

**FACTORS ASSOCIATED WITH
CONTRACEPTIVE DISCONTINUATION IN INDONESIA**

RINA GUSTIANA

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR
THE DEGREE OF MASTER OF ART
(POPULATION AND REPRODUCTIVE HEALTH RESEARCH)
FACULTY OF GRADUATE STUDIES
MAHIDOL UNIVERSITY**

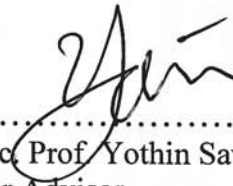
2010

COPYRIGHT OF MAHIDOL UNIVERSITY

Thesis
entitled
**FACTORS ASSOCIATED WITH
CONTRACEPTIVE DISCONTINUATION IN INDONESIA**



.....
Ms. Rina Gustiana
Candidate



.....
Assoc. Prof. Yothin Sawangdee, Ph.D
Major Advisor



.....
Asst. Prof. Pimonpan Isarabhakdi, Ph.D
Co-advisor



.....
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University



.....
Asst. Prof. Aree Jampaklay, Ph.D.
Program Director
Master of Arts Program in Population and
Reproductive Health Research
Institute for Population and Social Research
Mahidol University

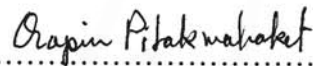
Thesis
entitled
**FACTORS ASSOCIATED WITH
CONTRACEPTIVE DISCONTINUATION IN INDONESIA**

was submitted to the Faculty of Graduate Studies, Mahidol University
for the Degree of Master of Arts
(Population and Reproductive Health Research)

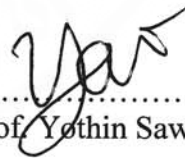
on
August 16, 2010



.....
Ms. Rina Gustiana
Candidate



.....
Assoc. Prof. Orapin Pitakmahaket, Ph.D
Chair



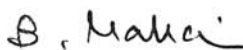
.....
Assoc. Prof. Yothin Sawangdee, Ph.D
Member



.....
Lect. Nisaporn Wattanasupt, Ph.D
Member



.....
Asst. Prof. Pimonpan Isarabhakdi, Ph.D
Member



.....
Prof. Banchong Mahaisavariya,
M.D., Dip Thai Board of Orthopedics
Dean
Faculty of Graduate Studies
Mahidol University



.....
Assoc. Prof. Sureporn Punpuing, Ph.D
Director
Institute for Population and Reproductive
Research
Mahidol University

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude and deep appreciation to major advisor Dr. Yothin Sawangdhee whose advice and support made this work accomplished. His guideline was very clear since the beginning of the process and his input always valuable in term of giving direction and helping to solve problems in this work especially statistical problem. My gratitude also expressed for Dr. Pimompan Isarabhakdi as co-advisor for her advice and constructive criticism that lead to the a better paper

Many thanks to all lecturers for their enthusiastic teaching, consistent encouragement and valuable suggestions, which contribute to enhance my skills and knowledge. Special thanks also appreciated for Khun Luxana Nil-Ubol for her endless effort, arrangements, supports and kindness in providing all of our needs during a year study process. Their efforts made learning process interesting and exciting.

I also grateful to ajarn Jason Theede that willing to edit my English writing and all of classmates for their help and assistance during the period of my study in IPSR.

I am grateful to BKKBN for providing scholarship, which enabled me to undertake this study. I would like to thanks to Mr. Edy Hasmi, Mrs. Yuyun, Mrs. Dora Panjaitan and all BKKBN staff that provided endless support to accomplish my study.

Finally, I would like to give special thanks for all my family to give me support, encouragement and helpful during the period of my study.

Rina Gustiana

FACTORS ASSOCIATED WITH CONTRACEPTIVE DISCONTINUATION IN INDONESIA

RINA GUSTIANA 5238635 PRRH/M

M.A. (POPULATION AND REPRODUCTIVE HEALTH RESEARCH)

THESIS ADVISORY COMMITTEE: YOTHIN SAWANGDHEE, Ph.D.,
PIMPOMPAN ISARABHAKDI, Ph.D.**ABSTRACT**

The contraceptive prevalence rate in Indonesia is already high, however, contraceptive discontinuation is also high. To achieve the national target of the family planning program, there is a need to reduce contraceptive discontinuation. This study aimed to examine factors affecting contraceptive discontinuation in Indonesia.

The study used data from the 2007 Indonesia Demographic and Health Survey (DHS). The study included 22,657 non-pregnant and non-sterilized married women aged 15-49 years old who have used at least one contraceptive method. The study applied univariate, bivariate, and multivariate analyses, specifically binary logistical analysis.

The results show that contraceptive knowledge, spousal communication, women's autonomy, exposure to family planning messages, and socio-economic and demographic factors have significantly affected contraceptive discontinuation. The results of adjusted proportionate probability analysis show that both exposure to family planning messages through personal contact and women's autonomy have had strong effects on contraceptive discontinuation.

The study suggests that shifting family planning messages from introducing contraceptive methods to teaching contraceptive practice correctly, increasing the number of family planning field workers, family planning visits, and counseling and improving Behavior Change Communication (BCC) activities will reduce contraceptive discontinuation.

KEY WORDS: CONTRACEPTION / DISCONTINUATION / REPRODUCTIVE AGE
/ INDONESIAN / WOMEN

51 pages

CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
ABSTRACT (ENGLISH)	iv
CONTENTS	v
LIST OF TABLES	vii
LIST OF FIGURES	viii
CHAPTER I INTRODUCTION	1
1.1. Fertility and contraceptive use in Indonesia	1
1.2. Contraceptive discontinuation in Indonesia	2
1.3. Problem justification and statement	2
1.4. Objectives	3
CHAPTER II LITERATURE REVIEW	5
2.1. General definition of contraceptive discontinuation	5
2.2. Factors associated with contraceptive discontinuation	6
2.2.1. Socio-economic	6
2.2.2. Demographic	9
2.2.3. Programmatic	12
2.2.4. Knowledge of family planning methods	14
2.2.5. Women's autonomy	14
2.2.6. Discussion of family planning with husband	15
2.3. Conceptual framework	16
2.4. Hypothesis	17
CHAPTER III RESEARCH METHODOLOGY	19
3.1. Data source	19
3.1.1 Sampling design and sample size	19
3.1.2 Data collection tools	19
3.2. Sample for study	20

CONTENTS (cont)

	Page
3.3. Operationalization of some variables	20
3.4. Analysis of the data	24
3.5. Limitation of the study	24
CHAPTER IV RESULTS AND DISCUSSION	25
4.1. Univariate analysis	25
4.1.1. Socio-economic characteristic	26
4.1.2. Demographic characteristic	27
4.1.3. Programmatic factors	28
4.1.4. Women's knowledge, autonomy and spousal communication	29
4.1.5. Contraceptive discontinuation	30
4.2. Bivariate Analysis	30
4.2.1. Contraceptive discontinuation by socio-economic characteristic	31
4.2.2. Contraceptive discontinuation by demographic characteristics	32
4.2.3. Programmatic factors and contraceptive discontinuation	33
4.2.4. Contraceptive knowledge, women's autonomy, spousal communication and contraceptive discontinuation	35
4.3. Multivariate analysis	36
4.4. Effect of exposure to family planning messages through personal contact and women's autonomy	41
CHAPTER V CONCLUSION AND RECOMMENDATION	43
5.1. Conclusion	43
5.2. Policy recommendation	44
5.3. Recommendation for further research	45
BIBLIOGRAPHY	46
BIOGRAPHY	51

LIST OF TABLES

Table		Page
3-1	Summarized of dependent variable, independent variable and measurement scale	22
4-1	Percentage and number distribution of married women by socio-economic characteristic in Indonesia, 2007	27
4-2	Percentage and number distribution of women by demographic characteristic in Indonesia, 2007	28
4-3	Percentage and number distribution of women by demographic characteristic in Indonesia, 2007	29
4-4	Percentage and number distribution of women by contraceptive methods knowledge, family planning discussion and women's autonomy in Indonesia, 2007	30
4-5	Contraceptive continuation by socio-economic characteristic, Indonesia, 2007	32
4-6	Contraceptive discontinuation by demographic characteristic, Indonesia, 2007	33
4-7	Contraceptive continuation by programmatic factors, Indonesia, 2007	34
4-8	Contraceptive discontinuation by contraceptive knowledge, discussion with husband and women autonomy , Indonesia, 2007	35
4.9	Odds Ratio of contraceptive discontinuation by contraceptive knowledge, women autonomy, discussion family planning with husband and programmatic factors after controlling for socio-economic and demographic factors, Indonesia, 2007	40

LIST OF FIGURES

Figures		Page
1-1	Trend in Total Fertility Rates in Indonesia, 1991-2007	1
1-2	Contraceptive Prevalence Rate trends in Indonesia, 1991-2007	2
2-1	The conceptual framework	17
4-1	Contraceptive discontinuation, Indonesia, 2007	30
4-2	Effects of women's autonomy and FP messages through personal contact on contraceptive discontinuation	41

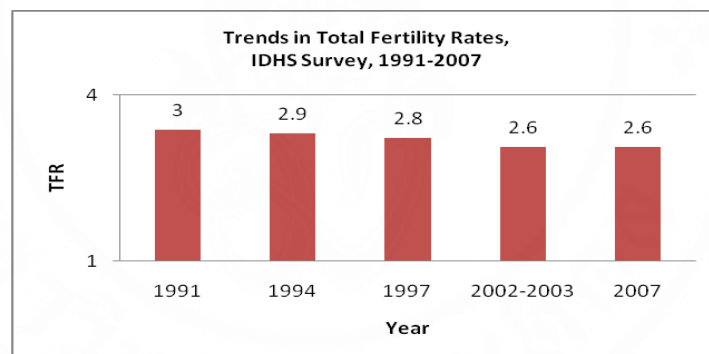
CHAPTER I

INTRODUCTION

1.1. Fertility and Contraceptive Use In Indonesia

Indonesia has been experiencing in reducing fertility for more than 35 years from 1970 to 2007. The Demographic Health Survey conducted in 2007 (IDHS, 2007) indicates that the fertility in Indonesia remained constant at 2.6 per women since the previous survey in 2002/03.

Figure 1-1 Trend in Total Fertility Rates in Indonesia, 1991-2007

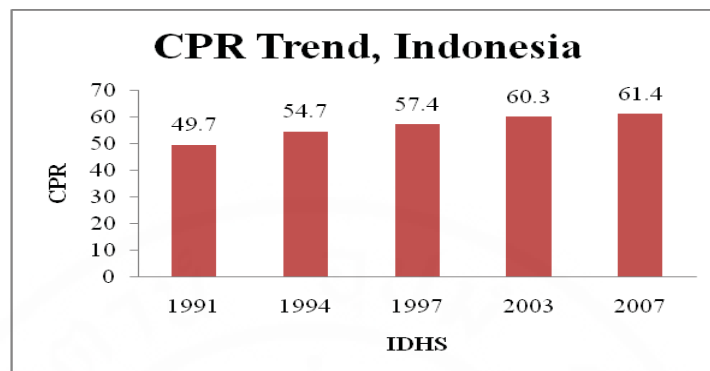


Source: IDHS, 2007

Figure 1-1 illustrates the trends of fertility rates in Indonesia since 1991. In 1991, Indonesia's fertility rate stood at 3.0 children per women. This rate has fallen to 2.9 children per women in 1994 and 2.8 children in 1997. In 2002-2003 the fertility rate reduce to 2.6 children per women and remained stagnate at 2.6 in 2007

The fertility decline in Indonesia often is tied to the increase of contraceptive prevalence rate (Hull and Mosley, 2008). Figure 1-2 presents that in Indonesia, the contraceptive prevalence rate (CPR) among currently married women age 15 – 49 years was increasing gradually from 18% in 1976 to 61% in 2007 (IDHS, 2007).

