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Master's Thesis of Public Health

The Association between Unintended Pregnancy and Women's Empowerment in Indonesia

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The Association between Unintended Pregnancy and Women's Empowerment in Indonesia

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이 논문을 보건학 석사 학위논문으로 제출함

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Abstract

Often defined as mistimed or unwanted pregnancy, unintended pregnancy causes numerous negative health impacts on women as well as children. It is evident that its negative impacts extend to not only social and economic dimension but also to health dimension within the society. Thus, decreasing the prevalence of unintended pregnancy is imperative in public health. The global society already recognized it as urgent issue and called for addressing this problem. In the Global Strategy for Women's and Children's Health, the United Nations (UN) has set the global goals to decrease the prevalence of unintended pregnancy which is known as one of the main causes of death for millions of girls and women suffering from unsafe abortions and severe complications related to pregnancy and childbirth. Due to the cooperation on global level, it has been reported that the number of unintended pregnancies worldwide has decreased by approximately 18% in 2015–2019 compared to 1990–1994. However, East Asia and Southeast Asia marked the lowest rate of decrease in unintended pregnancy by only 4%. Among the countries in East Asia and Southeast Asia region, women in Indonesia suffered unwanted pregnancy the most.

Meanwhile, it has been widely discussed that women's empowerment is also contributed to development. Also, empowering women has been regarded as one of the 21st century agendas in global health. When it comes to its terminology, women's empowerment tends to be used interchangeably with women's autonomy or women's decision-making power. However,

women's empowerment should be distinguished from the concepts of autonomy or decision-making power in that it implies process-a dynamic aspect. To be specific, empowerment can be defined as a process which a person who had been denied of the ability to make strategic life choices among recognized alternatives is able to obtain such ability. Research on women's empowerment is insufficient in public health, nonetheless, empowering women plays pivotal role in producing various social benefits including improving community health.

The quantitative indicators of women's empowerment through utilizing secondary data are limited and lack scholarly consensus in the academia today. Amongst commonly replaced indicators as proxy measures are decision-making power in households and attitude towards domestic violence. These indicators were proposed by the Demographic and Health Survey Program (DHS) to measure women's degree of empowerment. Driven from the above narratives of women's health and its relation to empowerment, this study constructed four domains to measure women's empowerment quantitatively, which are decision-making power in households, attitude towards domestic violence, negotiation of sexual relations and decision-making power on respondents' health. The latter two indicators were included after a thorough review of existing literature.

The data used in this study was generated from IDHS (Indonesia Demographic and Health Survey) in 2017. For analysis, 14,118 out of 49,627 respondents are selected. The dependent variable is the experience of unintended pregnancy, which encompasses mistimed or unwanted pregnancy, in the last five years.

The independent variables were as follow: women's empowerment, parity, types of contraceptives, contraceptive discontinuation, respondents' age at first birth, heard of family planning, husband/partners' educational level, current age, wealth index, place of residence, occupation, province, respondents' educational level.

In this research, Stata/SE 14.2 was used for statistical analysis, and two models were presented: a model without women's empowerment variables (Model 1) and a model with women's empowerment variables (Model 2). Chi-squared test was performed to determine whether each independent variable had a significant association with unintended pregnancy. Multiple logistic analysis was also conducted to yield adjusted odds ratio (AOR).

The result showed that 16.6% of Indonesian women became pregnant unintentionally within the last 5 years. Among the four domains that measure women's empowerment, only the variable of decision-making power on respondents' health was statistically significant. Specifically, the women who reported difficulties in deciding their own health had 1.14 times higher odds of undergoing unintended pregnancy than women who did not report difficulties. Moreover, in a subgroup analysis, among respondents who use modern contraceptive, women who report difficulties in accessing health services had 1.42 times higher odds of experiencing unintended pregnancy compared to women who did not report such difficulties. On the other hand, the other three domains, attitude towards domestic violence, decision-making power in household and negotiation of sexual relations, were not statistically significant.

These statistically insignificant results can be explained with

problematic aggregation or weighting, along with a potentially unperceived fundamental drawback in the study design. Due to the nature of the DHS, the indexes for measuring empowered status of women could not be interpreted variously in accordance with different context of culture, society and country.

A qualitative study conducted in Yogyakarta, Indonesia discovered that women's decisions for family planning were not only influenced by the sexual negotiations that occurred within their marital relations, but also unexpectedly by the internalization of the surrounding society and peer women's norms of idealistic womanhood, such as having a child immediately within marriage and having at least one child from each gender. The qualitative research emphasized the significance of the women's surrounding social environments and their norms and contexts to affect women's reproductive plans and health, beyond the logistical conversations that occur between their spouses.

Results of this study suggest that approaching prevention of unintended pregnancy among Indonesian women should consider various societal and economic perspectives and sectors. Acknowledging the higher odds of unintended pregnancy by women who report difficulties accessing health services, policy makers and public health practitioners should consider addressing various infrastructural, physical, and psychological barriers that limit access to health services for Indonesian women. Despite the outcome of only one domain of women's empowerment to be statistically significant in relation to the experience of unintended pregnancy, statistically insignificant outcomes of the other three domains should be interpreted with caution. Such statistical insignificance does not

confirm that women's empowerment initiatives have no implications towards decreasing the prevalence of unintended pregnancy among Indonesian women.

Although this study did not capture the entirety of the multi-dimensional and dynamic aspects of women's empowerment, its findings provide several implications. Further studies are required to determine whether the interventions for empowering women to prevent unintended pregnancy are more effective than other forms of interventions. As the current scholarly scope and tools on measuring women's empowerment quantitatively are limiting, revision on current tools and development of new indexes are essential. To elaborate in further depths on the effects of women's empowerment on women's health, additional qualitative and mixed method approaches should be accompanied.

Keyword: unintended pregnancy, women's empowerment, empowerment, Indonesia, gender equality, sexual and reproductive health rights (SRHR)

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List of Abbreviation

ASEAN	Association of South-East Asian Nations
AOR	Adjusted odds ratio
CDC	Centers for Disease Control and Prevention
DHS	Demographic and Health Survey
HIV	Human Immunodeficiency Virus
IUD	Intrauterine Device
LAPMs	Long-acting and permanent methods
LBW	Low birth weight
LMIC	Low- and middle- income countries
MDG	Millennium Development Goals
MIC	Middle income countries
MoH	Ministry of Health
OR	Odds ratio
SDG	Sustainable Development Goals
SRHR	Sexual and reproductive health rights
UMIC	Upper- and middle- income countries
UN	United Nation
USAID	United States Agency for International Development
WEI	Women's Empowerment Index
WGE-SRH	Women's and girl's sexual and reproductive health empowerment
WHO	World Health Organization

Chapter 1. Introduction

1.1. Background

The United Nation (UN) declared Millennium Development Goals (MDGs) as a global agenda to achieve prosperity by the year 2015 which includes 8 main goals and 21 targets. The MDGs 3 promotes gender equality and empowering women, but it has been criticized for lack of practical targets. Building on MDGs, for a better achievement of the goals, the global community have agreed on a new consensus, Sustainable Development Goals (SDGs), to keep more actions for ending poverty, protecting the planet, and bringing peace and prosperity by 2030.

The SDGs have developed in detail to achieve gender equality and empowerment of women. In particular, goal 5 emphasizes the importance of gender equality, focusing on the gender hierarchical structure in which girls and women have experienced gender discrimination. At the same time, empowerment of women has drawn attention to both scholars and practitioners and is regarded as a strategy to close the gender gap (Grown et al., 2005).

Numerous studies have highlighted that empowering is vital to achieve not only social and economic development but also better health when considering its role as a facilitator of promoting better health. Wallerstein said that community empowerment plays a role as a social protective factor in reducing disparities and risks of ill health resulted from social determinants of health (Wallerstein, 2002). Furthermore, World Health Organization (WHO) already recognized its importance, stating that it is indispensable to empower women and promote gender

equality to save women's lives (WHO Department of Gender, Women and Health, 2008).

There have been collective efforts to define empowerment of women and girls from various studies. It tends to be used interchangeably with women's autonomy or decision-making power due to a lack of understanding of its complexity and multidimensionality. However, recent literature has suggested that the concept of women's empowerment should be distinguished when exploring its own multi-dimensional dynamic aspect which leads to difficulty in measuring women's empowerment quantitatively (Pratley, 2016, Ewerling et al., 2017).
Kabeer's definition is widely used in that it reflects the distinct characteristic of empowerment (Kabeer, 2002). For her, empowerment implies a process that focuses on acquiring the ability to make meaningful life choices that denied. In this light, unintended pregnancy may suggest that a woman suffers depriving one's pregnancy intention and the right to make meaningful choices about fertility preference.

On the other hand, unintended pregnancy is defined as either mistimed-get pregnant earlier than desired- or unwanted pregnancy. Unintended pregnancy results in three reproductive events which are unplanned births, induced abortions, and miscarriages(Sedgh et al., 2014). Centers for Disease Control and Prevention (CDC) revealed that unintended pregnancy is caused by not using contraception or using it incorrectly or irregularly. Its impact seems to be extended to social and economic dimensions in one society as well as the health dimension itself. Women who have ever been pregnant unintentionally tend to visit antenatal care less than those not and be vulnerable to negative health outcomes such as maternal death, unsafe abortion, mental illness, vertical

transmission of HIV and malnutrition (Baschieri A et al., 2017; Claridge AM et al., 2013; Zahr CA et al., 2004; Messer LC et al., 2005; Shah PS et al., 2011; Hubacher D et al., 2008 cited in Ameyaw et al., 2019, Ika Saptarini, 2018).

The recent study estimated the worldwide trend of unintended pregnancy and abortion using a newly developed statistical model. The authors found that there is the lowest decrease of unintended pregnancy rates in East and Southeast Asia between 1990–94 and 2015–19(80% UI) (Bearak et al., 2020). In addition, WHO data showed that more than 32,000 women in Indonesia experienced unwanted pregnancies, with the highest prevalence among the Association of South–East Asian Nations (ASEAN) countries between 2010 and 2014 (The Jakarta Post, 2015).

1.2. Purpose of the Study

Some scholars already recognized a research gap in examining the relationship between empowerment of women and pregnancy (Taylor et al., 2010, Prata et al., 2017). Upadhyay's literature review exploring the association between empowerment and fertility–related health outcomes revealed that the research on unintended pregnancy ranked the second lowest out of five fertility–related health outcomes[1](Upadhyay et al., 2014).

To be specific, there are a few studies that deal with women's autonomy or decision–making power. However, they have two main limitations in that unintended pregnancy has been defined narrowly as an event that

[1] Fertility–related health outcomes reviewed in the research are number of children, fertility preference, birth intervals, abortion, and unintended pregnancy (Upadhyay et al., 2014).

occurred by lack of family planning, and the dynamic traits of empowerment have not been used. Moreover, so far, the effect of women's empowerment on unintended pregnancy has been underexamined in Indonesia.

Considering these factors, unlike previous studies, this research is going to adapt Kabeer's definition of empowering women and regard unintended pregnancy as the deprivation of one's intention and the right to choose what happens to the body. The main purpose of this study is to assess the effect of empowering women on the experience of unintended pregnancy for Indonesian women. This research analyzes the 2017 Indonesia Demographic and Health Survey (IDHS) data and employs logistic regression.

1.3. Hypothesis

Hypotheses in this research are as follows:

1) Women's empowerment has an effect on the experience of unintended pregnancy for Indonesian women.

2) High level of each domain of empowerment leads to lower odds of experiencing unintended pregnancy for Indonesian women.

