

# Trends and Determinants of Unintended Pregnancy Occurrence Among Married Women Aged 15–49 Years in Indonesia

Mawasumi Ayu Andini<sup>1</sup>, Rini Mutahar<sup>2,\*</sup>, Yeni<sup>2</sup>

<sup>1</sup>*Setiabudi Subdistrict Community Health Centre, Jakarta, Indonesia*

<sup>2</sup>*Universitas Sriwijaya, Jl. Palembang Prabumulih KM.32, 30662, Ogan Ilir, Indonesia*

\*Corresponding author. Email: [rini\\_mutahar@fkm.unsri.ac.id](mailto:rini_mutahar@fkm.unsri.ac.id)

## ABSTRACT

Complications resulting from unsafe abortion are among the major complications which account for nearly 75% of all maternal deaths. Unsafe abortion is risky for women with an unintended pregnancy. Unintended pregnancy is one of the important issues in public health because there is a negative relationship with the health and social impacts for both mother and children. This study aims to determine trends and analyses the determinants of unintended pregnancy in married woman aged 15-49 in Indonesia. The secondary data used in this study are Indonesia Demographic and Health Survey (IDHS) 2002/03, 2007, and 2012 to display the trends and IDHS 2012 to analyze factors associated with unintended pregnancy. This study is a quantitative study using cross sectional design with married woman aged 15-49 years who had pregnancy/birth and currently pregnant at the time of survey as the study population. Data analysis was done with complex sample from univariate, bivariate by using chi square analysis, and multivariate by using multiple logistic regression analysis. The results shows the increase and decrease of unintended pregnancy based on IDHS 2002/03, 2007, and 2012 (17,1%, 20,3%, 14,7%). The result of the study based on IDHS 2012 shows that the variables significant associated to the incidence of unintended pregnancy included the use of planning methods (PR=1,91), knowledge of contraception methods (PR=0,73), age (PR=1,97), parity (PR=3,25), birth spacing (PR=0,76), residents (PR =1,29), age at first marriage (PR=1,33), knowledge of ovulation cycle (PR=1,31), woman participation in household decision making (PR=1,52). Parity is the most dominantly influencing variable with unintended pregnancy incidence after other variables control (PR=2,33). Contraception program for fertile couples is important to reduce the unintended pregnancy issue by focusing on the effectivity of KB or birth control method, ideal pregnancy planning, and related mother-infant health program so that the welfare of the family can be maintained and improved, decreasing the fertility rate, unsafe abortion and maternal mortality.

**Keywords:** *married women, unintended pregnancy, IDHS*

## 1. INTRODUCTION

Target to reduce maternal mortality ratio (MMR) included in SDGs in 2030 is 70 deaths per 100.000 live births [1]. WHO estimates that the global maternal mortality rate reaches 216 maternal deaths per 100.000 live births and around 99% or 302.000 maternal deaths occurs in developing countries with the maternal mortality ratio reaching 239 per 100.000 live births [2]. In Indonesia, SDKI 2012 shows that maternal mortality ratio reached 359 per 100.000 live births.

Complications resulting from unsafe abortion are among the major complications which account for nearly 75% of all maternal deaths [3]. Unsafe abortion is a risk for women with unintended pregnancies who does not have enough knowledge or limited access to contraception and safe abortion service [4]. Worldwide in 2012, total pregnancy rate reached 213,4 million and 85,4 million or

approximately 40% were unintended pregnancies with the average number of 53 per 1000 women aged 15-44 years [5]. In developing countries, the prevalence of unintended pregnancies is about 49% or 93,1 million of 190 million pregnancies with an average number of unintended pregnancies reaching 54 per 1000 women aged 5-44 years<sup>5</sup>. Unintended pregnancies mostly occur in married couple [6]. Based on Basic Health Study (Riskesdas) data in 2010, with the respondents of married women aged 10-59 years stated that unintended pregnancies happened to about 42,9% of women aged >35 years, 44,5% of women with elementary school level of education and 55,9% of women settled in urban areas [7]. Women who understands their ovulation cycle reduce the risk of unintended pregnancy 0,55 times than women who did not understand their ovulation cycle [8] (OR 0,55; 95% CI 0,35-0,85). Unintended pregnancy occurred because couples did not use contraceptive method even though they want to space

pregnancies (unmet need) or stop having baby. Unintended pregnancy also occurred because of ineffective contraceptive method/ contraceptive failure and discontinuity of contraception use [9]. The aim of this study was to determine the trends of unintended pregnancy and analyze several factors related to unintended pregnancy in married women aged 15-49 years in Indonesia