Figure 1-2 CPR trends in Indonesia, 1991-2007



Source : IDHS (2007); IDHS (2003)

1.2. Contraceptive Discontinuation in Indonesia

Although the fertility rate has been declining and contraceptives prevalence has been increasing, contraceptives discontinuation still remains high. In 2007, contraceptives discontinuation was as high as 25% among contraceptives users within a year of starting use. Reasons for discontinuation vary including side effects or health concerns, desire to become pregnant, other methods related reasons including access to contraceptives and desire for more effective methods, become pregnant while using contraceptive and other reasons including cost, inconvenience, marital dissolution/separation, and infrequent sex. Contraceptive discontinuation also increases from about 21% in 2003 to about 25% in 2007.

1.3. Problem Justification & Statement

Contraceptive prevalence rate is an important measure to evaluate the success of family planning programs. The increase of contraceptive prevalence rate leads to the decrease of fertility rate which is the main goal of family planning programs including in Indonesia. However, since contraceptive prevalence in Indonesia is already high (61%), the focus of family planning programs should be shifted from motivating couples to adopt contraception to encourage couples to maintain use (Kost, 1993). Simply, the focus on quality of care has become important with contraceptive continuation as one of the outcomes of quality of care (Blanc, Curtis and Croft, 1999 in Arifin, 2003). These situations put programmatic factors

such as contraceptive knowledge, exposure to family planning messages and access to source of contraceptive to become increasingly important.

However, this is not the only factors effecting contraceptive discontinuation. Since Indonesia is a country that largely follows a patriarchal society, husbands have more power and authority over their wife on most issues. They have responsibility on almost all decision-making in the family, especially related to reproductive health and number of children. However, this is not true among working women who mostly have more power to be involved in decision making, since economically they contribute more. Regarding these condition, factors such as family planning discussion with husband, and women's autonomy are important to consider as factors affecting contraceptive discontinuation.

The analysis of contraceptive discontinuation is important because it can inform efforts to improve service delivery in various ways (Curtis & Blanc, 1997). The analysis of factors affecting contraceptive discontinuation, informs family planning managers where to focus effectively in reducing contraceptive discontinuation. Therefore, they can apply relevant strategies to improve the quality of family planning services. High rates of contraceptive discontinuation can leads to an increase of unwanted pregnancy, which is the most common reason to induce abortion. Unwanted pregnancy also has a negative effect on the quality of life of children and women.

1.4. Research Question

What are the factors affecting contraceptive discontinuation among currently married women in Indonesia?

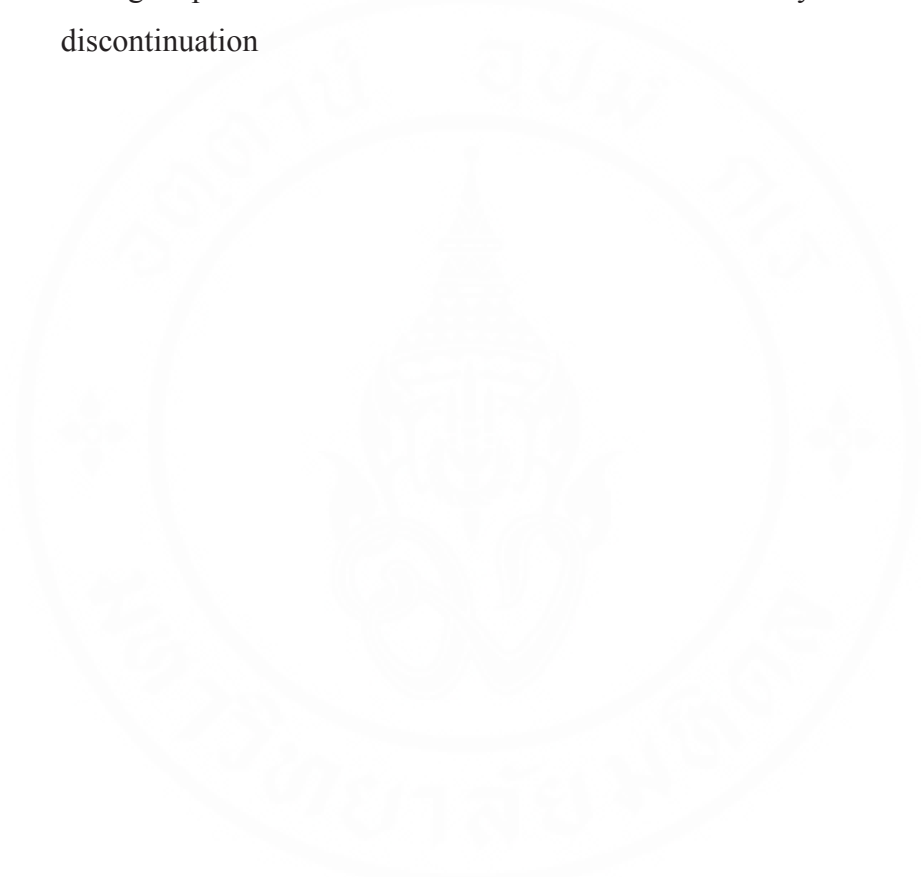
1.5. Objectives

- *Ultimate Objective*

To provide information regarding factors effecting contraceptive discontinuation in Indonesia

- *Immediate Objectives*

1. To examine whether women knowledge about family planning, women autonomy, discussion about family planning and program factors are effected on contraceptive discontinuation among currently married women in Indonesia
2. To investigate the specific effect of exposure to family planning messages through personal contact and women's autonomy on contraceptive discontinuation



CHAPTER II

LITERATURE REVIEW

Many surveys in other countries have shown that socio-economic, demographic, along with programmatic and others related factors such as contraceptive knowledge, and women's authority have important influence on contraceptive adoption. For this study purposes, focus on contraceptive discontinuation since all of these factors affected women's decision-making process related to contraceptive discontinuation.

This chapter provides information of previous research findings to develop an understanding on the effect of knowledge of family planning, quality of family planning service, women's autonomy and discussion of family planning factors related to contraceptive discontinuation.

2.1. General Definition of Contraceptive Discontinuation

In previous studies, the term of contraceptive discontinuation has been used interchangeably. Mishra, et al (1999) defined contraceptive discontinuation as "*non-pregnant women who had previously used a family planning method but were not using any method at the time of the survey*". Another researcher from USA identified contraceptive discontinuation as "*stopping contraceptive use while still at risk of unintended pregnancy*" (Karen, 2002). A study in Brazil mentions contraceptive discontinuation as "*having used a contraceptive method at least once in the past, whether or not the method was properly used or provided adequate coverage*" (D'antona et al, 2009).

From these definition can be conclude that contraceptive discontinuation is non pregnant women who previously used at least one contraceptive method, but were stopping use while still at risk of unintended pregnancy at the time of survey, and do not consider whether the method was used in a correct way or provided adequate coverage.

2.2. Factors associated with contraceptive discontinuation

The focus of this study is to determine the factors affecting contraceptive discontinuation among married women. Before determining the factors affecting contraceptive discontinuation, there is a need for a review of the related findings that indicate the importance of those factors in a relationship with the outcome. A literature review on contraceptive discontinuation among married women offers some insights into what contributing factors should be considered.

Socio-economic and demographic factors have an important role in influencing an individual's knowledge of family planning methods, women's authority and women's ability to negotiate their need, especially related to their-own reproductive health. This will affect their decision to continue or discontinue their contraceptive use, the description of previous studies related to these factors are presented below.

2.2.1. Socio-economic factors

Socio-economic factors such as education, employment status and wealth status of women play an important role in fertility and contraceptive decision making. These socio-economic factors are highly related to personal motivation in maintaining fertility, and to a lesser extent will lead to women's decision on contraceptive adoption.

Education

Education plays an important role in the acceptance and use of contraceptives, and also affects on contraceptive discontinuation. There are assumptions that couples who have better education are more exposed to family planning messages through formal source and informal sources such as school and mass media, that would lead to the increase of positive attitudes toward contraceptive adoption. Moreover, the increase of education level also effected on the perception toward the values of children. A more educated couple tends to reduce their number of children in order to give better education to their children. Women who have higher education are expected to be less likely to have contraceptive discontinuation.

However, Curtis and Blanc in a 1997 study of six countries found that the effect of women's education is not significant determinant of contraceptive

discontinuation due to contraceptive failure. This result was supported by Moreno in 1993 who found little evidence of an association between education and the risk of contraceptive discontinuation.

On the other hand, utilizing 1991 and 1994 DHS surveys, a study in Indonesia found that contraceptive discontinuation was significantly associated with women's education level. This finding was interesting because women who had no education or incomplete primary education were less likely to discontinue using contraceptive due to contraceptive failure (Fathonah, 2000; Arifin, 2003). In contrast and as expected, a study in Brazil and Bangladesh revealed that contraceptive discontinuation decreased as women's education increased (Zhang et al, 1999; Leite et al, 2007).

Overall, previous findings provide evidence that education is associated with the probability of contraceptive discontinuation. However, contraceptive discontinuation may be affected by other factors that in some countries may have a greater impact on contraceptive discontinuation. This study would like to clarify whether education in Indonesia particularly in 2007 had an effect on contraceptive discontinuation or not.

Employment status

Women employment status is considered as an important factor in influencing behavior toward contraception adoption and its discontinuation because it can improve women's autonomy and decision-making power as well as their mobility. Women who work outside their home have more opportunities to access family planning services, as they are more mobile. At the same time, they also have greater autonomy that can raise their decision making power since economically they do not depend on their husband or somebody else. A cohort study of female clients in STD clinics in the USA found that the distribution of contraceptive discontinuation after one year was higher among those who were working outside their household (62%) compared to those who not (38%)(Karen et al, 2002).

High activity outside the household also contribute to the decrease of women's desire to have more children that will lead to the increase of contraceptive adoption as well as its continuation to delay or even stop pregnancies. This assumption

was supported by Hardee et al (1999), suggested that women who had their own occupation or are working out-side their household, tend to desire a small family and thereby increase the acceptance of contraceptive use. The probability of contraceptive use was also higher among women who are working out-side their household than women who are not (Saphiro and Tamashe, 1994).

These previous studies lead to the assumption that women's working status in Indonesia is also associated with contraceptive discontinuation. It is therefore expected that women who are working will tend to continue their contraceptive use in order to delay pregnancy.

Wealth status

Wealth status also plays an important role in influencing contraceptive discontinuation. Higher levels of household wealth might allow women to have more access toward family planning information and services. Therefore, household wealth reflects women's affordability and accessibility to contraceptive methods and family planning services, not only from government sources but also from the private sector sources.

