

**FACTORS AFFECTING THE REASONS FOR
DISCONTINUATION AMONG MODERN
CONTRACEPTIVE USERS IN INDONESIA**

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DECLARATION

I certify that this thesis does not incorporate without acknowledgment any material previously submitted for any degree in any university; and that to be the best of my knowledge, it does not contain any material which is formerly published or written by any other persons except where due to reference is made in the text.

Adelaide, July 2010

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ABSTRACT

Examining factors of discontinuation in relation to its reasons is important in order to reduce discontinuation rate which in turn, decrease fertility rate and unwanted pregnancies and births. The demand factors consisting of demographic and socioeconomic characteristics are theoretically expected to have contribution on the discontinuation. In addition, the supply and the other factors comprising quality of service, availability and community level effect respectively, are also assumed affecting discontinuation.

This study aims to identify the demographic, socioeconomic, quality of services, availability factors and community level effect affecting reasons for discontinuation among currently married women aged 15-49 who ever used these following modern contraceptives: Pill, IUD, Injection, Condom and Implant. The data employed in this study is taken from the 2007 Indonesia Demographic Health Survey (IDHS) which is a nationally representative survey of ever married women aged 15-49 years. Bivariate and multivariate analysis are used in this study in order for analyzing the association of demographic, socioeconomic, quality of services, availability factors and community level effect with reasons for discontinuation.

The results of the bivariate confirm that the relationship between reasons for discontinuation and some factors indicating demographic, socioeconomic, quality of services, cost, availability and community level effect varies across the types of contraception. According to bivariate analysis, only among injection users that all demographic, socioeconomic, quality of services, cost, availability and community level effect have significant correlation with discontinuation.

Based on multivariate analysis, there are also variety of factors affecting discontinuation related to its reasons and contraceptive methods. Pill discontinuation due to personal reasons is influenced by parity, place of service, cost in obtaining method and discussion of family planning. Discontinuation resulting from Family planning (FP) service reasons is only affected by place of service, whereas due to contraceptive failure, factors contributing discontinuation are parity, women's age and visiting FP/health facilities. Among IUD users, there are only three logistic regression models yielded from the multivariate analysis. For personal reasons, the discontinuation is only affected by cost in getting method, in which the probability of discontinuation is higher among women who got the method free. For FP service reasons, women's age is significant that the possibility of removal decreases by increasing age. Similarly, discontinuation because of wanting to get pregnant is controlled by age where the likelihood of discontinuation is higher among younger women. Among users of injection, discontinuation owing to personal reasons is influenced by parity, husband's education, cost and discussion of FP. Women's age, husband's education and cost contribute as well to termination of this contraception due to medical reasons. For women who discontinued because of desire for pregnancy, socioeconomic status, cost, desired family size, women's age, husband's education, visiting health facilities and discussion of FP significantly influence. Contraceptive failure is influenced by parity, women's age and cost. Moreover, there is only one logit model obtained from multivariate analysis for condom users showing that visiting health facilities has

correlation with discontinuation due to desire for pregnancy. For users of implant, the removal because of personal, FP service and desire for pregnancy reasons are affected by variables of visiting health facilities, place of residence and women's age respectively.

The interesting finding revealed from this study is that variables of cost, visiting health facilities and husband's education show contradiction related to reasons for discontinuation and contraceptive methods. Cost in obtaining method positively influences discontinuation resulting from medical reasons among injection users, in which the possibility of discontinuation is lower among women who got the method free. On the other hand, it negatively affects discontinuation due to personal reasons for IUD and injection users. Visiting health facilities has positive impact on reducing discontinuation owing to personal reasons among pill and implant users, and desire for pregnancy among condom users. However, it indicates a negative effect in respect with contraceptive failure among pill users. Furthermore, increasing level of husbands' education has positive influence on reducing discontinuation because of personal reasons for injection users. Nonetheless, it contributes to increase the probability of discontinuation due to medical reasons among injection users.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

As the government agency responsible for family planning, the Indonesian National Family Planning Coordinating Board (NFPCB) has concerned on family planning and also the safe motherhood programs aiming to prevent unwanted pregnancies which subsequently, reduce maternal and child morbidities and mortalities (Herartri, 2005, pp. 126-127). In other words, the NFPCB's commitment is not only regarding population control, but also maternal and child health. Establishing a good quality family planning program is the key to embody these commitments since it would ensure the improvement of women's and children's health, which are two main indicators of a country's health status. The family planning program also plays a crucial role in poverty reduction by addressing some of the obstacles of economic development, such as rapid population growth and high fertility. The smaller family size has enabled parents to meet their families' needs, especially children's education which allows children to attain a better future. Additionally, having a smaller family enables women to participate in the labour force that eventually increases the family's income.

An efficient family planning program can be implemented by providing effective contraceptive methods and high quality service delivery. The quality of service delivery and the effectiveness of contraceptives affect the continuation of contraceptive use, thereby influencing the contraceptive prevalence rate¹ (CPR). A high level of contraceptive prevalence comprising effective contraceptives is essential for reducing the total fertility rate² (TFR). These are the key elements of the efforts to address the over-population issues.

According to Indonesia Demographic Health Survey 2007 (IDHS 2007) (CBS et al, 2008, p. 74), the contraceptive prevalence among ever married women in Indonesia in

¹ Contraceptive Prevalence Rate is defined as the proportion of currently married women of reproductive age practising a contraceptive method at a point in time (Jain, 1989, p. 3).

² Total Fertility Rate is defined as the average number of children a woman would bear if fertility rates remained unchanged during her lifetime (UN, 2007, p. 9).

2007 was 57% (the same level as that in 2002-03) and 61% among currently married women, which is slightly higher than the rate of 60% observed in 2002-03. Based on these figures, Indonesia is categorized as a high contraceptive prevalence country because the prevalence is higher than 40% (Steele & Curtis, 2003, p. 2). However, this high contraceptive prevalence is not associated with a commensurate level of fertility in Indonesia, which has remained stable at a TFR of 2.6 children per woman between 2002-03 and 2007 (CBS et al, 2008, p. 48).

This implies an anomaly. It is possible that the quality of services provided by the family planning program in Indonesia is less than adequate or the program may run ineffectively. Therefore, an improvement in the quality of family planning service delivery in various ways is urgently required. Leite and Gupta (2007) suggested that service quality can be measured through assessing contraceptive behaviour which is in turn indicated by discontinuation and contraceptive failure rates because these reflect the effectiveness of given contraceptive methods.

Currently, the contraceptive discontinuation rate is rather high in Indonesia. Based on the findings of CBS et al (2003 & 2008, p. 93 & p. 99) in 2007, 26% of contraceptive users discontinue use within 12 months of starting the use, which is higher than the 20% discontinuation rate observed in 2002-2003. Among those who are reported as having discontinued contraceptive use in 2007, 2% have not used contraception because they became pregnant while using the particular method, which means 24% have discontinued due to other reasons such as side effects and method-related reasons. All such pregnancies occurring while employing the method are categorized as method failure cases. These cases of method failure have declined from 2.1% in 2002-03 (i.e., by 0.1 percentage point) (CBS et al, 2003 & 2008 p. 94 & p. 100). Both discontinuation and method failure must have contributed to raise the number of unwanted pregnancies and unwanted births, some of which have subsequently led to a rising number of abortions. As stated by CBS et al (2008, p. 96) during five years before the survey (i.e., 2002-2007), about 7% of the births were unwanted and 12% wanted later. This implies that a considerable number of births in Indonesia are unwanted or unplanned. The findings of IDHS 2007 by CBS et al (2008, p. 97) also show that generally, the total desired fertility rate is lower than the actual fertility rate, which includes the “unwanted” births.

Moreover, according to CBS et al (2008, p. 97), Indonesia's TFR would be 2.2, instead of 2.6 children per woman, if the unwanted births were eliminated. The elimination of unwanted births can be made possible if factors determining contraception discontinuation and method failure are identified clearly, so that the provision of appropriate contraception can be based on those factors. The UNFPA (2008) estimated that around 215,000 pregnancies worldwide resulted in 79,000 deaths due to unsafe abortion and that 2.7 million infant deaths and the loss of 60 million years of healthy life could have been avoided if all women had used modern contraceptives.

In Indonesia, modern contraceptive methods are more popular than the traditional methods, both among ever married women and currently married women. As stated by CBS et al (2008 p. 73), modern contraceptive methods including injections, pills, implants, condom, male and female sterilization and Lactational Amenorrhea Method (LAM) are used by 54% of ever married women and by 57% of currently married women. In contrast, only 4% of both ever married and currently married women use traditional methods such as withdrawal and periodic abstinence.

It is hypothesised that the rising number of discontinuation cases indicates dissatisfaction with the contraceptive methods used (Ali & Cleland, 1995, p. 95). This could be due to low quality of family planning services including low quality of contraceptive methods, which would raise the number of unwanted pregnancies and births. This has the potential to not only increase the level of fertility, but also that of maternal deaths due to unsafe abortions. A study by Blanc, Curtis and Croft (2002, p. 132) in several developing countries revealed that the TFR could be lower by as much as 28-64% if there were no births as a consequence of unwanted pregnancies resulting from discontinuation of contraception use and method failure. Since discontinuation including contraceptive failure are strongly associated with increasing fertility and mortality rates in Indonesia, examining the factors influencing reasons for these is crucial as input for the development of the family planning program in order to realize the government's commitments to bolster the population's health and economic growth.

1.2 Justification

Identifying and analysing factors of discontinuation regarding to its reasons are useful to reduce discontinuation rate, which subsequently lower fertility and unwanted pregnancies. Several studies, for example a study in India by Mishra et al (1999, p. 34)

has revealed that some of socioeconomic and demographic characteristics (age, place of residence, religion and media exposure) affect women's reasons for discontinuing. Nevertheless, there are only a few studies discussing the effect of quality of family planning service on reasons for discontinuation. In fact, quality of family planning service may determine the continuation rate.

As contraceptive use has attained a high level of prevalence, it is the appropriate time for the Indonesian National Family Planning Coordinating Board (NFPCB) to adjust the focus of the program from merely enhancing the number of new clients to also maintaining the number of existing clients through improving the quality of family planning services. Good quality of family planning services does not only increase the continuation rate, but they also reduce the discontinuation rate, that ultimately reducing the number of unwanted pregnancies and births. Thus, it is clear that assessment of factors relevant to reasons for discontinuation of contraceptive use is necessary to not only involve demographic and socioeconomic factors, but also quality of service and other factors which are expected influencing the quality of family planning in Indonesia.

1.3 Research Question

Since the discontinuation of contraceptive use affects not only the contraceptive prevalence, which ultimately influences the total fertility rate, but it is also related to the induced abortions and unwanted births, information about factors associated with the reasons for discontinuation of contraceptive use are very important for ensuring fertility decline and reducing the effects of unplanned pregnancies. Therefore, this research is conducted to answer the following questions:

1. What are the dominant factors associated with reasons for discontinuation among women using modern contraceptives?
2. How important the demographic, socioeconomic, quality of services, availability factors and also community level effect give impact on programs and policies on the reduction of modern contraceptives discontinuation in association with the reasons?

1.4 Significance of the Study

Information about contraceptive use dynamics, particularly the discontinuation is important for improving the quality of family planning program since the level of

discontinuation of contraceptive use reflects both the quality of family planning services and contraceptive effectiveness and efficacy, in which these are related to the fertility level and the prevalence of unwanted pregnancy and birth. In addition, as discontinuation varies relating to the reasons and the contraceptive methods, information regarding this circumstance is also benefit for family planning program development. It will be worthwhile for managers and policy makers to identify which factors should be paid more attention in order for increasing the continuation level and reducing discontinuation, and also lowering indirectly the fertility rate and the level of unwanted pregnancy and birth specified by the method and the reason for discontinuation. It will, subsequently, ease them in establishing the strategies of intervention. This study is also supposed to be benefit for other researchers working on population study area, as a comparison and an input for further research because currently, there have not been many research conducted in this area.

1.5 Hypothesis

Referring to the research questions above, the following hypotheses are proposed in this study:

1. That the demographic, socioeconomic, quality of service characteristics, availability of service and community level effect factors affect reasons for discontinuation of modern contraceptive use.
2. That the demographic, socioeconomic, quality of services, availability of service and community level effect are significant factors influencing programs and policies to reduce the chance of discontinuation.

1.6 Objectives of the Study

The main objective of this study is to analyse the modern contraceptive users' behaviour towards discontinuation relating to the reasons based on the IDHS 2007 data set, in which the users' behaviour are reflected in their use dynamics. Accordingly, the particular objectives of this study are:

1. Examine the association of demographic, socioeconomic, quality of services, availability factors and community level effect with reasons for discontinuation among currently married women aged 15-49 who ever used modern contraceptives (Pill, IUD, Injection, Condom and Implant).

2. Identify the predominant determinants of discontinuation among those women.
3. Provide recommendations for family planning policy and program implementation.

1.7 Methodology

1.7.1 Data Source and Limitations

This study is based on an original analysis of relevant data obtained from the 2007 Indonesia Demographic and Health Survey (IDHS 2007). This survey is the sixth national survey in Indonesia supported by the Demographic Health Surveys Program which aims primarily to provide data regarding fertility, family planning, maternal and child health, maternal and child mortality and awareness of HIV/AIDS and other Sexually Transmitted Infections (CBS et al, 2008, p. 5). The 2007 survey selected 42,431 households as the sample, in which 41,131 households were occupied by eligible females. Within those, there were 32,895 ever married women (aged 15-49 years) who were successfully interviewed for answering the Ever Married Women's Questionnaire (EMWQ).

According to CBS et al (2008, p. 339), the sampling frame used in the survey was the Census Blocks (CBs) developed for the 2007 National Labour Force Survey (Sakernas). A minimum of 40 CBs were chosen from each province in order to provide reliable indicators. The sampling design applied was a stratified two-stage random sampling comprising 1,694 CBs, and from every CB, 25 households were selected, where all ever married women aged 15-49 and unmarried women aged 15-24 in those households were interviewed. From eight households in each selected CB for the women sampled, the husbands of the selected women were selected for the male interview (CBS et al, 2008, p. 340).

This research uses data obtained from two questionnaires of the IDHS 2007, namely the household questionnaire (HQ) and ever married women's questionnaires (EMWQ). The HQ contains information about the details of the household members such as age, sex, education and information related to socioeconomic status including water source, type of toilet facility and the possession of durable equipment. The EMWQ comprises topics on marital status, knowledge and use of family planning, reproductive history and fertility preference, antenatal, maternal and child health care, maternal and childhood mortality. The questionnaire also provides information on the respondents' knowledge

about and attitude towards AIDS and their behavioural practices that are conducive to AIDS and other sexually transmitted diseases (CBS et al, 2008, p. 183).

In this study, data from the household questionnaires are used to analyse the urban-rural and wealth index (socioeconomic status) variables as two of the socioeconomic factors influencing modern contraceptive discontinuation. From the women's questionnaire, the data that are utilised are information about ever used of any contraceptive method, demographic and socioeconomic variables and data related to quality of services. Moreover, data used for examining the last method which was terminated by respondents and data of the reasons for discontinuation are taken from the contraceptive calendar data.

The contraceptive calendar data that consist of four columns are a part of the women's questionnaire (see Appendix 1.1). These encompass a matrix of rows and columns, in which each row stands for a particular month normally, the first row is January of the fifth calendar preceding the survey, the second row is February, the third row is March, and so forth. Each column contains different information for each month, where the first column records information on birth and pregnancy histories and contraceptive use. The second column contains information about source of contraception, while the third and the fourth columns records information on the reasons for contraceptive discontinuation and marital status, respectively during the 5-year period (2002 – 2007).