Chapter 2. Literature Review

2.1. Literature Review

2.1.1. The main variable: Women's empowerment

The majority of literature on empowering women in global health seems to have built on Naila Kabeer's definition of women's empowerment (Kabeer, 1999, Kabeer, 2005). She defined power as the ability to make meaningful choices in one's life, and on the other hand, the opposite term—disempower—explained as a denial of the ability to choose. The prefix 'em' means process, which makes the concept of empowerment not static but rather dynamic. With this definition in mind, the meaning of choice is to have chosen differently; that is to say, a person can choose the best option for oneself among alternatives. Consequently, empowerment is defined as a process in which a person who had been rejected of ability to make strategic and valuable life choices among recognized alternatives obtains such an ability that has been continuously denied before. Poverty, known as one of the social determinants of health, acts as a catalyst that intensifies disempowerment and makes a person unable to make strategic choices due to the lack of the most basic needs. This aligns with the definition of poverty suggested by Amartya Sen who defined poverty as a deprived status of capabilities to lead a reasonable life. The reason to focus on the woman as a subject of empowerment is that the absence of choice is likely to affect women and men differently, even more unfairly in gender—hierarchical society. Kabeer conceptualized three dimensions of empowerment, which are agency, resources, and achievement. In her

major study, the agency is central concept beyond the boundary of exercising the right to choose. Kabeer's extended concept of agency tackles the gender power relation. The domain of resources is the medium that agency is exercised through, then reaches achievement called outcomes of the agency. Even though this definition was noteworthy in extending theoretical understanding, there was an obvious limitation in applying to statistical operation (Samanta, 2020). This is the reason Samanta criticized the research trend that the majority of literature does not go beyond the empowerment-development framework. In her research, Samanta defines women's empowerment as self-compassion in the context of social psychology. Samanta also introduced two concepts of empowerment at individual level, which are "self-indulgent" empowerment and empowerment as responsibility (Basu and Koolwal, 2005 cited in Samanta, 2020). The formal one means expanding one's everyday freedoms as women exercising ability for herself, whereas the latter one focuses on the role of motherhood-decisions for her family-with "instrumental(altruistic)" motivations. Nevertheless, this definition also had several limitations. Among them, the major one is conceptual origins, which psychological wellbeing could not be measured precisely with secondary data.

Previous studies constructed the proxy measure of women's empowerment in a various way. The reason why there was rarely consensus on a way to construct women's empowerment is attributed to its complex, dynamic and multidimensional nature (Alsop R et al., 2006 cited in Hameed et al., 2014). A study conducted by Pratley reviewed various measurements of women's empowerment thoroughly (Pratley, 2016). The study figured out that the most common way to measure

women's empowerment was to aggregate into a domain or an index (Chakraborty and Anderson, 2011, Lepine and Strobl, 2013, Sharma and Kader, 2013 cited in Pratley, 2016). According to Pratley's literature review, the majority of research that used the DHS program[2] as data source utilized two indicators to measure women's empowerment which are decision-making power in household and attitude towards domestic violence. These indicators are proposed by DHS program. Generally, these indicators are usually constructed with four or five variables. For example, the domain of decision-making power in household consists of four variables such as person who usually decides on visits to relatives, large household purchases, respondents' health, and what to do with money husband earns (Pratley, 2016). Meanwhile, some research focused on multidimensionality of women's empowerment and constructed five conceptual dimensions-psychological, social, economic, legal and political. The recent studies conducted by Na et al. and Jennings et al., constructed women's empowerment from economic, socio-familial and legal dimensions (Na et al., 2015, Larissa Jennings, 2014). Other studies focused on the multilevel characteristics, considering that empowering women occurred and manifested at multiple levels (Yaya et al., 2018, Hameed et al., 2014). The recent research examined the association between women's empowerment and diarrhea in children under two years old in Indonesia, conducting principal component analysis using four domains-women's participation in the labor force, attitude towards domestic violence, decision-making power, and knowledge-to extract four main components which reflect women's empowerment in Indonesia

[2] Further information about the DHS program is in the following chapter.

(Astutik et al., 2020). This method was then employed by other researchers in the same field, and their work examined women's empowerment in the same way (Phan, 2015, Ewerling et al., 2017, Sebayang et al., 2019, Kabir et al., 2020).

2.1.2. The outcome variable: Unintended pregnancy

Unintended pregnancy, the outcome of this study, is defined as a status to be deprived of the right to make meaningful choices about fertility preference. Precisely, to measure unintended pregnancy, this research adapted the definition from CDC. The global burden of unintended pregnancy recorded 40% in 2012 and accounted for 27% of global maternal deaths (Gelagay et al., 2018). According to the recent research which estimated the prevalence rate of unintended pregnancy using Bayesian modelling, 64 per 1000 women became pregnant without intention in 2015−19 (80% UI: 60 to 70). The change from 1990−94 to 2015−19 estimated −18% worldwide (80%UI: −24 to −11, probability of change: 100%), with the lowest rate of decreasing in East and Southeast Asia −4% (80%UI: −19 to 15, probability of change:61%) (Bearak et al., 2020). The latest studies on unintended pregnancy in Indonesia were conducted to figure out determinants of unintended/unwanted pregnancy in 2019 and 2020 (Essi Guspaneza, 2019, Laksono and Wulandari, 2020). Essi emphasized the importance of the study, focusing on the negative impacts of unintended pregnancy−such as high mortality, unsafe abortion, and mental health− in Indonesian society. In this literature, the groups with high risk of unwanted pregnancy were identified as follow; women in a rural area, women with more than three children, and women of reproductive age. Laksono and Wulandari's research revealed that

residential area, educational level, wealth status, decision-making power related to health, heard of family planning message, and parity were founded as statistically significant factors associated with unintended pregnancy. However, this research used bivariate logistic regression as the final analytical model. Therefore, it could be said that the adjusted effects of each variable with holding other factors were not investigated.

Thus far, a number of studies that investigated unintended pregnancy have been conducted with women-related factors. On top of that, the majority used proxy measures of women's autonomy, not empowerment. The research conducted in Bangladesh in 2011 showed that the significant predictor of unintended pregnancy is women's autonomy in the household decision-making process. To be specific, she figured out that as one unit of women's autonomy scale increased, the odds of unintended pregnancy decreased by about 23% (OR = 0.77, 95% CI: 0.54-0.88). Other factors were also found as exerting strong influences on unintended pregnancy which are age at marriage, parity, current age, media access, contraceptive use, and religion (Rahman, 2012). Similarly, the study which looked at women in the Philippines by Abada and Tenkorang examined the main effects of women's autonomy and its moderating effects by including an interaction term between two types of autonomy and current age (Abada and Tenkorang, 2012). To measure decision-making autonomy of sexual and household, the author utilized the variables which are relevant to respondents' attitude to sexual relation and final say on household decisions. The results indicated that the respondents with a higher level of sexual decision-making autonomy and household decision-making autonomy were less likely to undergo unwanted pregnancy/births, but not mistimed pregnancy.

2.1.3. The effect of women's empowerment on woman-centered health outcomes

Several studies which investigated the effect of women's empowerment on various reproductive events such as antenatal care visits, maternal and child health care services, or types of delivery place (Larissa Jennings, 2014, Sebayang et al., 2019, Anderson et al., 2020, Kabir et al., 2020, Yaya et al., 2018, Pratley, 2016, Nadeem et al., 2021). However, these studies had limitation in that they did not consider the woman-centered outcome. Instead, they focused on female reproductive function. There were several studies that examined the association between women's empowerment and woman-centered health outcomes which proposed in Karp's study[3]. Lee-Rife carried out the research which examined the association between each domain of women's empowerment and a series of reproductive events. To be specific, the independent variables were proportion of miscarriages/stillbirths, abortion success, unwanted and mistimed pregnancies. Women's empowerment in the research constructed four domains which are restriction on mobility, the experience of violence, financial autonomy, and threats of abandonment/homelessness (Lee-Rife, 2010). However, this study used the proxy measure of women's empowerment as independent variable. The research conducted by Hameed et al. used contraceptive use as dependent variable and classified the contraceptives into three categories which are non-user, couple methods and female-only methods. In regard

[3] Karp's research set three sexual and reproductive events as health outcomes in achievement of choice stage. The health outcomes are as follow: sex by choice; contraceptive use by choice; and pregnancy by choice.

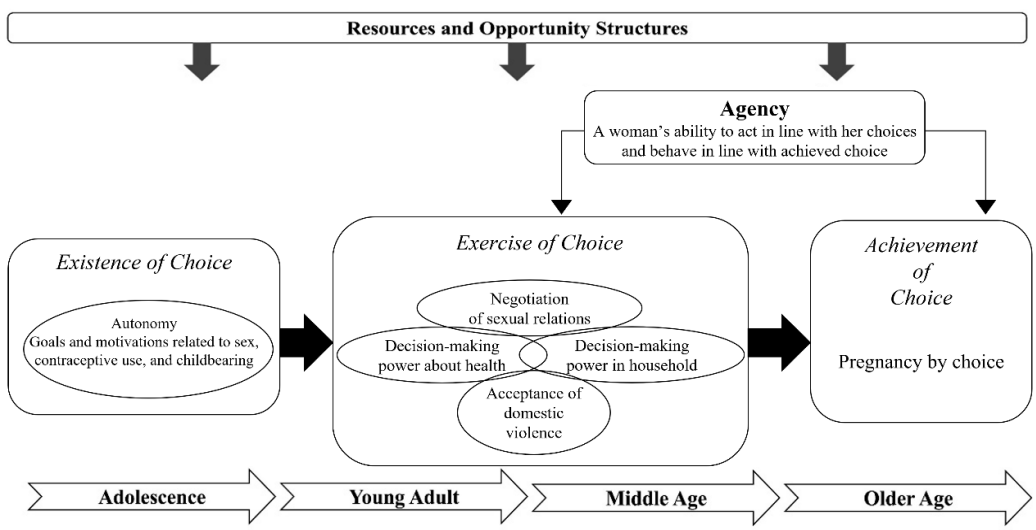
to women's empowerment indicators, the composite measure was used: each 13 items scored in dichotomous way (0 or 1) with additional weight. The study found the positive association between contraceptive use and empowerment score. As one-point increased in the empowerment score, the odds of using female-only methods 1.03 times increased compared to non-user. Similar trend was also found in couple method user group: when the respondent got one additional score, the odds of using couple method increased 1.06 times compared to non-user.

There has been a lack of consistent results which investigated the association between women's empowerment and woman-centered health outcomes. In addition, only a few literatures have examined how women's empowerment contributed to unintended pregnancy in Indonesian context and the majority of the research included women's autonomy or few parts of domains only. Given the paucity of studies related to empowering women, this study expands the use of women's empowerment in the field of global health and focuses on the association between women's empowerment and unintended pregnancy, which is one of the woman-centered health outcomes.

2.2. Theoretical Framework

According to the study conducted by Karp et al., they proposed the conceptual framework called 'women's and girl's sexual and reproductive health empowerment (WGE-SRH)' in sub-Saharan Africa. This framework focused on the internal (psychosocial) pathways and processes at individual level (Karp et al., 2020).

This study adapted Karp's theoretical framework of WGE-SRH and modified several domains in each stage to reflect Indonesia's context. Also, considering the main limitation of this study, which is cross-sectional secondary data analysis, each domain modified like in the figure below.