## 2. METHOD

This study uses secondary data from Indonesia Demography Health Survey (IDHS) at 2002/03, 2007 and 2012. SDKI data from year 2002/03, 2007 and 2012 used to determine trends of unintended pregnancy and only used SDKI data 2012 to analyze the determinants of unintended pregnancy of married women aged 15-49 years in Indonesia. The samples of this study are married women, had been pregnant/ gave birth and pregnant during the survey. The study is quantitative study and using cross-sectional design. Data analysis performed was univariate, bivariate by chi-square statistic test and multivariate by predictive models of regression logistic statistical test. In this study, the variables studied are *KB* (contraception) methods, knowledge of *KB* method, knowledge of ovulation cycle, age, parity, birth spacing, media information, education, economic status, residence, age on first marriage and women's participation in households decision making that affects the occurrence unintended pregnancies.

## 3. RESULTS AND DISCUSSION

The trend below indicate the occurrence of unintended pregnancies based on SDKI 2002-2003, SDKI 2007 and SDKI 2012. The data indicates that there is an increase of

unintended pregnancies from 17,1% (SDKI 2002-2003) to 20,3% (SDKI 2007) then decreased into 14,7% at SDKI 2012. (figure 1).

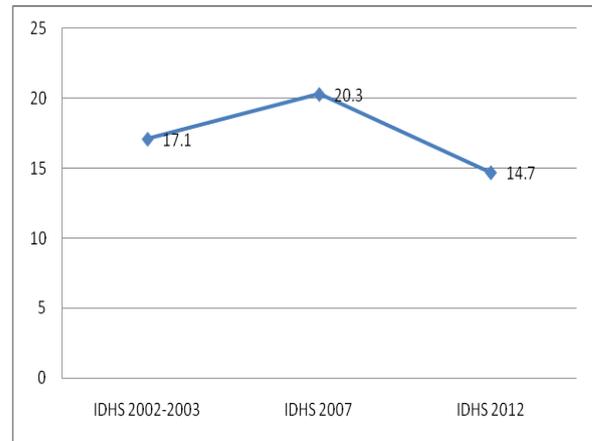


Figure 1. Unintended pregnancy trends on married women aged 15-49 years in Indonesia

The occurrence of unintended pregnancy on married women in Indonesia in 2012 reached 14,6%. Almost all women who became respondents use *KB* method, which is 91,1% of respondents. The difference between literate and illiterate women about *KB* method is about 27%. The data indicates that 19,9% women knew the ovulation cycle. 75,1% of respondents are women aged 20-35 years who were pregnant/gave birth. 85,8% are women who have a parity of 1-3 children. Almost half of respondents are women who has birth spacing of 59 months or more, which is about 54,2%.

Table 1. Univariate Analysis

Variable	n = 14246	%
<b>Unintended pregnancies</b>		
Yes	2.086	14,6
No	12.160	85,4
<b>KB Method Usage</b>		
Yes	12.975	91,1
No	1.217	0,9
<b>Knowledge of KB Method</b>		
Low	5.202	36,5
High	9.044	63,5
<b>Knowledge of Ovulation Cycle</b>		
Yes	2.836	19,9
No	11.410	80,1
<b>Age</b>		
<20 Years Old	463	3,2
20-35 Years Old	10.836	75,1
>35 Years Old	3.138	21,7
<b>Parity</b>		
≥4 people	2.030	14,2
1-3 people	12.216	85,8
<b>Birth Space*</b>		
<24 Months	839	9,4
24-58 Months	3.238	36,3
≥59 Months	4.834	54,2
<b>Education</b>		

No Formal Education	240	1,7
Elementary School	4.550	31,9
Junior High School	3.548	24,9
Senior High School	4.171	29,3
Academy	665	4,7
University	1.072	7,5
<b>Information Media</b>		
Exposed	12.508	87,8
Not exposed	1.738	12,2
<b>Economy Level</b>		
Low	2.820	19,8
Middle-low	2.756	19,3
Middle	2.847	20,0
Middle high	3.056	21,4
High	2.767	19,4
<b>Residence</b>		
Urban	7.139	50,1
Rural	7.107	49,9
<b>First Marriage age</b>		
≤20 Years Old	8.004	56,2
>20 Years Old	6.242	43,8
<b>Women Participation on Taking Households Decision</b>		
Husband	790	5,5
Respondent	878	6,2
Respondent with husband	12.578	88,3

\*First child does not have birth spacing

Based on education level, almost one-third respondents were elementary school-educated women, which makes around 31,9% respondents. Most women were informed by media, which is about 87,8%. According to the economic status, all of them are balanced, placed in all five economic categories. Based on the residence at that survey time, there

is no specific differences/ balance between women settled in urban with rural areas. More than half was first got married at the age less than or equal to 20 years old. The majority of the household decision is done by respondents together with their husbands, which is 88,3% of total respondents. (Table 1.)

