ‘Attitude Toward Beating’ Related Questions

Questions	Responses
Beating justified if the wife goes without telling husband	(1) Yes
Beating justified if the wife neglects children	(2) No
Beating justified if the wife argues with husband	
Beating justified if the wife refuses to have sex	
Beating justified if the wife burns food	

The ‘Attitude Toward beating’ item was responded as “Yes” then coded as 0 and “No” coded as 1, showing that negative attitude as their opinion against domestic violence. The summary of how the questions were re-coded and how the response were inputted in the analysis is shown in the table 4 below.

Table 4. Women’s Autonomy Domains and How They Re-coded

Autonomy Domain	Questions	Original Response	Re-coding
Decision-making Power	(1)Who usually decides on large household purchases	1. Respondent alone	3,4,5 = 0
			1,2 = 1

	<p>(2) Who usually decides on visits family/relatives</p> <p>(3) Who usually decides what to do with the money husband earns</p> <p>(4) Who usually decides on respondent's health care</p>	<p>2. Respondent & partner jointly</p> <p>3. Husband/partner alone</p> <p>4. Other</p> <p>5. Someone else</p>	
Women's Position in The Household	<p>(1) Getting permission to go get medical help</p> <p>(2) Getting money needed for treatment</p> <p>(3) Ask for a companion to go outside</p>	<p>1. Big problem</p> <p>2. Not a big problem</p>	<p>2 = 0</p> <p>1 = 1</p>
Attitude Toward Beating	<p>(1) Beating justified if the wife goes without telling husband</p> <p>(2) Beating justified if the wife neglects children</p> <p>(3) Beating justified if the wife argues with husband</p> <p>(4) Beating justified if the wife refuses to have sex</p> <p>(5) Beating justified if the wife burns the food</p>	<p>1. Yes</p> <p>2. No</p>	<p>1 = 0</p> <p>2 = 1</p>

The Principal component factor analysis with varimax rotation was conducted to construct a single new latent variable in each domain. The latent variable is being kept as a continuous variable in the next analysis.

The second part of the study was conducted to see the relationship of women's autonomy with pregnancy loss. The outcome of interest the study is pregnancy loss outcomes in women with less or more autonomy. Pregnancy loss outcomes as the dependent variable was originally came from the question "Ever had terminated pregnancy (Miscarriage, abortion, stillbirth)" and respondent was given two options: "Yes" coded as "1" and "No" coded as "0". The other independent variables of interest in this analysis included those that were conceptually recognized to be a potential confounder of the association between women's autonomy and pregnancy loss. Woman's age as an age group "15-24", "25-34", and "35-49", was categorized based on the risk of having pregnancy loss. Level of education, divided into four categories, namely "no education", "Primary" compulsory education for nine years, "Secondary" if the respondents completed high school education and "Higher" if the respondent taking college education. Literacy divided into two categories, namely "Cannot read" and "Can read". Working status is either a woman currently "Working" or "Not working". Age of first child was categorized as "<15", "16-20", "21-25", "26-30", and "≥30". Place of residence divided as "Urban" and "Rural".

3.3. Statistical Analysis.

The Statistical analyses were performed using IBM SPSS Statistics 23 to conduct all the descriptive analysis, principal component factor analysis, binary logistic regression including weighting and complex sample design. The statistical analyses were conducted

in order to investigate factor loadings in women's autonomy domains as well as the odds risk of having pregnancy loss predicted by autonomy's domain and adjusted for age group, level of education, literacy, age of first child bearing, working status, and type of place residence.

4. Results

4.1. Socio-demographic Characteristics

Table 5 provides the percentage distribution of socio-demographic characteristics and other independent variables for women who currently married and living with their partner in Indonesia. In all, the majority of the age group's proportion in the sample is the oldest age group (51.4%). Most of the women had primary (40.7%) or secondary education (46%), only around 10 % of them achieved higher education. About 58% of women are working when the survey was conducted. More than 90% of currently married women can read, counting only about 8% are illiterate. About two-thirds (76%) of them gave their first birth in their 16-25 years, and unlikely in the oldest age group (3.1%). Women are most likely to live in rural areas.