Although the IDHS 2007 provides various demographic and health data, it has some limitations, particularly with respect to the calendar data. Since the survey is retrospective which inquires a recall of the events occurring during a long period in the past, the information given by the respondents are likely to suffer from recall lapse errors.

1.7.2 Units of Analysis

In this study, the unit analysis is currently married women aged 15-49 who ever used contraception but experienced discontinuation or abandoning (i.e., no switching to another method) or in other words, they used contraception in the past, but they were no longer using in the five years preceding the survey (i.e., 2002 to 2007). In this circumstance, the event of discontinuation is relating to each reason for the last

discontinuation event, such as medical, personal, family planning service, desire for pregnancy and contraceptive failure reasons.

The definitions of discontinuation have been adapted from Curtis and Blanc (1997, p.7). An episode of discontinuation is defined as an episode that was followed in the next month by non-use. However, this study only focuses on discontinuation in relation to the reasons experienced by respondents regardless the time and duration of event. Considering the contraceptive method, this study, only uses the last method discontinuation (i.e. the last method that was terminated by respondent). In analysing the discontinuation factors, this study focuses on both '*not in need*' (wanting to get pregnant) and '*in need*' contraceptive users in which they still need contraception, but they stop using any contraceptive methods because of reasons such as personal reasons (husband disapproved, infrequent sex and marital dissolution), medical reasons (side effects, difficult to get pregnant, health concerns and fatalistic), service reasons (access and availability, desire for more effective method, inconvenience of use, IUD expelled and costs), contraceptive failure (became pregnant while using) and other reasons (method not available, end of breastfeeding and so forth).

As this study is aimed to examine the discontinuation of modern contraceptives only, the episodes used in the analysis are only for modern contraception comprising pill, IUD, condom, injection and implant. Female and male sterilisations are excluded in this study because these are irreversible methods. Moreover, this analysis employs the calendar data of Columns 1 and 3 only, which record information on periods of contraceptive use, non-use and pregnancies and the reasons for discontinuation of contraception, respectively. The calendar data is used to identify the terminated contraceptive method (what the last method which was stopped by respondents) and the reasons for that discontinuation.

1.7.3 Variables Selected in Analysis

The dependent and independent variables have been selected from the IDHS 2007 data set according to the objectives of this research. For analysing the determinants of reasons for discontinuation of contraceptive use, the dependent variable employed in this study is reasons for discontinuation which consists of personal, medical, family planning service, desire of pregnancy, contraceptive failure and other reasons. The contraceptive methods and the reasons for discontinuation employed in this study are

the last methods and the last reasons experienced by respondents during five years preceding the survey. .

Table 1.1 shows the dependent and independent variables used in the study.

Table 1.1 Table of Dependent and Independent Variables

Variables	Operational Definitions	The 2007 IDHS Questions
Dependent Variables		
1. Reasons for discontinuation -Personal -Medical - FP services - Desire of Pregnancy - Contraceptive failure -Others	Husband disapproved, infrequent sex & marital dissolution. Side effects, health concerns, difficult to get pregnant, fatalistic Access/availability, wanted more effective method, inconvenient to use, IUD expelled, cost. Wanted to get pregnat Pregnant while using Ramadhan, end of breasfeeding, fear of using.	Calendar data
		(Column 3)
Independent Variables		
Demographic		
1. Number of living children	1. Less than 2 2. 2 3. 3 3. 3 or more	EMWQ 204 & 205
2. Desired family size	1. Less than 2 2. 2 3. 3 3. 3 or more	EMWQ 614
3. Women's age	1. Under 25 2. 25-34 3. 35-49	EMWQ 106

Socioeconomic		
1. Place of residence	1. Rural 2. Urban	HQ 5
2. Women's education	1. No education 2. Primary 3. Secondary +	EMWQ 108
3. Husband's education	1. No education 2. Primary 3. Secondary +	EMWQ 704
4. Wealth Index	1. Poor 2. Middle 3. Rich	HQ WLTHI
Quality of Services		
Information Given to Users		
1. Asked the side effect to health or FP providers	1. yes 2. No	EMWQ 323A
2. Information given to users	1. yes 2. No	EMWQ 322, 323, 323A, 324, 325, 326
Continuity Mechanisms		
1. Visited and visiting family planning providers and clinics	1. yes 2. No	EMWQ 329, 331, 332, 333
2. Knowledge about family planning	1. Know 2. Don't know	EMWQ 616, 617, 618
Availability of Services		
1. Place of service	1. Public clinic 2. Private clinic 3. FP providers 4. Health integrated posts 5. Others	EMWQ 328
2. The costs of getting contraception method	Open question	EMWQ 316 B
Community Level Effect		
3. Discussion about family planning	1. Yes 2. No	EMWQ 619

1.7.4 Method of Analysis

The data provided by the IDHS 2007 are analysed by using statistical analyses, namely univariate, bivariate and multivariate analysis. Univariate analysis is used to describe the profile of respondents (currently married women aged 15-49) based on demographic and socioeconomic conditions. Bivariate analysis is used to examine the relationship

between two variables. Finally, the multivariate analysis is used to examine the relationship of more than two independent variables with the dependent variable.

The bivariate analysis is generated by cross tabulation which is used to test the relationship between reasons for discontinuation and each variable of demographic, socioeconomic and quality of service factors through Chi Square test (Log Rank test). Moreover, the multivariate analysis in this study is conducted through multinomial logistic regression which is used to identify the major factors of contraceptive use discontinuation in Indonesia. This analysis also aims to estimate the magnitude of association among discontinuation status and every single variable of demographic, socioeconomic and quality of service factors. The multinomial logistic regression is selected because the dependent variable used in this study comprises more than two categories (i.e. there are six discontinuation reasons, thus there are six categories). The general model of the Logistic Regression is:

$$z = b_0 + b_1X_1 + b_2X_2 + \dots + b_kX_k \quad \dots \quad (\text{Garson, 2010})$$

Where:

z = the logit (the log odds)

b_0 = the constant, and where there are k independent (X) variables, some of which be interaction terms.

The ' b ' terms are the logistic coefficient (parameter estimates)

In testing the significance of the obtained model, the two-tailed p-value is applied. The probability values are considered significant to the model if those are at the level $p \leq 0.05$.

1.8 Outline of the Study

This study is divided into five chapters. The first chapter provides an introduction to the study which comprises the background of the study, the justification, the research questions, its significance, hypothesis and objectives of the study, methodology and the outline of the thesis. The second chapter reviews some theories and previous studies related to discontinuation and contraceptive failure as a justification for selecting the variables. The analysis of discontinuation of modern contraceptive use is presented in Chapter Three. This chapter explains firstly, a brief overview of the respondents' profile based on demographic and socioeconomic conditions through univariate analysis. Then,

it also uses bivariate analysis in examining which predictor variables that have association with dependent variable significantly, and are proper to be analysed simultaneously in multivariate analysis. Chapter Four, employs multivariate analysis in examining the factors associated with reasons for discontinuation. Finally, the conclusion of the study is presented in the last chapter which is Chapter Five. This chapter consists of the summary of research findings, and their implications for future research and policy.

CHAPTER TWO

THE DISCONTINUATION OF CONTRACEPTIVE USE AND CONTRACEPTIVE FAILURE: A REVIEW OF SELECTED LITERATURE

2.1 Introduction

This chapter discusses some theories and several findings of previous studies on areas of contraceptive use discontinuation and contraceptive failure, which will be used as comparisons and inputs for the present study. This chapter also reviews the literature on the acceptance rate of contraception which is affected by the desire and the contraceptive users' motivation creating the demand for contraception and by the supply of contraception because they are strongly associated with discontinuation and contraceptive failure. The demand for contraception is affected by demographic and socioeconomic factors, while the supply of contraception is related to factors such as availability, community level effect and quality of services of the family planning program. The reviews are based on previous studies conducted in Indonesia or experiences of other countries.

Based on the review of the theories of contraceptive use discontinuation and contraceptive failure, a theoretical framework has been proposed for the present study based on the adaptation of existing relevant frameworks in order to analyse the variables affecting contraceptive discontinuation and failure in a systematic manner.

2.2 Contraceptive Use Dynamics

A study of contraceptive use dynamics is required in examining family planning program achievements. It commonly comprises studies on contraceptive discontinuation, switching³ behaviour and contraceptive failure (Mitra & Al-Sabir, 1996). These studies are worthwhile for policy makers in designing and developing the family planning program because they have a direct bearing on fertility and contribute to reducing maternal mortality resulting from unwanted pregnancies and births. Research conducted by Blanc, Curtis and Croft (1999, p. 34) in fifteen developing

³ Switching is episodes that are followed in the next month by use of a different method (Curtis & Blanc, 1997).

countries including Indonesia, reveals that both contraceptive failure and discontinuation had led to more than half the current unwanted pregnancies and births.

Contraceptive prevalence is one of the proximate determinants of fertility since the adoption of contraception allows fertility reduction (Bongaarts, 1978, p. 112). Even though the focus of the recent family planning program should not be on the number of new clients, however, maintaining contraceptive prevalence reflects contraceptive continuation and discontinuation benefits for fertility reduction. As explained by Jain (1989, p. 3) in his framework linking quality of family planning services and fertility, fertility is affected by contraceptive use prevalence and other proximate determinants such as age at first marriage, induced abortion and infecundability. The contraceptive prevalence is described as the consequence of acceptance rate and discontinuation and also continuation of various methods of contraception. The acceptance rate of contraception is a main indicator of acceptability which reveals the impact of differences in the availability of services, follow-up care and strategies applied to promote a method, in which the acceptability of a method relies on the contraceptive users' behaviour toward the method, their tolerance and perception of the side effects and other factors influencing their preference for the method (Jain, 1989, pp. 3-4). Other factors such as desire and contraceptive users' motivation to control their fertility which are affected by socioeconomic and demographic factors are called demand factors. On the other hand, the other factors that shift the desire into practice are identified as supply factors (Jain, 1989, p. 3).

Furthermore, Curtis and Blanc (1997, p. 6) suggested a framework for analysing the behaviour of contraceptive users in contraceptive use dynamics. The framework consists of three major changes in contraceptive use status among those who are using a contraceptive method namely, using but getting pregnant while using contraception (contraceptive failure), switching to another method and abandoning use. Curtis and Blanc clearly demonstrated that those who experience contraceptive failure are more likely to have unwanted or mistimed birth or induced or spontaneous abortion.

The abandonment of use occurs when the users drop out from using a contraceptive method either since they no longer need to use any method (*'not in need'* users) or they actually still need to use it but because of some reason they no longer use it (*'in need'* users). *'Not in need'* users will abandon using any contraception because either they

want to become pregnant or their exposure to the risk of pregnancy has reduced. The most common reasons among *'in need'* users who discontinue using contraception are side effects, health concerns, access and availability, desire for a more effective method, inconvenience of use and costs (method-related reasons). Users who are *'in need'* but no longer use any method may experience unwanted or mistimed pregnancies. This possibly increases the number of induced abortion cases which finally raises the maternal mortality level (WHO, 1995, p. 9).

2.2.1 The Discontinuation of Contraceptive Use

In studying contraceptive use dynamics, discontinuation is a common event. Curtis and Blanc (1997, p. 34) claimed that about 50 percent of contraceptive users in several countries, including Indonesia, had dropped out of using any method within two years at early periods of episodes of use either among *'not in need'* or *'in need'* users. This is supported by the results of studies that have been conducted in a number of countries. Research in Peru carried out by Kost (1993, p. 113), revealed that approximately 50 percent of contraceptive users, both *'not in need'* and *'in need'* users, abandoned using contraception within one year of starting. Another study by Zhang, Tsui and Suchindran (1999, p. 19) found that among the *'not in need'* (pregnancy related) users in Northern India, half the discontinuation cases happened after one year of use.

Among reversible contraceptive methods, the discontinuation rate of hormonal methods, like the pill and injection, is normally higher than IUD and implant. It is primarily due to the side effects of those methods. In Bangladesh, side effect is the main reason for discontinuation of reversible methods, noted by 18.7 percent of discontinuation cases compared to other reasons, including method-related reasons (medical, personal and services reasons), where the highest rate of discontinuation in this country is injection users, which is 36.9 percent (Mitra & Al-Sabir, 1996, p. 16). A similar reason also affects the high discontinuation of the pill in Peru, where women tend to use this contraception inconsistently since they worry about its side effects (Kost, 1993 p. 113).

In addition to hormonal contraception, condom is another method which the users frequently drop out of using. In numerous countries, this method constitutes the highest discontinuation rate because of personal, medical or services (method-related) reasons in contrast to other reversible methods. Fathonah (2000, p. 8) reported that in Indonesia the

highest discontinuation rate due to method-related reasons during one year of usage was among condom users (19 percent), followed by the discontinuation rate of pill which (almost 5 percent). The pattern has changed in recent years with the discontinuation rate among condom users declining to 10.3 percent and that among pill users rising to 8.7 percent, but discontinuation of condom still remains the highest. This is not really different from what is happening in Bangladesh, where the most frequent discontinuation because of method-related reasons was among condom users, at 34.1 percent. However, the discontinuation rate among injection users (10.3 percent) lagged behind that among condom users (Mitra & Al-Sabir, 1996, p. 16). The reason for the high discontinuation rate of condom is assumed to be the inconvenience of use (CBS et al, 1998). According to Mitra and Al-Sabir (1996, p. 17), some other method-related reasons, for instance husband's disapproval and inconvenience of use, are also supposed to be the major causes of condom abandonment. In many countries, intra-uterine device or IUD and implant are often identified as contraceptives with low discontinuation level. In Indonesia, the IUD and implant discontinuation rates due to side effects are only 7.9 percent and 2 percent respectively (Fathonah, 2000, p. 12). For method-related reasons, the rate for IUD discontinuation stands at 4.8 percent, while, there is no discontinuation case among implant users (Fathonah, 2000, p. 12). The reason for no discontinuation of implants is simple - implants have to be surgically removed by a medical practitioner. This is also evident in a study by Curtis and Hammerslough (1995, p. 27) which also revealed that compared to other reversible methods, except implant, the discontinuation level of IUD was low - it was 7.2 percent because of side effects and only 2 percent for method-related reasons. Curtis and Blanc (1997, p. 27) explained that the low level of IUD discontinuation is not unusual, because removing the IUD is not easy. The users have to go to service providers where there will be an extra charge and they will also face the providers who mostly will discourage them from removing the IUD without valid reasons. Additionally, the characteristics of IUD itself may determine the discontinuation level since the contraception is considered as a method that is not easy to be removed which, in turn, will reduce the desire of women who are highly likely to discontinue, adopting the method in the first place.

2.2.2 Contraceptive Failure

Although the rate of contraceptive failure is not as high as the contraceptive discontinuation rate due to side effects and method-related reasons, an evaluation of contraceptive failure is crucial since it leads to unwanted pregnancies which contribute to higher fertility or induced abortions and maternal deaths (Curtis & Hammerslough, 1995, p. 39). Unwanted births as a consequence of unwanted pregnancies show a notably high figure in Indonesia. Around 3,000 births or 20 percent of the estimated 15,127 births in Indonesia are unintended, of which approximately 8 percent and 12 percent are categorized as unwanted and mistimed respectively (Jaeni, McDonald & Utomo, 2009, p. 10). Thus, contraceptive failure must be eliminated immediately.

According to Curtis and Hammerslough (1995, p. 39), contraceptive failure can be theoretically defined as either method failure or use failure. Method failure results from clinical error, and this may occur even in a perfect use situation. On the other hand, use failure can occur because of errors while adopting a particular method of contraceptive (user error). Some studies refer to contraceptive failure as being the result of either method/clinical error or user error, but some others identify it as a combination of the two types of error. In a perfect use situation, contraceptive failure rate implies the efficacy of the method, while in the normal or typical use situation, contraceptive failure represents contraceptive effectiveness (Last, 1988 in Steiner et al, 1996, p. 28S). Trussell & Kost (1987, p. 35) have stated that the level of failure rate reflects simply the work of a contraceptive method. Thereby, high failure rate in a country shows that the method does not run well, and vice versa.