[Figure 1] Modified WGE-SRH framework

Chapter 3. Methods

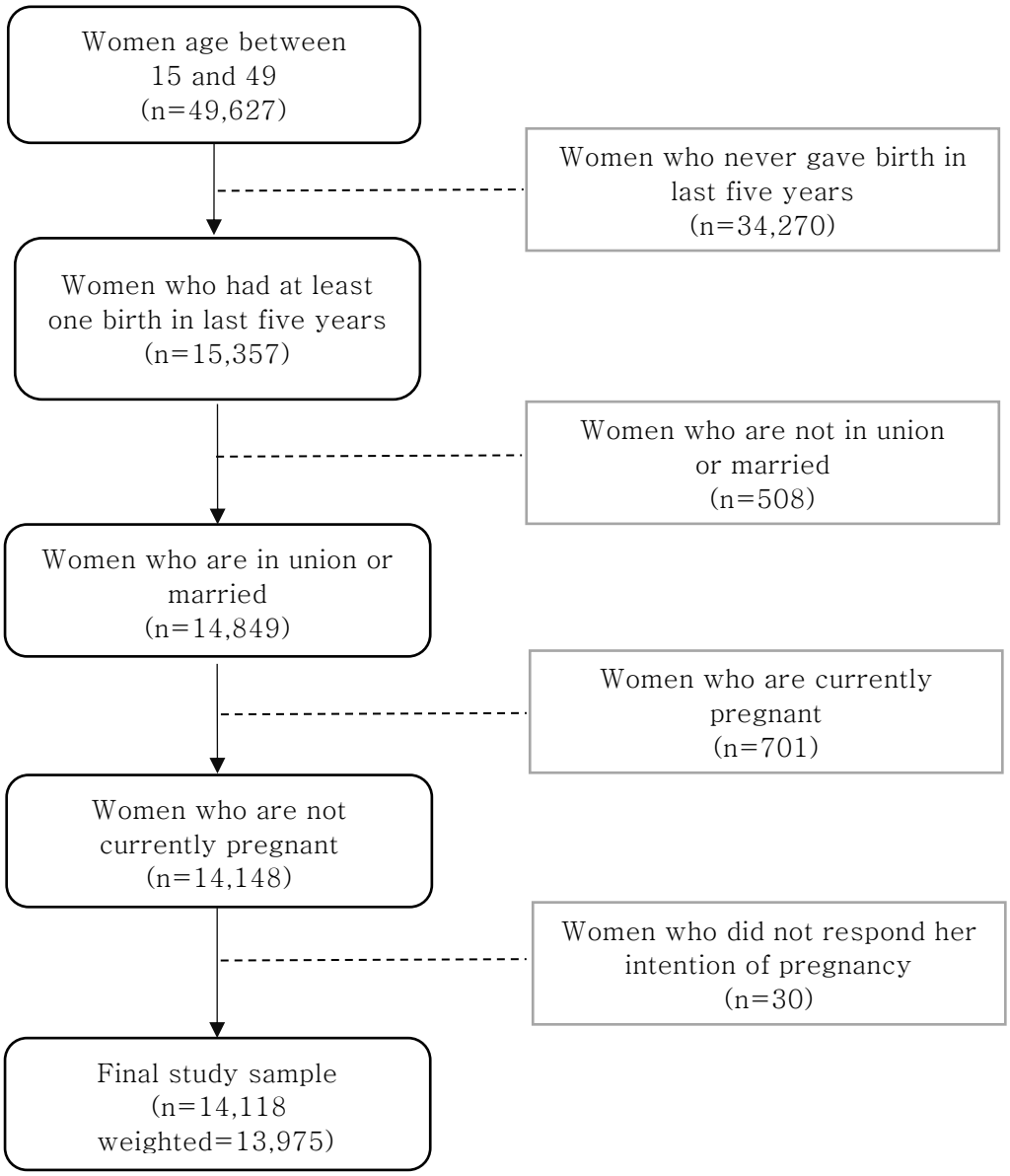
3.1. Data Collection and Study Sample

This research employed the Demographic and Health Survey (DHS) data conducted in Indonesia between July 2017 to September 2017. The DHS Program, funded by United States Agency for International Development (USAID), has provided technical assistance in over 90 developing countries. The primary objective of the DHS program is to provide adequate policy formation, program planning, and monitoring and evaluation, having spread accurate and nationally representative data. The DHS encompasses a variety of health-related topics such as family planning, gender, nutrition, and malaria (The DHS Program - Who We Are, n.d.). The data collection process of the DHS consists of four types of model questionnaires: household questionnaire, woman's questionnaire, man's questionnaire, and biomarker questionnaire.

The 2017 Indonesia Demographic and Health Survey (IDHS) was conducted by Statistics Indonesia in collaboration with the National Population and Family Planning Board and the Ministry of Health (MoH) of Indonesia. Specifically, one of the main purposes of the IDHS is to measure trends in fertility and contraceptive prevalence rates and analyze relevant factors (Indonesia Demographic and Health Survey 2017, 2018). The 2017 IDHS designed two-stage stratified sampling based on the Master Sample of Census Blocks sample from the 2010 Population Census. This covered 1,970 census blocks in urban and rural areas at national and province levels. A total of 47,963 households, 24,560 in urban and 23,403 in rural respectively, was interviewed with almost 100% of response rates.

Regarding individual interviews, 50,730 women age between 15 and 49 were identified as eligible interviewers. Among them, 49,627 women completed interviews, recording a response rate of 97.8%. The survey then interviewed 10,009 out of 10,440 married men age between 15 and 54.

This study analyzed the individual data published from IDHS collected through a woman's questionnaire. The sample population was selected based on the following three criteria: (i) women who are currently not pregnant; (ii) women who are married or in union; (iii) women who gave birth in the last five years. The first and second criteria were considered because pregnant women or not married women did not respond to several items which were used as main independent variables. The third criterion was added to adjust possible recall bias. Of the total 49,627 women, 34,270 had never delivered in the last five years, and 508 women were excluded because they are not in a union or married. 701 women who are pregnant and 30 women who did not respond were also excluded. Finally, the total study sample analyzed in this study included 14,118 women, weighted 13,975.



[Figure 2] The flow chart of study sample selection

3.2. Study Design

This cross-sectional study firstly conducted a descriptive and bivariate analysis of demographic characteristics, covariates, and domains

relevant to women's empowerment. Then, multivariable logistic regression was carried out to determine the association between unintended pregnancy and women's empowerment. To be specific, in order to estimate the odds ratio (OR) of getting pregnant unintentionally relative to women's empowerment level. This study laid two analytical models; one had women's empowerment variables, the other did not.

In addition, this research examined whether the association between unintended pregnancy and contraceptive methods currently used was modified by irregular use of contraceptive, as mentioned earlier in this research. The experience of discontinuance in contraceptive for the last five years was used as a proxy measure of irregular behavior in using the contraceptive. By doing this, this research put distinctions from other previous studies and intends to contribute to closing the knowledge gap in this field of study. For data analysis, this research employed Stata/SE 14.2 to analyze the relevant data collected.

3.3. Variables

3.3.1. Dependent Variable

This research conveyed binary dependent variable whether the respondent became pregnant intentionally or unintentionally.

For the questions of asking pregnancy intention, if the woman responded to either category of 'wanted later' or 'not at all', these responses were defined as unintended pregnancy and recoded as [1] Yes.

Due to the limitation of secondary data analysis, only the pregnancy that resulted in 'unplanned birth' was included in this analysis among three reproductive events; unplanned births, induced abortions, and

miscarriages caused by unintended pregnancy as mentioned in chapter 1.

3.3.2. Independent Variable

Women's empowerment

As mentioned in chapter 2, women's empowerment has country-specific characteristics. This is why the research of empowerment lacks consensus on the common variables across all sectors, especially in quantitative research. The DHS program proposes two indicators of women's empowerment which are acceptance of domestic violence and decision-making power in household. Although it has been controversial that these domains proposed by DHS program apply to various cultures, contexts and countries, the previous studies showed that these domains have significant associations with unintended pregnancy (Rahman, 2012). Even though there have been a number of studies which point out that women's education and employment are significant components most of all (Mason 1987; Brewster and Rindfuss 2000; Axinn and Barber 2001; Larsen and Hollos 2003; Grown et al. 2005 cited in Phan, 2015), this study did not include two variables in this empowerment domain, considering the recent fact that educational gender inequality in Indonesia have been closed, and even some Indonesian women outperform men (Cameron, Suarez and Mily, 2015). As mentioned earlier, the majority of literature interpreted occupation within the framework of women's empowerment from perspectives of labor force participation(Phan, 2015, Sebayang et al., 2019, Ewerling et al., 2017) or economic dimension(Asaolu et al., 2018). However, this research views respondents' occupation from a socio-demographic perspective. This is supported by the evidence that

Indonesian women who have poorly educated husband or partner are more likely to take part in the labor market (Schaner, S., and Das, S., 2016). On top of that, the research conducted by Cameron, Dowling, and Worswick showed that the more highly educated women tend to participate in labor market (Cameron, Dowling, and Worswick, 2001 cited in Schaner, S., and Das, S., 2016).

i) Decision-making power in the household

As the [Table 1] illustrates, the domain of decision-making power in a household consists of four variables. In this research, each of them was scored as following criteria: when the respondent responded to 'involved in decision-making process partially or fully', scored 1 point equally (Eugene Kofuor Maafo Darteh, 2014). The case of the respondent who answered 'does not involve at all' scored -1 point (Ewerling et al., 2020). The domain of decision-making power in the household scored within a range of -4 to 4. The average score of all respondents was set as a distinction point to determine the relative level. Women with a lower score than the average were coded as [0] low score, meaning that the respondent does not have decision-making power. On the other hand, women with a higher score were coded as [1] high score, meaning that the respondent has decision-making power.

ii) Acceptance of domestic violence

Women's attitude toward domestic violence is one of the proposed indices in the DHS program as a proxy to represent the empowered status of women. A higher score means that women do not have an attitude to accept being beaten by their husband/partner. Similar to the domain of

decision-making power in households, women who did not justify domestic violence following the five reasons presented in [Table 1] scored 1 point per each reason. Those women who justify physical violence scored -1 point. The average score of all respondents was set as a distinction point to establish whether they accept violence or not. In the case of women who have a higher score than average, it was coded as [1] high score. Those women with lower score were coded as [0] low score.

iii) Decision-making power on respondents' health

L.Phan(2015) in his research used decision-making power on respondents' health adopting four variables in Southeast Asia context. These variables from woman's questionnaire aim to figure out the barriers to prohibit a woman from getting medical advice or treatment for themselves (Phan, 2015, Anderson et al., 2020, Asaolu et al., 2018). The respondents could answer in a dichotomous way either big problem or not a big problem. Based on prior studies, four additional variables are included in this research to extend the definition of decision-making power beyond the DHS recommendation. When the women responded to 'not a big problem' in all four scenarios, coded [0] not a big problem to decide their own health. Otherwise, in the case of women who responded to 'big problem' at least in one scenario, coded [1] problem to decide their own health.

iv) Negotiation of sexual relations

The domain of 'Negotiation of sexual relations' proposed by Karp et al. as one of the components of WGE-SRH framework. However, due

to the limitation of the study design using a secondary data source, decision maker in using contraceptive in the conjugal condition is used as a proxy tool to measure the negotiation of sexual relation. In fact, previous studies showed that the decision-making process on family planning has a significant association with unintended pregnancy in LMICs (Tsegaye et al., 2018, Abdurahman Mohammed, 2014, Prata et al., 2016).

Contraceptive methods

The previous studies applied three categories of contraceptive; no method, traditional method, modern method (Laksono and Wulandari, 2020, Alene et al., 2020, Rizvi et al., 2019). However, this research categorized the types of contraceptive method into four groups, adding long-acting and permanent methods (LAPMs) group to reflect the recent evidence that women who use LAPMs are 21 times less likely to have unintended pregnancy (Lotke, 2015 cited in Fekadu et al., 2019, Mahendra et al., 2019, World Fertility and Family Planning 2020 Highlights, 2021). The women who responded to using an intrauterine device (IUD), implants, tubal ligation or vasectomy were grouped as long acting and permanent methods. These were coded as [3] LAPMs. Besides LAPMs, the other modern methods were categorized as [3] modern method. The women who are using traditional methods were coded as [2] traditional method. The group of women who responded to not using any contraceptives was categorized as the reference group, [0] no method.

The experience of contraceptive discontinuation

The contraceptive failure puts women at risk of mistimed and unwanted pregnancy (Ali, Cleland and Shah, 2012 cited in Samosir, Omas

B., Ayke S. Kiting, and Flora Aninditya, 2019). To examine the experience of contraceptive failure, contraceptive discontinuation in the last five years was used as a proxy measure. As mentioned in the introduction, the experience of discontinuation is due to the inconsistent use of contraceptive. On top of that, contraceptive discontinuation is the most vital determinant of unwanted fertility as well as contraceptive prevalence (Bradley, 2009). When the women responded to any reasons for discontinuation, coded as [1] contraceptive discontinuation.

Heard about family planning in the last few months on media

Although there have not been consistent results yet, hearing family planning messages on media is known as one of the factors to have an impact on pregnancies (Laksono and Wulandari, 2020, Rizvi et al., 2019). In this study, when the respondent heard about family planning messages through media in the last few months, coded as [1] Yes, [0] No, if did not.

Parity (Total number of children ever born)

A number of studies have found that the total number of children ever born is a strong determinant of unintended pregnancy in low-income countries and low-middle income countries including Indonesia (Ameyaw et al., 2019, Sumera Aziz Ali, 2016, Essi Guspaneza, 2019, Laksono and Wulandari, 2020, Acharya et al., 2016). This variable was recategorized into six groups-from one child group to 6 or more children group.

Age at first birth

There are several studies that included age at first birth and first

marriage as crucial variables. However, in this research, taking into account multicollinearity, age at first birth was only included. This variable was categorized into seven groups which have five years interval each: under 15 years old, age between 15–19 years, 20–24 years, 25–29 years, 30–34 years, 35–39 years, and 40 years or more.