Table 5. Socio-demographic Characteristics of The Sample

Variable	N		Percent (Weighted)
	Weighted (Total = 26835)	Unweighted (Total = 26670)	
Age Group			
15-24	2993	3170	11.2
25-34	10038	10232	37.4
35-49	13804	13268	51.4
Education level			
No education	1015	1130	3.8
Primary	10925	10024	40.7
Secondary	12340	12725	46.0
Higher	2555	2791	9.5

Work status			
Not working	11285	11027	42.1
Working	15550	15643	57.9
Age of 1st birth			
≤ 15	1555	1516	5.8
16-20	11411	11310	42.5
21-25	9759	9666	36.4
26-30	3285	3323	12.2
≥ 30	825	855	3.1
Literacy			
Cannot read	2158	2378	8.0
Can Read	24677	24292	92.0
Type of place of residence			
Urban	13161	12222	49.0
Rural	13674	14448	51.0

4.2. Distribution of Pregnancy Loss

The prevalence of pregnancy loss including miscarriage, induced abortion and stillbirth among women in the sample is 17.8%. Table 6 provides the frequency and percentage distribution of the dependent variable pregnancy loss outcome for the independent variables. The loss of pregnancy was more distributed in the oldest age group (35-49 years old) and who had higher education. Currently married women who are working and who cannot read had more distributed in pregnancy loss. The distribution increases as the age of first birth increases, counting 23.4% as the highest distribution. Urban and rural areas have about equal distribution of pregnancy loss.

Table 6. Distribution of Pregnancy Loss

Variable	Pregnancy loss			
	No		Yes	
	N(T= 22541)	%	N(T=4294)	%
Age group				
15-24	2767	92.5	226	7.5
25-34	8693	86.6	1344	13.4
35-49	11081	80.3	2724	19.7
Highest educational level				
No education	876	86.3	139	13.7
Primary	9003	82.4	1921	17.6
Secondary	10544	85.5	1795	14.5
Higher	2118	82.8	439	17.2
Working status				
Not working	9619	85.2	1665	14.8
Working	12922	83.1	2629	16.9
Age of first birth				
≤ 15	1300	83.5	256	16.5
16-20	9643	84.5	1767	15.5
21-25	8260	84.6	1498	15.4
26-30	2706	82.4	579	17.6
>30	632	76.6	194	23.4
Literacy				
Cannot read	1806	83.7	353	16.3
Can read	20735	84.0	3941	16.0
Type of place of residence				
Urban	11089	84.3	2071	15.7
Rural	11452	83.7	2223	16.3

4.3. Women's Autonomy Variable

In order to construct the three domains of women's autonomy, the principal component factor analysis was conducted in each domain of interest. The first domain, the decision-making power, factor analysis was employed to replace four variables in the questionnaire with a new single latent variable.

A single factor was requested in the analysis, and accounted for 54% of the variance. In the table 7 below, shows that the factor loadings range from 0.67 to 0.79 and reliability coefficient (alpha) is estimated as 0.743. The scree plot indicates that after one component, the differences between eigenvalues decline, and they are less than 1.0 (figure 3)

Table 7. Factor loadings in Decision-making Power Domain

Variable	Factor loading	Communalities
Who usually decides on large household purchases	.789	.623
Who usually decides on visits to family or relatives	.768	.589
Who usually decides on respondents health care	.703	.494
Who usually decides what to do with money husband earns	.671	.451
Eigenvalues		2.16
% of variance		54



Figure 3. Scree Plot of 'Decision-making power' Domain

To construct the 'women's positions in the household' domain, three questions were unified. A single factor was requested in the analysis, and accounted for 51% of the variance. Table 8 shows the factor loadings range from 0.597 to 0.772 and reliability coefficient (α) is estimated as 0.583. The scree plot indicates that after one component, the differences between eigenvalues decline, and they are less than 1.0 (figure 4)

Table 8. Factor loadings in ‘Women Position in Household’ Domain

Variable	Factor Loading	Communalities
Getting permission to go to get medical help	.772	.596
Getting money needed for treatment	.752	.565
Asking companion to go to get outside	.597	.356
Eigenvalues		1.5
% of variance		51