The pattern of the probability of contraceptive failure varies across countries. This is possibly due to the disparities in the family planning programs being implemented in different countries. Therefore, the patterns of contraceptive failure reflect the family planning efforts in each country (Moreno & Goldman, 1991, pp. 47-48). Curtis and Blanc (1997, p. 17) have stated that in several countries such as Indonesia and Zimbabwe, the likelihood of contraceptive failure rises slightly in the early stages of use, but it declines later on as the duration of use increases. This is different from Bangladesh's pattern, in which the possibility of failure is consistently high between the first 12 and 18 months of use, but it declines drastically after that (Bairagi & Rahman, 1996, p. 24). Moreno and Goldman (1991, pp. 47-48) have also argued that commonly,

although not always, countries with the highest indices of family planning effort experience the lowest failure rate, and vice versa. Therefore, the improvements in the family planning program assume great importance in addressing contraceptive failure rates.

Unlike what happens with discontinuation case, where the hormonal contraceptives tend to result in women ceasing to practise the method because of side effects, contraceptive or method failure is mostly is the most common cause for discontinuation among condom users. Research by Trussell and Vaughan (1999, p. 67) has shown that, among modern contraceptives, the condom had the highest percentage of failure in the USA, at 8.7 percent, which happened during 12 months of use, and 17.6 percent experienced by women during 24 months of use. This can also be seen from a study in China which shows that the condom has the highest level of modern contraceptive failure among all methods excluding female and male sterilization (Wang, 2002, p. 175).

Yet, the pill has the second highest contraceptive failure rate within the first year of use. This has happened both in the USA and China, where the failure rates of this contraception are 6.9 percent and 14.5 percent respectively (Trussell & Vaughan, 1999 p. 67; Wang, 2002, p. 175). Wang (2002, p. 178) has suggested some reasons leading to the prevalence of condom and pill failure rates, which are lack of commitment and motivation for practising family planning and incorrect use of the methods. He added that the effectiveness of both methods is mainly determined by self control and discipline of the users. The third highest failure rate in the USA and China is that of the IUD. This is inconsistent with a study conducted in Bangladesh, in which injectables have been found to show the highest failure level after condom and pill. The IUD may be the most effective contraception in Bangladesh since it has the lowest failure rate (Mitra & Al-Sabir, 1996, p. 24). In China, the injection users have been found to be contraceptive users with the lowest possibility of failure (Wang 2002, p. 175), whereas in Indonesia and the USA, the lowest failure rates are found among implant users, which are 0.1 percent and 2.3 percent, respectively during the first year use (Fathonah, 2000; Trussell & Vaughan, 1999). Trussell (1995) suggested that the small probability of failure among implant and injection users result from the inherent efficacy of these methods which are considerably high.

2.3 How Demographic, Socioeconomic and Quality of Services Affect Contraceptive Discontinuation and Failure

The contraceptive discontinuation and failure exhibit the contraceptive use dynamics that is related to the acceptance and continuation of a contraceptive method. Several factors which are classified as demand (socioeconomic and demographic) and supply (quality of services) factors which have been already discussed above are expected to influence contraceptive use behaviour and subsequently contraceptive prevalence and fertility reduction. In order to increase the continuation rate and retain the high prevalence of contraceptive use, which in turn will reduce fertility and unintended pregnancies, it is necessary to assess the roles and contribution of both these group of factors.

(a) Demographic Factors

Demographic characteristics affect contraceptive discontinuation pattern. Kost (1993 p. 117) stated that the pattern of contraceptive discontinuation and failure is possibly influenced by variations in demographic and socioeconomic aspects including age, parity, education, place of residence and desired family size. A study done by Curtis and Blanc (1997, p. 19) showed that women who have between one and four children have a lower probability of contraceptive failure while using a contraceptive compared to those women who either have no children or have more than five children. It may be assumed that women who have a very small family size (i.e., low parity) may be less motivated to use a contraceptive method because they actually desire to get pregnant and have children, while women who have more than five children are likely to be poorly motivated contraceptive users (and hence the large number of children).

In addition, it is statistically confirmed that women's age has an effect on contraceptive failure rate, the likelihood of which declines with increasing age (Curtis & Blanc, 1997 p. 19). It can be seen from research by Curtis and Blanc (1997), where in all six examined countries, the contraceptive failure rate of women in the age group 35-49 was lower than that in the younger age groups (below 25 years and 25-34 years). Trussell and Kost (1987) stated that contraceptive failure is more prevalent among younger women because, in addition to being at a young and fecund age, they tend to have less motivation for using contraception consistently, whereas rising age lowers fecundity which ultimately tends to reduce exposure to the risk of pregnancy risk.

In terms of discontinuation, Mitra and Al-Sabir (1996, p. 14) also showed the effect of age on discontinuation level, in which users aged below 25 had a greater discontinuation rate than those aged 25 and above. It shows that the probability of discontinuation declines as age increases. The age differential in the discontinuation rate is the same as the age differential in contraceptive failure which is due to biological reasons. It is known that increasing age does not only decrease the woman's capability to conceive, but also reduces the frequency of sexual activities (Trussell, 1995). Hence, the motivation for using contraception becomes less among older women.

Parity or the number of children ever born to a woman significantly and negatively affects the discontinuation level of contraceptive use (Ali & Cleland, 1999, p. 351). The possibility of abandoning contraception declines while the number of live-born children goes up. This is related to the women's reason for using a contraceptive method, which they are likely to drop if they have not had any children or already have, but still want more children. This can be seen from a study in Bangladesh by Mitra and Al-Sabir (1996, p. 17) which showed that the probability of pill users to stop using the pill in the first year of usage was 84 percent for women who had no children, 42 percent for women with two children and 38 percent for women with three children.

(b) Socioeconomic Factors

As a component of demand factors, socioeconomic background of women is assumed to have an effect on their contraceptive use behaviour. Studies in a number of countries have produced different findings related to the association between the two variables. Some conclude that there is a significant correlation between some socioeconomic characteristics (such as women's and their husband's education, women's place of residence and women's household wealth index) and contraceptive failure and discontinuation, but others do not find such a link. In Ghana, the discontinuation of contraceptive use is significantly associated with socioeconomic characteristics, where the duration of contraceptive use is influenced by place of residence and education (Parr, 2003, p. 153). Women who live in rural areas tend to abandon using contraception sooner than their counterparts in urban areas. It could be caused by the problems of supply, especially in the remote rural. Additionally, the large family size norm is still predominantly applied by rural families, so they are less encouraged to use contraception which results in a high discontinuation level among them (Parr, 2003, p.

153). Travel costs from the place of dwelling to health facilities could also be a reason for high discontinuation rate among rural women. This can be seen from a study by Cochrane and Guilkey (1995, in Levin, Caldwell & Khuda, 1999, p. 3) who found that increasing distance from the house to health facilities decreases the probability of contraceptive use. The discontinuation rate also depends on education to a great extent. The rate of discontinuation among less educated women is higher than that among women with secondary education since women with better education are likely to have a smaller family norm and smaller family size (Parr, 2003, p. 154). This finding is unlike Curtis and Blanc's result (1997, p. 31) that showed women's educational level has no relation to the discontinuation rate. Ali and Cleland (1999 p. 351) affirmed the lack of the effect of education on discontinuation. They showed that of the six less-developed countries they studied, there was a significant relation between women's education and discontinuation rate only in one country, and husband's education is not associated with the discontinuation rate in any of the six countries.

Another socioeconomic factor known to have an effect on abandonment level is socioeconomic status which is commonly measured by income or wealth index. This factor is usually negatively associated with the discontinuation rate, in which women of lower socioeconomic status are more likely to stop using contraception than women with a higher socioeconomic status (Curtis & Blanc, 1997, p. 30). This may be due to better off women having more opportunities to receive family planning and health services, either because of better access or better ability to meet the costs of such services (Curtis & Blanc, 1997, p. 30). Consequently, this can influence their motivation about contraceptive use behaviour.

Similar to discontinuation, some socioeconomic factors are clearly shown to have no relationship with contraceptive failure in several countries (Curtis & Blanc, 1997, p. 19). Yet, in some other countries like China, where education is not associated with failure rate among any contraceptive method users, type of residence is evidenced as influencing failure rate, whereby women in rural areas tend to have a higher failure rate than those in urban areas, although the difference between the two is only slight (Wang, 2002, p. 178). This result is consistent with that of a study done by Moreno (1993, p. 57) in the developing countries of three regions, Latin America, Asia and Africa, which reveal that contraceptive failure rate is somewhat lower among urban women than rural

women. Since contraceptive failure may occur in two conditions, namely (i) when the method of contraception does not work or fails to work well because of the inherent reason and (ii) when the method is used either incorrectly or inconsistently (Trussel, 1995), it can be argued that the second reason may be the rationale for common contraceptive failure among rural women. It could be mainly because of supply problems related to geographical inconvenience, so that rural women are more likely to be using contraception later and inconsistently.

On the other hand, in the USA, education has been found to clearly influence the contraceptive failure rate, where the failure rate is considerably lower among secondary and higher educated women who study full time, compared to women with lower education (Trussell & Vaughan, 1999, p. 68). This is so possibly because the educated women have more control and discipline. As Wang (2002, p. 178) said, contraceptive effectiveness can be attained if there is a commitment among contraceptive users to control and discipline while practising the method, so that, it is expected that educated women would tend to use contraception more effectively. Furthermore, socioeconomic status in the USA has an effect on contraceptive failure as well. For example, among oral contraceptives and condom users, the risks of contraceptive failure are greater among women with low income than women who earn a higher income (Trussell & Vaughan, 1999, p. 68). In this pattern, socioeconomic status is estimated as having a relationship with access issues, meaning that the level of income or wealth influences women's ability to obtain health and family planning services. Fu et al (1999, p. 62) argued that effective contraceptive practice is inhibited by access problems and other disturbances through an impact of low income on contraceptive failure cases. In addition, it is clear that effectiveness of contraceptive practice is associated significantly with economic status. Kost et al (2008, p. 12) affirmed that, other than partner approval and simplicity of use, ease in finding a contraceptive method plays an important role in pursuing effective contraceptive use.

(c) Quality of Services

The quality of services, as a supply factor which alters the desire of contraceptive use to adopt a particular method, is the main key of programmatic effort that can be adapted to reduce discontinuation and contraceptive failure and contribute to fertility decline. A good quality family planning program can be attained by pursuing a high quality of

service, whereby it is clients' oriented and assisting individuals in the achievement of reproductive intention (Jain, Bruce & Mensch, 1992, p. 392).

According to Bruce (1990, pp. 63-64) and Jain (1989, p. 2), there are six elements that describe the quality of care in family that should be adopted to enhance the quality of a family planning program. These six elements are:

1. *Choice of methods.* It relates to the provision of contraceptive methods, both in number and variety which gives the users a range of choice in selecting the method suitable to their condition (health, intention, age, sex and so forth).
2. *Information given to users.* This element assists the users to choose an effective method by considering the information about contraindication, risks, the benefits and the drawbacks of a method. The information given also explains the way to use the method, the potential side effects and its management. It provides information as well about the work of service providers including advice, supply and referral to other methods and services, when required. In terms of health and family planning services, this information is well known as informed choice and informed consent.
3. *Technical competence.* It implies the capability and technical skills of family planning providers. This element of quality of care is of particular significance when women have IUD or implant insertions, or given injectables.
4. *Interpersonal relations.* It refers to the relation between the providers and the users that is expected to create positive feeling about the service system and also build the trust of users regarding providers' capacity. Positive relations between providers and potential clients are useful for improving family planning program that include the optimum density of workers and the adequacy of their training and orientation.
5. *Continuity Mechanisms.* It aims to maintain the continuity of use by involving well informed and experienced users and utilizing community media or other mechanisms like home visits by the providers.
6. *Constellation of Appropriate Services.* It reflects the provision of family planning services which is convenient and acceptable to clients.

2.4 A Proposed Framework to Study Discontinuation and Contraceptive Failure in Indonesia

The present research employs a framework modified from the conceptual model of contraceptive use dynamics given by Curtis and Blanc (1997, p. 6) and the model of the links between quality of family planning services and fertility developed by Jain (1989, p. 3). The variable selection is derived from the theory and definition which have been discussed above, even though some elements cannot be included in the modified framework because data are not available from the 2007 IDHS. For example, in measuring quality of services, it is only possible to utilize two of the six elements of quality of care, namely information given to users and continuity mechanisms. Moreover, the proposed framework below (

Figure 2.1) describes the mechanism of the constructed variables in order to achieve the research goals which consist of identifying the factors associated with discontinuation and contraceptive failure among modern contraceptive users in Indonesia.

Considering Jain (1989, p. 3), this study hypothesizes that demand factors comprising demographic and socioeconomic influence the acceptance which in turn, have impact on the discontinuation of contraceptive use including contraceptive failure. The contraceptive acceptance is also affected by supply factors which encourage people to change their desire for using contraception into practice. These factors consist of the series of quality of service, namely information given to users and continuity mechanisms. Other than quality of service, the supply factors include the availability of contraceptive methods. Indeed, there are some components of family planning availability, such as distance and travel time, convenience, cost of travel, quality of the services offered at each outlet and cost ((Hermalin & Entwisle, 1987, p. 583 in Simon & Lapham, 1987). However, this present research only examines cost and place of service indicating services offered by each outlet because of the lack of information in IDHS 2007 dataset. The availability factors are involved in this study since these reflect the full delivery system for each contraceptive method (Hermalin & Entwisle, 1987, p. 583 in Simon & Lapham, 1987). In addition, as acceptance and continuation rates are affected by other factors other than supply and demand, this study employs community level effect indicated by the discussion of family planning between women and others (families, friends, neighbours and relatives) as one of other determinants of discontinuation. It is assumed that information received from others including peers

gives influence on women’s decision either to start or quit using contraception (Hodgins, 1999, p. 24). In a study using IDHS 2002-2003 data set, Asmanedi (2009) showed the relationship between social network and contraceptive use in Indonesia. He stated that married women (15-49 years old) who interacted with their community tended to use modern contraceptive compared to those who did less interaction. Although the study only assessed the influence community level effect on modern contraceptive use, not assigned the impact community level effect on contraceptive discontinuation and failure in particular, but it explained clearly about the effect of community interaction (social network) on fertility behaviour related to contraceptive use. Therefore, this variable is important for this study.