Socio-demographic variables

The Republic of Indonesia has its unique administrative divisions; 31 provinces, 1 autonomous province, 1 special region, and 1 national capital district (THE WORLD FACTBOOK – Indonesia, 2021). In this study, all 34 provinces were included, and the reference group was set as Jakarta, a national capital district. Also, the type of place of residence was either urban or rural. Respondents' current ages were reorganized into a categorical variable. This was divided into seven categories with five-year interval: the first category was [0], age between 15 and 19, the last category was [6], age between 45 and 49. The highest level of education the respondent received was included and categorized into four categories: [0] no education, [1] primary, [2] secondary [3] higher. This categorization was applied equally to both the highest educational levels of respondent and her husband/partner. Unlike other variables in an individual record in IDHS, the wealth index is a composite measure of a household's cumulative living standard. This index is calculated using household's ownership of assets such as sanitation facilities, televisions, and bicycles. In original data, the wealth index has the five quantiles: poorest, poorer, middle, richer, richest. This research revised the index from IDHS, and recategorized the wealth index to three quantiles– [1] poor, [2] middle, [3] rich.

[Table 1] Description of Variables

Variable name	Explanation	Measurement
Dependent variable		
Unintended pregnancy	Defined either mistimed or unwanted pregnancy which ends in birth in last five years	0 – No 1 – Yes
Independent variables		
Women's empowerment	Being consisted of four domains	

Domain	Variable and description
Decision making power in household	Person who usually decides on · respondent's health care · large household purchases · visits to family or relatives · what to do with money husband earns
Attitude toward domestic violence	Acceptance of being beaten by husband/partner following reasons · if wife goes out without telling husband · if wife neglects the children · if wife argues with husband · if wife refuses to have sex with husband · if wife burns the food
Decision making power on respondents' health	The following statements are whether problematic or not when respondents try to get medical advice or treatment · getting permission to go to the doctor · getting money needed for advice or treatment · the distance to the health facilities · not wanting to go alone

	Negotiation of Sexual Relations	· Decision maker for using/not using contraception
Parity (Total number of children ever born)	Total number of children which the respondent has ever born	1 – One child 2 – Two children 3 – Three children 4 – Four children 5 – Five children 6 – 6 or more children
Age at first birth	Respondent's age at first birth	0 – Under 15 years 1 – 15–19 years 2 – 20–24 years 3 – 25–29 years 4 – 30–34 years 5 – 35–39 years 6 – 40 years or more
Heard of family planning	Either heard about family planning messages last few months or not via television or radio	0 – No 1 – Yes
Type of contraception currently using	Contraception method currently using by type	0 – No method 1 – Traditional method 2 – Modern method 3 – Long acting and permanent method (LAPMs)

Husband/partner's educational level	Husband/partner's highest education level attended	0 – No education 1 – Primary 2 – Secondary 3 – Higher
Contraceptive discontinuation	Cessation of any contraceptive methods in last 5 years	0 – No 1 – Yes
Socio–demographic variables		
Current age	Respondent's current age	1 – 15–19 years 2 – 20–24 years 3 – 25–29 years 4 – 30–34 years 5 – 35–39 years 6 – 40–44 years 7 – 45–49 years
Wealth index	A composite measure of wealth status at household level	1 – Poor 2 – Middle 3 – Rich
Place of residence	Type of place of residence	1 – Urban 2 – Rural
Occupation	Type of respondent's occupation	0 – Not working. 1 – Professional, Technical, Managers, Clerical and Administration 2 – Sales, Services 3 – Agricultural worker

		4 – Industrial worker
Province	10 – Jakarta	52 – West Nusa Tenggara
	11 – Aceh	53 – East Nusa Tenggara
	12 – North Sumatera	61 – West Kalimantan
	13 – West Sumatera	62 – Central Kalimantan
	14 – Riau	63 – South Kalimantan
	15 – Jambi	64 – East Kalimantan
	16 – South Sumatera	65 – North Kalimantan
	17 – Bengkulu	71 – North Sulawesi
	18 – Lampung	72 – Central Sulawesi
	19 – Bangka Belitung	73 – South Sulawesi
	21 – Riau Islands	74 – Southeast Sulawesi
	32 – West Java	75 – Gorontalo
	33 – Central Java	76 – West Sulawesi
	34 – Yogyakarta	81 – Maluku
	35 – East Java	82 – North Maluku
	36 – Banten	91 – West Papua
	51 – Bali	94 – Papua
Respondent's educational level	The highest education level received	0 – No education 1 – Primary 2 – Secondary 3 – Higher

3.4. Ethical Consideration

This research used secondary data from Indonesia Demographic and Health Survey 2017. The DHS surveys have been reviewed and approved by ICF Institutional Review Board (IRB). In addition, the DHS program follows strict standards for protecting respondents such as informed consent, voluntary participation, privacy and confidentiality during data collection and processing.

This study obtained permission for accessing to the data from the DHS website and was approved in January 2021 by the Institutional Review Board (IRB) at Seoul National University as an exemption deliberation. (Approval No.: IRB No. E2101/003-009)

Chapter 4. Results

This section provides the general characteristics and descriptive statistics from conducting exploratory analysis. Then, logistic regression results are shown to elaborate on the association between the intention of pregnancy and women's empowerment by presenting two models.

4.1. General Characteristics and Descriptive Statistics

The [Table 2] below illustrates an overview of general characteristics of respondents and the results of chi-squared analysis. Through conducting bivariate analysis, the following variables were shown associations with experience of unintended pregnancy at the significance level of 0.05: current age, occupation, province, residence, types of contraception currently using, contraceptive discontinuation, age at first birth, age at first marriage, and parity.

Out of total 13,975 respondents (unweighted n=14,118), only over 16% Indonesian women had experienced unintended pregnancy in last five years (n=2,324, unweighted n=2,452). In each of women's empowerment domains, women who responded to 'participate in negotiating process partially' to decide contraceptive methods recorded 7,844 (56.4%). Among them, those women who experienced unintended pregnancy was 1,276. Also, more than 30% of respondents (n=4,897) reported that they were the main decision-makers to use contraceptives when discussing sexual relations. 8.5% of women (n=1,182) were not involved in negotiating

process at all. One out of third women in Indonesia (33.5%) were challenged when deciding their own health for one of the following reasons: finance, permission from husband/partner, distance to the health facilities, or no accompanier. Similarly, the respondents who have less decision-making power in household recorded 4,998 (35.8%). Out of the total 8,978 who scored highly in decision-making power, 1,460 women responded that they experienced an unintended pregnancy in the last five years with a prevalence of 10.4%. The results show that 68.5% of women were less likely to accept domestic violence (n=9,575), whereas 31.5% of women tended to justify the physical violence when women do not act as motherhood in household which was pressured by the patriarchal society (n=4,402).

The respondents with age between 35 and 39 showed the highest prevalence of unintended pregnancy (4.3%, n=600). Around a quarter of those who responded to this survey was in the age group between 30 and 34, which also showed the second highest prevalence of unintended pregnancy (4.1%, n=567). Slightly more women (n=600) in age between 35 and 39 had experienced unintended pregnancy in the last five years, which recorded the highest prevalence among seven age groups. By occupational types, approximately half of respondents did not take part in the labor market in the past 12 months (49%, n=6,831). Among them, 1,097 women responded that they had become pregnant without planning. Except for these women who did not participate in the labor market, the majority (n=3,275) was in the sales and service group, followed by professional, technical, managerial, and clerical group (n=1,507), agricultural workers (n=1,309) and industrial workers (n=1,026).

Women who worked in sales or service sectors experienced unintended pregnancy the most (4.6%).

The prevalence of unintended pregnancy varied in different provinces. 20.3% of respondents who lived in West Java recorded the highest prevalence of unintended pregnancy (3.3%). The lowest prevalence in Indonesia recorded almost 0%, only five respondents reported they experienced an unintended pregnancy in the last five years. In the national capital district, Jakarta, 87 out of 480 respondents reported that they became pregnant unplanned. The specific results of bivariate analysis between unintended pregnancy and province are explained in appendix B. The type of residence was revealed as one of the significant variables in bivariate analysis. More than 50% of women (n=7,227) lived in rural areas, of which 7.5% of respondent had unintended pregnancy, whereas 48.3% of women (n=6,749) resided in urban areas, and 9.1% of them became pregnant unintentionally.

In regard to sexual and reproductive health status, over half of the respondents (56.2%, n=7,868) used modern contraceptives such as male condom or pill. This means that the most preferred method for Indonesian women was modern contraceptives. The next preferred method which 15,7% of the respondents used was LAPMs. Around a fifth of those who responded did not use any contraceptives at all (20.1%). This was higher than the prevalence of using traditional contraceptives, which was 7.2%. As the table below shows, the discontinuation of contraception in the last 5 years was figured out as one of the strongest determinants for unintended pregnancy ($p<.001$). The 8,060 out of 13,975 respondents (57.6%) had ceased using contraceptives in last five years. Likewise, parity was

significantly related to unintended pregnancy (p<.001). As expected, the more children women had, the higher probability of unintended pregnancy women had. For the question of women who gave birth to six or more, 148 women out of 347 reportedly had experienced pregnancy without planning. About one of third of the respondents (35.3%) had two children, which aligns with the fact that the total fertility rate in 2017 reached 2.3 per woman. Among them, 669 women responded that they had undergone unintended pregnancy, whereas 4,257 women did not. 4,480 women responded that they had only one child (32.1%). Age at first birth also had strong associations with unintended pregnancy (p<.001). What stands out in the table below is that Indonesian women are likely to have first birth before their thirties—13,138 out of 13,975. Indonesian women delivered their first baby at 22.2 years old on average. However, around 1% of women in Indonesia still went through their first birth at the age of 15 or under. Nearly a half of the respondents (48.8%) went through their first birth at the age between 20 and 24 (n=6,417), then the next significant number of women delivered first childbirth during age between 15 to 19 (n=3,806).

Although there was no evidence that the highest educational level of respondent and husband/partner, wealth index, and hearing of family planning on media are significantly associated with experiencing unintended pregnancy in chi-squared analysis, these variables were identified as the significant factors in previous studies (Ameyaw et al., 2019, Mohamed et al., 2019, Peach et al., 2021, Essi Guspaneza, 2019, Sumera Aziz Ali, 2016). The results showed that 884 respondents out of 5,551 with low economic status and 985 out of 5,538 with high economic status became pregnant unintentionally.

The prevalence rate of unintended pregnancy for women with wealth was the highest among the three groups (7.0%). The distribution of the highest educational attendance of respondent and her husband/partner seemed to be similar to each other. Most of the women finished secondary school (58.1%) and had the highest prevalence of unintended pregnancy which reached almost 10%, followed by the group which graduated primary school with the rate of 4.2%. In similar, the women who have husband/partner graduated from secondary school recorded 8,077 (58.0%) with the highest prevalence of unplanned pregnancy−9.5%. This confirms with the observation published in the report that the educational gap between the two sexes in Indonesia is not broad. The respondents who had heard of family planning messages in the last few months was 61.4%(n=8,588), whereas 38.6% (n=5,387) had never heard of the messages at all. Among those women who had heard the messages, 1,445 experienced pregnancies without intention.