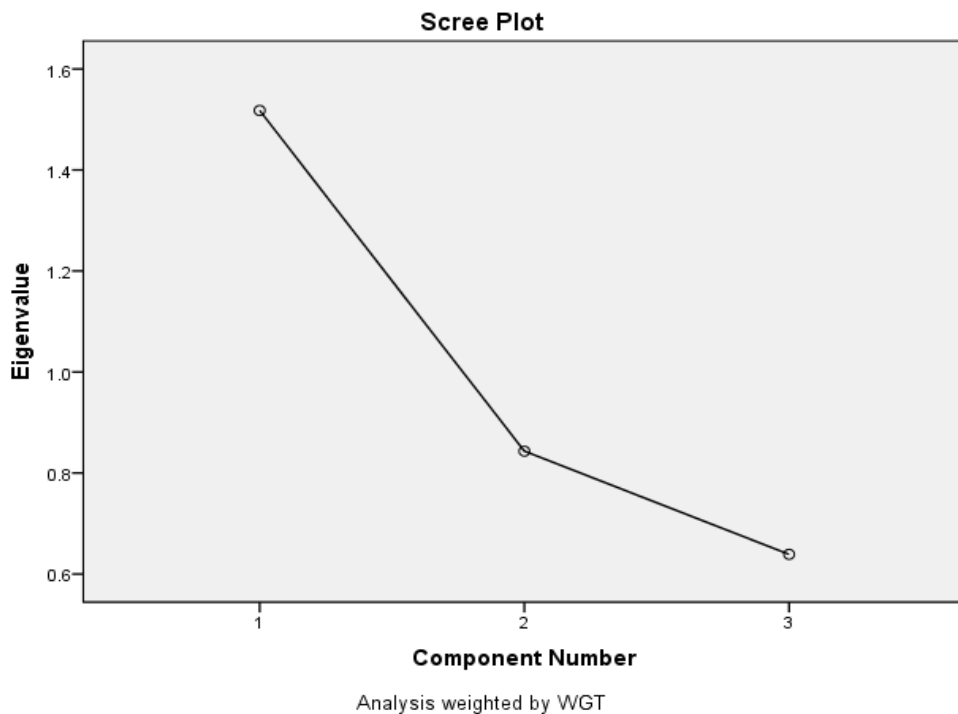


Figure 4. Scree Plot of ‘Women’s position in the household’ Domain

The last domain in women’s autonomy, the ‘attitude toward beating’ was constructed by five questions as listed in the table below. A single factor was requested in the analysis, and accounted for 48% of the variance. Table 9 shows the factor loadings range from 0.58 to 0.77 and reliability coefficient (alpha) is estimated as 0.721. The scree plot indicates that after one component, the differences between eigenvalues decline, and they are less than 1.0 (figure 5)

Table 9. Factor loadings in ‘Attitude Toward Beating’ Domain

Variable	Factor loading	Communalities
Beating justified if wife goes without telling husband	.774	.600
Beating justified if wife neglects children	.759	.577
Beating justified if wife argues with husband	.647	.419
Beating justified if wife refuses to have sex	.714	.510
Beating justified if wife burns food	.580	.336
Eigenvalues		2.4
% of variance		48



Figure 5. Scree Plot of ‘Attitudes towards beating’ Item

These three items of autonomy were used as a continuous variable in the next multivariate analysis. The assumptions of normality, linear relationship between pair variables, and the variables being correlated at moderate to high level were checked.

4.4. Logistic Regression Result

Binary logistic regression was conducted to assess whether the three predictor variables in women’s autonomy (decision-making power, women’s position in the household, and attitude toward beating) significantly predicted whether or not a woman

has more odds on having pregnancy loss. In the equation, possible significant confounders were controlled.

Table 10 indicates that the negative association was observed between having pregnancy loss and decision-making power variable, the result showed that if the decision-making power is increased then the odds of having pregnancy loss is decreased. A similar figure of negative association was also seen in attitude toward beating variable; the odds of having pregnancy loss is decrease if the negative attitude toward beating variable increased.