A study among poor women also in the USA, which focused on implant discontinuation, found that 78% of poor women are more likely to stop using implant for any reasons. (Kalmus et al, 1996) Moreover, a study in Bangladesh and Philippines found that high-income women are more likely to discontinue their method because of increased knowledge about choice of methods and therefore readily switch method if they are not satisfied with their current contraceptive. (Chawala et al, 2003; Laguna et al, 2000) However, in more developed countries (USA and Romania), economic status did not appear to be significantly effected on contraceptive discontinuation. (Grady, et al 1988; Creanga et al, 2006)

Since Indonesia is a developing country, where large populations still lives under poverty, economic status may have a great influence on women's access toward contraceptive. Analyzing household wealth factors effect on contraceptive discontinuation would help to see whether contraceptive methods are affordable for all women at every household level.

Exposure to mass media

Exposure to mass media is an important issue that should be considered in the analysis of women's behavior toward contraceptive adoption. Exposure to mass media, either from electronic media such as television and radio or print media such as newspaper or magazines, allow women to increase their knowledge about family planning and contraceptive methods, that finally will influence their decision on contraceptive adoption. Previous study suggested that women who are regularly exposed to electronic media were less likely to report method-related problems or opposition to family planning as their main reason for not using contraception or stopped to use contraception (Mishra, 1999).

However, Kalmus et al (1996) found that about 30% of women experienced at least in the first six months period of using implant and exposed to negative message about methods, were less likely to have an early discontinuation. The result was surprising because it contradicted the common impression that negative messages result in discontinuation. These previous findings provide evidence that mass media has a great influence on contraceptive discontinuation.

2.2.2. Demographic Factors

As well as socioeconomic factors, women's decision related contraceptive use is also influenced by demographic characteristics; such as age, place of residence, number of living children, exposure to mass media and religion. Demographic characteristics mainly relate to the capability of women to access family planning information and services.

Age

Age is a proxy for the natural biological processes of human beings, and plays an important role related to contraceptive use behaviors, including decision for continuing to use methods. Contraceptive discontinuation may differ in each age group because age may influence intention to have more children. Research toward married women and poor women in the USA found that women in younger age group (less than 20) have 2.6 times higher risk of stopping method use than older women (more than 20 years). (Kalmus et al, 1996) Moreover, Curtis & Blanc in 1997 revealed that

younger women had higher risk of contraceptive discontinuation due to contraceptive failure and desire more children than older women. (Curtis & Blanc, 1997)

As previous studies found an association between age and contraceptive use, age was included into consideration in this study. Furthermore, because women in each age group may differ in the reason of contraceptive discontinuation and may need a different intervention, this variable is categorized into three age cohorts that help to understand the differences between of each cohort.

Residence

Unlike urban areas; where health facilities are provided, in rural areas; women do not have much access toward health facilities. In Brazil, the rural health units are unequipped and the doctor availability may be limited to only one day a week, every other week or once a month, and medicine and contraceptive methods are not available at the rural health posts. Women only can see doctors if they have made an appointment first, and still remain difficult because the doctors work hours are not sufficient to attend.(D'antona et al, 2009). Ultimately these women have a difficult time to access family planning methods and services. These conditions makes it very difficult for women to adopt contraceptives and easier for those who currently use to discontinue.

Most previous studies found evidence that place of living is associated with the risk of contraceptive discontinuation. As an example, Arifin in 2003, and Curtis and Blanc in 1997 found that women who lived in urban areas were less likely to discontinue contraceptive use due to contraceptive failure than those who lived in rural areas. Moreover, another result in India shows that women who lived in urban areas were less likely to discontinue due to wanting more children, but are more likely to have method failure. (Mishra, 1999) Overall, investigation on contraceptive discontinuation by type of residence would help pinpoint the areas needed to improve in terms of family planning services.

Number of living children

Number of children is the most important factor in determining whether a woman desires to stop bearing children and whether they use contraception. (Shah et

al., 1998) In particular, the number of living children relates to desire for more children which in turn will affect contraceptive use and its continuation. The number of living children also reflects couples ideas about family size, which can be different depending on society, culture and other contexts. Women who had reached ideal family size prefer to continue their contraceptive use. A study in Indonesia reveals that women who have small family or had less living children tended to discontinue much earlier than those who already had a big family.(Fathonah, 2000). Additionally women with no children or with one child were less likely to experience side effects and health concerns. Women with more than four children were more likely to discontinue due to other reasons. (Arifin, 2003)

To conclude, the number of living children that a woman currently has, affected her motivation and intention to continue contraceptive use. This finding place number of living children as an important factor to consider in this study.

Religion

Religious perspectives on family and children also affect women's adoption of contraceptive methods. In addition, women who adopt an Islamic religion may try to avoid several methods that are prohibited for them. Their decision on family planning also largely depends on husband's approval. Contraceptive adoption without husband permission as well as community acceptance, may lead to discontinuation.

A study in Indonesia and Brazil shows that religion plays a major role in use and choice of methods (Molyneaux et al (1990) in Helweldery (2004), D'Antona et al (2009)). In Indonesia, Islam correlated with the probability of choosing injection contraceptives compare to other modern methods, which was closely to discontinuation, since injection is a short-term contraceptive that easy to abandon. Research in India also observes the relationship between religion and contraceptive discontinuation. The result of this research reveals that among women who had discontinued contraception, 73% were Hindus, 20 % Muslims and 7 % belonging to other religions. The researcher observed that the representation of Muslims, compared to the overall Muslims sample (12%), reflects that Muslims women prefer to adopt

temporary methods (Mishra, 1999) which pose a greater chance to experience discontinuation.

As Indonesia formally has five religions adopted by its population, it would be necessary to compare contraceptive discontinuation between each religion, as high discontinuation among women of one religion may be different from others. This study includes religion as one of control variables that affects contraceptive discontinuation.

2.2.3. Program Factors

Family planning programs in most developing countries contribute to the increase of contraceptive prevalence rate and in turn, the decrease of fertility rate. Nowadays, the focus of family planning programs has been shifted to service delivery measures such as accessibility and availability, which are mainly related to the continuation of contraceptive use. The data source of contraceptive methods where a woman accessed their last method, as well as exposure to family planning messages is important to assess contraceptive discontinuation.

Source of contraceptive supply and service

Generally, family planning programs in most of countries have been expanded. Nowadays, people can get contraceptive supplies and services from both government and private sources. However, there might be differences between government and private sources in terms of quality and price; at least there was perception that the quality of methods and service in private sources are better than government sources. However, this belief was opposed by research in Egypt found that the source of contraceptive supply and service was not significantly related to the quality of family planning. (Hong et al, 2006)

In addition, a couple's decision on which source they prefer to use is effected by availability, service quality and their personal preferences (Steele, 2003). The selection of method source is also affected by the socio-economic level of the women. Since the payment of family planning services in private sector are higher, women with low socio-economic status but receive family planning services from the private sector may have a greater risk to discontinue their method. Evidence from

Nigeria showed that most of respondents who used contraception procure it from private sources. (Oyeadeniran et al, 2005) Similarly, research in Morocco found that discontinuation rates were higher among users of private facilities. (Steele, 2003) Different results are revealed in Nepal and India, where discontinuation was higher for those who obtained it from government sources than those who obtained a method from private sources. (Zhang et al, 1999; Engender Health, 2003) Overall, these studies reflect the importance of source of contraceptive method in influencing contraceptive discontinuation.

Exposure to FP messages through personal contact

It is undeniable that an individual's decision-making process is influenced by interpersonal communication regarding the acceptance of new ideas and behaviors. Family planning workers facilitate potential users by communication and provide accurate knowledge and information related to contraceptive use by considering their family restrictions and cultural situation (Mahmood, 2005)

The importance of family planning field workers in improving contraceptive knowledge and its adoption by women also recognized by Hennink and Clement in 2005. The main task of the family planning field worker is to inform potential users and supply contraceptives to those who are unable to visit health care service. Evidence from qualitative research in Togo revealed that personal contact with family planning program officers or medical officers to discuss family planning affected women's decision to continue the use of methods (Hodgins, 1999).

Moreover, a study on the impact of outreach on the continuity of contraceptive use in Bangladesh revealed that women who are exposed to family planning workers were more likely to use contraception. Furthermore, the outreach activities could reduce the discontinuation rate by 65%, if women received home visits at least once in a three months period. (Hossain and Philip, 1996) Another study revealed that female outreach workers also helped to improve women's status in their family, (Hossain and Philip, 2003) which was an effective fertility control that exchanged women's mobility, autonomy and authority. These evidences shows that exposure to family planning messages is one important variable that needs to be considered in determining the factors related to contraceptive discontinuation.

2.2.4. Knowledge of family planning Methods

Women's knowledge on contraceptive methods reflects their accessibility to family planning information that affects on their behavior related to contraceptive discontinuation. This study hypothesized that women who have less knowledge of contraceptive methods are less likely to adopt contraceptive methods. In contrast, those who know more have a greater chance to find the best method that appropriate for them; however, they faced greater risks to discontinue their method due to switching to another method.

Previous research in Nepal has shown that poor knowledge and misconception were important reasons for low use of family planning (Sturley, 1998 in Mishra, 1999). In India, lack of knowledge was the major reason of women did not intend to use contraception in the future. Most of women reported lack of knowledge, dislike of existing methods, fear of sterilization and worried about side effects as the reason for not using contraception in the future (Mishra, 1999). Uncertainty and lack of knowledge about the function and efficiency of methods on the body was also reported in Brazil. (D'antona et al, 2009) However, a study on implant discontinuation in the USA revealed that contraceptive knowledge had negative relationship with the reason of discontinuation, as pre-insertion counseling applied (Kalmus et al, 1996). Overall, these research findings have shown the importance of contraceptive knowledge in determining contraceptive discontinuation.

2.2.5. Women's autonomy

In a patriarchal society, women have lower autonomy in their household. Men are more likely to take control over almost all decision making in the family including reproductive health matters. Men's superior standing in the family is highly related to their responsibility as head of household. However, nowadays women's autonomy increases as their education and social economic level increases, with many women were economically independent, as they are working outside their home. It is assumed that the increase of women's autonomy would increase their power to decide their own reproductive health including the decision on their contraceptive use.

Many former studies suggested that women's autonomy was associated with contraceptive use and its continuation. A study in Pakistan found that women's decision and autonomy of movement were strongly associated with both lifetime and current contraceptive use. (Saleem & Bobak, 2005) In Nigeria, women who had higher freedom of movement and decision-making scores were more likely to adopt contraceptive methods than those who had lower scores. (Osemwenkha, 2004). An explanatory study on family planning experiences among new contraceptive acceptors in Mali showed that women who had less autonomy on household and reproductive decisions tended to discontinue their use of chosen method. (Kanate et al, 1998)

2.2.6. Discussion of family planning with husband

Husbands-wife communication is associated with contraceptive practice and its discontinuation. Lack of discussion about family planning with a spouse may reflect lack of interest and knowledge on family planning, and reluctance to discuss sex matter. Interpersonal communication between husbands and wives, as expected could increase the acceptance of husbands toward contraception practice and may extend the continuation of the method.

Previous research in Nepal and Morocco showed that husbands whose wives adopted contraceptive method were more likely to discuss family planning with their spouse in the year of survey. (EngenderHealth, 2004; Kamal, 2009) In Nigeria, large numbers of respondents indicated that they had discussed family planning matters with their spouse on three or more occasions. Most of them gave an indication that their spouse would not stop them from using family planning methods (Ogunjuyigbe et al, 2007). Similarly, evidence from Turkey showed that couples in which both approved of family planning had higher change to practice contraception than if one or neither of them approved of family planning. (Kulczycki, 2008) These research findings suggest that discussion of family planning increases husbands acceptance toward contraceptive adoption and in turn will help to motivate women to continue their contraceptive use.