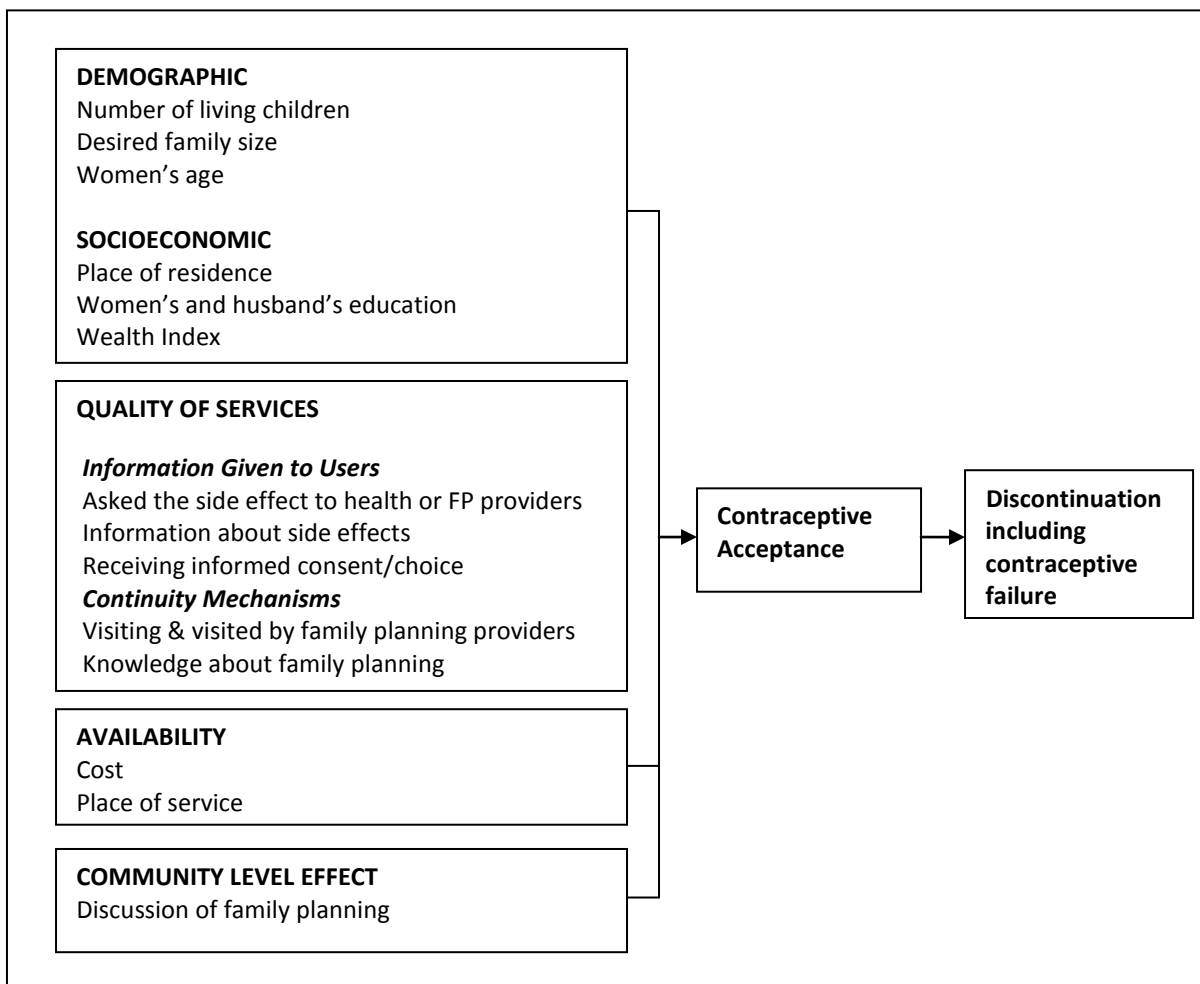


Figure 2.1 A Modified Framework of Discontinuation and Contraception Failure among Modern Contraceptive Users in Indonesia, based on the frameworks of Curtis and Blanc (1997, p. 6) and Jain (1989 p. 3)

CHAPTER THREE

ANALYSIS OF FACTORS AFFECTING REASONS FOR CONTRACEPTIVE USE DISCONTINUATION IN INDONESIA: RESULTS OF A BIVARIATE STATISTICAL ANALYSIS

3.1 Introduction

This chapter discusses the determinants of and the reasons for the discontinuation of the use of modern contraceptives in Indonesia. The reasons refer specifically to personal reasons, medical reasons, family planning service related reasons, desire for pregnancy, contraceptive failure while using the contraception and other reasons such as *Ramadhan* (Muslim fasting month), end of breastfeeding, etc. Personal reasons consist of husband's disapproval, infrequent sex and marital dissolution, while the medical reasons comprise side effects, difficulty in getting pregnant and health concerns. Family planning service reasons include discontinuation because of lack of access to or availability of contraceptives, wanting a more effective method, inconvenience of use, expulsion of IUD and cost. As described in the previous chapters, this study employs an original analysis of data obtained from the IDHS 2007 from which the examined variables have been constructed, namely demographic, socioeconomic and quality of family planning service variables. Moreover, since this study also uses calendar data (see Chapter 1) in its analysis in association with the discontinuation of the last contraceptive method used by women and the last reason for discontinuation, which are retrospective data, in examining factors of discontinuation (demographic, socioeconomic, availability, quality of service and community level effect), it is assumed that there are no changes in such information related to these factors from the start of contraceptive use to the time of the survey.

This chapter discusses first, the results of univariate analysis, which describes the profile of the respondents (currently married women aged 15-49) based on their socioeconomic and demographic backgrounds. Secondly, by employing cross tabulations and Chi-square tests, the results of bivariate analysis are presented in order to explain the association between the reasons for discontinuation and each of demographic, socioeconomic, availability, quality of service and community level effect

variables. Finally, this chapter provides a summary of the findings yielded by the analysis.

3.2 Univariate Analysis

In this study, the univariate analysis of the descriptive statistics is presented describing the respondents' profile based on socioeconomic and demographic characteristics. In addition, it also depicts the percentage of discontinuation events which are experienced by modern contraceptive users in the last five years before the survey (2002-2007). According to the IDHS 2007 data set, there were 10,750 discontinuation episodes experienced by currently married women aged 15-49 who ever used modern contraceptive, namely pill, intra-uterine device (IUD), injection, condom and implant (Norplant).

Discontinuation has been defined in Chapter 1 as an event which happens if a respondent stops using a contraceptive method in the following month after having used it until the current month for any period in the last five years preceding the survey. The terminated method counted in this study is the most recent method which the respondent has stopped using. It is commonly known that among the users of pill, injection, IUD, condom and implants, discontinuation is a common occurrence. Based on these definitions, within five years before the survey, i.e., during the period 2002-2007, 43.4% of modern contraceptive users had stopped using contraception (Appendix 2.2). It implies that as many as 56.6% of women still practised family planning in the period mentioned.

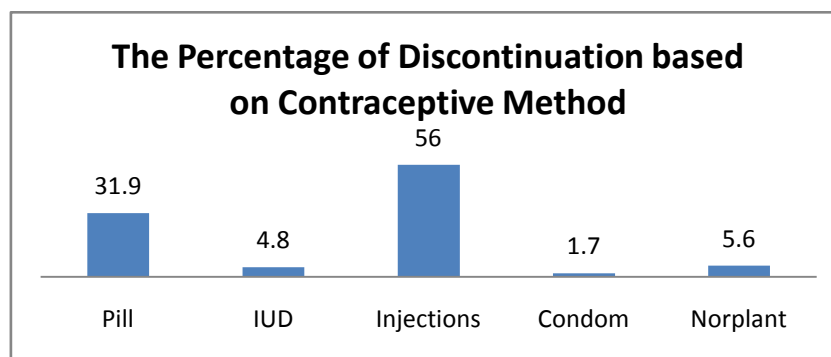


Figure 3.1 the Percentage of Discontinuation based on Contraceptive Methods
Source: Calculated from the IDHS 2007 dataset

The prevalence of discontinuation according to contraceptive method last used is presented in Figure 3.1 above, which shows that the highest proportion of discontinuation is among injection users, more than 50% of whom ended their adopted method in the last five years before the survey. The next highest level of discontinuation proportion is among pill users, of whom 31.9% discontinued the method in the last five years. Discontinuation of Norplant is the third highest (5.6%) followed by discontinuation of IUD (4.8%) and condom (1.7%). Compared to other methods, except condom, IUD is the least likely to be discontinued. More than 95% of the users still adopted the device at the time of the survey. Given that IUD should remain inserted for five years (unless it is removed prematurely due to medical or other reasons, which is not common), the low percentage of discontinuation of the method implies that about 95% of the respondents had their IUDs inserted sometime during the last five years before the survey.

The reasons for discontinuation occurring in the five years before the survey among modern reversible contraceptive users are presented in Table 3.1.

Table 3.1 Number of women who discontinued using modern contraception based on the reasons for discontinuation of the last contraceptive methods used during five years before the survey

	Reasons for discontinuation						Total
	Personal	Medical	FP services	Desire for pregnancy	Contraceptive failure	Others	
Pill	199	857	392	1,242	416	321	3,427
IUD	29	162	60	200	21	48	520
Injections	406	1,826	583	2,436	228	537	6,016
Condom	8	19	54	64	21	22	188
Norplant	28	155	128	191	8	89	599
Total	670	3,019	1,217	4,133	694	1,017	10,750

Source: Calculated from the IDHS 2007 data set

Table 3.1 shows that among discontinuation of modern contraceptive users observed in the survey, the most frequently cited reason for discontinuation is the desire of pregnancy. During five years before the survey 4,133 respondents or approximately 38.4% of the respondents terminated using any modern contraception because they wanted to get pregnant. Medical reasons are also very common for women who practised family planning to terminate using contraception. Medical reasons accounted for 3,019 or 28% of the respondents discontinuing a modern contraception in the last five years. Thus, the table shows that desire for pregnancy and medical reasons are

more likely to contribute to discontinuation than reasons such as family planning services, contraceptive failure, personal reasons or “Other” reasons, such as end of breastfeeding, anxiety of using method and Ramadhan (muslim fasting month). The least frequently cited reasons for discontinuation are contraceptive failure and personal reasons which accounted for only 694 or 6.5% and 670 or 6.2% respectively of respondents discontinued using a modern contraceptive.

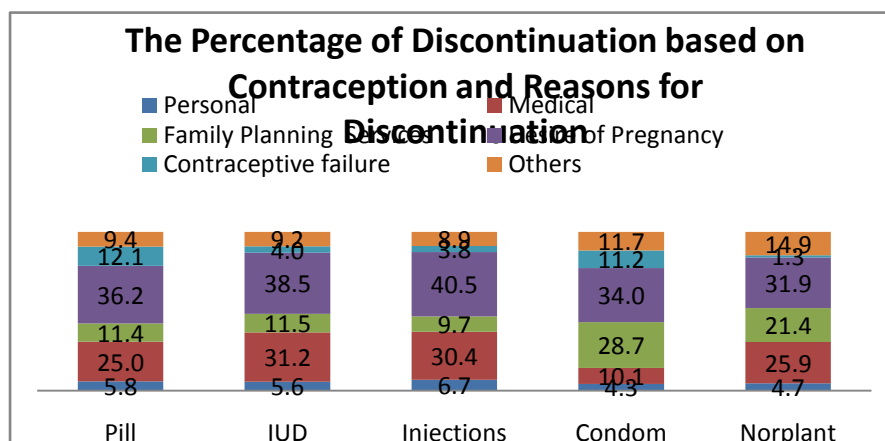


Figure 3.2 the Percentage of Discontinuation based on Reasons for Discontinuation and Contraceptive Methods

Source: Calculated from the IDHS 2007 dataset

Figure 3.2 shows the reasons for discontinuation according to method of contraception discontinued. The mix of reasons for discontinuation varies across the methods. Desire to get pregnant is the most frequently cited reason for discontinuation of all the contraceptives. Except for condom, medical reasons are the second most frequently cited reasons for discontinuation. Family planning services are cited as a reason for discontinuation for at least 10% of each method discontinued and is the second most frequently cited reason for discontinuing condom and the third most frequently cited reason for discontinuing Norplant. Contraceptive failure as a reason for discontinuation has been prevalent among at least 10% of the discontinuers of pill and condom, while among IUD, injection and implant users, the proportion of discontinuation owing to this reason is quite low. This is expected because the use effectiveness of the pill and the condom depends very much on the discipline to regularly use these methods. Method failure is comparatively rare among the discontinuers of IUD, injections and Norplant, which, once given, do not require as much discipline from the users to use them as do

pill and condom. Interestingly, the highest proportion of discontinuation for “other reasons” is among discontinuers of Norplant (14.9%). It may be noted that “other reasons” include Ramadhan, end of breastfeeding, fear of contraceptive use and such reasons which are not identified as personal, medical, service, wanting to get pregnant and contraceptive failure reasons. “Other reasons” have also been cited by significant proportions of discontinuers of condom (11.7%), followed by pill (9.4%), IUD (9.2%) and injection (8.9%).

Summing up the reasons for discontinuation of various methods it may be suggested, given that desire to get pregnant has been the most frequently cited reason for discontinuation of all methods, women should be given proper advice about spacing and limiting their pregnancies. Secondly, regarding medical reasons and family planning services as reasons for discontinuation of all methods, the quality of care of family planning (Bruce, 1990) should be improved substantially.

Moreover, the demographic and socio-economic backgrounds of the discontinued modern contraceptive users are given in Tables 3.2 and 3.3 respectively.

Table 3.2 Percentage Distribution of Women who have discontinued of Modern Contraceptives according to Demographic Characteristics (All reasons of discontinuation)

No	Characteristics	The percentage of women who discontinued the use of				
		Pill	IUD	Injections	Condom	Implant
1	Parity					
	a. Less than 2	25.9	16.9	25.6	26.6	14.5
	b. 2 children	32.2	39.6	34.2	35.1	34.7
	c. 3 children	21.7	25.8	21.0	20.7	23.0
	d. More than 3	20.3	17.7	19.2	17.6	27.7
2	Desired family size					
	a. Less than 2	1.8	2.1	1.6	na*	na*
	b. 2 children	45.4	56.2	43.2	56.4	42.6
	c. 3 children	21.0	21.0	21.1	21.3	18.4
	d. More than 3	31.8	20.8	34.1	22.3	39.1
3	Women's age					
	a. Under 25	17.6	1.9	16.1	10.6	5.0
	b. 25-34	50.7	38.7	54.1	50.0	45.6
	c. 35-49	31.7	59.4	29.9	39.4	49.4
	Total	100% (3,427)	100% (520)	100% (6,016)	100% (188)	100% (599)

Note: na* indicates that there were no women who ever used this contraception having less than 2 children or if they have the frequency was very small, thus it is combined to another category.

Source: Calculated from the IDHS 2007 dataset

a. The Pill

In this study parity or children ever born is classified into 4 categories, which are women with fewer than 2 children, with 2 children, 3 children, and with more than 3 children. This classification is intended to make the analysis easier since in some of the original categories (in IDHS 2007 dataset), the proportion of women is quite small. Moreover, this study reveals that of 32.2% women who discontinued the pill had 2 children, while a quarter of women had fewer than 2 children. As many as 21.7% of the discontinued pill users had 3 children, and 20.3% had more than 3 children.

More than half the women who discontinued using the pill were at prime reproductive ages, which were between 25 and 34 years old. There were 31.7% of women who were in the age group of 35-49, whereas, about 18% of users were aged less than 25 years.

Mostly, discontinued pill users desired to have two children (45.4%). However, there are a significant number of women who still desired a larger family size. Around 31.8% of women who stopped using the pill wanted to possess more than three children. Only 1.8% of women wanted to have only 1 child or none.

Looking at socioeconomic variables (Table 3.3), more than one half of the discontinued pill users lived in rural areas, while more than a half of the discontinued pill users had completed secondary education. Only about 6% of women had tertiary educational level. The pattern of the women's educational level is very similar to that of their husbands. Among the discontinued pill users, 44% were from poor households whereas as much as 36% of users were rich women.

b. IUD

There were 520 women who discontinued the use of IUD. Among them, almost 40% had two children, but approximately 17% and 18% of women had fewer than two and four or more live born children respectively. Similar to the pill users, the majority of discontinued IUD users wanted to have only two children. But, there were still 20.8% of users who preferred to have more than three children. Around 59% of IUD users in the survey were aged between 35 and 49 years, 39% aged 25-34, and only 2% of them who were under 25 years old.