**Table 2. Bivariate Analysis of Factors Associated with the Occurrence of Unintended Pregnancy**

Variable	Unintended Pregnancy				PR	95% CI	pvalue
	Yes		No				
	n=2086	%	n=12160	%			
<b>KB method usage</b>							
Yes	1.984	15,3	10.990	84,7	1,910	1,485–2,458	<0,0001*
No	102	8,0	1.170	92,0			
<b>Knowledge of KB method</b>							
Low	618	11,9	4.583	88,1	0,732	0,644–0,833	<0,0001*
High	1.468	16,2	7.757	83,8			
<b>Knowledge of ovulation cycle</b>							
Yes	512	18,1	2.324	81,9	1,310	1,133–1,515	<0,0001*
No	1.573	13,8	9.836	86,2			
<b>Age</b>							
<20 & >35	726	23,9	2.312	76,1	1,970	1,750–2,218	<0,0001*
20-35	1.360	12,1	9.848	87,9			
<b>Parity</b>							
≥4	732	36,1	1.298	63,9	3,255	2,912–3,639	<0,0001*
1-3	1.354	11,1	10.862	88,9			

<b>Birth spacing**</b>							
<24 & ≥59 mo	1.099	19,4	4.574	80,6	0,759	0,677–0,850	<0,0001*
24-58 mo	827	25,5	2.411	74,5			
<b>Education</b>							
Low	1.257	15,1	7.081	84,9	1,074	0,947–1,218	0,264
High	829	14,0	5.079	86,0			
<b>Information media</b>							
Exposed	1.853	14,8	10.655	85,2	1,106	0,936–1,306	0,233
Unexposed	233	13,4	1.505	86,6			
<b>Economic level</b>							
Low	827	14,8	4.856	85,2	1,070	0,90-1,263	0,423
Middle	447	15,7	2.422	84,3	1,149	0,948–1,393	0,156
High	811	13,9	5.051	86,1	<i>Reff</i>		
<b>Residence</b>							
Urban	1.176	16,5	5.963	83,5	1,288	1,122–1,478	<0,0001*
Rural	909	12,8	6.198	87,2			
<b>First marriage age</b>							
≤20	1.316	16,4	6.688	83,6	1,334	1,175–1,514	<0,0001*
>20	770	12,3	5.472	87,7			
<b>Women participation on taking decision</b>							
Husband	109	13,8	681	86,2	0,961	0,713–1,297	0,796
Respondent	177	20,1	701	79,9	1,507	1,183–1,920	0,001*
Respondent & husband	1.800	14,3	10.778	85,7	<i>Reff</i>		

\*pvalue <0,05

\*\*first child do not have birth spacing

Used KB method, knowledge of KB methods, knowledge of ovulation cycle, age, parity, birth spacing, residence, first marriage age and women's participation on households decision making were statistically significant

and related to unintended pregnancy. Education, information media and economic level were statistically unrelated to unintended pregnancy. (Table 2.)

**Table. 3 Multivariate analysis of factors associated with occurrence of unintended pregnancy**

Variable	Model I		Model II	
	pvalue	Adjusted PR (95% CI)	pvalue	Adjusted PR (95% CI)
KB method usage	<0,0001	1,789 (1,292 – 2,477)	0,001	1,781 (1,286-2,464)
Knowledge of KB method	<0,0001	0,655 (0,545 – 0,786)	<0,0001	0,647 (0,541-0,774)
Knowledge of ovulation cycle	<0,0001	1,470 (1,200 – 1,802)	<0,0001	1,484 (1,213-1,816)
Age	<0,0001	1,791 (1,478 – 2,169)	<0,0001	1,785 (1,474-2,162)
Parity	<0,0001	2,344 (1,952 – 2,815)	<0,0001	2,337 (1,946-2,806)
Birth Spacing	<0,0001	0,699 (0,600 – 0,814)	<0,0001	0,694 (0,596-0,809)
Education	0,453	0,934 (0,781 – 1,117)	-	-
Information media	0,010	1,337 (1,072 – 1,667)	0,008	1,343 (1,078-1,673)
Economic level (Low)	0,014	1,336 (1,060 – 1,686)	0,018	1,315 (1,048-1,649)
Economic level (Middle)	0,029	1,287 (1,026 – 1,614)	0,034	1,273 (1,019-1,590)