The oldest group of age of first child bearing appeared to have association with pregnancy loss as the odds increase by almost one and a half times compared to the youngest age group. The second and oldest current age group also significantly correlated with the dependent variable, the odds increase by 1.8 and almost three times respectively compared to the youngest group. The odds of having pregnancy loss is increased in primary, secondary and higher education compared to the no education group by almost one and half times. It seems that another domain of women's autonomy, women's position in the household did not show any significant result as well as literacy, working status and area of residency.

Table 10. Binary Logistic Regression Result of Pregnancy Loss

Variable	B	S.E.	Sig.	OR	95% C.I.	
					Lower	Upper
Decision-making power	-.054	.022	.014*	.960	.929	.992
Women's position in the household	-.023	.024	.959	1.001	.966	1.037
Attitude toward beating	-.043	.022	.040*	.966	.935	.998
16-20 (Age of 1st childbearing)	.060	.075	.424	1.062	.917	1.229
21-25(Age of 1st childbearing)	.033	.078	.666	1.034	.888	1.204
26-30 (Age of 1st childbearing)	.119	.088	.176	1.126	.948	1.338
≥30 (Age of 1st childbearing)	.366	.112	.001*	1.442	1.159	1.794
25-34 y.o (Current age)	.625	.076	.000*	1.869	1.609	2.171
35-49 y.o.(Current age)	1.070	.075	.000*	2.916	2.517	3.377
Primary education	.344	.114	.002*	1.411	1.129	1.763
Secondary education	.236	.120	.049*	1.266	1.001	1.602
Higher	.301	.131	.021*	1.352	1.046	1.746
Can read	.046	.078	.557	1.047	.899	1.218
Working	.050	.035	.154	1.052	.981	1.127
Urban	.038	.046	.414	1.039	.948	1.137
Constant	-2.900	.132	.000	.055		

*p value <0.05

5. Discussion and Conclusion

This study highlighted the pregnancy loss as the main outcome of interest. While there is no reliable evidence about the incidence nor the prevalence of pregnancy loss, this study aimed to give a general picture of predictors associated with the issue.

The prevalence of pregnancy loss including miscarriage, induced abortion and stillbirth among women in the sample is 17.8%. This figure is somewhat difficult to compare, since the exact incidence is therefore difficult to assess. However, according to several previous studies and reports, the prevalence of induced abortions might have the biggest portion, followed by stillbirth and miscarriage. Although abortion is illegal, prior studies indicate around 2 million Indonesian women get an abortion each year, accounting approximately 70% of all terminations in South-East Asia, and the deaths from unsafe abortions depict 14-16% of all maternal deaths in Asia (Sedgh, G., & Ball, H, 2008;Whittaker, 2013; Dalvie, Barua,Widyantoro & Silviane, 2008). Meanwhile, stillbirth rate in Indonesia is also considered as high since the country ranked 123 among 193 countries who have low stillbirth rate, counting around 15/1000 live births. The exact incidence of miscarriage is not yet known, it is estimated about 4 % nationally (Pranata & Sadewo, 2012; Riskesdas, 2010).

The main predictor in the study is women's autonomy domain. This study assessed the relation of women's autonomy and pregnancy loss outcomes among Indonesian women ages 15-49 years. In accordance with the study hypothesis, two women's autonomy domains, participation in household decision making process and attitude toward wife beating were associated with pregnancy loss outcomes, even after adjusting for potential confounding factors. Previous studies have also found that women participation in household decision making is an important determinant of reproduction right behavior, such as contraception use (OlaOlorun & Hindin, 2014; Bogale, Wondafrash, Tilahun & Girma, 2011) and maternal health-seeking behavior such as

antenatal care, postnatal care, having tetanus injection before pregnancy and delivered the baby in health facility (Woldemicael & Tenkorang, 2009; Bloom, Wypij & Gupta, 2001; Galal & Lu, 2009; Allendorf, 2007) which highly associated with adverse pregnancy outcomes, maternal and infant mortality in women particularly in developing country (Prata, Passano, Sreenivas & Gerdt, 2010; AbouZahr & Wardlaw, 2003; Graham, Bell & Bullough, 2001; Simkhada, Teijlingen & Porter, 2008; Raatikainen, Heiskanen & Heinonen, 2007; Oyerinde, 2013).