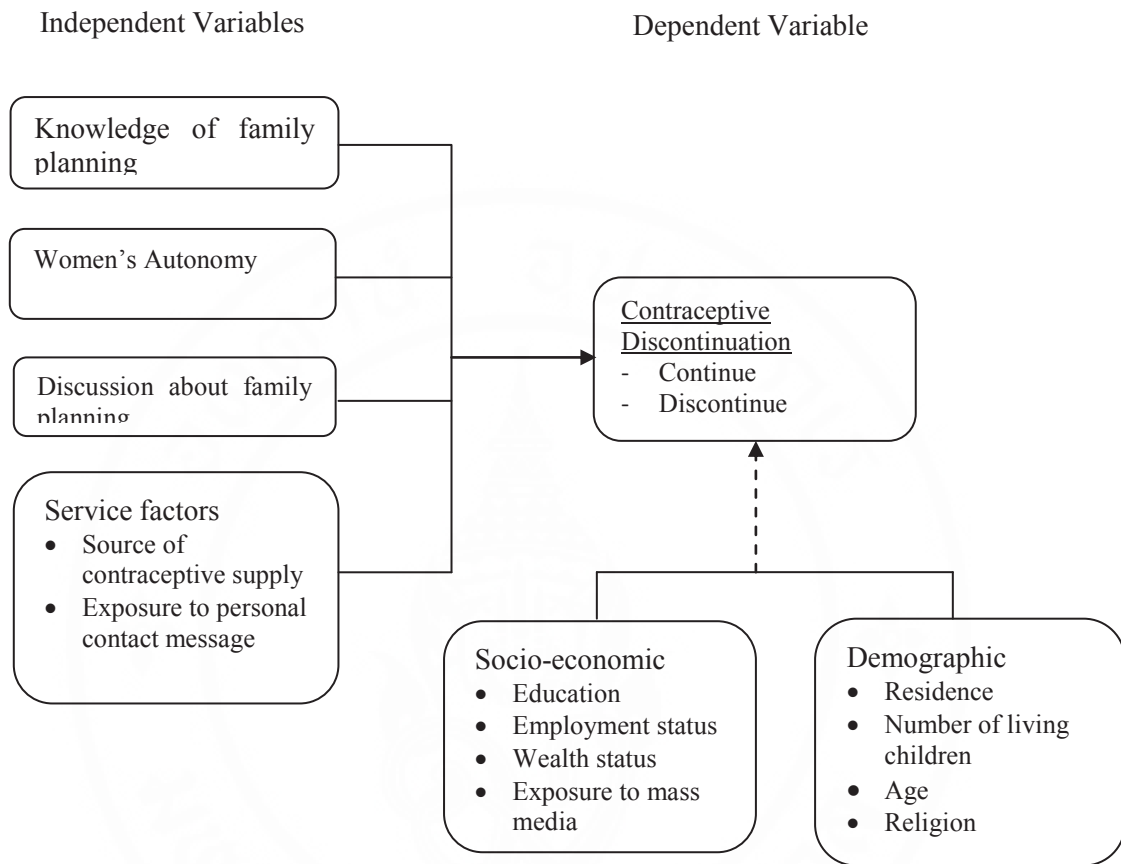
2.3. Conceptual Framework

The concept for this study is derived from the review of existing research. These studies indicate that contraceptive discontinuation is determined by many important factors such as socio-economic factors, demographic factors, programmatic factors, and women's autonomy. This study focused on several major variables, specifically, focus on the effects of contraceptive knowledge, women's autonomy, discussion on family planning with spouse, and programmatic factors, which include source of last method and exposure to family planning messages both from mass media and through personal contact with family planning officers.

Knowledge about family planning methods, as expected, will contribute to an increase in women's accessibility to contraceptive methods and in turn will affect their contraceptive behaviors. Women's autonomy is an important determinant that will increase women's power to become involved in decision-making and increase their ability to negotiate their preference related to reproductive health through discussion with their spouse. Spousal communication through discussion of family planning matters will increase spousal approval of family planning and in turn will influence the effectiveness of method use. Programmatic factors including source of methods and exposure to family planning messages through personal contact reflected service quality that will directly influence the continuation of contraceptive use. Meanwhile, others factors such as socioeconomic and demographic factors, will be treated as control variables that will control the effects of the independent variables.

The conceptual framework is constructed to give an understanding on the relationships of each variable that will be the basic concept for this study.

Figure 2-1. The conceptual framework



2.4. Research Hypotheses

Based on literature and the conceptual framework, there are numerous factors that affect contraceptive discontinuation. To achieve the objective of the study, the following hypotheses are designed as a base of this study.

2.4.1. Contraception discontinuation is higher among women who know traditional types of contraceptives

2.4.2. Contraceptive discontinuation will decrease as women's autonomy increase

2.4.3. Women who discuss family planning are less likely to discontinue method use

2.3.4. Women who obtain contraceptive from government sources and receive family planning messages through mass media and personal contact are less likely to discontinue their contraceptive use



CHAPTER III

RESEARCH METHODOLOGY

3.1. Data Source

The data used in this study is from the 2007 Indonesia Demography and Health Survey (IDHS) that was conducted by the Central Bureau of Statistics, National Family Planning Coordinating Board, and Ministry of Health with assistance from Macro International under the auspices of the Demographic and Health Survey program. The survey provides retrospective data related to women contraceptive use, which allows the study to assess determinants of contraceptive discontinuation at the household and individual level. The survey was implemented from 25 June to 31 December 2007. However, because of some problems such as natural disasters in several provinces, the survey had to be extended. Data collection was completed in all areas in February 2008.

3.1.1. Sampling Design and Sample Size

The IDHS survey was conducted in all 33 provinces of Indonesia though an applied stratified multistage sampling design. A three stages sampling design was applied in rural areas and a two stages sampling design applied in urban areas. The survey completely interviewed 40,701 households, 32,895 ever married women aged 15 – 49 years, and 8,758 currently married men age 15-54.

3.1.2. Data collection tools

In this survey, women were asked questions related to background characteristics such as marital status, education, exposure to mass media, knowledge and use of family planning method; reproductive history and fertility preference, occupation and husband background characteristics. Information on characteristics of the household's dwelling unit, such as source of water, types of toilet facilities, construction material used for floor, wall and roof and ownership of some durable goods were included to measure household's socioeconomic status.

3.2. Sample for the study

The study population focuses on non pregnant and non sterilized married women of reproductive ages that previously used any contraceptive methods but stopped to use at the period of survey. Women who use sterilization as their contraceptive method are excluded since sterilization is a permanent method and it is impossible to measure its discontinuation. The data selection process selected 22,657 women to be eligible for analysis.

3.3. Operational definition of some variables

3.3.1. Dependent Variable

The outcome variable of this study is contraceptive discontinuation which refers to women's behavior related to their use of contraceptive method where the women is not pregnant, not sterilized and previously used at least one of contraceptive method, but stopped use at the time of survey. The independent variables is classified into four categories; program factors, knowledge of family planning methods, women autonomy and discussion about family planning.

3.3.2. Independent variables

Programmatic factors in this study include source of last contraceptive method, and exposure to family planning messages both from mass media and as a result of personal contact.

Sources of last method

Sources of last method refer to the places where the respondents obtained their last method, which is grouped into private sources, government sources and other sources. Government sources are government hospital, government health center, government clinic, family planning field workers, family planning mobile unit, and other government sources. Private sources contain private hospital, private clinic, drug store, and midwives; while, other sources include delivery post, health post, family planning post, and friend or relatives. This variable is divided into three dummy variables with a nominal measurement scale.

Exposure to family planning messages

Exposure to family planning messages from mass media refers to whether the respondents ever heard or watched any family planning messages from newspaper, radio or television in the last month. A month duration is chosen with the assumption that respondents still remember the content of the messages. This variable is a dummy variable with nominal measurement scale.

Exposure to family planning through personal contact refers to whether respondents who received a family planning message as the result of contact with specific persons in the last six months. These specific persons include family planning field worker, community leader, teacher, medical officer, religious leader and community organization such as women's organization. Six months duration is expected to be long enough for an effect on their contraceptive behavior. This variable is measured by a nominal scale.

Contraceptive knowledge

Knowledge of family planning methods refers to whether respondent know any modern method or traditional methods to avoid or delay pregnancy. The variable was divided into two dummies, know traditional methods and know modern methods, and is measured by a nominal scale

Women autonomy

Women autonomy refers to whether women have the final say in making a decision. In the survey, all respondent were asked whether they participated and had final say in some specified household decision making including final say on own health care, large household purchases, household purchase for daily need, visit to family or relatives and what food to cook each day. They also asked whether the decision was their own decision, made jointly with husband or somebody else or they are not involved in decision-making. Recoding and computing tools are applied to construct women's autonomy scores and the result provides scores in a range of 1 to 10. In univariate and bivariate analysis, this variable is divided into three groups and measured by an ordinal scale, 0 to 4 scores is assumed as low autonomy, score 5 is assumed as moderate autonomy and 6 to 10 scores is assumed as high autonomy.

However, in multivariate analysis, and due the study using binary logistic regression, the variable is treated as an interval scale.

Discussion family planning with husband

Discussion about family planning refers to the frequency of respondents discussed family planning with their husband in the last year. In 2007 IDHS survey, currently married women were asked how often they discussed family planning with their husband. This variable was categorized into three groups; never discussed family planning, discussed once or twice and often discussed family planning, with an ordinal measurement scale.