Economic level (High)*				
Residence	0,001	1,413 (1,142 – 1,748)	0,001	1,421 (1,149-1,757)
First marriage age	0,011	1,255 (1,054 – 1,494)	0,019	1,229 (1,035-1,460)
Women participation on taking decision (Husband)	0,880	1,024 (0,737 – 1,422)	0,881	1,025 (0,738-1,424)
Women participation on taking decision (Respondents)	0,006	1,487 (1,121 – 1,972)	0,006	1,485 (1,119-1,969)
Women participation on taking decision (Respondent with husband)*				

\*Reference

Statistically significant factors that influence the occurrence of unintended pregnancy are usage of KB method, knowledge of KB methods, knowledge of ovulation cycle, age, parity, birth spacing, media information, economic status, residence, first marriage age and women’s participation on household decision making. Parity is the most dominant variable that affects the occurrence of unintended pregnancy after controlling these variables; KB method usage, knowledge of KB method, knowledge of ovulation cycle, age, parity, birth spacing, information media, economic level, residence, first marriage age and women participation on taking households decisions. (Table 3.)

The result of this study shows that almost one-eighth of total pregnancies in Indonesia were unintended pregnancies. Trends show an increase between SDKI 2002-03 and SDKI 2007 then there is a decrease in SDKI 2012. Judging from various factors that influence unintended pregnancy on married women, there is statistically significant relation between the use of KB (contraception) with the occurrence of unintended pregnancy. This study indicates that women who use KB were more likely to had an unintended pregnancy.

This study result was in-line with the previous study in Ethiopia and Bangladesh that women who use KB were more at risk to have unintended pregnancy rather than women with no KB [8, 10]. This is not in line with previous study that women who use KB have lower risk of having unintended pregnancy than women who did not use KB [11]. Unintended pregnancy could happen to non-KB user and also to KB user who had ineffective KB method or misuse [12].

There is a statistically significant correlation between knowledge of KB methods with the occurrence of unintended pregnancy. This study states that women who are illiterate about KB method have lower risk of having unintended pregnancy rather than literate women. It was not in-line with the previous study which stated the literate women have lower risk of having unintended pregnancy than women who are illiterate about KB method [11]. The lack of knowledge in service providers and acceptors of KB indicates the lack of basic information about all of the KB methods, this misinformation could cause low usage of KB and affect the unintended pregnancy [12].

The knowledge of ovulation cycle has a statistically significant correlation with unintended pregnancy. This

study shows that women who understands their ovulation cycle are more risked for having unintended pregnancy than women who did not know their ovulation cycle. It was not in-line with the previous study which argued that women who knows their ovulation cycle have lower risk of having unintended pregnancy than women who does not know about ovulation cycle [8].

Women often had limited information and misunderstand their fertile periods. Knowledge on fertile periods/ ovulation and menstrual cycle is important to control the occurrence of unintended pregnancy. However, there is still misinformation about human reproductive health and contraception due to the lack of accurate information in reproductive health [12].

There is also statistically significant correlation between women’s age with the occurrence of unintended pregnancy. The study shows that women younger and older than the age range of this study has a bigger risk for having unintended pregnancy than women aging 20-35 years. This is in-line with previous study which stated that the older the women, the higher their chance of having unintended pregnancy [10, 11]. Pregnancy in younger age (<20 years old) or older age (>35 years old) has a high risk on maternal and child health [12].

Parity or number of children that were born had statistically significant relation with the occurrence of unintended pregnancy. The parity in this study was a major predictor of unintended pregnancy. This study indicates that women who has parity more or equal to 4 children has risk of getting unintended pregnancy. Related to the previous studies which shows that the higher number of children, the more possible for them to have unintended pregnancy [8, 11, 15]. In this study, the average respondents has 2 children so if they have more than or equal to 4 children they have more risk of having unintended pregnancy. The women who has parity more than or equal to 4 children in this study happened to be women aged more than 35 years, so that at the end of the reproductive age they were advised to have no more pregnancy. This is related the fact on maternal health during pregnancy to childbirth, where women older than 35 years old have risky pregnancy.