The majority of discontinued IUD users lived in urban areas, that it is 61% compared to 39% who lived in rural areas. Of the discontinued IUD users 48% had secondary

education, 42% primary and 7% academy or higher. But there were still 4% who had no education. Secondary educational level was also common among respondents' husbands, in which more than a half of them had attained that educational level. Only a small number of them never enrolled at school. Furthermore, there is a large difference in wealth status. Table 3.3 shows that 64.4% of women who stopped using IUD were from rich households, whereas only a small proportion came from both middle and more disadvantaged families. This indicates that IUD is preferable among richer women.

Table 3.3 Percentage Distribution of Women who have discontinued Modern Contraceptives according to Socioeconomic Background of Women (All reasons of discontinuation)

No	Characteristics	The percentage of women who discontinued the use of				
		Pill	IUD	Injections	Condom	Implant
1	Place of residence					
	a. Urban	43.5	61	41.4	77.7	21.2
	b. Rural	56.5	39	58.6	22.3	78.8
2	Women's education					
	a. No education	3.0	3.5	2.9	na*	6
	b. Primary	39.2	25.8	42.1	11.7	53.6
	c. Secondary	51.4	51.5	48.4	56.9	37.7
	d. Tertiary+	6.4	19.2	6.6	31.4	2.7
3	Husband's education					
	a. No education	2.6	3.5	2.3	na*	3.8
	b. Primary	37.7	23.1	37.5	8.5	50.6
	c. Secondary	51.8	51.9	52.7	54.8	41.2
	d. Tertiary +	7.8	21.5	7.5	36.7	4.3
4	Wealth Index					
	a. Poor	44.2	18.5	42.8	8	58.3
	b. Middle	19.4	17.1	19.2	14.9	19.4
	c. Rich	36.4	64.4	38.0	77.1	22.4
	Total	100% (3,427)	100% (520)	100% (6,016)	100% (188)	100% (599)

Note: na* indicates that there were no women who ever used this contraception having less than 2 children or if they have the frequency was very small, thus it is collapsed into another category.

Source: Calculated from the IDHS 2007 dataset

c. Injectables

Compared to discontinued users of other contraceptive methods, the number of women who discontinued the use of injectables is the largest. Among 6,016 currently married women who employed this method but then ceased using it, 34.2% had 2 children, and

of 25.6% women had one or no child at all. Greater than half of the injection use discontinuers were aged 25-34 years, while only 16% were aged below 25 years.

Furthermore, like the pill and IUD users, mostly, women who discontinued injectables desired to have only two children. However, more than 30% of women liked to have more than three children. More than one half (59%) resided in rural areas, and the rest in urban areas. Approximately 48% of the women had finished secondary school, but about 42% had completed only primary school. Only a small proportion (7%) had attained higher education level, and a small proportion (3%) was illiterate. Just above 52% of the women's husbands had secondary education, while 2.3% of the husbands were uneducated. Of the discontinued users of injectables, 43% belonged to poor households, while 38% belonged to rich households.

d. Condom

Among currently married women in Indonesia aged 15-49, there were 188 women whose partners had discontinued the use of condom. One half of discontinuers were women aged 25-34 years, 39% aged 35-49 years, and 6% were just under 25 years old. Among the discontinued users, 35% of women had two live born children, 27% had fewer than two children, 21% had three children and 18% had more than three children. In terms of desired family size, more than half of the women desired to have no more than two children, but none wanted to have fewer than two children.

About 78% of the women who discontinued the use of condom lived in urban areas, and the rest in rural areas. Further, of these women, 57% had attained secondary educational level, whereas, 12% and 31% of the women had completed their education at primary and tertiary level respectively. Similar to the pattern of women's education, most husbands (55%) had finished their secondary education, and there were no husbands who were uneducated. The same as IUD users, the wealth index among discontinued condom users is concentrated among the richer households. As many as 77% belonged to them were well-off households, around 15% to middle wealth status and only 8% were in poor households.

e. Implant

There were 599 women ceasing the use of implant (Norplant). Among them, almost one half were aged 35-49 years. Around 45% were aged 25 to 34 years, but only a few of 5% were under 25 years old. Similar to discontinued users of other methods, most discontinued implant users had two children ever born, and there were 166 women (28%) who had more than 3 children. In addition, the pattern of desired family size was similar to that of discontinued users of other methods, where most women wanted to have two children (43%).

About 79% of the discontinued users of implants lived in rural areas, and the rest lived in urban areas. More than one half the discontinued users of implants had finished only primary education. Very similar to their husbands' educational attainment level, more than 50% of the women had completed only primary education. Unlike the discontinued users of condom and IUD who were generally from affluent households, the large part of discontinued implant users (more than 50%) were from deprived households. There were 134 women (22%) who were from rich households, and 116 women (19%) were from middle wealth households.

3.3 Bivariate Analysis

Such factors including demographic and socioeconomic are assumed to have association with reasons for discontinuation (Mishra et al, 1999, p. 34). In this session, the Pearson's chi square test is employed to test the equivalence between column distributions which are reasons for discontinuation (Barden-O'Fallon, 2008, pp. 412-413). It is expected that in addition to demographic and socioeconomic, other factors such as quality of service, availability and community level effect factors also vary significantly by reasons for discontinuation which means these factors correlate to the reasons for discontinuation. Additionally, this test is used to select the eligible variables for the multivariate analysis.

Furthermore, in analyzing the quality of service variables, since both of the variables of 'Information given to users' (receiving informed choice and informed consent) and 'Media exposure' (on family planning) comprise a number of questions measuring the dimensions of information and the exposure, in order to make the analysis simpler, the answers to those questions are converted into scores. In obtaining the scores, all of the

answers of the questions are summed in one row (per respondent), so every respondent has their own score (see Appendix 2.2). The highest score should be as much as the number of possible answers to the question, for example, media exposure which is measured by the variable of having information about family planning through five media (television, radio, newspaper, poster and pamphlet). Each question in the survey asked whether she was exposed to these media, and the possible answers were 'yes' (coded as 1) or 'no' (coded as 0), then the summation of five 'yes' answers is five, which is later given the maximum score. Moreover, by using the median as a criterion, that is 50% of 5 correct answers (2.5), a respondent's answer scoring more than 2.5 is coded as '1' (new code for 'yes' or for having knowledge about family planning). On the other hand, a respondent who gained a score less than or equal to 2.5 is coded as '0' (new code for 'no' or not being exposed to the media).

3.3.1 The Relationship between Demographic, Socioeconomic and Quality of Service Variables and Reasons for Discontinuation of Pill Use

In addition to displaying the percentages of pill users who discontinued due to personal, medical, family planning services, desire for pregnancy, contraceptive failure and other reasons based on demographic and socioeconomic backgrounds, Table 3.4 also presents the correlation between these characteristics and the reasons for discontinuation. It can be seen that there are some variables, namely the number of children ever born (parity) and women's age which have a probability value less than 0.05 for their Chi-square values. It implies that there are significant associations between these variables with the reasons for discontinuation. On the contrary, other variables such as desired family size, women's and husbands' education, place of residence and wealth index have p-values greater than 0.05, indicating that these variables do not have an association with reasons for discontinuation.

Looking at the percentage of women who discontinued the use of the pill by reason of discontinuation and demographic and socio-economic factors (Table 3.4), it is striking that for all categories of demographic and socioeconomic variables, the highest percentage of discontinued users of the pill cited desire for pregnancy as the reason for discontinuation. Moreover, Table 3.4 also shows that the proportion of discontinuation because of husband's disapproval, infrequent sex and marital dissolution (personal reasons) is higher among women with less than 2 children than among other women.

The percentages of discontinuation due to medical reasons, family planning service and other reasons are higher among women with both fewer than 2 and exactly 2 children, with no child or 1 child, and more than 3 children, respectively. Interestingly, 21.7 % women who had more than three children stopped using the pill as a result of contraceptive failure. It indicates that among women who actually still need contraception (*'in need users'*) and have high parity, the propensity of discontinuation is owing to the failure of contraceptive use, which could be caused by either the clinical failure or users' error.

Table 3.4 Percentage of Women who Discontinued Using Pill by Reasons for Discontinuation according to Demographic and Socioeconomic Factors

No	Characteristics	Reasons for Discontinuation						x ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Contraceptive failure	Others		
Demographic									
1	Parity							117.472	0.000
	a. Less than 2	8.1	27.5	13.7	43.3	5.2	2.2		
	b. 2 children	5.4	27.9	11.5	42.6	11.4	1.3		
	c. 3 children	6.4	25.5	12.2	36.3	17.4	2.2		
	d. More than 3	5.2	26.8	12.2	31.6	21.7	2.4		
2	Desired family size							23.939	0.066
	a. Less than 2	11.7	25.0	15	33.3	8.3	6.7		
	b. 2 children	6.5	25.3	13.6	38.9	13.9	1.7		
	c. 3 children	5.0	29.1	11.1	41.1	12.2	1.5		
	d. More than 3	6.5	28.3	11.3	38.8	13.0	2.2		
3	Women's age							96.967	0.000
	a. Under 25	5.1	26.2	14.1	42.4	10.2	1.9		
	b. 25-34	4.7	24.7	11.0	45	12.9	1.7		
	c. 35-49	9.6	31.4	13.7	27.8	15.2	2.3		
Socioeconomic									
4	Place of residence							9.332	0.097
	a. Urban	6.3	27.5	10.5	40.9	12.6	2.2		
	b. Rural	6.3	26.8	13.7	38.0	13.5	1.8		
5	Women's education							8.501	0.58
	a. Primary & less	7.3	26.3	11.7	39.2	13.7	1.7		
	b. Secondary	5.5	27.7	12.9	38.8	13.1	2.0		
	c. Tertiary	5.9	27.3	12.2	42.4	9.8	2.4		
6	Husband's education							7.394	0.688
	a. Primary & less	6.9	26.5	13.2	39.3	12.4	1.7		
	b. Secondary	6.0	27.2	11.4	39.4	13.9	2.1		
	c. Tertiary	4.8	29.1	14.3	37.8	12.0	2.0		

7	Wealth Index						15.799	0.106
	a. Poor	5.9	25.4	14.6	39.5	12.9	1.7	
	b. Middle	7.0	29	10.9	37.0	13.8	2.3	
	c. Rich	6.4	28.1	10.4	40.0	13.0	2.0	

Source: Calculated from the IDHS 2007 dataset

Other than desire for pregnancy, the most often cited reason for women within all age groups to discontinue pill is medical reasons. Around 26.2 % of women aged less than 25, 24.6 % of women aged 25-34 years, and 31.4 % of older women (35-49 years) decided to no longer employing pill because of medical concerns. In addition, the discontinuation due to medical reasons may be because the women worried about the side effects, difficulty to get pregnant and the fear of experiencing fatality.

Table 3.5 shows that in general quality of service factors have an impact on discontinuation in association with personal, medical, family planning service, desire for pregnancy, contraceptive failure and other reasons. There are six out of seven variables measuring quality of service which are statistically significant, they are the place of service, costs in getting the method, information given to users, visited by family planning workers, visit to health facilities and discussion about family planning with others.

Considering the personal reasons, the highest percentage of respondents discontinued pill is among respondents who got the contraception from other sources (shops, pharmacies, drugstores, friends and relatives). The large part of women who ceased pill resulted from medical reasons is those who acquired the method from private sources like private hospitals and clinics, private doctors and private midwives. Family planning service reasons are common reasons for discontinuation among women getting this contraception from government providers, while contraceptive failure is the common reasons for those who got pill from family planning and health posts.

From the variable of costs in obtaining method, it can be seen that women who got the method free tended to quit taking the pill as contraception because of personal reason (12.3%), medical (27.6 %) and pregnancy desire (40.2 %). In other words, the percentage of discontinuation due to other reasons (services and contraceptive failure) is higher among women who expended an amount of money to get pill than those who did not. In addition, according to the provision of informed consent, unexpectedly, the majority of women who received informed choice and/or informed consent were more

likely to discontinue than those who did not so owing to other than personal and desire for pregnancy and other reasons. This situation could possibly happen since information given to users ranges from the availability of various contraceptive methods, the advantages, side effects and provision of information about how to use the method to the provision of referral to other methods and related service if needed (Bruce, 1990, pp. 64), and it enables women to choose and change their method as they feel uncomfortable or need more effective method.

Table 3.5 Percentage of Women who Discontinued Using Pill by Reasons for Discontinuation according to Quality of Service, Availability & Community Level Effect Factors

No	Characteristics	Reasons for Discontinuation						x ²	P-value
		Personal	Medical	FP services	Desire of Pregnancy	Contraceptive failure	Others		
1	Place of service							244.611	0.000
	a. Public clinic	2.2	27	20.4	33.7	14.3	2.5		
	b. Private clinic	1.4	30.1	17	34.5	15.8	1.4		
	c. FP & Health posts	1.8	18.2	15.5	43.6	18.2	2.7		
	d. Others	11.2	25.5	6.7	43.8	10.6	2.1		
2	The costs getting methods							210.797	0.000
	a. Free	12.3	27.6	7.9	40.2	10.1	2		
	b. Pay	1.4	26.6	16	38.5	15.6	1.9		
3	Information given to users							70.492	0.000
	a. No	7	26.8	10.8	40.5	12.8	2		
	b. Yes	1.6	28.5	22.6	30.8	15.3	1.2		
4	Visited by FP worker							16.511	0.006
	a. No	6.5	27.1	12.4	39.5	12.7	1.8		
	b. Yes	3.2	26.2	11.8	34.8	19.8	4.3		
5	Visited health facility							41.507	0.000
	a. No	8.4	27.6	12.3	38.9	10.6	2.2		
	b. Yes	4.1	26.5	12.4	39.5	15.8	1.6		
6	Media Exposure							8.233	0.144
	a. No	6.5	26.9	12.3	39.6	12.8	1.8		
	b. Yes	4.2	28	12.7	36.4	15.5	3.1		
7	Discussion about FP							38.193	0.000
	a. No	8.8	26.2	11.2	40.7	11.5	1.6		
	b. Yes	4.2	27.8	13.4	38	14.5	2.2		

Source: Calculated from the IDHS 2007 dataset

Women who had never been visited by family planning (FP) or health workers were more likely to discontinue pill in addition to contraceptive failure and other reasons. The pattern is slightly different from the variable of visit to health facilities, in which women who never visited FP or health clinics were more likely to stop using pill

because of personal, medical and other reasons. For those who had ever visited health facilities were more likely to discontinue due to contraceptive failure and also wanting to get pregnant. Moreover, women who had discussion with family, friends or others about family planning circumstances tended to stop employing pill due to medical, services, contraceptive failure and other reasons. Those who never did a discussion were more likely to discontinue the method by personal reasons and the desire for pregnancy.

3.3.2 The Relationship between Demographic, Socioeconomic and Quality of Service Variables and Reasons for Discontinuation of IUD Use

Among IUD users, women's age is evidently associated with the reasons for discontinuation (P-value <0.05). Compared to other factors, this has the strongest relationship with reasons for discontinuation in which it can be seen from the chi square score that is the highest (63.803). It means that the discontinuation of IUD is affected mainly by age rather than other factors. In this discussion, the women's age is classified into only two categories since there are many empty cells if it is categorized into three groups like in the pill cross tabulation. Table 3.6 shows that for almost all discontinuation reasons, except for family planning service and wanting to get pregnant, the percentage of discontinuation is higher among women aged 35 years and over than younger women. It is simply noted that discontinuation resulting from personal, medical, contraceptive failure and other reasons is prevalent among older women.

In addition, the categories of women's and husbands' education are also collapsed into three new groups for the same reason as the merger of the categories of women's age. Furthermore, based on socioeconomic characteristics, women's education and husbands' education are correlated to the reasons for discontinuation. Women who discontinued due to medical and contraceptive failure reasons were mostly uneducated or completed only primary education. It could be related to the capability to understand the management of side effects and other health concerns which may appear during contraceptive use. It is consistent with the opinion argued by Petta et al (1994, pp. 346) that women with higher education are more likely to appreciate and incorporate information including the side effects and the information of correct usage of contraception. Therefore, women with low education may be harder to conceive the explanation how to deal with the side effect of contraception conveyed by health workers than those who have higher education level.