Table 3-1 Summarized of dependent variable, independent variable and measurement scale

Variables	Description	Measurement Scale
Dependent Variable:		
Contraceptive Discontinuation	non-pregnant and not sterilized married women who are previously using any methods of contraceptive but were not using any method at the time of the survey	Nominal Not Continue = 0 Continue = 1
Independent variables:		
Program factors		
- Sourced the last contraceptive	the source where the respondents obtain the last contraceptive methods	Nominal Others = 0 Private = 1 Government = 2
- Exposure to family planning messages through mass media	Respondents had heard or seen any messages about family planning in the past six months	Nominal Not exposure = 0 Exposure = 1
- Exposure to family planning message through personal contact	the number of respondents who received a family planning message as a result of contact with specific person in the last six months	Nominal Not exposure = 0 Exposure = 1
Knowledge of contraceptive methods	respondent know at least one of contraceptive method or one of modern contraceptive method to avoid or delay pregnancy	Nominal Know Traditional method = 0 Know modern methods = 1
Women autonomy	whether the women have the final say in making decision or not	Interval
Discussion family planning with husband	Frequency respondent discussed family planning with their husband in the last 12 months	Ordinal Never = 0 Once or twice = 1 Often = 2

Table 3-1 Summarized of dependent variable, independent variable and measurement scale (Cont)

Variables	Description	Measurement Scale
- Exposure to family planning message through personal contact	the number of respondents who received a family planning message as a result of contact with specific person in the last six months	Nominal Not exposure = 0 Exposure = 1
Knowledge of contraceptive methods	respondent know at least one of contraceptive method or one of modern contraceptive method to avoid or delay pregnancy	Nominal Know Traditional method = 0 Know modern methods = 1
Women autonomy	whether the women have the final say in making decision or not	Interval
Discussion family planning with husband	Frequency respondent discussed family planning with their husband in the last 12 months	Ordinal Never = 0 Once or twice = 1 Often = 2
Control variables		
Socioeconomic Factors		
Education	Highest level of education that completed enroll by women	Ordinal No education = 0 Primary school = 1 Secondary school and higher = 2
Employment status	Employment status women in the 12 months preceding the survey	Nominal Not employed = 0 Employed = 1
Wealth Status	A proxy for standard of living of household base on data of ownerships consumer goods, dwelling characteristics, source of drinking water, toilet facilities, etc	Ordinal Poor = 0 Middle = 1 Rich = 2
Exposure to mass media - Newspaper or magazines	Whether respondent expose to newspaper or magazines or not	Nominal Not exposure = 0 Exposure = 1
- Radio	Whether respondent expose to radio news or not	Nominal Not exposure = 0 Exposure = 1
- Television	Whether respondent expose to television	Nominal Not exposure = 0 Exposure = 1
Demographic factors		
Age of women	Women age at time of survey	Ordinal 15-29 = 0 30 – 39 = 1 40 – 49 = 2
Residence	Place of living	Nominal Rural = 0 Urban = 1
Number of living children	Number of living children at first time using contraceptive	Ratio
Religion	respondent religion at the time of interview	Nominal Other = 0 Islam = 1

3.4. Analysis of the data

The analysis process in this study involves three statistical methods. First, univariate analysis is applied to describe background characteristic of respondents, which contains descriptive statistic and frequency distribution. Chi-square analysis is adopted to explore the relationship between variables and contraceptive discontinuation. Next, multivariate analysis, specifically binary logistic regression analysis is used to examine the likelihood of the independent variables in effecting contraceptive discontinuation. Finally, adjusted probability is applied to see the specific effects of women autonomy and exposure to family planning messages through personal contact.

3.5. Limitation of the study

The study used secondary data which consequently restricted the analysis to the data that was made available. This study was not able to address all factors that influence on contraceptive discontinuation since there were many important factors not available in the data. Moreover, the study population was limited to married women and might not represent the whole populations varied characteristics.

Next, the study was conducted at the national level may not considered culture effects and thus; such a study can only inform policy makers at the national level. However, to provide information for policy makers at the regional or lower levels, more specific research is needed to consider other factors, such as culture and other specific characteristics of the various region of Indonesia.

CHAPTER IV

RESULTS AND DISCUSSION

The results and discussion of this study are classified into four main sections. The first section presents characteristics of respondents under univariate analysis which includes socio-economic, demographic, and programmatic characteristics. Socioeconomic characteristics are education, job status, wealth quintile, and exposure to mass media. Demographic factors are place of residence, age, religion, and number of living children while programmatic factors including exposure to family planning through mass media and personal contact, and source of methods. The other variables included are knowledge of family planning methods, women's autonomy, and discussion of family planning with husband.

The second section describes the results of bivariate analysis, which provides information on the relationship between contraceptive continuation and each variable. The third section is binary logistic regression analysis of programmatic factors, knowledge of contraceptive methods, women's autonomy and family planning discussion with husbands while controlling the effect of other factors and the specific effect of women's autonomy and exposure to FP planning messages through personal contact on contraceptive discontinuation. The specific effects of women's autonomy and exposure to family planning messages through personal contact will be described in the last section.

4.1. Univariate analysis

The aim of univariate analysis in this study is to find out basic characteristics of women in Indonesia. This section is divided into five sections, where the first measured women socio-economic characteristics that include education, job status, household wealth status and exposure to mass media. The second part of this analysis measures women's demographic characteristics including place of residence, age, religion and number of living children. The third part contains programmatic characteristics, which include exposure to family planning messages through mass

media and personal contact, and source of last method obtained. The fourth section describes women's family planning knowledge, spousal communication and autonomy. Finally, the last part describes women's contraceptive discontinuation rate in Indonesia.

4.1.1. Socio-economic characteristics

Table 4-1 shows that among 22,657 women, 5.4% of them never attained formal education and 46.6 % attained primary education while those who attained secondary and higher education account for 50.9%. This data reflects that education programs in Indonesia were quite successful. This result is also consistent with employment status, where the percentage of those who worked was higher (57.0%) as their education level was higher.

Regarding wealth status, the majority of respondents were within the poor category (43.3%), while the rest were within the middle and rich categories (18.6% and 37.6%). This finding shows that although the majority of women already had higher education and are currently working, most of them still live in a poor condition. The possible explanation for this phenomenon is as the majority of women were young and living in rural areas, (see demographic characteristics) they were more likely to work in agriculture and informal sectors, and as Alisjahbana and Manning (2006) suggest they were heavily close to poverty.

Exposure to mass media also reflected respondent's socio-economic characteristic. Those who are exposed to electronic media such as radio and television may have higher socio-economic status than those who are not exposed to any media. Within 22,657 respondents, 50.5% were reading newspaper or magazine, 63.8% were listening to radio and 93.4% were watching television. These findings show that almost all of the respondents exposed to at least one kind of mass media and reflects the spread of mass media coverage. Those who watched television were the highest proportion among types of mass media; this is generally so because television provides more interesting entertainment than other kinds of media.

Table. 4-1. Percentage and number distribution of women by socio-economic characteristic in Indonesia, 2007

Characteristic	Percent	Number of women
Education		
No education	5.4	1,230
Primary education	43.6	9,886
Secondary and higher	50.9	11,541
Employment Status		
Currently not working	43.0	9,738
Currently working	57.0	12,919
Wealth Status		
Poor	43.4	9,840
Middle	18.9	4,289
Rich	37.6	8,528
Exposure to Mass Media		
News paper or magazine		
Not Read newspaper or magazine	49.5	11,207
Read to newspaper or magazine	50.5	11,450
Radio		
Not listening to radio	36.2	8,192
Listening radio	63.8	14,465
Television		
Not watch television	6.6	1,490
Watch television	93.4	21,167
Total	100.00	22,657

4.1.2. Demographic factors

The demographic characteristics describe that 59.5% of selected respondents live in rural areas while 40.5% live in urban areas. Most of the respondents aged between 30-39 years old account for 40%, followed by those in the age group of 15 to 29 years old (33.3%) and those between 40-49 years old (26.7%). Among the five biggest religions that exist in Indonesia, Islam is the majority religion that Indonesian people practice (81.7%), while the others religions account for 18.3%.

Number of living children is another demographic factor considered in this study. Among selected respondents interviewed, the minimum number of children they had was no child and the maximum number was twelve children, with average of 2.5 children per women. This indicated that within the current, general population women prefer to have fewer children than before.

Table 4-2 Percentage and number distribution women by demographic characteristic in Indonesia, 2007

Characteristic	Percent	Number of women
Place of residence		
Rural	59.5	13,483
Urban	40.5	9,174
Respondents age		
15 - 29	33.3	7,542
30 - 39	40.0	9,068
40 - 49	26.7	6,047
Religion		
Islam	81.7	18,522
Other	18.3	4,135
Number of living children		
Min	0.0	
Mean	2.5	
Max	12.0	
Total	100.0	22,657

4.1.3. Programmatic factor

Even though the majority of respondent had access toward mass media information, less than a half (32.7%) of them received family planning information through mass media. Similarly, only around one-fourth of respondents are exposed to family planning messages as a result of personal contact. This fact reflects that family-planning message delivery both through mass media and personal contact have not yet optimally reached the targeted population.

Regarding the last source where women obtain their last contraceptive method, 47% of them obtained contraceptives from a private source, 16.1% from public sources and the rest, 36.8 % obtained contraceptive from other sources. The data shows that most respondents prefer to obtain contraceptive methods from private sectors and other sectors rather than from public sectors. This finding indicates that government efforts to promote self-reliance programs on family planning remain succeed. However, more than one-third of respondents choose other sources as their contraceptive source because contraceptives from these sources were relatively cheaper and easier to access. This indicates a new potential problem that should be considered, since no one can guarantee the quality of methods from these other sources.

Table 4-3 Percentage and number distribution of by demographic characteristic in Indonesia, 2007

Characteristic	Percent	Number of Women
Receive FP messages through mass media		
not receive	67.3	15,237
receive	32.7	7,420
Receive FP message as result of personal contact with community member or medical officer		
not receive	76.3	17,279
receive	23.7	5,378
Source of last method		
Other	36.8	8,340
Private	47.0	10,659
Public	16.1	3,658
Total	100.0	22,657

4.1.4 Women's knowledge, family planning spousal communication and autonomy

Table 4-4 illustrates that almost all respondents interviewed know modern methods (99.3%) compared to traditional methods (0.7%), which indicates government efforts to introduce contraceptive in the past were a success. Furthermore, women who discussed family planning with their husband once or twice in the past 12 months have the highest proportion (48.9%) than those who never discussed (32.8%) and often discussed (18.3%) about family planning with their husband. This indicates that women have more ability to bargain their preferences in regards to their own reproductive health than before. This may be due to the increase of women's status in society.

Regarding to women's autonomy, most of them had high autonomy, only around 0.9% had low autonomy and 18.4% had moderate autonomy. This reflects that even though Indonesia is a country in which the majority of the society accepts patriarchal culture, women roles in household decision-making remain high. This is probably due to the increase of women's education and working status that help them to empower themselves in terms of communication with their spouse.

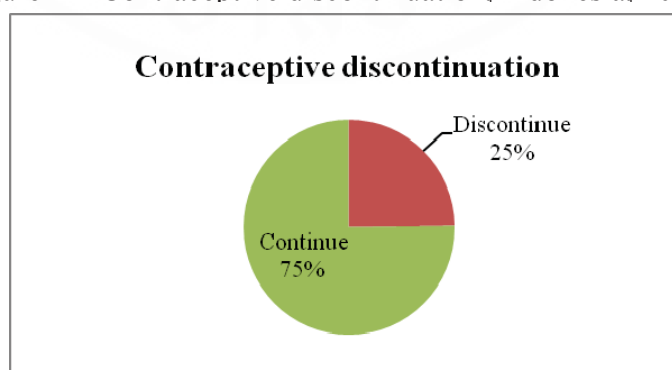
Table 4-4 Percentage and number distribution of women by contraceptive knowledge, family planning discussion, and household autonomy in Indonesia, 2007

Characteristic	Percent	Number of women
Respondents' knowledge on contraceptive method		
Know traditional method	0.7	166
Know modern method	99.3	22,491
Discussion about FP with husband		
Never	32.8	7,436
Once or twice	48.9	11,069
Often	18.3	4,152
Autonomy		
Low autonomy	0.9	194
Moderate	18.4	4,179
High autonomy	80.7	18,284
Total	100.0	22,657

4.1.5. Contraceptive discontinuation

Figure 4-1 gives us information on current contraceptive discontinuation. Women who discontinue their contraceptive use stands at 25% or 5,618 women out of all 22,657 women who were not pregnant and not sterilized married women, who ever used at least one of any contraceptive method in Indonesia. Meanwhile, 75% or 17,039 of women decided to continue their contraception use.

Figure 4-1 Contraceptive discontinuation, Indonesia, 2007



4.2. Bivariate analysis

This section provides information on the variation of contraceptive discontinuation by socio-economic, demographic, and programmatic factors as well as knowledge on contraception, spousal communication and women's autonomy.