[Table 2] The results of descriptive statistics and chi-squared analysis

Variable	Unintended pregnancy				p-value
	No		Yes		
	Weighted (%)	Unweighted	Weighted (%)	Unweighted	
Unintended pregnancy	11,651 (83.4)	11,666	2,324 (16.6)	2,452	
Women's empowerment					
i) Decision-making power in household					0.1936
Low	4,133 (29.6)	3,913	865 (6.2)	875	
High	7,518 (53.8)	7,753	1,460 (10.4)	1,577	
ii) Acceptance of domestic violence					0.8376
Low	3,675 (26.3)	4,142	727 (5.2)	872	
High	7,977 (57.1)	7,524	1,598 (11.4)	1,580	
iii) Decision-making power on respondents' health					0.2157
Not a big problem	7,777 (55.7)	7,779	1,515 (10.8)	1,585	

Problem to decide	3,865 (27.7)	3,878	809 (5.8)	867	
iv) Negotiation of sexual relation					0.4170
Not involved in	989 (7.1)	1,057	193 (1.4)	206	
Partly involve in	6,568 (47.2)	6,655	1,276 (9.2)	1,362	
Decide alone	4,047 (29.1)	3,901	850 (6.1)	879	
Province	*See also Appendix B*				0.0000
Current age					0.0000
15−19	278 (2.0)	290	51 (0.4)	60	
20−24	2,031 (14.5)	1,897	227 (1.6)	260	
25−29	3,051 (21.8)	3,016	397 (2.8)	443	
30−34	3,051 (21.8)	3,102	567 (4.1)	596	
35−39	2,254 (16.1)	2,268	600 (4.3)	610	
40−44	838 (6.0)	915	367 (2.6)	380	

45−49	148 (1.1)	178	115 (0.8)	103	
Occupation					0.0001
No	5,734 (41.1)	5,497	1,097 (7.9)	1,114	
Professional/ Technical/ Managerial/ Clerical	1,252 (9.0)	1,502	255 (1.8)	301	
Sales/Services	2,638 (18.9)	2,599	637 (4.6)	651	
Agricultural	1,107 (7.9)	1,346	202 (1.5)	255	
Industrial	894 (6.4)	697	132 (1.0)	129	
Place of residence					0.0000
Urban	5474 (39.2)	5,559	1275 (9.1)	1,393	
Rural	6177 (44.2)	6,107	1050 (7.5)	1,059	
Educational attainment					0.2319

No	115 (0.8)	159	19 (0.1)	25	
Primary	3077 (22.0)	2995	587 (4.2)	574	
Secondary	6783 (48.5)	6509	1344 (9.6)	1413	
Higher	1677 (12.0)	2003	375 (2.7)	440	
Wealth (Household-level)					0.0651
Poor	4667 (33.4)	4051	884 (6.3)	931	
Middle	2432 (17.4)	2206	456 (3.3)	450	
Rich	4553 (32.6)	5409	985 (7.0)	1071	
Husband/partner's educational level					0.3594
No education	125 (0.9)	171	23 (0.2)	29	
Primary	3,260 (23.4)	3,116	642 (4.6)	620	
Secondary	6,758 (48.5)	6,657	1,319 (9.5)	1,413	
Higher	1,475 (10.6)	1,688	331 (2.4)	381	

Type of contraception currently using					0.0000
No method	2,523 (18.1)	2,930	385 (2.8)	460	
Traditional	823 (5.9)	897	188 (1.3)	213	
Modern	6,701 (47.9)	6,269	1.167 (8.3)	1,182	
LAPMs	1.605 (11.5)	1,570	585 (4.2)	597	
Discontinuation of contraception in last 5 years					0.0000
No	5,246 (37.5)	5450	669 (4.8)	750	
Yes	6,405 (45.8)	6216	1,655 (11.8)	1702	
Heard of family planning					0.5157
No	4,507 (32.3)	4987	880 (6.3)	980	
Yes	7,143 (51.1)	6678	1,445 (10.3)	1472	
Age at first birth					0.0005
Under 15	97 (0.7)	108	26 (0.2)	33	
15−19 years	3,075	3,115	731	800	

	(22.0)		(5.2)		
20–24 years	5,380 (38.5)	5,197	1,037 (7.4)	1,077	
25–29 years	2,362 (16.9)	2,458	430 (3.1)	442	
30–34 years	587 (4.2)	626	83 (0.6)	86	
35–39 years	115 (0.8)	125	13 (0.1)	12	
40 years or more	36 (0.3)	37	4 (0.03)	2	
Parity					0.0000
One	4,288 (30.7)	3,940	192 (1.4)	217	
Two	4,257 (30.5)	4,014	669 (4.8)	653	
Three	1,954 (14.0)	2,082	744 (5.3)	734	
Four	703 (5.0)	910	470 (2.9)	457	
Five	252 (1.8)	383	162 (1.2)	207	
Six or more children	199 (1.4)	337	148 (1.1)	184	

4.2. Multiple logistic regression analysis

This study also conveyed multivariable logistic regression. Two logistic models are presented in [Table 3]; the first model (Model 1) does not include women's empowerment variables, and the second model (Model 2) includes them.

Model 1: Without each domain of women's empowerment

An inspection of the data in the left column of [Table 3] reveals that the type of contraception, the experience of ceased contraceptives in the last five years, age at first birth, the highest educational attainment, parity, residence, occupation, respondent's current age and several provinces are statistically significant even after adjusting other factors.

To be specific, the current age of the respondents was significant at all range. Odds ratios of each age group seemed to decrease from 20-24 years to 35-39 years; however, this trend of odds ratio seemed to increase in the age group of 40-44 years. Women who were 20-24 years had 0.25 times less odds (95% CI: 0.16-0.39), women aged between 25 and 29 years had 0.1 times less odds (95% CI: 0.06-0.16), women aged 30 to 34 years and 35 to 39 had 0.06 times less and 0.05 times less odds respectively (95% CI: 0.03-0.09) (95% CI: 0.03-0.08) than women who were between 15 and 19 years old. In terms of province, four provinces were significant at $p<0.01$: Aceh, Banten, East Nusa Tenggara, and Yogyakarta. the last province-Yogyakarta-had the highest odds ratio among all provinces. Women who live in Yogyakarta were 1.94 times more

likely to become pregnant without intention than in Jakarta (95% CI: 1.23−3.05). The respondents from Aceh, in Banten and East Nusa Tenggara provinces had less odds of 0.47, 0.59 and 0.48 respectively to experience unintended pregnancy than women in Jakarta (95% CI: 0.32−0.69) (95% CI: 0.4−0.85) (95% CI: 0.32−0.71). Others were significant at the $p<0.05$ level, which are Bengkulu, Bali, West Nusa Tenggara, South Sulawesi, Southeast Sulawesi, West Sulawesi, West Papua, and Papua. Of the total eight provinces which were significant at 95%, four provinces−West Nusa Tenggara, West Sulawesi, West Papua, and Papua−had lower odds than Jakarta. Women from West Papua had the lowest odds of 0.46 (95% CI: 0.22−0.96) than women who live in Jakarta. The respondents from West Nusa Tenggara had 0.59 times less odds (95% CI: 0.38−0.93), from West Sulawesi had 0.58 times less odds (95% CI: 0.38−0.9), from Papua had 0.57 times less odds (95% CI: 0.33−0.98) to become pregnant unintentionally than those who reside in Jakarta. The respondents from four out of eight provinces were more likely to have unintended pregnancy compared to women who reside in Jakarta; higher odds of 1.58 (95% CI: 1.02−2.32) from Bengkulu, higher odds of 1.79 (95% CI: 1.11−2.89) from Bali, higher odds of 1.54 (95% CI: 1.09−2.19) from South Sulawesi, and higher odds 1.5 (95% CI:1.04−2.16) from Southeast Sulawesi. The statistical significance was also found in the type of residence. The women in rural areas were 0.78 times less likely to be pregnant unintentionally than those in the urban area (95% CI: 0.67−0.90). The highest educational attainment of the respondent was significantly related to unintended pregnancy. The overall trend indicates that the more education women received, the higher rate of unintended pregnancy women experience. As [Table 3] shows, the

women who received higher than secondary education were more likely to have 2.63 times higher odds of being pregnant unintentionally compared to women with no education ($p<.01$, 95% CI: 1.36−5.07). The respondents who finish secondary education had 1.99 times higher odds than those who did not receive any education. Moreover, the experience of unintended pregnancy appeared to be associated with the types of occupation−agricultural workers at the 5% significance level and sales/service at the 10% significance level. The women who worked in the agricultural sector had 0.8 times less likely to become pregnant without intention than women without occupation (95% CI: 0.66−0.98). However, women workers in the sales/services sector showed 1.14 times more likely to experience unintended pregnancy than women without occupation ($p=0.07$).

The logistic regression analysis results showed that one of the determinants for unintended pregnancy is women's age at first delivery. Except for the age groups of 15−19, 20−24 and 40 years or more, the odds ratio seemed to increase steadily as each age group gets older. Women who gave first birth during 25 and 29 were 2.14 times more likely to experience unintended pregnancy than women who gave first birth before the age of 15 (95% CI: 1.24−3.72). In similar, the respondents who experienced first birth at 30−34 had 2.46 times higher odds than the respondents who experienced the first childbearing before age of 15 (95% CI: 1.31−4.61). Women who gave first birth between 35 and 39 had the highest odds ratio value of 4.21, which means that women who experienced first birth at this age were exposed to the highest risk to become pregnant unintentionally and gave unplanned birth ($p<.01$, 95% CI: 1.61−10.98). The total number of children a woman has ever delivered,

known as parity, has a significant impact on unintended pregnancy. The overall trend shows that women were more likely to have higher odds when women experienced multiple pregnancies. In this research, women with one child were set as a reference group. Specifically, the probability of becoming pregnant without intention increased by 630% (OR 7.3; 95% CI: 5.6−9.5) for women with two children. Compared to women with one child, women with three children were 27.39 times more likely to have the odds of unintended pregnancy (95% CI: 20.2−37.1). In case of women with four children were 49.36 times more likely to experience unintended pregnancy (95% CI: 35.1−69.4), and a group of women who had five children were 65.87 times more likely to have the odds of unintended pregnancy (95% CI: 43.7−99.2). The most striking finding is that women who had six or more children had almost 96 times higher value of odds undergoing unintended pregnancy than those who had one child (OR: 95.56, 95% CI: 60.8−150.2). The effects of contraception types which the respondents used are also shown in [Table 3]. Although the group of women who responded to using traditional methods showed 1.13 times higher odds than those women who are not using any methods, there was no statistically significant association between the two groups. On the other hand, women using modern contraceptives or LAPMs presented statistically significant associations with experiencing unintended pregnancy. The women currently using LAPMs had 1.7 times higher odds of becoming pregnant unintentionally than those who are not using any methods (95% CI: 1.4−2.06). Meanwhile, the group of women using modern contraceptives had a 1.2 times higher value of odds than women not using any methods.

[Table 3] The results of multivariable logistic regression

Variables	Model 1				Model 2			
	AOR	*p−value*	95% CI		AOR	*p−value*	95% CI	
Women's empowerment								
Acceptance to domestic violence								
Low score					1 (reference)			
High score					0.91	0.174	0.79	1.04
Negotiation of sexual relations								
Not involved in					1 (reference)			
Partly involve in					0.87	0.204	0.69	1.08
Decide alone					1.02	0.204	0.81	1.27
Decision−making power in household								
Low score					1 (reference)			
High score					0.92	0.229	0.81	1.05
Decision−making power on respondents' health								
Not a big problem to decide					1 (reference)			
Problem to decide					1.14 **	0.047	1.00	1.30
Type of contraception currently using								
No	1 (reference)				1 (reference)			
Traditional	1.13	0.3196	0.89	1.44	1.17	0.2101	0.92	1.49
Modern	1.2 **	0.025	1.02	1.41	1.22 **	0.0154	1.04	1.43

LAPMs	1.7 ***	0	1.4	2.06	1.76 ***	0	1.45	2.14
Discontinuation of contraception in last 5 years								
No	1 (reference)				1 (reference)			
Yes	1.45 ***	0	1.27	1.67	1.45 ***	0	1.26	1.66
Parity								
One child	1 (reference)				1 (reference)			
Two children	7.3 ***	0	5.6	9.5	7.39 ***	0	5.7	9.6
Three children	27.39 ***	0	20.2	37.1	27.84 ***	0	20.5	37.8
Four children	49.36 ***	0	35.1	69.4	50.38 ***	0	35.8	71.0
Five children	65.87 ***	0	43.7	99.2	67.58 ***	0	44.7	102.2
Six or more children	95.56 ***	0	60.8	150.2	95.45 ***	0	60.6	150.3
Age at first birth								
Under 15 years	1 (reference)				1 (reference)			
15−19	1.31	0.3024	0.78	2.2	1.32	0.2853	0.79	2.2
20−24	1.53	0.1039	0.92	2.54	1.54 *	0.0931	0.93	2.55
25−29	2.14 ***	0.0067	1.24	3.72	2.19 ***	0.0049	1.27	3.77
30−34	2.46 ***	0.0051	1.31	4.61	2.54 ***	0.0033	1.36	4.75
35−39	4.21 ***	0.0033	1.61	10.98	4.24 ***	0.0027	1.65	10.91
40 years or mores	5.25	0.1166	0.66	41.64	5.71	0.1032	0.7	46.38
Heard of family planning								
No	1 (reference)				1 (reference)			
Yes	1.05	0.4525	0.93	1.18	1.05	0.4117	0.93	1.19