There is a statistically significant relation between birth spacing with the occurrence of unintended pregnancy. This study interprets that women with birth spacing at risk (<24 months & ≥59 months) have less risk of having unintended pregnancy than women with ideal birth spacing (24-58 months). This is not in line with previous study which stated that women with birth spacing less than 24 months

had bigger risk to have unintended pregnancy than women with more than or equal to 59 months of birth spacing [8]. This study shows that there is no correlation between women's education with the occurrence of unintended pregnancy. This statement is not in-line with the previous study which declared that there is major statistically correlation between education with the occurrence of unintended pregnancy and women with elementary education level are more risk than women with no formal education [14]. Women with high education tend to get more information than women with lower education.

This study shows no correlation between media information with the occurrence of unintended pregnancy. This result is different with the previous study which stated that there is statistic correlation between information with the occurrence of unintended pregnancy where women who access the media have less risk of having unintended pregnancy than women who did not access the media [10, 16, 17]. Women who access the media information would have improved knowledge about KB method and tend to choose using KB method to prevent pregnancy. In contrast, this study shows that there is a failure or misuse of KB method because the proportion of women who uses KB method reported to experience unintended pregnancies.

This study indicates that there was no correlation between economic and social status with the occurrence of unintended pregnancy. This result was not in-line with the previous studies which stated that there was a statistically significant correlation between economic level/status with the occurrence of unintended pregnancy. Women with low economic status are more likely to have unintended pregnancy than women with higher economic status [13, 15]. In this study, the proportion of unintended pregnancy is nearly same in all economic status categories. It was related to the pattern of KB use where women who are using and not using KB both are risked for having unintended pregnancy [12].

Their residence significantly and statistically related to the occurrence of unintended pregnancy. This study interpreted that women who settles in urban areas are more risked for having unintended pregnancy than women who settles in rural areas. It is not in-line with the previous study which declares that women who settles in rural areas are more likely to have unintended pregnancy than women settling in urban areas [15]. Women settles in urban areas tend to have higher education and able to access media information so that it improves the usage of KB method which has higher risk for having unintended pregnancy.

There is statistically significant correlation between first marriage age with the occurrence of unintended pregnancy. In this study, women who first married at less or equal to 20 years old are more risked for having unintended pregnancy than women who first married at age more than 20 years old. In-line with the previous study which also stated that further increase in the age at first marriage might lower the occurrence of unintended pregnancy because the couples are ready and able to have children [10, 15].

Women's participation in households decision making has statistically significant correlation with the occurrence of unintended pregnancy. In-line with the previous study which stated that there was a statistically significant

correlation between women's participation in households decision making with the occurrence of unintended pregnancy [17, 18].

#### 4. CONCLUSION

Unintended pregnancy trends on married women aged 15-49 years in Indonesia based on IDHS 2002/03, 2007 and 2012 increased from 2002/03 (17,1%) and 2007 (20,3%) then decreased in 2012 (14,7%). There is a correlation between KB usage, knowledge of KB methods, knowledge of ovulation cycle, age, parity, birth spacing, residence, first marriage age and women's participation in households decision making with the occurrence of unintended pregnancy in married women aged 15-49 years in Indonesia. Parity was the most dominant variable which influences the occurrence of unintended pregnancy after controlling variables; KB usage, knowledge of KB method, knowledge of ovulation cycle, age, birth spacing, residence, first marriage age, media information, economic status and women's participation in households decision making. Target improvement of KB program in order to reduce unintended pregnancy which is to delay pregnancy until aged 20 years or more. Stopping pregnancy at the age about more or equal to 35 years by the steady use of contraceptive method. Families to use pregnancy planning by minimizing amount of parity by having less than 4 children and ideal birth spacing of minimal 24-58 months. For healthcare workers to improve communication, information and education related to contraception or KB program, methods and maternal & infant health. Contraception or KB Program is important to reduce unintended pregnancy so that the family welfare can be maintained and improved. Decreasing the number of fertility related to population growth and decreasing the abortion need and reducing maternal mortality.