4.2.1. Contraceptive discontinuation by socio-economic characteristic

Described in table 4-5 is the distribution of contraceptive discontinuation based on women's socio-economic characteristics. Women's level of education is significantly associated with contraceptive discontinuation. The higher women attended formal education, the less their probability to discontinue contraceptive use. The plausible explanation for this phenomenon is that women with higher education might have more knowledge about the importance of family planning and have more desire on small family size. This result indicates the importance of education in influencing women behavior related contraceptive discontinuation.

Women's employment status and household wealth index are also associated with women's behavior related to contraceptive discontinuation. Different from education attainment, contraceptive discontinuation were higher among employed women (25.5% versus 23.8%). This finding fits with the argument that women who working outside their household had more access to family planning information. They tend to seek the best fit of contraceptive use that is suitable and comfortable, as a result these women tend to change their contraceptive use before they find the best choice suitable for them.

There is almost no difference between contraceptive discontinuations in the three levels of wealth status. It reflects that family planning programs were accessible for all women in every household category. However, the discontinuation rate was slightly lower among respondents in middle group than those within the poor and rich groups. This be might due to women within middle category having more motivation to limit their number of children. Contraceptive discontinuation also varies significantly by exposure to mass media. The data shows that discontinuation rate was higher among women who were not exposed to mass media. The highest proportion occurred among those who were not exposed to television. This indicates that the effectiveness of mass media to spread family planning messages to large proportion of population.

Table 4-5 Contraceptive discontinuations by socio-economic characteristics, Indonesia, 2007

Socio-economic Characteristic	Continue (Percent)	Discontinue (Percent)	χ^2
Education			227.6***
No education	61.5	38.5	
Primary	72.9	27.1	
Secondary and higher	78.7	21.3	
Employment status			8.6 **
Not employed	76.2	23.8	
Employed	74.5	25.5	
Wealth			21.3 ***
Poor	75.1	24.9	
Middle	74.7	22.8	
Rich	75.6	24.4	
Exposure to Mass Media			
Newspaper or Magazine			30.7***
No	73.6	26.4	
Yes	76.8	23.2	
Radio			5.4*
No	74.3	25.7	
Yes	75.7	24.3	
Television			66.6***
No	66.4	33.6	
Yes	75.8	24.2	

Significant level at * P<0.05, ** P<0.01, *** P<0.001

4.2.2. Contraceptive discontinuation by demographic characteristics

Illustrated in table 4-6 is the contraceptive discontinuation distribution by demographic characteristics. The table shows no significant difference between contraceptive discontinuation among women who lived in urban and rural areas (25.1% and 24.6%) as well as between contraceptive discontinuation and religion. This could be due to family planning programs in Indonesia having already spread to all parts of the country and accepted by all religions exist in Indonesia. Family planning is now easily accessed both in rural and urban areas, importantly, by all religion.

Age is significantly rises the probability of contraceptive discontinuation. Those within 40-49 years old have higher probability discontinuing contraceptive use than those aged 15-29 and 30-39 years. This is understandable because each group may have different intentions regarding contraceptive use. Young women tend to adopt contraception for spacing their children, while older women use contraceptives to limit their number of children. Additionally, older women tend to terminate their contraceptive use because of menopause and irregular sexual activities.

Contraceptive discontinuation also varies depending on women’s number of living children. Discontinuation rate was higher among those who did not have a child or had less than two children, and had more than two children. However, it was lower among those who had two children. As explained before, this related with the intention to adopt contraception. Moreover, since the majority of women in Indonesia prefer to adopt short-term contraception, the probability of discontinuation is due to the adoption of type of short-term contraceptives such as injection and pill, as they had more risk to experience discontinuation. (Steele & Curtis, 2003)

However, there is no variation that has occurred in terms of contraceptive discontinuation by differences in religion and is generally due to family planning programs being accepted by all religious groups in Indonesia.

Table 4-6 Contraceptive discontinuations by demographic characteristics, Indonesia, 2007

Demographic Characteristic	Continue (Percent)	Discontinue (Percent)	χ^2
Place of residence			
Urban	74.9	25.1	0.7
Rural	75.4	24.6	
Age			1030.6***
15-29	82.7	17.3	
30-39	78.9	21.1	
40-49	60.2	39.8	
Number of living children			730.8***
No children	40.0	60.0	
1 Child	77.3	22.7	
2 Children	81.0	19.0	
3 Children	75.7	24.3	
4 Children	71.0	29.0	
5 Children and more	57.9	42.1	
Religion			3.8
Islam	75.5	24.5	
Other	74.0	26.0	

Significant level at * P<0.05, ** P<0.01, *** P<0.001

4.2.3. Programmatic factors and contraceptive discontinuation

Table 4-7 below reflects the situation of contraceptive discontinuation by programmatic factors, which includes exposure to family planning messages through mass media and personal contact, and source of last methods. The percentage of discontinuation among women who received family planning messages from mass media was higher than those who received family planning messages as a result of personal contact (22.8% versus 18.0%). This condition indicates that mass media not

only spreads contraceptive information from a positive side but also a negative side. Mass media information did not present detailed information on how to maintain the negative effects of contraceptive use. As a result, women who are exposed to family planning messages through mass media are afraid to use contraception continuously.

In contrast, contraceptive discontinuation was lower among women who receive family planning through personal contact. This is because personal contacts with family planning field workers or other qualified people to discuss contraceptives allowed for two-ways communication, where women can ask directly what they do not understand. Thus in this context, family planning message delivery can effectively target women based on their individual needs. It was also evident that such communication can effectively influence women's contraceptive behavior including, discontinuation.

Interesting findings occurred on the source variable, where the analysis result reveals that contraceptive discontinuation only occurred among those who obtained contraceptive methods from other sources. In contrast, no women reported discontinuation, as they obtained contraception from public and private sources. This finding reflects that there is a need to persuade women to use public and private source as their sources of contraception.

Table 4-7 Contraceptive discontinuations by programmatic factors, Indonesia, 2007

Programmatic factors	Continue (Percent)	Discontinue (Percent)	χ^2
Exposure to FP message from mass media			22.9***
No	74.2	25.8	
Yes	77.2	22.8	
FP messages as result of personal contact with community member or medical official			172.8***
No	73.1	26.9	
Yes	82.0	18.0	
Source of last method			
Other	32.6	67.4	
private	100.0	0	
Public	100.00	0	

Significant level at * P<0.05, ** P<0.01, *** P<0.001

4.2.4. Contraceptive knowledge, spousal communication, women’s autonomy and contraceptive discontinuation

Table 4-8 shows that the majority of women who know modern contraceptive methods continued their contraceptive use (75.4%) and 24.6% discontinued their use. In contrast, the proportion of those who know traditional methods and discontinue their contraceptive use was higher compared to those who know modern methods (45.6% versus 24.6%), significant at 0.01 level. This data shows the weakness of chi-square analysis when dealing with large sample sizes, where the analysis shows strong association between contraceptive knowledge and discontinuation, even though the proportion difference between women who know modern methods and women who know traditional methods is very high (99.3% versus 0.7%). However, to test the effect of contraceptive knowledge on contraceptive discontinuation, this variable will be included into the multivariate equation.

Contraceptive discontinuation rates are also higher among women who never discuss family planning with their husband (35.7%) than those who discuss once or twice (20%) and those who often discuss family planning with their pair (18%). This is because women who often discuss family planning with their husband receive enough support from their husband to practice contraception. However, variation of contraceptive discontinuation did not occur among the three groups within the women’s autonomy category.

Table 4-8 Contraceptive discontinuations by contraceptive knowledge, discussion with husband and women autonomy, Indonesia, 2007

Programmatic factors	Continue (Percent)	Discontinue (Percent)	χ^2
Contraceptive knowledge			37.3***
Know traditional method	54.8	45.2	
Know modern method	75.4	24.6	
Discuss FP with husband			718.1***
Never	64.3	35.7	
Once or twice	80.0	20.0	
Often	82.0	18.0	
Women autonomy			1.7
Low autonomy	74.7	25.3	
Moderate	75.9	24.1	
High autonomy	75.1	24.9	

Significant level at * P<0.05, ** P<0.01, *** P<0.001

4.3. Multivariate analysis

Binary logistic regression is applied for analysis with the dichotomous dependent variable. This methods purpose is to measure the effect of certain independent variables, which include knowledge of contraception, family planning discussion with husband, and programmatic factors including exposure to family planning messages through mass media and personal contact, and sources of last method with contraceptive discontinuation. However, source of last method variable is excluded from the multivariate equation because the cross-tabulation result showed that this variable did not have a variation where all of the respondents who discontinue their method obtained the last method from other sources.

Model I in table 4-9 presents that women's education level, employment status, wealth status and age are significantly affecting contraceptive discontinuation with expected direction. Women with primary and secondary education were less likely to discontinue than women with no education. This finding is consistent with the argument that higher education allows women to receive more information related to contraception practice, which at the same time encourages them to use contraceptives correctly and continuously. This finding is in harmony with women's employment status, where those who are currently employed were 9% less likely to report discontinuation. This is due to employed women being more mobile and having more opportunities at being exposed to family planning messages and majority of them were highly educated.

Women within middle household status were 17% less likely to discontinue their contraceptive adoption than those within the poor status. Those who belong to the middle households were less likely to discontinue their contraception as they have more ability to access contraceptive than the poor. However, rich household status did not significantly affect on contraceptive discontinuation.

Regarding exposure to mass media, only television had an effect on contraceptive discontinuation. Those who are exposed to television were 31% less likely to discontinue their contraceptive adoption than those who are not exposed, while newspaper and radio had no effect on contraceptive discontinuation. This result reflects the important role television plays in the spread of messages related to contraceptive use.

Among demographic factors, age was found to be significantly affecting contraceptive discontinuation. The older women were more likely to discontinue their contraceptive practice than younger women. As mentioned before, this is because older women perceive them self as being less infecundity and less sexual active that motivate them to stop using contraception. Place of residence is also significantly associated with contraceptive discontinuation. Women who lived in urban areas were 10% more likely to discontinue their contraceptive use. This is because urban areas provide greater access to family planning information and services, and in the same time it also provides greater choice of contraceptive methods.

In Model 2, contraceptive knowledge, spousal discussion, exposure to family planning messages and women's autonomy were included. After considering the effect of socio-economic and demographic factors, the result show that those who know modern methods were 34% less likely to discontinue their contraceptive adoption compare to those who know traditional methods, significant at the 0.05 level, because they have more knowledge on effective contraceptives. This finding confirms the result of previous studies.

Those who discuss family planning with their husband are also less likely to experience contraceptive discontinuation, as discussed family planning with husband helps to improve husband's acceptance toward contraceptive adoption (Ongunjuigbe et al, 2007). The result also reveals that contraceptive discontinuation decreased as discussion frequency increased. Those who discuss once or twice were 46% less likely to discontinue their use and those who discuss more often were 50% less likely to do the same. This result provides evidence that increasing spousal discussion on family planning encourages women to continue their contraceptive practice.