Residence								
Urban	1 (reference)				1 (reference)			
Rural	0.78 ***	0.0009	0.67	0.9	0.77 ***	0.0008	0.67	0.9
Current age								
15−19 years	1 (reference)				1 (reference)			
20−24 years	0.25 ***	0	0.16	0.39	0.25 ***	0	0.16	0.4
25−29 years	0.1 ***	0	0.06	0.16	0.1 ***	0	0.06	0.16
30−34 years	0.06 ***	0	0.03	0.09	0.06 ***	0	0.04	0.1
35−39 years	0.05 ***	0	0.03	0.08	0.05 ***	0	0.03	0.08
40−44 years	0.06 ***	0	0.03	0.1	0.06 ***	0	0.03	0.1
45−49 years	0.1 ***	0	0.05	0.18	0.1 ***	0	0.05	0.19
Educational attainment								
no education	1 (reference)				1 (reference)			
Primary	1.35	0.3255	0.74	2.45	1.32	0.3745	0.71	2.44
Secondary	1.99 **	0.0274	1.08	3.67	1.96 **	0.0353	1.05	3.68
Higher	2.63 ***	0.004	1.36	5.07	2.68 ***	0.0042	1.37	5.25
Occupation								
No	1 (reference)				1 (reference)			
Professional/Technical/ Managerial/Clerical	1.02	0.8933	0.79	1.32	1.03	0.8437	0.79	1.33
Sales/Services	1.14 *	0.0722	0.99	1.32	1.14 *	0.0775	0.99	1.32
Agricultural worker	0.8 **	0.0273	0.66	0.98	0.8 **	0.0246	0.66	0.97

Industrial worker	0.9	0.3979	0.69	1.16	0.9	0.3982	0.69	1.16
Province	*see also appendix C for full results*							
Jakarta	1 (reference)				1 (reference)			
Aceh	0.47 ***	0	0.32	0.69	0.45 ***	0.0001	0.31	0.67
West Sumatera	1.46 *	0.0559	0.99	2.16	1.48 *	0.0579	0.99	2.23
Bengkulu	1.54 **	0.0404	1.02	2.32	1.83 **	0.0131	1.14	2.95
Lampung	0.69	0.12	0.43	1.1	0.58 **	0.0186	0.36	0.91
Yogyakarta	1.94 ***	0.0041	1.23	3.05	0.58 **	0.0121	0.37	0.89
Banten	0.59 ***	0.0053	0.4	0.85	0.43 **	0.0244	0.21	0.9
Bali	1.79 **	0.0175	1.11	2.89e	0.55 **	0.0324	0.31	0.95
West Nusa Tenggara	0.59 **	0.0237	0.38	0.93	0.45 ***	0.0001	0.31	0.67
East Nusa Tenggara	0.48 ***	0.0003	0.32	0.71	1.45 *	0.0602	0.98	2.14
West Kalimantan	0.66 *	0.0771	0.42	1.05	1.48 *	0.0579	0.99	2.23
North Sulawesi	1.65 *	0.0614	0.98	2.79	0.58 **	0.0186	0.36	0.91
South Sulawesi	1.54 **	0.0153	1.09	2.19	0.66 *	0.0849	0.42	1.06
Southeast Sulawesi	1.5 **	0.0286	1.04	2.16	1.62 *	0.0707	0.96	2.74
West Sulawesi	0.58 **	0.0141	0.38	0.9	1.48 **	0.0367	1.02	2.14
Maluku	0.69 *	0.0727	0.46	1.03	0.58 **	0.0121	0.37	0.89
West Papua	0.46 **	0.0377	0.22	0.96	0.43 **	0.0244	0.21	0.9
Papua	0.57 **	0.0419	0.33	0.98	0.55 **	0.0324	0.31	0.95
Wealth								
poor	1 (reference)				1 (reference)			

middle	0.94	0.5181	0.78	1.13	0.96	0.6404	0.8	1.15
rich	0.9	0.2476	0.75	1.08	0.92	0.3649	0.77	1.1
Husband/partner's educational level								
no education	1 (reference)				1 (reference)			
primary	1.1	0.7556	0.6	2.03	1.1	0.7675	0.59	2.03
secondary	1.1	0.763	0.59	2.04	1.11	0.7518	0.59	2.06
higher	1.01	0.9836	0.53	1.93	1	0.9994	0.52	1.93

*** p<.01, ** p<.05, *p<.1

In this table, only a few statistically significant provinces are presented. Other specific results are shown in Appendix

[Table 4] The odds ratio of decision-making power on respondents' health stratified by types of contraceptives

Decision-making power on respondents' health	Type of contraceptives: No method			Type of contraceptives: Traditional method			Type of contraceptives: Modern method			Type of contraceptives: LAPMs		
	OR	95% CI		OR	95% CI		OR	95% CI		OR	95% CI	
Not a big problem to decide	1			1			1			1		
Problem to decide	0.93	0.68	1.28	0.70	0.42	1.17	1.42***	1.19	1.70	0.89	0.66	1.19

Model 2: With each domain of women's empowerment

The right column of [Table 3] shows the results of the logistic regression model, including each domain of women's empowerment. Of the total four domains, only one domain, decision making power in respondents' health, was significantly associated with unintended pregnancy at the significance level of <0.05. The group of women who have any problems accessing medical advice or treatments at their convenience had 14% higher odds of becoming pregnant unintentionally than those who did not have any problems when they wanted to get medical services (AOR=1.14, p=0.0417). Even though the other three domains were not statistically significant for unintended pregnancy, the overall trend shows that the women with an attitude not to justify physical violence showed 0.91 times lower odds of unintended pregnancy than the women without the attitude. Also, women who primarily decide related to contraceptives were 1.02 times more likely to undergo unintended pregnancy. In comparison, women who are partly involved in negotiating sexual relations were 0.87 times less likely to become pregnant without intention than women who were not involved. The group of women with high decision-making power showed slightly lower value of odds ratio to become pregnant unintentionally. However, as mentioned above, these domains were not statistically significant.

The general trend of the odds ratio in model 2 seemed to be similar or slightly increasing than the values of model 1. Several differences between the two models are shown in fertility-related variables remarkably. In model 1, the odds ratio which the group of women using modern contraceptives have was 1.20 times when compared to women not using any methods. In model 2, this value

slightly increased to 1.22 times (95% CI: 1.04−1.43). This means that the women in the group using modern contraceptives were 1.22 times more likely to have unplanned pregnancy when empowerment domains were adjusted.

In this research, the respondents were divided into four groups by the types of contraceptives. As [Table 4] above shows, among the subgroup of women using modern contraceptives, the respondents who reported difficulties in making decisions of their own health were 1.42 times more likely to experience unintended pregnancy that those who did not report the difficulties at the significace level of $p<0.001$ (95% CI: 1.19−1.70). In the other subgroups, the domain of decision−making power upon respondents' health was not statistically significant.

Chapter 5. Discussion

Although decision-making power on respondents' health was not significant in chi-squared analysis, this was found as a significant variable in multivariate logistic regression at the <0.05 significance level. As a result, out of the total four domains of women's empowerment, only this domain was found to be statistically associated.

Regarding acceptance of domestic violence in this study, there was no evidence that the attitude toward domestic violence is statistically associated with the experience of unintended pregnancy. This result shows contradiction to Lee-Rife's study. In her research, there were negative associations between violence and mistimed pregnancy (Lee-Rife, 2010). The study conducted by Pallitto showed that living in areas with high rates of partner violence increased 2.5 times more odds of becoming pregnant unintentionally (Pallitto, 2005). Whereas Pallitto's research investigated the association between unintended pregnancy and real experience of abusing, this research examined attitude toward domestic violence. Since there have rarely been studies conducted to examine the association between unintended pregnancy and the domain of attitude towards violence, this research adopted other reproductive health outcomes such as delivery and child health.

It was revealed that there is no consistent association between the domain of attitude towards violence and a series of reproductive health outcomes. On one hand, Anderson's research suggested that place of delivery was not associated with the domain of attitude towards violence (Anderson et al., 2020). On the other hand, some

studies determined that the associations between attitude toward domestic violence and health outcome were statistically significant. Children of mothers with a good attitude toward domestic violence had 0.76 times less likely to experience diarrhea compared to those of mothers with a poor attitude. Similarly, children who have mothers with a medium attitude had 29% lower odds of experiencing diarrhea (Astutik et al., 2020).

There are several possible explanations for not being found as statistically significant in this research. This may result from the problematic aggregation of each question in this domain (Pratley, 2016) or the absence of differential weighting (Samanta, 2020, Hanmer, 2015). In this research, each question scored 1 or −1 point depending on the response and divided into two levels−high score or low score. The other study which confirmed significant association between the domain of attitude towards violence and pregnancy divided the domain into three levels, which were high, medium and low. Otherwise, it is possible that there is a fundamental problem to use the domain of attitude toward domestic violence as a proxy of women's empowerment. Originally, the attitude towards intimate partner violence was meant to capture social norms and attitudes (Hanmer, 2015) and assess woman's own self−esteem and bodily integrity (Samanta, 2020). However, considering the multidimensionality and context specificity of women's empowerment, this domain may not be adequate to be utilized as a proxy measure in Indonesia. As an example, the domain of freedom in mobility was not figured out as a good proxy of empowerment in South Asia; rather it was significant in Africa regions (Malhotra, Schuler, and Boender 2002, Kishor and Subaiya

2008 cited in Heckert et al., 2013). Furthermore, the study conducted by Hanmer supported to some extent this argument in that only 23% of women in Upper-middle income countries condoned domestic violence, whereas 42% in Lower-middle income countries[4]. In other respects, this can be explained from the fruits of endeavor: the formal office named P2TP2A is established in charging of providing services to empower victims of violence. This office conducted several programs such as raising awareness on domestic violence and child abuse, and addressing the problems caused by domestic violence (Hayati et al., 2014).

Decision-making power in the household was not significant at all. This result corresponded with the argument raised by Malhotra and Schuler. They cast doubt on the practice that the domain of household decision making power is used as the proxy of women's empowerment in DHS. When considering the meaning of women's empowerment, daily household decision making power did not seem to reflect "strategic life choices" (Kabeer, 1999, Malhotra and Schuler, 2005). On top of that, this is due to the nature of the DHS program not capturing the actual reality (Abada and Tenkorang, 2012). As explained before in the theoretical framework, the existence of choice should be exercised to achieve her choice. This means that even though a woman thinks she had decision-making power, it could not be exercised in reality. This can be partly explained by the difficulty to reflect several qualitative characteristics such as context or personal experience on 'Agency' domain, which means the ability to act in line with

[4] According to World Bank country classification by income level, Indonesia was moved to upper-middle income countries from lower-middle income countries in 2020-2021.

preference, in Karp's original framework using secondary data (Abada and Tenkorang, 2012, Karp et al., 2020). Alternatively, another reason behind the insignificancy of decision-making power in household domain was due to the regional context. The original study to draw the WGE-SRH framework was conducted in sub-Saharan Africa; however, this study targeted Indonesia, Southeast Asia. Even though these countries are categorized as developing or under-developed countries, they have their own specific characteristics, cultures, or contexts, which makes women's lives, status, or decision-making power represent in various way. Studies that examined the effects of empowering women on public health problems, the majority of research targets Africa regions, especially for developing framework (Karp et al., 2020) or finding variables(Asaolu et al., 2018, Yaya et al., 2018). This suggests that researchers in public health should pay attention to Southeast Asian contexts.

In this study, there was no evidence that negotiation of sexual relations is statistically associated with unintended pregnancy. This result was not consistent with the previous studies in Ethiopia and Angola. The research conducted in Ethiopia figured out that women who discuss family planning with their husbands openly had lower odds of having unintended pregnancy than women who did not discuss (Tsegaye et al., 2018). A similar study in Angola found out that open communication about sexual relations with husband is a essential determinant of using modern contraceptive (Prata et al., 2016). However, the qualitative research conducted by Spagnoletti et al. in Indonesia reported interesting observation that women's social interactions and societal norms have an unexpected effect on

women in the way of constraining their sexual autonomy. In other words, normative social expectations in the Indonesian context shape individual reproduction-related choices in the form of idealized womanhood such as getting pregnant immediately after marriage or having at least one child from each gender, even though the actual negotiations about sexual relations and family planning occur within marital relationships (Spagnoletti et al., 2018). Even though these qualitative results were merely an observation of phenomenon, Spagnoletti et al.'s research provided the fundamental understanding and the rationale of this research.

Another possible explanation for the insignificance of indicators in this study might be related to the definition of women's empowerment. Gram et al. investigated the typology of women's empowerment and distinguished the concept of women's empowerment into three categories, which were fact-based, theory-based, and value-based distinctions (Gram, 2019). These distinctions implied that empowerment could not be defined simply as empowerment implicitly carries different fact-based, theory-based, and value-based assumption. Thus, Gram et al. recommended that researchers should figure out whether the available indicators reflect their own assumptions about empowerment which varies in context, culture and country, especially developing countries, before conducting research.