In association with personal, desire for pregnancy and other factors, the tendency of discontinuation is higher among women who completed tertiary education. However, for women who stopped using IUD as a result of family planning service factor, the proportion of termination is higher between women who finished secondary school than those who were illiterate and/or with only primary education.

Table 3.6 Percentage of Women who Discontinued Using IUD by Reasons for Discontinuation according to Demographic and Socioeconomic Factors

No	Characteristics	Reasons for Discontinuation						x ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Contraceptive failure	Others		
Demographic									
1	Parity							20.136	0.167
	a. Less than 2	4.8	28.9	9.6	51.8	2.4	2.4		
	b. 2 children	5.2	30.4	11.5	47.6	3.7	1.6		
	c. 3 children	8.1	35.8	36.7	45.5	33.3	37.5		
	d. More than 3								
2	Desired family size							6.849	0.740
	a. Less than 3	6.1	32.1	12.3	44	4	1.4		
	b. 3 children	6.6	36.8	12.3	35.8	4.7	3.8		
	c. More than 3	5.2	35	13.4	39.2	5.2	2		
3	Women's age							63.803	0.000
	a. Less than 35	1.5	20.1	12.7	60.8	3.4	1.5		
	b. 35 and over	9.4	43.8	12.3	27.5	5.1	1.8		
Socioeconomic									
4	Place of residence							6.941	0.225
	a. Urban	6.1	32.1	12.3	44	3.1	2.4		
	b. Rural	5.9	36.4	12.8	38	6.4	0.5		
5	Women's education							19.698	0.032
	a. Primary and less	5.7	45.7	10.7	31.4	5	1.4		
	b. Secondary	5.3	31.6	14.3	43	4.1	1.6		
	c. Tertiary	8.3	21.9	10.4	53.1	4.2	2.1		
6	Husband's education							29.938	0.001
	a. Primary and less	6.4	42.4	12	34.4	3.2	1.6		
	b. Secondary	3.3	36.2	13	39.8	5.3	2.4		
	c. Tertiary	11.9	18.3	11.9	52.1	3.7	2		
7	Wealth Index							18.333	0.050
	a. Poor	4.6	39.1	6.9	42.8	4.6	2		
	b. Middle	10.7	40.5	11.9	27.4	7.1	2.4		
	c. Rich	5.2	30.4	14.2	44.7	3.6	1.9		

Source: Calculated from the IDHS 2007 dataset

The discontinuation resulting from medical effect is relevant to husband's education was less common among women whose husbands attained tertiary educational level than women having husbands with lower education. The trend of the discontinuation shows a negative association with education level. It increases when the educational level declines. The pattern is the inverse of the discontinuation pattern owing to desire for pregnancy in which the proportion of discontinuation increases by increasing education level.

Another socioeconomic characteristic that gives impact on discontinuation is wealth index (P-value=0.050). It is apparent that according to personal, medical, contraceptive failure and other reasons, women from middle socioeconomic status were more common to discontinue. Moreover, desire for pregnancy was the most reason for well-off women to remove the IUD.

Some factors indicating availability and community level effect have a probability value less than 0.05 which shows a relationship with the discontinuation (Table 3.7). They are place of service, the costs in obtaining method and discussion about family planning with others (families, friends or neighbors). In association with the sources of getting service, the percentages of discontinuation because of personal, medical, desire for pregnancy and other factors are higher among women who obtained IUD from other sources. It could be because women obtaining the method from these sources did not get proper information about how to maintain the device once they got it inserted.

Furthermore, the discontinuation owing to family planning services and contraceptive failure were more frequently experienced by women who acquired the device from public or government clinics. It may have a correlation with dissatisfaction of service provided by government clinics. The next significant variable is discussion about family planning, although the relationship is weak ($\chi^2= 16.554$). The discontinuation resulting from personal, medical and other reasons was less likely to happen if women had a discussion about family planning. But, it does not prevail for other reasons (services, wanting to pregnancy and contraceptive failure), in which the higher proportion of stopping IUD was among women who discussed family planning with their families, friends and/or others.

Table 3.7 Percentage of Women who Discontinued Using IUD by Reasons for Discontinuation according to Quality of Service, Availability & Community Level Effect Factors

No	Characteristics	Reasons for Discontinuation						X ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Failure	Others		
1	Place of service							55.898	0.000
	a. Public clinic	1.7	28.8	16.9	33.9	16.9	1.7		
	b. Private, FP & health posts	3	29.6	16.4	45	4.6	1.3		
	c. Others	10.4	37.2	9.3	39.8	1.5	1.9		
2	The costs getting methods							28.469	0.000
	a. Free	9.8	33.5	7.9	44.5	2.4	2		
	b. Pay	1.8	34.1	17.1	38.5	6.6	1.3		
3	Information given to users							7.092	0.214
	a. No	7	33.3	11.6	41.8	4.6	1.7		
	b. Yes	2.2	34.2	18.2	40.9	3	1.5		
4	Visited by FP worker							1.545	0.908
	a. No	6.1	34.1	12.6	41.1	4.3	1.8		
	b. Yes	5.4	29.7	10.8	45.6	5.4	3		
5	Visited health facility							9.324	0.097
	a. No	7.6	39	9.9	37.7	4.5	1.3		
	b. Yes	4.7	29.2	14.8	45.1	4.3	1.9		
6	Media Exposure							10.293	0.067
	a. No	5.6	35.5	13.5	38.5	5	1.9		
	b. Yes	7.8	27.2	8.7	53.4	1.9	1		
7	Discussion about FP							16.554	0.005
	a. No	8.9	38.3	12.1	33.6	4.2	2.8		
	b. Yes	3.8	30.1	12.8	48.1	4.5	0.8		

Source: Calculated from the IDHS 2007 dataset

3.3.3 The Relationship between Demographic, Socioeconomic and Quality of Service Variables and Reasons for Discontinuation of Injection Use

The result of chi square test shows that all demographic and socioeconomic variables examined have a relationship with discontinuation relating to the reasons for stopping injection use (Table 3.8). The occurrence of discontinuation due to failure while adopting contraception was higher among respondents with high parity. It increases slightly as the number of children ever born rises. Noticing the personal and medical causes, it can be seen that a high percentage of discontinuation for women with the lowest parity (no child or one child) and also for those with the largest number of children are contributed to both reasons. For family planning service reasons, the most

frequent discontinuation occurred among women with more than three children ever born.

As the expectation, women who stopped injection because they wanted to become pregnant were those who wanted to have larger family size. The percentage of discontinuation rises as the family size that they desired increases. It is opposite to the pattern of termination related to medical reasons, in which the discontinuation decreases by declining desire of family size.

Considering women's age, it shows that the cessation of injection owing to almost all reasons (personal, medical, services and failure) was common for women who were 35 years old and over in which the percentage of discontinuation was higher than younger women. According to urban-rural differences, the proportion of respondents who terminated the injection because of problems relating to health and other circumstances was higher for those who lived in urban than their counterparts in rural areas. For acceptors living in rural areas, the tendency of discontinuation is related to FP service, the desire for pregnancy and contraceptive failure. In respect of FP service, it is understandable that rural women may have difficulty getting access to services because of the geographic inconvenience leading to higher discontinuation level.

The proportion of discontinuation exhibits an increase by decreasing education level in association with services reasons. Women with lower education level tended to stop using injection as birth control in contrast to those who had higher education resulting from these reasons. It could be caused by the cost factor (one dimension of family planning service) that women with lack of education may have less opportunity to get a better job which in turn influences their socioeconomic status, and affects their expenses including for health and family planning. It is underpinned by wealth index information (Table 3.8) stating that the better wealth status, the lower percentage of discontinuation due to services reasons. The inverse situation happens influencing the proportion of discontinuation because of medical causes. Richer women were more likely to stop using injection as a result of these circumstances than those who were poorer. For the medical cause, it is possible that women experiencing side effects or other problems concerning health terminated their previous contraceptive use and switched to another method that they thought safer. It may not be a big deal for rich women because they could select any method without considering the costs. Moreover,

relating to the family planning service and also medical reasons, the pattern of husband's discontinuation is the same as women's education. It goes up as the education level declines.

Table 3.8 Percentage of Women who Discontinued Using Injection by Reasons for Discontinuation according to Demographic and Socioeconomic Factors

No	Characteristics	Reasons for Discontinuation						x ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Failure	Others		
Demographic									
1	Parity							192.41	0.000
	a. Less than 2	11	36.3	8.3	41.2	1.4	1.7		
	b. 2 children	6.2	28.9	10.3	49.6	3.5	1.6		
	c. 3 children	5.4	30.2	10.3	47.2	5.3	1.6		
	d. More than 3	6.3	38	13.8	33.1	7.6	1.1		
2	Desired family size							67.554	0.000
	a. Less than 2	13.8	39.1	9.2	29.9	5.7	2.3		
	b. 2 children	8.2	36.5	10.7	39.9	3.2	1.5		
	c. 3 children	5.5	32	10.8	46.1	4	1.5		
	d. More than 3	7	28.4	10	47.8	5.2	1.6		
3	Women's age							180.123	0.000
	a. Under 25	8	31.3	9.9	44.8	4.1	1.9		
	b. 25-34	6.8	27.9	9.3	50.3	4.1	1.7		
	c. 35-49	7.8	42.8	13	31.1	4.2	1.2		
Socioeconomic									
4	Place of residence							38.017	0.000
	a. Urban	7.3	37.2	8.9	41.2	3.8	1.6		
	b. Rural	7.3	29.8	11.6	45.6	4.3	1.5		
5	Women's education							40.546	0.000
	a. No education	10.2	32.7	17.7	33.3	5.4	0.7		
	b. Primary	7.9	30.3	11.1	44.6	4.1	2		
	c. Secondary	6.9	34.1	9.8	43.8	4.2	1.3		
	d. Tertiary	5.2	39.8	8.2	42.9	2.7	1.1		
6	Husband's education							47.346	0.000
	a. No education	13.2	24.8	14.7	38.8	7.8	0.8		
	b. Primary	7.4	31.4	11.2	44.4	4.2	1.5		
	c. Secondary	7.8	33.4	10.2	43.1	4	1.6		
	d. Tertiary	1.9	38.4	7.7	47.2	3.5	1.4		
7	Wealth Index							71.146	0.000
	a. Poor	7.2	28.3	12.6	45.6	4.5	1.8		
	b. Middle	8.1	32	10.7	44.9	3.2	1		
	c. Rich	7	38.3	7.9	41.1	4.1	1.5		

Source: Calculated from the IDHS 2007 dataset

Furthermore, Table 3.9 presents the bivariate analysis between reasons for discontinuation and quality of service variables. The result shows all variables are statistically associated with the discontinuation, and some of them denote a considerably strong relationship (place of service, the costs in obtaining method and visiting health facilities). Based on place of service variable, the percentage of discontinuation because of personal reason is higher among respondents who obtained injection from other sources. It is the same as the pattern of other contraceptive methods which have been discussed previously (pill and IUD).

The highest percentage of discontinuation owing to medical and family planning service reasons is among women who had injection from health integrated posts and family planning providers, respectively (46.5% and 27.3%). Regarding the family planning service reasons, the role of family planning providers might be important for the acceptors associating with the provision of contraception. Women might depend so much on the supply of contraception by family planning providers, so that the absence of the providers was likely to cause the discontinuation. Additionally, in relation to medical causes, it is possible that health integrated posts may not only afford the contraceptive method, but also offer and even give advice linked to health concerns or side effects since mostly these posts are guided by health workers. Therefore, when the workers are absent, women are more likely to discontinue practising the method because of unsafe feeling.

The injection termination resulting from personal reason is common among women who received the method freely (13.4%) in contrast to those who had to pay in obtaining the method (1.8%). This condition is opposite to those ceasing injection due to service, medical and contraceptive failure reasons in which the proportion of discontinuation is higher among women who paid to obtain the contraception than those who did not expend money for it. Women are likely to expect to use contraception safely, and they willingly spend an amount of money for that. Thus, if they experience such health problems including side effects, fatalistic and the risk of infecundability, they may decide to stop employing contraception. Likewise, this consideration may cause women to discontinue injection because of service reason. By spending money they hope that they acquire good family planning services, therefore, if their expectation is overestimated, they are likely to terminate using the method.

Table 3.9 Percentage of Women who Discontinued Using Injection by Reasons for Discontinuation according to Quality of Service, Availability & Community Level Effect Factors

No	Characteristics	Reasons for Discontinuation						x ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Failure	Others		
1	Place of service							376.245	0.000
	a. Public clinic	1.3	30	16.6	44.3	6	1.9		
	b. Private clinic	1.9	29.8	10.8	50.4	6.2	1		
	c. Family planning providers	2	38.6	27.3	23	4.5	4.5		
	d. Health Integrated Posts	1.9	46.5	17.8	28.7	4.5	0.6		
	e. Others	12.3	34.4	8.3	40.8	2.4	1.8		
2	The costs getting methods							350.115	0.000
	a. Free	13.4	27.7	8.2	45.9	2.9	1.9		
	b. Pay	1.8	37.5	12.6	41.8	5.2	1.2		
3	Information given to users							61.889	0.000
	a. No	8.2	31.8	10.1	44.4	3.9	1.5		
	b. Yes	1.6	39	12.8	39.7	5.2	1.7		
4	Visited by FP worker							16.857	0.005
	a. No	7.6	33	10.5	43.3	4	1.6		
	b. Yes	2.9	30.1	10.1	50.7	5.2	0.9		
5	Visited health facility							127.657	0.000
	a. No	9.3	35	12.5	38.7	2.8	1.6		
	b. Yes	5.1	30.4	8.2	49.4	5.5	1.4		
6	Media Exposure							11.678	0.039
	a. No	7.5	32.2	10.7	43.8	4.1	1.6		
	b. Yes	5.4	37.8	8.3	43.2	3.9	1.4		
7	Discussion about FP							66.948	0.000
	a. No	10.2	31.1	10.2	43.1	3.6	1.7		
	b. Yes	4.7	34.3	10.7	44.4	4.5	1.4		

Source: Calculated from the IDHS 2007 dataset

Moreover, the visit to health facilities evidently affects discontinuation. The impact of it demonstrates the positive relation toward the percentage of discontinuation. For almost all discontinuation causes, the proportion of discontinuation is lower among women who ever visited family planning or health facilities. Nevertheless, for contraceptive failure and desire for pregnancy reasons, the condition is the inverse in which women tended to discontinue if they ever visited health facilities. This finding is interesting since it is generally assumed that visiting health or family planning facilities will encourage acceptors to maintain their contraceptive use. The similar pattern presented by variable of visited by health workers. Women who were visited by FP or health workers were less likely to discontinue due to personal, medical, services and other reasons.

3.3.4 The Relationship between Demographic, Socioeconomic and Quality of Service Variables and Reasons for Discontinuation of Condom Use

Table 3.10 provides information about the percentage distribution of discontinuation experienced by condom users within five years before the survey. It also exhibits the association between reasons for discontinuation and the demographic and socioeconomic characteristics among them.