In the case of domestic violence with pregnancy loss, the association was observed more directly. The intimate partner physical and sexual violence is an important influence on the incidence of induced abortion and pregnancy loss (Stöckl, Filippi, Watts & Mbwambo, 2012; Jejeebhoy, 1998). Moreover, Pallitto & Campo (Pallitto & Campo, 2004) mentioned in their study that women who lived in municipality with high rate of male patriarchal control significantly increase the women's odds of having an unintended pregnancy by almost four times. Unintended pregnancy often leads to induced abortion, miscarriage and adverse pregnancy outcomes (Marston & Cleland, 2003; Worku & Fantahun, 2007; Silverman et al, 2007; Singh, Juarez, Cabigon, Ball & Hussain, 2006).

This study adds to the existing body of research by providing a focus on pregnancy loss and autonomy in Indonesian women. The majority of other Indonesian studies related to women's autonomy or empowerment more likely to focus on their determinant (Johar & Rammohan, 2009; Kuhnert, 2012) or utilization of health care and services (Titaley, Dibley & Roberts, 2010). It is very limited resources about women's autonomy research in Indonesia related to their health outcomes, one of the biggest restrictions is the availability of reliable data. Unlike many other studies, this study was employed factor analysis in order to reduce the variance in autonomy domain questions that could identify the latent dimensions in which direct analysis may not.

The prevalence of pregnancy loss among women in this analytic sample was 17.8% and appears to be higher in oldest age group (35-49 years old, 51.4%) than in the youngest age group (15-24 years old, 11.2 %). Again, the oldest group (≥ 30 years old) in age of first child bearing appears to be significantly associated with the increase odds of pregnancy loss by almost one and a half times compare to the youngest age group. These findings are related to the higher risk of stillbirth and miscarriage related their biological condition in older age. However, in the case of pregnancy loss distribution in the current age mother also relates to their parity history, because the older age group is more likely to have higher parity so that the chance of having pregnancy loss is increases compared to their counterparts (Fortner, 2007; Andersen et al, 2000; Heikinheimo, Gissler, & Suhonen, 2008). However, because the pregnancy loss was self-reported there is always a possibility of underreporting cases, particularly about induced abortions with regard to relatively strict laws on abortions and women still do not want to talk about it especially in the younger age group.

The level of education also accounted for some of the association observed between autonomy and pregnancy loss. The association, however, was not commonly seen in many other studies about level of education and health outcomes association. In this analysis, level education appears to increase the odds of having pregnancy loss. Compare to no education group, women who had primary, secondary and higher education increased the odds of the outcome of interest by almost one and half times. While most of the other studies have found a positive association between level of education and better health outcomes (Ross & Wu, 1995; Cutler & Lleras-Muney, 2006; Davis et al, 1999; DeWalt et al, 2004), this study result is different because the health outcome was pregnancy loss, despite more educated women are expected to have more care and expected to be knowledgeable toward their pregnancy but they tend to be more involved

in the working field. Working condition sometimes forbids a woman to have a baby for some years, correlating this issue with women's decision-making on their reproductive right within a household, not a few cases ended up with unsafe abortions. Furthermore, receiving more stress in working place could lead higher chance of having a miscarriage. Another assumption that might meet the criteria is that women in the sample were majorly distributed in primary and secondary education; in that case it is not surprising that the percentage of having pregnancy loss is peak in both groups.

The other domain of autonomy in this research, 'women's positions in the household' which constructed by questions of whether a woman easily gets permission or not to do something shows insignificant correlation with pregnancy loss outcomes. Unlike the other two domains, it seems that to get permission from their husbands is not something to be concerned for Indonesian women, mainly in Muslim dominant country like Indonesia, if the wife has a reasonable reason to go outside or asking for a companion, husband would likely to give them the permission.