In this study, modern contraceptives and LAPMs were statistically associated with unintended pregnancy and, interestingly, positive relationships were found. The respondents using LAPMs had higher odds of unintended pregnancy regardless of experiencing contraceptive discontinuation. The previous studies

explained that women started to use LAPMs after experiencing unintended pregnancy (Gebreyesus et al., 2015 cited in Gashaye et al., 2020, Moreau et al., 2013, Moreau et al., 2014). Although only statistical association can be inferred due to the nature of IDHS survey not being designed as time-series or longitudinal, the previous studies provided possibilities to be inferred as causality. Although the domain of negotiation of sexual relations was not statistically significant, the research conducted by Mahendra et al. showed that the women who decided their sexual relations together with her husband were three times more likely to use LAPMs than women who were not involved in the decision-making process. When considering the result that the husband played a strong role in choosing contraceptive methods in Indonesia (Mahendra et al., 2019), policymakers should design public health interventions in a way that involves male partners. Likewise, the women using modern contraceptives were more likely to become pregnant unintentionally. The similar results were also found in another research. Cambodian women using modern contraceptive methods showed a significant increase of experiencing unintended pregnancy in Rizvi's study. She concluded that Cambodian females start switching to or using modern contraceptives after becoming pregnant unintentionally (Rizvi et al., 2019). Fotso et al. also reported similar results in their research. They used mixed method approach to examine unintended pregnancy and modern contraceptives in Kenya and concluded that women who experienced current pregnancy unintentionally regarded it as "wake-up call" to make women aware of risks, sexual and contraceptive practices, behaviors, and life situations (Fotso et al.,

2014). Additionally, this result can be explained with contraceptive failure. The effectiveness of contraceptives decreases when contraceptive failure (usually known as typical use of contraceptives) occurs. The higher odds of experiencing unintended pregnancy for women using modern contraceptives may result from the possible contraceptive failure since contraceptive failure is a major risk factor of unintended pregnancy (Trussell, 2009). However, this result was contrasted with systematic review and meta-analysis, which conclude synthetically that unintended pregnancy is more likely to occur among women who had never used contraceptive methods (Alene et al., 2020). Further studies investigating on the association are required.

In general, the risk of unintended pregnancy is common and higher in rural areas (Mohamed et al., 2019, Peach et al., 2021, Kamal M, 2011). However, the opposite result was shown in his research-women in rural areas had less probability of undergoing pregnancy without intention. He explained this result in relation to civilization-more and more women were likely to reduce the family size due to migration from rural to urban areas in which living space and living costs overburdened. When considering the similarities to Bangladesh such as the stage of development, these results in this study may be able to be explained in the similar way. The other study that examined unintended pregnancy in Indonesia also showed the same result. However, a thorough exploration of this result should be needed to design public health interventions for decreasing the prevalence of unintended pregnancy.

Meanwhile, the results in this study were similar to Rahman's study conducted in Bangladesh. In his research, wealth index at

household level and husband's literacy level were not significantly associated with unintended pregnancy. In this research, even though the wealth index seemed to decrease as the wealth level increased, this result was not statistically significant.

In terms of educational level, this study showed that the group of women who received the highest education had higher odds of 2.63 in model 1 (95% CI: 1.36−5.07) and 2.68 in model 2 (95% CI: 1.37−5.25), which are significant at $p<.001$ level. These positive relations were also observed in the previous studies. The more education women received the higher possibility of unintended pregnancy women had. Previous studies concluded that these results caused by increased awareness of women (Jaeni et al., 2009 cited in Abada and Tenkorang, 2012). According to the previous studies, the group of women who are more literate and receive higher education were more likely to recognize the pregnancy that the woman experienced as an unintended event.

Previous studies were shown that religion is one of the significant factors related to unintended pregnancy (Abada and Tenkorang, 2012, Rahman, 2012). However, the limitation of secondary data, this factor could not be included in this study. To reflect precisely, further studies should consider the unique characteristics of religion in Indonesia: diversity and ethnic religion. Muslim in Indonesia does not show monolithic, even the residents in Bali islands cling to their own Hinduism (Heidhues, 2005).

Chapter 6. Conclusion

This study set out to investigate associations between unintended pregnancy and empowering of women in Indonesia. Multiple logistic regression revealed that a part of women's empowerment domains is one of the determinants associated with unintended pregnancy.

In this research, only the domain of decision-making power on respondents' health was statistically significant among four domains. However, these results must be interpreted with caution because empowerment has several unique characteristics- multidimensional and dynamic-which cannot be captured in cross-sectional quantitative research. This is supported by a large and growing body of literature pointing out that empowering women play a pivotal role in the real world. In addition, the results of subgroup analysis upon the group of women using modern contraceptives showed that the women who were not capable of making decisions for their own health were more likely to experience unintended pregnancy when compared to women who were capable of making decisions for their own health. This result suggests that empowering women to decide own health by themselves may protect Indonesian women from undergoing unintended pregnancy. To decrease the prevalence of unintended pregnancy, public health interventions should address the physical and psychological barriers which prohibit women from getting health services or medical treatments.

A number of limitations need to be noted regarding the present study. Most of all, this study cannot fully reflect the dynamic

aspect of empowerment. When it comes to the research methods, some limitations need to be acknowledged. There are several embedded fundamental biases including recall bias and reverse causality. Even though this study tried to control recall bias by including women who experienced pregnancies in last five years, this approach cannot rule out the potential bias entirely because the respondents have to think back of their reproductive history. This bias could be critical for respondents with high parity. On top of that, this study fails to monitor reverse causality in each relationship: association between unintended pregnancy and types of contraception and parity. The positive association between types of contraceptives and unintended pregnancy has potential reverse causality. As mentioned earlier, the positive association may be due to the reverse causality—women started using contraceptives after becoming pregnant unintentionally. In similar context, the experience of unintended pregnancy has possibility to result in increasing parity.

In spite of the limitations, this study has several strengths. This study adds to the growing body of research that indicates the pivotal role of empowering women in improving women's health. With respect to women's health in Indonesia, the present study lays the groundwork for future research into investigating the association between women's empowerment and unintended pregnancy, emphasizing the necessity of qualitative approach. In regard to methodological aspects, to be specific, the tools for measuring women's empowerment quantitatively should be more developed and modified to capture the subtle differences. Mixed-method and qualitative approaches can bring more insight to women's internal process of getting empowered. This research also tried to extend the

definition of unintended pregnancy, regarding it as a reproductive event that occurred due to the deprivation of the right to choose. Further studies are required to shed light on the role of women's empowerment in exercising sexual and reproductive health rights (SRHR).

Abstract (Korean)

국 문 초 록

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의도치 않은 임신은 한 개인의 신체, 심리적 불건강을 야기할 뿐만 아니라, 그 부정적 영향이 한 국가의 사회 및 경제, 한 국가의 보건의료체계에 까지도 확장된다는 측면에서 공중 보건학적으로 중요한 문제이다. UN을 비롯한 세계 여러 국가들은 2016년에 여성과 어린이의 건강을 위한 전세계적 전략(Global Strategy for Women's and Children's Health)을 발표하며, 2030년까지 임신과 출산으로 인한 합병증 및 안전하지 않은 임신 중단으로 인해 사망하는 여성을 살리기 위해 의도치 않은 임신을 예방하겠다는 목표를 세우기도 하였다. 국제사회의 노력의 결과로 전세계적으로 의도치 않은 임신은 1990년-1994년 대비 2015년-2019년에 약 18%정도 감소했다고 보고되었다. 하지만, 동아시아 및 동남아시아 지역의 감소율은 4%였으며, 이는 전세계에서 가장 낮은 수치였다. 이 지역에 속하는 국가들 중 인도네시아의 여성들은 원치 않은 임신을 가장 많이 겪고 있는 것으로 나타났다.

한편, 전세계적으로 여성들의 역량을 강화하고 권익을 신장하는 것(women's empowerment)이 경제 발전과 개발에 도움이 된다는 것이 증명되었으며, 국제보건 영역에 있어서 21세기 아젠다로 꼽히기도 하였다. 여성 임파워먼트(women's empowerment)는 여성의 자율성(women's autonomy)이나 의사결정권(women's decision-making power)과 혼용되어 사용되는 경향이 있지만, 임파워먼트는

역량이 박탈된 상태였던 여성이 역량을 획득하는 '과정'이라는 동적인 의미를 함축하고 있다는 점에서, 자율성이나 의사결정권과 같은 정적인 개념과는 구분된다. 이렇듯 여성 임파워먼트가 중요하게 여겨지고 있음에도 불구하고, 보건학 분야에서 여성 임파워먼트를 주제로한 연구는 부족한 실정이다.

이런 문제의식을 바탕으로 기존의 연구들을 고찰했을 때, 양적 연구에서 여성 임파워먼트의 대리지표를 구성함에 있어 학자들간 일치된 합의나 일관된 경향성은 확인할 수 없었다. 하지만, 가장 많이 쓰이는 지표로는 '가정 내 의사결정권'과 '가정 폭력을 정당화하는 태도' 가 있었으며, 해당 지표들은 인구보건조사 프로그램(Demographic and Health Survey Program, DHS)에서 여성 임파워먼트 측정을 위해 제안한 지표들이다.

따라서, 본 연구에서는 여성 임파워먼트를 나타내는 대리 지표를 총 4가지 세부 영역으로 구성하였다. DHS에서 제안한 지표인 '가정 내 의사결정권'과 '가정 폭력을 정당화하는 태도' 외에, 기존 문헌 고찰을 통해 파악한 '성 관련 주제에 대한 협상력' 및 '응답자의 건강과 관련된 의사결정권'을 여성 임파워먼트 대리 지표로 삼았다.

분석 시 활용한 자료는 2017년 인도네시아 DHS 자료로, 연구 대상 선정 기준에 따라 전체 표본인 49,627명 중 14,118명을 분석 대상으로 선정하였다. 종속 변수는 의도치 않은 임신 경험 여부로, 회상 편향 (recall bias)을 통제하기 위해 5년 이내에 임신을 경험한 여성 중 전혀 원하지 않았던 임신을 경험했거나, 시기가 맞지 않은 임신 (mistimed pregnancy)을 경험했을 경우 의도치 않은 임신을 경험한 것으로 정의하였다. 독립변수로는 여성 임파워먼트, 출산력, 피임도구 종류, 피임도구 사용 중단 경험 여부, 첫 출산 연령, 가족 계획 메시지 청취 경험 여부, 인구사회학적 변수(현재 연령, 거주 지역, 거주 형태, 응답자 및 남편의 교육 수준, 직업, 재산 수준)가 사용되었다.

통계 분석은 Stata/SE 14.2를 활용하였으며, 여성 임파워먼트

변수가 들어가지 않은 모형 (모형 1)과 들어간 모형 (모형 2)을 각각 제시하였다. 카이 제곱 검정을 통해 각 독립변수가 종속변수와 유의한 관련성이 있는지 확인하였고, 이후 로지스틱 회귀 분석을 통해 유의한 조정된 오즈비를 산출하였다.

분석 결과, 인도네시아 여성들 중 16.6%가 최근 5년 이내에 의도치 않은 임신을 경험한 것으로 나타났다. 여성 임파워먼트를 구성하는 4개의 세부영역 중 '응답자의 건강과 관련된 의사결정권' 영역만 p-값이 0.05 이하에서 통계적으로 유의한 관계를 갖는 것으로 나타났다. 구체적으로, 건강과 관련된 의사 결정에 문제가 없다고 응답한 여성들에 비해 의사 결정에 문제가 있다고 응답한 여성들이 의도치 않은 임신을 경험할 오즈가 1.14배로 높았으며, 이는 통계적으로도 유의하였다. 구체적으로, 하위집단 분석을 통해 현대식 피임도구(Modern contraceptive methods)를 사용하는 여성들에게서만 '응답자의 건강과 관련된 의사결정권'과 의도치 않은 임신 경험이 통계적으로 유의한 관계를 갖는 것으로 드러났다. 반면에, 피임도구를 사용하지 않는다고 응답한 집단과 전통적 피임도구(Traditional contraceptive methods)를 사용하는 집단, 장기간 및 불가역적 피임도구 (Long-acting and permanent methods, LAPMs)를 사용하는 집단에서는 '응답자의 건강과 관련된 의사결정권' 영역이 의도치 않은 임신을 경험할 오즈에 통계적으로 유의한 영향을 미치지 않았다.