Exposure to family planning messages is important to provide correct information about family planning. The result shows that women who exposed to family planning from mass media were 14% more likely to discontinue their contraceptive use. This result contradicts previous findings from Tanzania, Ghana and India, where family planning campaigns via mass media were found to have a positive effect on women's contraceptive behavior (Ramesh et al, 1996; Jato et al, 1999;Parr, 2001). Plausible explanations for this result is, that mass media is only able

to provide one-way communication and did not provide complete information due to time limitation. However, it provides information on various types of modern contraception that a woman can choose. This finding also proves that mass media may be effective to introduce family planning methods because it can reach large number of the population, however it is not effective in influencing their decision-making as it only provides brief information.

In contrast, those who received family planning messages from direct communication were 29% less likely to stop their contraceptive use because it allows exchanging information specifically on what the women need. It was able to inform women completely and effectively to finally motivate them to continue using their method. This result provides evidence that fieldworker visits encouraged attitudes to use contraceptives and were significantly associated with the increase of contraceptive discontinuation (Khan, 2003). Involving local volunteers, village leaders, and private medical practitioners in contraceptive promotion activities also would be significant in reducing contraceptive discontinuation. (Rao, 1990)

Although cross tabulation failed to find variation in contraceptive discontinuation among women in different levels of autonomy, multivariate results presents that women's autonomy has a positive effect on contraceptive discontinuation. As women's autonomy increased, contraceptive discontinuations also increased. This finding is understandable because women who have higher autonomy in the household decision-making also have autonomy to decide their own reproductive health. At the same time, they also have higher opportunity to change their contraceptive method.

After all independent variables are included into the equation socio-economic and demographic factors were found to be important predictors of contraceptive discontinuation. Education level, employment status, household wealth status, exposure to television and age, significantly influenced women's decision to continue their contraceptive practice. In this model, the rich household category and those who read newspaper appear to be significantly influenced in regard to discontinuation. This is due to often-discussed family planning with husbands highly associate with these two variables ($P < 0.001$). Rich women may have more opportunity to gain more information about family planning from newspaper and magazines, as

they can afford to buy them regularly. This information may motivate women to discuss family planning with their husbands more frequently.

In contrast, place of residence became not significant in influencing contraceptive discontinuation. This is because family planning programs in Indonesia are widely implemented at both rural and urban areas, so there is no significant difference between rural and urban areas in terms of family planning services.

Generally, the results of this study may reflect that the effect of women's knowledge, spousal communication, autonomy and programmatic factors cannot influence contraceptive discontinuation independently without considering the effects of socio-economic and demographic factors. Overall, the results imply that contraceptive knowledge, exposure to family planning messages, spousal communication and women autonomy, influence women's decision to continue their contraceptive use, however, women's socio-economic and demographic characteristics also have a great impact.

Table 4.9. Odds Ratio of contraceptive discontinuation by contraceptive knowledge, women autonomy, discussion family planning with husband and programmatic factors after controlling for socio-economic and demographic factors in Indonesia, 2007

Variables	Model 1		Model 2	
	Odds ratio	Std. Error	Odds ratio	Std. Error
Education level				
No education (ref)				
Primary	0.79 **	0.53	0.88	0.06
Secondary +	0.66 ***	0.48	0.76 ***	0.06
Employment Status				
Not employed (ref)				
Currently employed	0.91 **	0.03	0.90 **	0.03
Wealth Status				
Poor (ref)				
Middle	0.83 ***	0.36	0.83 ***	0.04
Rich	0.89	0.04	0.87 **	0.04
Exposure to mass media				
Newspaper				
No (ref)				
Yes	1.03	0.04	1.13 **	0.04
Radio				
No (ref)				
Yes	1.01	0.03	1.03	0.03
Television				
No (ref)				
Yes	0.69 ***	0.04	0.73 ***	0.04
Number of living children	0.98	0.01	1.00	0.01
Age				
15 - 29 (ref)				
30 - 39	1.30 ***	0.05	1.24 ***	0.05
40 - 49	3.14 ***	0.13	2.71 ***	0.13
Place of residence				
Rural (ref)				
Urban	1.10 *	0.04	1.06	0.04
Religion				
Other (ref)				
Islam	1.00	0.04	0.98	0.04
Knowledge on contraceptive method				
Know traditional method (ref)				
Know modern method			0.66 *	0.11
Discussion FP with Husband				
Never (ref)				
Once or twice			0.54 ***	0.01
Often			0.50 ***	0.02
Exposure to FP messages from mass media				
Not exposed (ref)				
Exposed			1.14 ***	0.04
Exposure to FP messages through personal contact				
Not exposed (ref)				
Exposed			0.71 ***	0.03
Women Autonomy			1.02 *	0.01

Significant level at * P<0.05, ** P<0.01, *** P<0.001

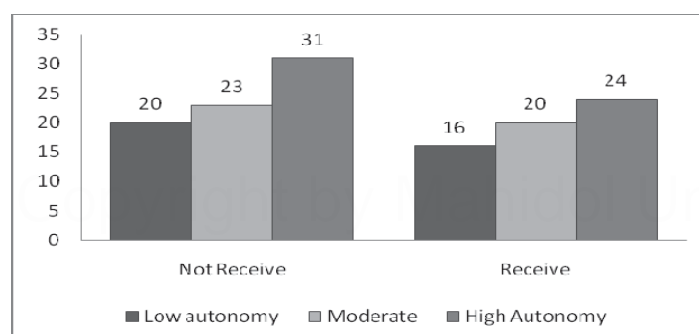
4.4. Effect of exposure to family planning messages through personal contact and women's autonomy

Adjusted probability analysis was employed to see the specific effect of exposure to family planning through two-way communication and women's autonomy, which is expected to prove the important role of face-to-face consultation and counseling as well as the importance of women's empowerment on their behavior related contraceptive discontinuation.

Figure 4-2 illustrates the effect of exposure to family planning messages through personal contact and women's autonomy in household decision-making on women's contraceptive discontinuation. The figure shows that the probability of women who did not receive family planning messages through personal contact to discontinue their contraceptive use were as high as 20% for those who had low autonomy, 23% for those who had moderate autonomy and 31% for those who had high autonomy. The percentage of women's probability to stop using contraceptive while still in need decreased among those who received family planning messages through personal contact. The probability of those who had low autonomy but received FP messages were 16%, 20% for those within moderate autonomy and 24% among those who had high autonomy.

Over all the figure shows that the probability of women who receive family planning messages from direct communication to stop their contraceptive adoption was lower than those who did not receive FP messages. At the same time, contraceptive discontinuation was higher among those who have higher autonomy; both among those who received and did not receive FP messages.

Figure 4-2. Effects of women's autonomy and FP messages through personal contact on contraceptive discontinuation



Generally, the result of adjusted proportion probability provides evidence that increasing women's autonomy and family planning message delivery through direct communication, altogether would effectively reduce the contraceptive discontinuation rate in Indonesia. This argument is supported by former research in two major city in Indonesia (Jakarta and Ujung Pandang), which revealed that most women suggested they need additional information on practical explanations of contraceptive methods, more time for contraceptive practice counseling along with more field-worker visits to their houses. The research also found that women need to be empowered in order to gain the confidence to develop a contraceptive collaboration with their husband and to communicate more effectively (Hadiati et al, 1997)

CHAPTER V

CONCLUSION AND RECOMMENDATION

5.1. Conclusion

The study is designed to determine whether contraceptive knowledge, women's autonomy, family planning discussion with husband and programmatic factors such as source of contraceptive and exposure to family planning messages through mass media and personal contact, influenced contraceptive discontinuation among not pregnant and not sterilized married women of reproductive age.

It observed that contraceptive discontinuation occurs among nearly one-fourth of women who used a contraceptive method in the past. It also observed that although contraceptive knowledge is widespread among women and family planning information and services were easy to access, family planning messages from both mass media and direct contacts had not reached their targeted population.

The study found evidence that family planning messages through mass media had a negative effect on women's behavior related to contraceptive discontinuation. This finding contradicts previous research related to contraceptive behavior elsewhere. In contrast, the study reveals that two-way communication is an effective way to deliver family planning messages in order to reduce contraceptive discontinuation.

Similarly, increasing women's autonomy would help them to increase their ability and confidentiality to conduct discussions with their husband, and in turn will increase the frequency of that discussion with the husband was found to be one of the predictors of contraceptive discontinuation. However, increasing the women autonomy needs to be in harmony with an increase in contraceptive knowledge, also essential is an increase in husbands' awareness on women's reproductive health. In this context, husbands need to be persuaded to get involve in family planning decision making, such as decision making on contraceptive choice. Change in men's perception toward family planning can encourage family planning discussion.

Moreover, as a large proportion of women access contraceptives through other sources, the study proved that contraceptive discontinuation only occurred among these women. Greater efforts are needed to persuade these women to choose public or private sources as their method source.

Finally, the study reveals that most of the selected socio-economic and demographic factors strongly influence women decision related to contraceptive discontinuation.

Overall, the study findings indicate that a lack of contraceptive knowledge, spousal communication, autonomy, and exposure to family planning messages, as well as obtaining contraceptives from un-trusted sources, contributes to a high proportion of contraceptive discontinuation. However, these factors could not independently influence contraceptive discontinuation without considering women's socio-economic and demographic characteristics.

5.2. Policy recommendation

Behavior change communication programs should be improved to enhance exposure to family planning messages. However, as the study findings indicate that mass media has a positive effect on women's contraceptive discontinuation, and mass media is the only channel that effectively reached most of the intended audience in a short times; how family planning messages delivered and its context should be revised. Negative coverage about contraceptives should be balanced by positive coverage utilizing the facts and truths of information. Two way communication is important to provide and explore information on family planning, based on general needs, and in term of influencing behavior. This fact could be best employed through discussions on mass media channels that involve audience opinion and for questions to an expert in the field of family planning. This would be an effective to provide correct information to the wider population.

As the majority of population already know modern contraceptives, the information delivered should be shifted from introducing family planning methods to informing them on how to maintain contraceptive use and its side effects correctly. Correct information on how to maintain contraceptive use and its side effects expectedly can reduce discontinuation due to users being afraid of side effect.

As family planning message delivery through direct communication is found to be effective in reducing contraceptive discontinuation, increasing the number of family planning fieldworkers, frequency of family planning visits and counseling activities, would be significantly improve women's motivation regarding contraceptive practice.

Family planning campaigns should be devised to sensitize husbands as well. Since husband involvement in women's reproductive health is very important, they should be persuaded to get involved in family planning decision making, including family planning programs.

A particularly interesting finding from this study is the fact that only women who obtained contraceptives from other sources experienced contraceptive discontinuation. This finding suggests that women need to be persuaded to use contraceptives from public or private sectors rather than these other sources.

5.3. Recommendation for further research

There are many factors influencing women's behavior related to contraceptive use. Further research that observes in depth a women's behavior related to contraceptive use is clearly important, as well as evaluative research to access the impacts of these factors and interventions implemented by the government. Further research should consider the quality of family planning service and its effectiveness. Research that determines the effects of specific behavior such as contraceptive method choice on contraceptive discontinuation will also be significant to enrich literature on contraceptive research. Furthermore, research that specifies the certain region or province where level of discontinuation are high may be more valuable to inform family planning policy-makers at those levels.