Table 3.10 Percentage of Women who Discontinued Using Condom by Reasons for Discontinuation according to Demographic and Socioeconomic Factors

No	Characteristics	Reasons for Discontinuation					x ²	P-value
		Personal	Medical	FP services	Desire of Pregnancy	Contraceptive failure		
Demographic								
1	Parity						16.990	0.319
	a. Less than 2	6.5	4.3	34.8	45.7	4.3	4.3	
	b. 2 children	5.2	13.8	27.6	39.7	10.3	3.4	
	c. 3 children	2.7	18.9	27	33.1	16.2	2	
	d. More than 3	3.3	6.7	40	23.3	23.3	3.3	
2	Desired family size						3.892	0.565
	a. 2 children and less	5.1	14.1	33.3	32.3	12.1	3	
	b. 3 children and more	4.2	6.9	29.2	44.4	12.5	2.8	
3	Women's age						13.371	0.020
	a. Less than 35	1.9	9.7	27.2	46.6	10.7	3.9	
	b. 35 and over	8.8	13.2	38.1	23.5	14.7	1.5	
Socioeconomic								
4	Place of residence						2.294	0.807
	a. Urban	5.3	10.6	29.5	37.9	13.6	3	
	b. Rural	2.6	12.8	38.5	35.9	7.7	2.6	
5	Women's education						3.932	0.559
	a. Primary and less	9.5	19	33.3	25.6	9.5	3	
	b. Secondary and higher	4	10	31.3	38.7	12.7	3.3	
6	Husband's education						9.951	0.077
	a. Secondary and less	3.7	14	37.4	33.6	9.3	1.9	
	b. Tertiary	6.2	6.2	21.9	43.8	17.2	4.7	
7	Wealth Index						9.241	0.509
	a. Poor	2.4	14.3	21.4	26.2	28.6	7.1	
	b. Middle	7.7	19.2	30.8	30.8	7.7	3.8	
	c. Rich	4.6	9.2	32.8	39.7	11.5	2.3	

Source: Calculated from the IDHS 2007 dataset

Only one out of seven demographic and socioeconomic indicators is less than the P-value = 0.05, it is women's age variable meaning that only this variable has a significant

correlation with reasons for discontinuation, although the association is quite weak (denoted by the χ^2 score). The large number of variables which are statistically insignificant may be due to the small sample size that affects the relation between column (dependent) and row (predictor) variables. In addition, there is a variable which is excluded from the analysis since there are many empty cells yielded from the cross tabulation that subsequently affect the result of multivariate analysis.

The percentage of women who stopped using a condom owing to personal reason and aged above 35 years was more than four times the percentage of those who were younger. The prevalence of older women in discontinuing condom also results from medical, service and contraceptive failure reasons. On the other hand, younger women were more likely to stop using a condom as a result of desire for pregnancy since they wanted to get pregnant.

Table 3.11 Percentage of Women who Discontinued Using Condom by Reasons for Discontinuation according to Quality of Service, Availability & Community Level Effect Factors

No	Characteristics	Reasons for Discontinuation						χ^2	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Failure	Others		
1	The costs getting methods							10.096	0.073
	a. Free	7.7	14.1	24.4	42.3	7.7	3.8		
	b. Pay	2.2	8.6	37.6	33.3	16.1	2.2		
2	Information given to users							19.306	0.002
	a. No	5.3	12.5	26.3	40.1	13.2	2.6		
	b. Yes	2.3	3.3	68	15.8	5.3	5.3		
3	Visited by FP worker							2.990	0.702
	a. No	4.3	11.7	31.5	37.7	11.7	3.1		
	b. Yes	11.1	2.6	30.7	30.1	22.2	3.2		
4	Visited health facility							14.940	0.011
	a. No	9.2	10.8	41.5	23.1	10.8	4.6		
	b. Yes	1.9	11.3	25.5	46.2	13.2	1.9		
5	Media Exposure							6.396	0.270
	a. No	6.1	11.5	30.5	34.4	14.5	3.1		
	b. Yes	2.5	10	35	45	5	2.5		
6	Discussion about FP							5.633	0.344
	a. No	6.9	8.6	25.9	36.2	17.2	5.2		
	b. Yes	3.5	12.4	34.5	38.1	9.7	1.8		

Source: Calculated from the IDHS 2007

Moreover, the percentage of discontinuation occurring as a consequence of personal, medical, desire for pregnancy and failure problems are lower among women receiving

informed choice and/or consent. It is a positive indication because it may signify that the acceptance of informed choice and/or consent is noteworthy to reduce discontinuation.

3.3.5 The Relationship between Demographic, Socioeconomic and Quality of Service Variables and Reasons for Discontinuation of Implant Use

There are only two variables indicating demographic and socioeconomic characteristics which affect discontinuation of implant use in respect to the reasons. They are women's age and place of residence. Based on medical reason, the highest percentage of discontinuation is women who were aged below 25 years (42.8%), while the lowest percentage is those with age group of 25-34 years, and is 26.4%.

According to personal reasons, women aged above 35 years were common in experiencing discontinuation because of that reason compared to older women. The proportion of implant removal relating to family planning service is also high among women aged 34-49 years. Desire of more effective method could be one of the underlying factors of family planning service contributing to implant termination. In general, older women were less likely to have an additional child, thus they might expect to practice the effective method to prevent another birth.

Furthermore, linking to place of residence, Table 3.12 illustrates that urban women tended to have implant removals in consequence of personal, medical and wanting to become pregnant reasons. In contrast, their counterparts in rural areas were likely to stop using implant as a result of family planning service, contraceptive failure and other reasons. Except access problems, several issues on family planning service such as costs, method effectiveness and the difficulty of utilizing, might influence rural women to remove the implant. Even though this contraception is a long term method, and does not require women to do anything after the insertion, it needs to be removed after five years of use. It is not easy for them since, in many cases, rural women do not know definitely about the time for removal (Hull, 1998, pp.178). This may be considered as the inconvenience of use which ultimately may lead those who live in rural areas to no longer use the method.

Table 3.12 Percentage of Women who Discontinued Using Implant by Reasons for Discontinuation according to Demographic and Socioeconomic Factors

No	Characteristics	Reasons for Discontinuation						x ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Failure	Others		
Demographic									
1	Parity							10.759	0.377
	a. 2 children and less	6.2	27.1	23.3	39.9	1.6	1.9		
	b. 3 children	4.1	29.5	21.3	39.3	1.6	4.1		
	c. More than 3	4.9	34.5	29.6	28.2	1.4	1.4		
2	Desired family size							4.725	0.450
	a. 2 children and less	3.9	26.7	23.5	31	0.4	14.5		
	b. 3 children and more	5.2	25.3	19.8	32.6	2	15.1		
3	Women's age							42.631	0.000
	a. Under 25	3.6	42.8	14.3	32.1	3.6	3.6		
	b. 25-34	4.1	24.3	18.1	49.8	1.6	2.1		
	c. 35-49	6.8	33.1	31.9	24.3	1.2	2.8		
Socioeconomic									
4	Place of residence							15.046	0.010
	a. Urban	5.8	41.7	12.6	37.9	1	1		
	b. Rural	5.3	26.7	27.4	36.3	1.7	2.6		
5	Women's education							2.602	0.761
	a. Primary and less	5.2	30.2	26.3	34.4	1.3	2.6		
	b. Secondary and higher	5.6	29	22	39.7	1.9	1.9		
6	Husband's education							10.091	0.073
	a. Primary and less	5.7	30.1	27.7	32.6	0.7	3.2		
	b. Secondary and higher	5	29.2	20.8	41.2	2.5	1.2		
7	Wealth Index							15.411	0.118
	a. Poor	5.8	24.8	26.8	37.7	1.6	3.2		
	b. Middle	2.9	39.2	23.5	30.4	2	2		
	c. Rich	6.4	34.5	19.1	36.4	1.8	1.8		

Source: Calculated from the IDHS 2007 dataset

Place of service is one of quality of service variable having association with discontinuation (Table 3.12). In this session, due to the small sample size, the categories of variable which originally consisted of five categories are collapsed into three groups in order to avoid the empty cells in cross tabulation which is possible to influence the result of further analysis (multivariate). In relation to this variable, women who obtained implant from public clinics mostly removed the device owing to the problems regarding family planning service (34.3%). For those inserting the method from private

clinics, family planning providers and health posts frequently stop using it because of medical and desire to get pregnant reasons. This pattern is identical with who got implant from other sources that they were more likely to discontinue due to medical and desire to get pregnant reasons.

Table 3.13 Percentage of Women who Discontinued Using Implant by Reasons for Discontinuation according to Quality of Service, Availability & Community Level Effect Factors

No	Characteristics	Reasons for Discontinuation						X ²	P-value
		Personal	Medical	FP services	Desire for Pregnancy	Failure	Others		
1	Place of service							46.426	0.000
	a. Public clinic	1	32.4	34.3	27.6	1.9	2.9		
	b. Private, FP & health posts	1.5	33	27.7	33	1.5	3.4		
	c. Others	11.4	25.1	16.6	44.5	1.4	0.9		
2	The costs getting methods							39.693	0.000
	a. Free	10.6	24.4	16.6	44.2	2.3	1.8		
	b. Pay	1.6	33.4	30.2	31.1	1	2.6		
3	Information given to users							4.229	0.517
	a. No	5.8	30.2	24.9	35.8	1.3	2		
	b. Yes	2.8	26.4	22.2	41.7	2.8	4.2		
4	Visited by FP worker							5.081	0.406
	a. No	5.6	30.4	23.8	36.2	1.7	2.5		
	b. Yes	2.6	21.1	31.6	39.5	2.6	2.6		
5	Visited health facility							14.563	0.012
	a. No	7.9	32.6	23.4	32.6	1.3	2.3		
	b. Yes	1.8	25.7	26.1	42.1	1.8	2.3		
6	Media Exposure							5.305	0.380
	a. No	5.2	30.4	24.8	35.5	1.7	2.5		
	b. Yes	7.9	21.1	21.1	44.7	2.6	2.6		
7	Discussion about FP							8.066	0.153
	a. No	7.3	29.6	22.6	36.1	1.1	3.3		
	b. Yes	3.2	29.8	26.6	37.1	2	1.2		

Source: Calculated from the IDHS 2007 dataset

The next quality of service factor which significantly makes an impact on discontinuation is the cost in getting contraception. Nevertheless, in this study, the influence of cost may vary relying on the reasons for discontinuation. For users who discontinued because of personal reasons, those who paid to obtain an implant were less likely to discontinue than women who did not pay anything. It could be that those who got the device free did not need to spend any money, so they tended to have less commitment to retain the use.

For women who removed the implant resulting from medical, family planning service, and other reasons, the proportion of discontinuation is higher among those who paid to acquire the contraception. There may be a propensity to terminate using the method if women perceived that there was a gap between their expectation and the reality of what they have got. This is because they already spent extra expenditure for fertility control, so they would expect good quality of both contraception and services.

3.4 Summary of Findings

The bivariate analysis provides information about the reasons for discontinuation of pill, IUD, injection, condom and Norplant according to demographic, socioeconomic, quality of services, availability and community level effect factors. Among the discontinued of the pill, demographic and socioeconomic variables, the variables of the number of children ever born and women's age have a statistical correlation with reasons for discontinuation (P-value <0.05), while the rest of the variables evidently have no any influence on discontinuation. Considering quality of service characteristics, some variables, like, information given to users, the visit of family planning or health workers to clients' houses and visiting health facilities are also associated with the dependent variable that is reasons for discontinuation. Some other variables, such as place of service (denoting availability), costs in getting the method and discussion of family planning (implying community level effect) give the influence on discontinuation as well.

Women's age, women's education, husband's education and wealth index categorizing as demographic and socioeconomic variables have been proved to have a relationship with discontinuation between women who employed IUD previously. In addition, the significant variables are place of service (availability), costs and discussion about family planning (community level effect).

Among users of injection, reasons for discontinuation are related to all of demographic and socioeconomic backgrounds including parity, desired family size, women's age, urban-rural differentials, women's and husband's education and wealth index. All the following variables of availability, service quality and community level effect also have a relation with discontinuation: place of service, cost, information given to users, the visit of family planning or health workers to clients' houses, visiting health facilities, media exposure and discussion about family planning. Furthermore, only women's age

as a demographic factor affects discontinuation of condom users. From quality of service characteristics, there are two variables which are significant, namely information given to users and visiting health facility. According to demographic and socioeconomic backgrounds, there are two variables which significantly have association with discontinuation between users of implant, they are women's age and place of residence. Moreover, cost and variable of place of service that signifies availability also affect the discontinuation. From quality of service variables, only visiting health facilities is notably correlated with discontinuation.

Yet, there is no information about the magnitude of the relationship obtained by the bivariate analysis. Therefore, it requires a more complex analysis in order to examine the effect of the association, namely multivariate analysis, of which the results are presented in the next chapter.

CHAPTER FOUR

ANALYSIS OF FACTORS INFLUENCING THE REASONS FOR CONTRACEPTIVE USE DISCONTINUATION: RESULTS OF A MULTIVARIATE ANALYSIS

4.1 Introduction

The results of bivariate analysis in the previous chapter suggest that there is a relationship between various reasons for modern contraceptive use discontinuation (dependent variables) and several predictor variables representing the women's demographic and socioeconomic characteristics, quality of family planning services, cost of contraception, place of service (indicating availability of service in the community) and discussion of family planning (implying community level effect). However, the bivariate analysis does not reveal a clear relationship since it only assesses the association between each of the predictor variables and the dependent variable at a time, and does not take into account the simultaneous influence of other variables, which is more common in real life. Besides, it is impossible to assign a degree of the association between a predictor and the dependent variables through bivariate analysis. Thus, multivariate analysis is required to examine these complex relationships which would enable us to produce statistical inferences making the study finding easier to be interpreted (Tabachnick & Fidell, 2007, p. 3).

Multinomial logistic regression is one method of multivariate analysis which is suitable for this study because it is possible to analyze two or more categories of the dependent variables (Garson, 2010a), which in this case comprise personal, medical, family planning (FP) service, desire for pregnancy, contraceptive failure and other reasons for discontinuation. In addition to carrying out the multinomial logistic regression, this chapter aims to assess what factors attributing demographic, socioeconomic and service quality backgrounds, availability of service and community level factors provide the dominant effects on the reasons for modern contraceptive use discontinuation (pill, IUD, injection, condom and implant). This part of the analysis also aims to evaluate the magnitude of the effects of these factors contributing to discontinuation.

4.2 Multicollinearity Checking

Similar to other multiple regression analysis, the assumption of the absence of multicollinearity must be met before entering the significant variables yielded from bivariate analysis into the multinomial logistic regression model. Multicollinearity occurs if the independent (predictor) variables are interrelated, in which it inflates the standard errors of the estimates of the effects. The absence of multicollinearity is important since it enhances the reliability of the obtained model (Garson, 2010a).

The checking of multicollinearity is conducted through evaluating the VIF (Variance-inflation factor) and/or the tolerance factor ($1-R^2$) (Garson, 2010b). In this study, the test is carried out by VIF test, in which the high multicollinearity is detected if the VIF is equal to or more than 4 (Garson, 2010b).

The test shows that there is no multicollinearity detected between the independent variables (parity, women's age, urban-rural differential, place of service, costs, information given to users, the visit of FP/health workers to clients' houses, clients visiting health facility and discussion of FP) among pill users. This is indicated by the VIF values of all these variables that are less than 4 (see Appendix 3.1.a). Thus, all the selected variables are included in the multinomial logistic regression. Checking is applied for all predictors which have been shown, in the bivariate analysis to have statistically significant associations with reasons for discontinuation for all types of contraception. The result confirms that the independent variables which importantly influence discontinuation among IUD acceptors (women's age, women and husband's education, wealth index, place of service, costs and discussion of family planning) have less than 4 of the VIF values (Appendix 3.1.b), and it proposes there are no multicollinearity among these variables. The same results are obtained for injection, condom and implant users that there is no multicollinearity occurring among significant independent variables for the all three contraceptive methods (Appendix 3.1.c, 3.1.d and 3.1.e). Hence, it is possible to run multivariate analysis which is multinomial logistic regression.