한편, 여성 임파워먼트 변수의 4개 영역 중 '가정 내 의사결정권', '가정 폭력을 정당화하는 태도' 및 '성 관련 주제에 대한 협상력' 변수는 의도치 않은 임신과 통계적으로 유의한 연관성을 갖고 있지 않았다. DHS에서 제안한 '가정 내 의사결정권'과 '가정 폭력을 정당화하는 태도'가 유의하지 않은 이유는 각 영역을 하나의 지표화 하는 과정 혹은 가중치의 부재 때문일 가능성이 있다. 특히 '가정 내 의사결정권'이 Kabeer가 정의한 "전략적 삶의 선택"을 반영하는지 검토할 필요가 있다. 혹은 본질적으로 각 영역이 갖는 의미가 서로 다른

국가, 사회, 문화적 맥락에 따라 다르게 해석될 여지가 강하기 때문에, 해당 지표에 문제가 있다는 학자들의 지적과 궤를 같이 한 것이라 볼 수도 있을 것이다. ‘성 관련 주제에 대한 협상력’ 영역이 유의하지 않은 이유는 인도네시아를 대상으로 한 질적 연구로부터 시사점을 얻을 수 있었다. 해당 연구에 따르면, 성 관련 주제를 남편/파트너와 상의하고 협상한다고 하더라도 여성들이 사회 및 사회적 규범(결혼 직후 임신을 해야 한다는 풍조, 자녀는 각기 다른 성별로 한 명씩은 반드시 있어야 한다는 풍조 등)과 상호작용하며, 결론적으로는 여성의 성적 자기 결정권을 억압하는 형태로 발현되었을 가능성이 있다는 것이다. 즉, 남편/파트너와 성 관련 주제에 대한 실제적 협상보다는 사회적 재구성을 거친 여성의 재생산 목표가 더 크게 작용한다고 해석해볼 수 있을 것이다.

본 연구결과를 바탕으로 한 상기 고찰은 인도네시아 여성들의 의도치 않은 임신을 예방하기 위해서 다양한 각도에서의 접근이 필요할 수 있다는 점을 시사한다. 특히, 필요한 보건의료서비스를 받는 것에 문제가 있다고 응답한 여성들이 그렇지 않은 여성들에 비해서 의도치 않은 임신을 경험할 오즈가 높게 나타났기 때문에, 인도네시아 여성들의 보건의료서비스 접근에 대한 물리적 및 심리적 장벽을 해소하는 것이 필요한 것으로 여겨진다. 또한, 피임도구 사용 중단을 경험한 여성이 의도치 않은 임신을 경험할 오즈가 통계적으로 유의하게 높았기 때문에 여성들이 피임도구 사용을 중단하는 원인을 구체적으로 파악할 필요가 있다. 더 나아가, 인도네시아 사회에서 사회적 규범이나 분위기가 여성들의 재생산 계획과 건강에 영향을 미치고 있다는 점을 고려하여 보건학적 중재를 설계해야 한다.

본 연구에서는 여성 임파워먼트의 세부 영역 4개 중 1개의 영역만이 유의하게 의도치 않은 임신에 영향을 미친다고 나타났지만, 이 결과만을 통해 인도네시아의 의도치 않은 임신 문제를 해결하기 위한 여성 임파워먼트가 의미를 갖지 않는다고 단정짓기는 어렵다.

다양한 연구들이 여성 임파워먼트가 사회적으로 여러 관련 분야에서 편익들을 산출할 수 있다는 실증적 근거들을 제시하고 있다. 이런 맥락에서, 본 연구는 인도네시아 사회에서 여성 임파워먼트와 의도치 않은 임신간의 관련성을 탐구했다는 의의를 갖는다. 하지만 의도치 않은 임신을 예방하기 위해 여성들의 역량을 강화하고 권익을 신장(임파워먼트)하는 중재의 효과성을 확인하기 위해서는 추가적인 연구가 필요할 것으로 여겨진다. 많은 학자들이 지적했듯, 기존의 여성 임파워먼트를 양적으로 측정하는 도구에 대한 수정과 개발이 요구되며, 여성들의 사회적 상호작용과 임파워먼트의 역동적, 다층적 및 다차원적 특성을 고려하기 위해서는 추가적인 혼합연구 및 질적연구가 병행되는 것이 필요하다.

주요어 : 의도치 않은 임신, 여성 임파워먼트, 임파워먼트, 인도네시아, 성 생식 보건 및 권리, 성 평등, 여성 역량 강화 및 권익 신장

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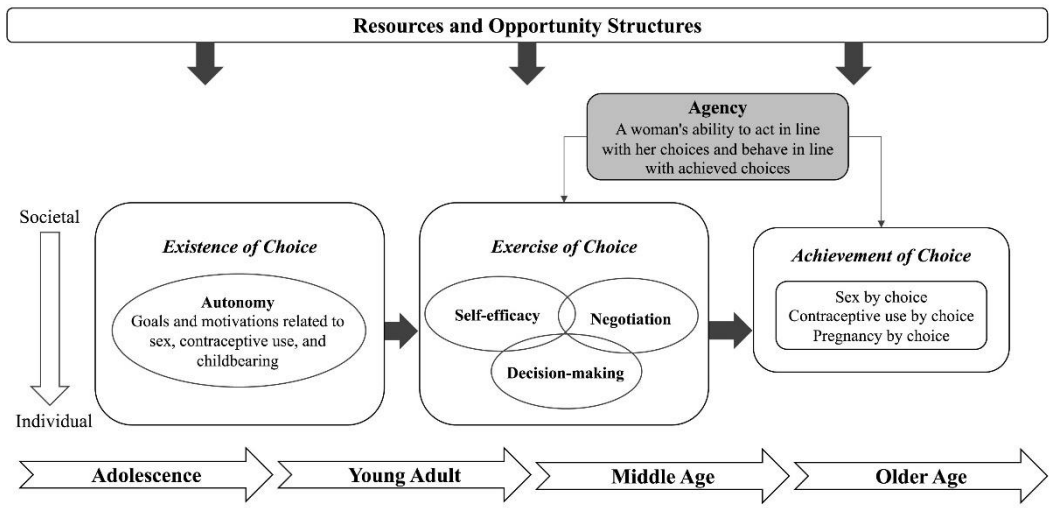
APPENDIX

Appendix A. WGE-SRH framework proposed by Celia Karp, based on World Bank and Naila Kabeer



Appendix B. The results of descriptive statistics and chi-squared analysis of province variable

Province	Unintended pregnancy				p-value
	No		Yes		
	Weighted (%)	Unweighted	Weighted (%)	Unweighted	
Jakarta	393 (2.8)	360	87 (0.6)	78	0.0000
Aceh	262 (1.9)	653	31 (0.2)	78	
North Sumatera	576 (4.1)	544	154 (1.1)	143	
West Sumatera	192 (1.4)	218	70 (0.5)	75	
Riau	311 (2.2)	262	80 (0.6)	61	
Jambi	159 (1.1)	161	37 (0.3)	39	
South Sumatera	381 (2.7)	279	75 (0.5)	56	
Bengkulu	84 (0.6)	180	25 (0.2)	53	
Lampung	423 (3.0)	336	48 (0.3)	40	
Bangka Belitung	65	177	15	45	

	(0.5)		(0.1)	
Riau Island	76 (0.5)	212	21 (0.1)	56
West Java	2371 (17.0)	1,202	455 (3.3)	236
Central Java	1501 (10.7)	781	258 (1.8)	138
Yogyakarta	147 (1.0)	116	42 (0.3)	36
East Java	1582 (11.3)	792	296 (2.1)	149
Banten	586 (4.2)	435	64 (0.5)	47
Bali	186 (1.3)	150	64 (0.5)	53
West Nusa Tenggara	291 (2.1)	380	33 (0.2)	46
East Nusa Tenggara	264 (1.9)	650	33 (0.2)	85
West Kalimantan	259 (1.9)	276	32 (0.2)	36
Central Kalimantan	110 (0.8)	147	26 (0.2)	39
South Kalimantan	198 (1.4)	198	33 (0.2)	35

East Kalimantan	146 (1.0)	278	44 (0.3)	95
North Kalimantan	24 (0.2)	157	6 (0.0)	41
North Sulawesi	79 (0.6)	112	27 (0.2)	40
Central Sulawesi	123 (0.9)	262	35 (0.2)	79
South Sulawesi	306 (2.2)	356	106 (0.8)	123
Southeast Sulawesi	113 (0.8)	361	41 (0.3)	128
Gorontalo	46 (0.3)	131	14 (0.1)	40
West Sulawesi	61 (0.4)	421	9 (0.1)	66
Maluku	79 (0.6)	476	17 (0.1)	105
North Maluku	57 (0.4)	280	12 (0.1)	59
West Papua	37 (0.3)	151	5 (0.0)	20
Papua	163 (1.2)	172	29 (0.2)	32

Appendix C. The full results of multivariable logistic regression

	Model 1				Model 2			
Province	AOR	P value	95% CI		AOR	P value	95% CI	
Jakarta	1 (reference)				1 (reference)			
Aceh	0.47	0.0001	0.32	0.69	0.47	0.0001	0.32	0.69
North Sumatera	0.91	0.5652	0.65	1.27	0.91	0.5652	0.65	1.27
West Sumatera	1.46	0.0559	0.99	2.16	1.46	0.0559	0.99	2.16
Riau	1.06	0.8141	0.63	1.79	1.06	0.8141	0.63	1.79
Jambi	1.53	0.1037	0.92	2.56	1.53	0.1037	0.92	2.56
South Sumatera	0.95	0.8174	0.64	1.42	0.95	0.8174	0.64	1.42
Bengkulu	1.54	0.0404	1.02	2.32	1.54	0.0404	1.02	2.32
Lampung	0.69	0.12	0.43	1.1	0.69	0.12	0.43	1.1
Bangka Belitung	1.04	0.8722	0.64	1.7	1.04	0.8722	0.64	1.7
Riau Islands	1.24	0.4199	0.73	2.11	1.24	0.4199	0.73	2.11
West Java	1.08	0.5899	0.81	1.45	1.08	0.5899	0.81	1.45
Central Java	1.24	0.1905	0.9	1.72	1.24	0.1905	0.9	1.72
Yogyakarta	1.94	0.0041	1.23	3.05	1.94	0.0041	1.23	3.05
East Java	1.25	0.1774	0.9	1.73	1.25	0.1774	0.9	1.73
Banten	0.59	0.0053	0.4	0.85	0.59	0.0053	0.4	0.85
Bali	1.79	0.0175	1.11	2.89	1.79	0.0175	1.11	2.89
West Nusa Tenggara	0.59	0.0237	0.38	0.93	0.59	0.0237	0.38	0.93

East Nusa Tenggara	0.48	0.0003	0.32	0.71	0.48	0.0003	0.32	0.71
West Kalimantan	0.66	0.0771	0.42	1.05	0.66	0.0771	0.42	1.05
Central Kalimantan	1.08	0.78	0.63	1.84	1.08	0.78	0.63	1.84
South Kalimantan	0.92	0.7203	0.58	1.46	0.92	0.7203	0.58	1.46
East Kalimantan	1.28	0.2111	0.87	1.87	1.28	0.2111	0.87	1.87
North Kalimantan	1	0.9882	0.63	1.59	1	0.9882	0.63	1.59
North Sulawesi	1.65	0.0614	0.98	2.79	1.65	0.0614	0.98	2.79
Central Sulawesi	1.38	0.134	0.91	2.09	1.38	0.134	0.91	2.09
South Sulawesi	1.54	0.0153	1.09	2.19	1.54	0.0153	1.09	2.19
Southeast Sulawesi	1.5	0.0286	1.04	2.16	1.5	0.0286	1.04	2.16
Gorontalo	1.35	0.2031	0.85	2.16	1.35	0.2031	0.85	2.16
West Sulawesi	0.58	0.0141	0.38	0.9	0.58	0.0141	0.38	0.9
Maluku	0.69	0.0727	0.46	1.03	0.69	0.0727	0.46	1.03
North Maluku	0.72	0.1701	0.45	1.15	0.72	0.1701	0.45	1.15
West Papua	0.46	0.0377	0.22	0.96	0.46	0.0377	0.22	0.96
Papua	0.57	0.0419	0.33	0.98	0.57	0.0419	0.33	0.98