BIBLIOGRAPHY

- Alisjahbana, S. and Manning, Christ. (2006). Labour market dimensions of poverty in Indonesia. *Buletin of Indonesian Economic Studies*, 42(2):235-261
- Amirtha Srikanthan, Robert L. Reid, MD, FRCSC. (2008). Religious and culture influences on contraception, women health, *Obstet Gynecol Can Journal*, 30(2): 129-137
- Arifin, Evi Nurvidya. (2003). Factors associated with contraceptive discontinuation in Bali, Indonesia: a multilevel discrete-time competing risks hazard model. *Asian Meta Centre*.
- Blanc, An.K., Curtis,S. & Croft, T. (1999). Does contraceptive matter? Quality of care and fertility consequences, *MEASURE Evaluation Technical Report Series*, No. 3
- Karen, C. et al. (2002). Predictors of contraceptive discontinuation in a sexually transmitted disease clinic population. *Perspective on Sexual and Reproductive Health*, 2002, 34(3): 146 – 152
- Central Bureau of Statistics Indonesia and ORC Macro. (1997). Indonesia Demographic and Health Survey 1997. Calverton, Maryland, USA.
- Central Bureau of Statistics Indonesia and ORC Macro. (2003). Indonesia Demographic and Health Survey 2003. Calverton, Maryland, USA.
- Central Bureau of Statistics Indonesia and ORC Macro. (2007). Indonesia Demographic and Health Survey 2007. Calverton, Maryland, USA.
- Curtis, S., Blanc, An.K. (1997). Determinant of contraceptive Failure, switching, and discontinuation: an analysis of DHS contraceptive histories. *Macro International Inc*, Maryland.
- D'antona, A.O. et al. (2009). Contraceptive discontinuation and non-use in Santarem, Brazilian Amazon. *Anthropological Center for Research and Training on Global Environmental Change*. Indiana university, U.S.A.
- Engender Health. (2003). Contraceptive use and discontinuation pattern in Nepal: norplant, IUDC, pill and injectable.

- Fathonah, Siti. (2000). Patterns of contraceptive use in Indonesia. Calverton, Maryland: State Ministry of Population/National Family Planning Coordinating Board and Macro International Inc.
- Grady, W. R., et al. (1988). Contraceptive discontinuation among married women in the United States. *Studies in Family Planning*, Vol.19, No.4 (Jul-Aug, 1988), pp, 227-235.
- Hadiati, S., Novrianty, S., Hardee, K., Eggleston, E., & Hull, T. (1997). Family planning and women empowerment: challenges for Indonesian family, Final Report prepare for the Women Study Project, *Family Health International*
- Hardee, K., Amal, S.H., Novrianty, S., S. Hull, T.H., and Egglestone, E. (1999). Family planning, work and women's economic and social autonomy in Indonesia. *Asia Pacific Population Journal*, 14(3), pp. 49-72.
- Helweldery, S. (2004). Factors influencing contraceptive use currently married women in Sulawesi, Indonesia. Mahidol University, Thailand.
- Hennink, M. & Clements, S. (2005), The impact of franchised family planning clinics in poor urban areas of Pakistan, *Studies in Family Planning*, 36(1): 33-34
- Hodgin, Stephen (1999), PRIMEis technical report: contraceptive discontinuation and the client's experience of method use and services. Chapel Hill, NC: INTRAH.
- Hong, R., Montana, L. & Mishra, V., (2006), Family planning services quality as a determinant of use of IUD in Egypt, *BMC Health Service Research*, 6:79 doi: 10.1186/1472-6963-6-79
- Hossain, M.B and Philip, J.F., (1996), the Impact of Outreach on the Continuity of Contraceptive Use in Rural Bangladesh, *Studies in Family Planning*, 27(2): 98-106
- Hossain, M.B. & Philips, J.F. (2003). The impact of family planning household service delivery on women status in Bangladesh, *Population council*.
- Hull, Terence H. and Mosley, H. (2008). Revitalization of family planning in Indonesia. Bappenas, BKKBN and UNFPA.
- Jain and Anrudh, K., (1989), Fertility Reduction and the Quality of Family Planning services, *Studies in Family Planning*, 24(2): 109-119

- Jato, N.M. et al (1999). The impact of multimedia family planning promotion on the contraceptive behavior of women in Tanzania. *International Family Planning Perspective*, 25(2), 60-67
- Kalmus, D. et al. (1996). Determinants of early implant discontinuation among low-income women. *Family Planning Perspective*, 28:256-260.
- Khan, M. (2003). Factors associated with oral contraceptive discontinuation in rural Bangladesh, *Health , Policy and Planning*, 18(1) : 101-108
- Kost, K. (1993). The dynamic of contraceptive use in Peru. *Studies in Family Planning*, 24(2), 109-119
- Kulczycki, A. (2008). Husband-wife agreement, power relation and contraceptive use in Turkey, *International Family Planning Perspective*, 34(3): 127-137
- Leite, L.C. and N. Gufta. (2007). Accessing regional differences in contraceptive discontinuation, failure and switching in Brazil. *Reproductive Health Journal*, 4:6 doi. 10. 1186/1742-4755-4-6.
- Mahmood, N. (2005). Assessment of fertility behavior change in the socio-cultural context of Pakistan: Implication for the Population Program, *Asia Pacific Population Journal*, 20(1): 13-36
- Mamadou, Kani Kanate, Aminatou, Djibo and Mamandou, Djire (1998), The impact of family planning on the lives of new contraceptive users in Bamako, Mali, *Centre d'Etudes et de Recherche sur la Population pour le Developpement (CERPOD)*, Institut du Sahel, June.
- Mishra, V.K. et al. (1999). Reason for discontinuing and not intending to use contraception in India. National Family Health Survey Subject Reports Number 13, East-West Center, Population and Health Studies. Honolulu, Hawaii, U.S.A.
- Moreno, L. et al.(1993). Contraceptive failure rate in developing countries: evidence from the Demographic and Health Surveys. *International Family Planning Perspectives* 17(2): 44 – 49
- Oye-Adeniran, B.A. et al. (2005). Source of contraceptive commodities for users in Nigeria, *PLO Medicine*, vol.2/B.306.

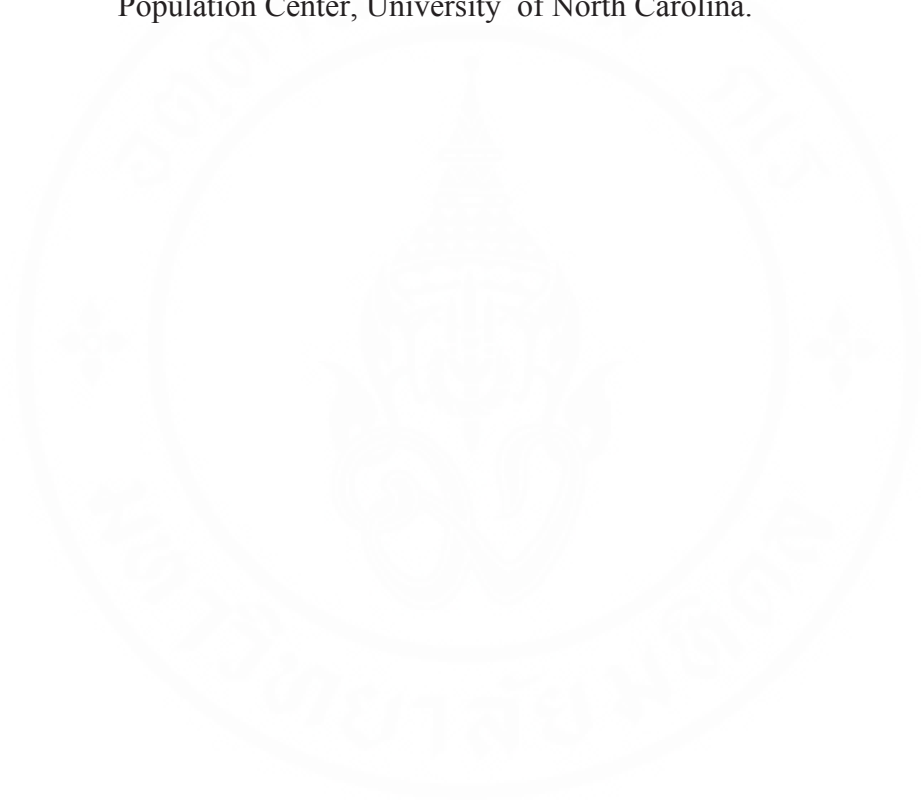
- Parr, N. (2001). Mass media promotion of family planning and the use of contraceptive in Ghana, Paper to be presented in The XXIV IUSSP General Conference at Salvador, Bahia,, Brazil, 18th – 24th August 2001.
- Philips, J. F. and Hossain, M.B. (2003), The impact of family planning household service delivery on women's status in Bangladesh, *Population Council*.
- Ramesh et al. (1996). Contraceptive use in India 2002-93. *International Institute for Population Sciences*, Mumbai, India
- Rana, S.B. (2002). Factors influencing contraceptive methods in Nepal. Thesis submitted to IPSR, Mahidol University, Thailand
- Rao K.S. (1990). The influence of a community base distribution program on contraceptive choice, *J. Family Welfare*, 1990, 36:86-106
- Ross, J., Hardee, K., Mumford, E. and Eid, S. (2001) Contraceptive methods choice in developing countries. *International Family Planning Perspective*, 28: 32-40
- S.M. Mustafa Kamal (2009), Fertility, fertility inhibiting effects and contraception use among indigenous women in Bangladesh, Paper Prepared for XXVI IUSSP International Conference 27 Sept-02 Oct, 2009, Morocco.
- Shabana, Saleem & Bobak, M. (2005), Women's autonomy, education and contraceptive use in Pakistan: a national study, *Reproductive Health*, 2(8) doi: 10.1186/1742-4755-2-8
- Shah, N. M., Shah, M. A., and Radovanovic, Z. (1998). Pattern of desired fertility and contraceptive use in Kuwait, *International Family Planning Perspective*, 24(3): 133-138
- Shapiro, D. and B., Oleko T. (1994), The impact of women's employment and education on contraceptive use and abortion in Kinshasa, Zaire. *Studies in Family Planning*, 25(2).
- Steele, F. (2003). Selection effect of source of contraceptive supply in an analysis of discontinuation of contraception: Multilevel modeling when random effects are correlated with an explanatory variable, *Institute of Education*, London, UK
- Steele, F. (2001) Selection effects in an analysis of contraceptive discontinuation in Morocco: an application of multiple multilevel model. Institute of

Education of London, U.K.

<http://isi.cbs.nl/iamamember/CD2/pdf/291.PDF>

Sylvia Osayi Osemwenkha. (2004), Gender issue in contraceptive use among educated women in Edo State, Nigeria, *African Health Science*, 4(1): 40-49

Zhang, F. et al. (1999). The determinant of contraceptive discontinuation in Northern India: a multilevel analysis of calendar data, *Measure Evaluation*, Carolina Population Center, University of North Carolina.



BIOGRAPHY

NAME	Rina Gustiana
DATE OF BIRTH	August 14 th 1981
PLACE OF BIRTH	Jakarta, Indonesia
INSTITUTION ATTENDED	National University (1999-2005) Bachelor of International Relation (Social and Politics Science) Mahidol University Master of Art (Population and Social Research)
SCHOLARSHIP RECEIVED	National Family Planning Coordinating Board
POSITION	Staff of Supply and Logistic National Family Planning Coordinating Board, West Java Province, Indonesia
ADRESS (OFFICE)	Jl. Surapati No. 122 Bandung West Java Province, Indonesia
ADRESS (HOME)	Komplek PERURI Blok CC-8 Sudimara Timur, Tangerang, Indonesia