While the cross-sectional nature of this study makes it difficult to assert the temporal ordering of an event, along with could not distinguish what kind of pregnancy loss that highly associated with autonomy as the limitations, it is logical to think that women who were involved in household decision-making process and have a negative attitude toward wife beating were different from those who were not. A decision –makers could have developed a sense of self-agency over time, and assert themselves within their households, enables them to make personal decisions regarding their health and reproductive choices. A negative attitude towards beating within inmate partner may also lead them to have more freedom to choose and higher possibility to be involved in every household decision, something that makes women's position to be more respected.

Historically, Indonesian women played a notable role in the nation's strive for Independence. Even today, women's rights in Indonesia are continuing to improve as they are heavily involved in national development. At home, women play a key role in the lives of their children as the first source of knowledge. Moreover, following national reformation, there has been an increase in thrust both in government and society in regards of gender equity. However, at the same time, reformation also provides a platform for conservative groups to show up. The increasing support for polygamy and promotes harmonious family life with encouraging married women to be submissive. Indonesian women also often became the target of jokes and cynicism in social life while violence against women is shown in the national media almost every day.

Even with some limitations, this study adds to the contribution of providing estimated prevalence of pregnancy loss among women who are married and living with their partner, adds to the evidences that women who were lacking in autonomy correlated to higher odds of pregnancy loss. The finding showed a significant negative association between the two domains of women's autonomy and pregnancy loss, namely decision-making power and negative attitude toward wife beating. This study also indicates that women's autonomy played an important role in their pregnancy outcomes which leads to the highly need of reliable data and generates more attention towards gender equity. The future research in the next DHS is needed in order to compare the result and see the progress of the issue.

Supporting women's empowerment programs, particularly in the older age group and strengthen women's role in the family should be included into women's health policy strategy through encouraging more visible involvement in the decision making process and prevention against domestic violence. This ironic and conflicting views will continue to happen in the future if the nation is not considered to strengthen women's role within the family.

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인도네시아 여성의 자율성과 관련된 산의 요인분석

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배경: 인도네시아 여성의 자율성과 유산과의 관계는 거의 알려져 있지 않다. 따라서 본 연구는 인도네시아 여성의 자율성과 유산과의 상관관계를 파악하고 어떠한 자율성이 결과에 가장 큰 영향을 미치는지 조사해 보고자 한다.

방법: 최근 결혼하였으며 배우자와 함께 거주하고 있는 인도네시아 여성을 대상으로 자율성과 유산과의 관계를 파악하기 위해 2012 인도네시아 인구생식건강조사의 자료를 바탕으로 횡단적 단면연구를 시행하였다. 설문조사의 몇 가지 설문문항을 바탕으로 의사결정력, 가정에서의 지위, 가정폭력에 대한 태도와 같은 세가지 여성 자율성 영역을 구축하기 위해 주요성분요소분석을

하였다. 종속변수를 유산으로 독립변수를 여성의 자율성으로 보고 두 사이의 상관관계를 살펴보기 위해 이원 로지스틱 회귀분석을 사용하였다.

결과: 본 연구에서 인도네시아의 유산율은 17.8%이었다. 연령, 교육, 직업, 첫째 아이 출산 나이, 거주지 등을 보정한 후에도 여성 자율성의 두 영역인 의사결정력 및 가정폭력에 대한 태도가 유산과 유의한 상관관계를 보였다. 유산의 오즈비는 여성의 의사결정력이 증가할수록 그리고 남편의 가정폭력이 정당화되지 않을수록 0.040 (OR 0.960(95% CI 0.929-0.992;p<0.05)) and 0.034 (OR 0.966(95% CI 0.935-0.998;p<0.05)) 로 감소되었다.

결론: 인도네시아 여성의 유산 발생률을 감소시키기 위해서는 가정에서 여성의 의사 결정력과 남편의 가정폭력을 정당화하지 않는 것이 중요한 역할을 한다는 것을 본 연구 결과를 통해 알 수 있다. 따라서 연령 군이 높은 여성을 대상으로 하는 임파워먼트 프로그램과 여성 관련 캠페인에 반드시 의사결정과정 및 가정폭력 예방을 장려하는 가시적인 여성정책전략을 포함시켜야 한다.

핵심단어: 유산; 임신결과; 여성 자율성; 자율성; 여성건강;DHS; 인도네시아

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