#### REFERENCES

- [1] Kementrian Kesehatan RI. (2015). *Kesehatan Dalam Rangka Sustainable Development Goals (Sdgs)*. Jakarta: Rakorpap Kementrian Kesehatan RI.
- [2] World Health Organization (WHO), UNICEF, UNFPA, World Bank Group Dan United Nations Population Division. (2015a). *Trends In Maternal Mortality: 1990 To 2015*. Geneva: World Health Organization (WHO)
- [3] World Health Organization Media Centre. (2015b). *Maternal Mortality*. <http://www.who.int/mediacentre/factsheets/fs348/en/>. [5 Maret 2016]
- [4] World Health Organization Media Centre. (2015c). *Preventing Unsafe Abortions*. <http://www.who.int/mediacentre/factsheets/fs388/en/>. [5 Maret 2016]
- [5] Sedgh, G., S. Singh, et al. (2014). Intended And Unintended Pregnancies Worldwide In 2012 And Recent Trends. *Studies in Contraception* **45**(3): 301-314.

- [6] Sedgh, G., A. Bankole, Et al. (2006). Unintended Pregnancy And Associated Factors Among Nigerian Women. *International Contraception Perspectives***32**(4): 175-184.
- [7] Pranata & Sadewo. (2012). Kejadian Keguguran, Kehamilan Tidak Direncanakan Dan Pengguguran di Indonesia. *Buletin Penelitian Sistem Kesehatan* 15(2): 180-192.
- [8] Habte, D., S. Teklu, Et al. (2013). Correlates Of Unintended Pregnancy In Ethiopia: Results From A National Survey. *Journal PLoS ONE***8**(12).
- [9] Barden-O'Fallon, Janine L., et al. (2008). Association between contraceptive discontinuation and pregnancy intentions in Guatemala. *Rev Panam Salud Publica/Pan Am J Public Health* 23(6).
- [10] Rahman, Mosfeqr. (2012). Women's Autonomy and Unintended Pregnancy Among Currently Pregnant Women in Bangladesh. *Maternal Child Health Journal* 16:1206-1214.
- [11] Adhikari, R., K. Soonthorndadha, et al. (2009). Correlates Of Unintended Pregnancy Among Currently Pregnant Married Woman In Nepal. *BMC International Health And Human Rights***9**(17).
- [12] Brown, S. & Eisenberg, L. (1995) *The Best Intentions: Unintended Pregnancy And The Well-Being Of Children & Families*. Washington DC: National Academy Press.
- [13] Kassa, N., Y. Berhane, et al. (2012). Predictors Of Unintended Pregnancy In Kersa, Eastern Ethiopia, 2010. *Journal Reproductive Health***9**[1].
- [14] Ikamari, L., C. Izugbara, et al. (2013). Prevalence and determinants of unintended pregnancy among women in Nairobi, Kenya. *BMC Pregnancy and Childbirth***13**(69).
- [15] Bastola, K., S. Neupane, et al. (2015). Unintended Pregnancy among Married Pregnant Women in Nepal. *Journal of Women's Health, Issues and Care***4**(4).
- [16] Geda, N. R. & T. K. Lako (2011). A population-based study on unintended pregnancy among married women in a district in Southern Ethiopia. *Journal of Geography and Regional Planning* 4(7): 417-427.
- [17] Dutta, M., C. Shekhar, Et al. (2015). Level, Trend And Correlates Of Mistimed And Unintended Pregnancies Among Currently Pregnant Ever-Married Women In India. *Journal PLoS ONE***10**(12).
- [18] Acharya, P., R. Gautam, et al. (2015). Factors Influencing Mistimed And Unintended Pregnancies Among Nepali Women (2011 Nepal DHS). *Journal Of Biosocial Science*: 1-18.
- [19] Badan Pusat Statistik (BPS), Badan Koordinasi Keluarga Berencana Nasional (BKKBN), Departemen Kesehatan Indonesia,,Dan Macro International Inc. (MI). (2003). *Survei Demografi Dan Kesehatan Indonesia 2002-2003*. Jakarta.
- [20] Badan Pusat Statistik (BPS), BKKBN, Departemen Kesehatan, Measure DHS ICF Internasional. (2013). *Survei Demografi Dan Kesehatan Indonesia 2012 (SDKI 2012)*. Jakarta: BPS.
- [21] Badan Pusat Statistik, Badan Kesehatan Keluarga Berencana Nasional, Kementerian Kesehatan, Macro Internasional. (2008). *Survei Demografi Dan Kesehatan Indonesia 2007 (SDKI 2007)*. Jakarta: BPS.