4.3 Multivariate Analysis

As has been stated previously, the multivariate analysis employed in this study is multinomial logistic regression. This method is used since the dependent variable of this

research (reasons for discontinuation) comprise six categories, namely personal, medical, family planning service, desire for pregnancy, contraceptive failure and other reasons. The independent variables analyzed are the elements of demographic, socioeconomic and quality of service factors and availability and community level effect which significantly have relation to reasons for discontinuation in bivariate analysis and have been verified as appropriate for inclusion in the analysis, through multicollinearity checking.

In analyzing the multinomial logistic regression, the last category of the dependent variable (“Other” reasons) does not appear in the model because it is chosen as the reference category. Therefore, the probability of discontinuation due to personal, medical, family planning service, desire for pregnancy and contraceptive failure reasons is relative to “Other” reasons. For the independent variables, the reference category is chosen by default, which in this case that is also the last category.

4.3.1 Factors Influencing the Reasons for Discontinuation of Pill Use

It has been noted in the bivariate analysis that parity, women’s age, type of place of residence, place of service, cost, information given to users, visit of family planning (FP)/health workers to clients’ houses, clients visiting health facility and discussion of family planning (FP) are significant indicators for discontinuation among pill users. These variables are entered into multinomial logistic regression model. However, after entering, it is detected by the Likelihood Ratio test (Appendix 3.2.a) that the inclusion of variable of FP/health workers visit into model does not give notable influence on the model ($P\text{-value} > 0.05$), so that, this is excluded.

Table 4.1 presents the factors affecting discontinuation of pill use in respect to personal, family planning service, desire for pregnancy and contraceptive failure reasons (the table only presents the variable containing significant categories). It can be seen that the determinants of discontinuation are different according to the reasons for discontinuation. For medical reasons, unfortunately, it is proved that there is none of cost and place of service variables and variable specifying demographic, socioeconomic and quality of service having significant association with these reasons, hence, it is not given in the table (see Appendix 3.2.a).

Table 4.1 Final Multinomial Logistic Regression Model of Reasons for Discontinuation among Pill Users

Reasons for Discontinuation	Variables	Logistic Coefficient (B)	Odds Ratio (Exp (B))	P-value
Personal	Intercept	-2.479		
	Parity			
	a. Less than 2	0.749	2.115	0.020*
	b. 2 children	0.750	2.117	0.010*
	c. 3 children	0.643	1.902	0.029*
	d. More than 3 children			
	Place of service			
	a. Public clinic	-0.882	0.414	0.040*
	b. Private clinic	-0.630	0.533	0.154
	c. FP & Health posts	-1.235	0.291	0.117
	d. Others			
	The costs getting method			
	a. Free	1.641	5.158	0.000*
	b. Pay			
	Visited health facility			
	a. No	0.490	1.632	0.013*
	b. Yes			
Discussion about FP				
a. No	0.676	1.966	0.000*	
b. Yes				
FP Services	Intercept	-0.320		
	Place of service			
	a. Public clinic	0.787	2.197	0.004*
	b. Private clinic	0.791	2.205	0.004*
	c. FP & Health posts	0.250	1.284	0.534
d. Others				
Desire for pregnancy	Intercept	0.76		
	Women's age			
	a. Under 25	0.954	2.597	0.000*
	b. 25-34	0.824	2.279	0.000*
	c. 35-49			
	Place of service			
	a. Public clinic	-0.717	0.488	0.002*
	b. Private clinic	-0.602	0.547	0.006*
	c. FP & Health posts	-0.780	0.458	0.017*
	d. Others			
Contraceptive Failure	Intercept	0.986		
	Parity			
	a. Less than 2	-1.785	0.168	0.000*
	b. 2 children	-0.751	0.472	0.001*
	c. 3 children	-0.184	0.832	0.389
	d. More than 3 children			
	Women's age			
	a. Under 25	1.084	2.957	0.000*
	b. 25-34	0.546	1.726	0.003*
	c. 35-49			
	Visited health facility			

	a. No	-0.425	0.654	0.006*
	b. Yes			
-2 Likelihood	3,384			
Model χ^2 (df=60)	620.006			

Note: * signifies that the variable is statistically significant at $\alpha=0.05$ (CI=95%)

Source: Calculated from the IDHS 2007 dataset

All of parity categories are statistically significantly related to discontinuation resulting from personal reasons (p-value < 0.05). Table 4.1 shows that women with fewer than two children ever born and with two children were 2.12 times more likely to stop using the pill compared to women who had more than three children because of personal reasons compared to “Other” reasons. Women who had three children were 1.9 times more likely to discontinue the pill compared to those who more than three children due to personal reasons rather than “Other” reasons. The results imply that women with lower parity tended to discontinue the pill compared to those who had higher parity for personal reasons. Considering specific personal reasons, particularly husband’s disapproval, it is reasonable to find that those who have fewer living children are more likely to discontinue the pill . Their husbands may oppose them to continue using pill since they want to have additional children. This finding is actually related to desired family size (but, this variable is not statistically significantly associated with personal reasons for discontinuation among pill users) which means that generally, the desire for large families is more common among men than women in a large number of developing countries (Tuloro, et al, 2006, p. 153). Accordingly, it can be stated that the propensity for discontinuation of pill for these reasons may be influenced considerably by the role of the husbands’ fertility preferences.

The next variable affecting discontinuation of the pill due to personal reasons is place of service. However, there is only one category of this variable that is significant, which is public clinics. The odds ratio of 0.414 means that the probability of discontinuation owing to personal reasons rather than “Other” reasons is decreased by a multiplicative factor of 0.414 by obtaining the pill from public providers rather than from other sources. In other words, women who got pill from public clinics might be less likely to stop taking the pill compared to those women who obtained the pill from other sources, such as pharmacies, drug stores, friends, relative and so forth. It may imply that those

who acquired the pill from other sources might be less committed to control their fertility reasoned by such personal factors.

The variable, cost in getting the method appears to have the strongest correlation with discontinuation related to personal causes. It is consistent with the result of bivariate analysis implying that the likelihood of pill termination rises as women obtain the contraception free of cost. The odds ratio of 5.16 demonstrates that women who did not spend any money on getting the pill were 5.16 times more likely to cease using the pill because of personal reasons compared to “Other” reasons compared to women who spent money to get the pill. It may be assumed generally that free contraception is associated with low discontinuation level, thus, this is an unexpected result since free charges enable women to practice contraception regardless of money for various costs like the regular costs of medication and the method.

Visiting health facilities seems to have a positive effect on reducing the chance of discontinuation for personal reasons relative to “Other” reasons. Table 4.1 shows that women who never visited a family planning (FP) or health facility were 1.63 times more likely to terminate using the pill than the women who visited the clinics. It is clear that the probability of discontinuation may increase as a result of not visiting FP/health facilities. This could be so because women who visit these clinics may get information about how to use the pill correctly, what could be its side effects and how to deal with such side effects. In other words, it forms a part of that element of quality of care that deals with information given to clients (Bruce 1990). In case of “husband away/infrequent sexual activities” (one of the personal reasons), many women may not use the pill when their husbands are away. In fact, they still need to use the pill until they complete the full cycles of pill use. But, this personal reason can possibly cause discontinuation.

Discussion about family planning with families, friends or relatives gives a positive impact on preventing discontinuation due to personal reasons. The probability of discontinuation among pill users who never had a discussion about family planning with others increases by a factor of 1.97 compared to women who ever discussed about family planning with friends, families or relatives. This shows the importance of discussion about family planning with friends and relatives in order to reduce the chances of discontinuation.

Considering family planning service factors as reasons for discontinuation, place of service is the only important variable influencing pill discontinuation. But, only categories of those obtaining pill from public and those getting it from private clinics have significant relations with discontinuation due to family planning service reasons rather than “Other” reasons. Women who got the pill from public providers were 2.20 times more likely to discontinue the pill compared to those who acquired it from other sources. The likelihood of discontinuation increases slightly when women obtain the pill from private clinics including private hospitals, private doctors, private midwives, and so forth. This finding is contradictory to the findings from other countries, for example, in Morocco that the continuation rates among pill users were higher among those who got the method from government clinics implying that discontinuation was higher among women who obtained the method from the non-government sources (Steele, Curtis & Choe, 1999, p. 36). This situation could happen as a result of distance effect. If a large proportion of the respondents lived in rural areas and far away from government clinics, it might be plausible that they were reluctant to continue the use of the pill. However, in Indonesia private clinics are not common in the rural areas, and the pill is supplied under the government sponsored family planning program.

Among women discontinuing the pill because of reasons of wanting to get pregnant, it can be seen that age is related to discontinuation due to this reason compared to “Other” reasons. Younger women tended to stop using the method more compared to older women. Table 4.1 shows that women aged below 25 years were 2.60 times more likely to stop using the pill compared to women aged above 35 years, while women who were aged 25-34 years were 1.73 times more likely to stop using the pill compared to older women for the same reason. The pattern signifies that the chance of discontinuation declines when age increases since mostly younger women tend to have fewer children than older women, and they still have long a reproductive span. Hence, the discontinuation may boost when many younger women desire to conceive.

Furthermore, unlike family planning service reasons, the place of service shows a significant influence on discontinuation due to desires to get pregnant for all categories. Nevertheless, the relationship is negative. The odds of termination of the pill to become pregnant rather than “Other” reasons is reduced by a factor of 0.488 by obtaining the method from public providers rather than from other sources, controlling for other

variables in the model. For women who got the contraception from private sources, the likelihood of termination is 0.547 lower than those acquiring pill from other sources. Moreover, women who got the contraception from family planning and health posts were 0.458 less likely to discontinue than those who got it from other sources. Thereby, the chance of discontinuation among women who got pill from other sources is the highest, if other variables are held constant.

Based on contraceptive failure reasons, the significant variables affecting discontinuation of the pill are parity, women's age and visiting health facility, even though within the variable of parity, one of categories is statistically insignificant. Table 4.1 shows that relative to "Other" reasons, women who had fewer than two living children were 0.168 times less likely to discontinue to get pregnant while using pill compared to those who had more than three children. For women with two children, the odds of getting pregnant were 0.472 smaller than those who had a higher parity (more than three) to discontinue because reasons of getting pregnant compared to "Other" reasons.

It is apparent that the possibility of discontinuation resulting from contraceptive failure is higher among women with higher parity. Women who had many live born children seem to have high fecundity, and women with high fecundity are likely to experience contraceptive failure since the risk of pregnancy goes up by increasing fecundability (Trussel & Kost, 1987). Because the pill is known as an effective method and it takes a considerably long time to get back full fecundity after stopping its use (Vessey et al, 1986 in Trussel & Kost, 1987, pp. 243), contraceptive failure may only happen if the woman's fecundity is significantly high. It can be simply said that as women give many births, the possibility of failure of pill use increases.

The influence of women's age on discontinuation due to contraceptive failure can be seen from the declining trend of discontinuation with increasing age. Women aged less than 25 years are nearly 3 times more likely to stop using the pill compared to women aged 35-49 years due to contraceptive failure compared to "Other" reasons. For women aged 25-34 years, the likelihood of discontinuation due to contraceptive failure is 1.736 times higher compared to older women. The possible rationale for this pattern is that younger women may have higher fecundity, therefore they are more likely to have higher risk of pregnancy.

Furthermore, women who have never visited a health facility are 0.65 times less likely to stop using the pill due to contraceptive failure compared to women who have ever visited a health facility. This is contradictory since visiting health facilities is assumed to have a positive impact on continuation of use (of the pill). This appears to be the result of unclear information about the intention of visiting health facilities in the survey, i.e., whether it was only related to contraception use or other services.

4.3.2 Factors Influencing the Reasons for Discontinuation of IUD

As discussed in Chapter 3, variables such as women's age, women's and husband's education, wealth index, place of service, and variables about costs and discussion about family planning have been shown to have an influence on the reasons for the discontinuation of IUD. However, the multivariate analysis gives different results. Several variables such as wealth index and women's education are removed from the model since the probability values of the likelihood ratio test are greater than 0.05. It indicates that there is no difference between the full and reduced logit model if both variables are retained (Garson, 2010a). In addition, the variables husband's education and place of service have extremely high and low odds ratios respectively, so that, these are variables also excluded from the model.

Table 4.2 shows none of these variables which statistically affect discontinuation relating to medical and contraceptive failure reasons. Moreover, only the variables of costs in obtaining the method and women's age are associated with the discontinuation due to personal, FP services and desire for pregnancy reasons respectively. In regard to costs in obtaining method, the probability of discontinuation because of personal rather than "Other" reasons experienced by IUD users who got the method free is 5.51 times higher compared to women who to have the IUD inserted. This result is unlike the expectation that women who do not spend any money to obtain the method tend to use it longer. It may also be possible that the acceptors are concerned not only about the cost of the method, but also about other costs such as travel cost for getting the method, particularly for those who live far from the health center (FHI, 2000). Additionally, since mostly IUD users in this study live in urban areas (see Chapter 3) and do not have to spend much on travel to get the IUD, it could be suggested that this situation implies the lack of commitment of some users to maintain the method use.

Table 4.2 Final Multinomial Logistic Regression Model of Reasons for Discontinuation among IUD Users

Reasons for Discontinuation	Variables	Logistic Coefficient (B)	Odds Ratio (Exp (B))	P-value
Personal	Intercept	-2.014		
	The costs getting method			
	a. Free	1.707	5.511	0.006*
FP Services	b. Pay			
	Intercept	0.108		
	Women's age			
Desire for pregnancy	a. Less than 35	0.994	2.701	0.026*
	b. 35 and over			
	Intercept	0.490		
	Women's age			
	a. Less than 35	2.000	6.585	0.000*
	b. 35 and over			
	-2 Likelihood	161.139		
	Model χ^2 (df=15)	115.882		

Note: * signifies that the variable is statistically significant at $\alpha=0.05$ (CI=95%)

Source: Calculated from the IDHS 2007 dataset

Compared to “Other” reasons, it can be seen that women below 35 years old were 2.70 times more likely to remove IUD resulting from family planning service reasons compared to older women. It shows that, relating to family planning service, the probability of discontinuation decreases by rising age. As the family planning program considers the desire for effective methods, it could be the explanation that older women may not want to have more children, consequently they may have more commitment to practice contraception. Furthermore, similar to pill users, women’s age also influences discontinuation associating with desire for pregnancy of IUD users. It is clear that regardless of contraceptive methods, younger women are more likely to terminate practicing the method because they want to conceive. Among IUD users, the likelihood of discontinuation is considerably high among those who were young, so that women aged less than 35 years were 6.58 times more likely to have the IUD removed due to desires of getting pregnant compared to women aged above 35 years.

4.3.3 Factors Influencing the Reasons for Discontinuation of Injection Use

There are some variables which do not show any association with the discontinuation of injectables in the multivariate analysis, although in the bivariate analysis, all independent variables (demographic, socioeconomic, quality of service, cost and place

of service) are seen to significantly affect the discontinuation of injection use related to all the reasons. Similar to the elimination of some variables from the logistic regression as factors affecting discontinuation among IUD users, this section also omits some of these variables which have both the p-values of likelihood ratio tests greater than 0.05 and very high or low odds ratios (Appendix 3.2.c).

Table 4.3 Final Multinomial Logistic Regression Model of the Reasons for Discontinuation among Injection Users

Reasons for Discontinuation	Variables	Logistic Coefficient (B)	Odds Ratio (Exp (B))	P-value
Personal	Intercept	-3.266		
	Parity			
	a. Less than 2	0.607	1.834	0.019*
	b. 2 children	0.341	1.407	0.138
	c. 3 children	0.097	1.102	0.678
	d. More than 3			
	Husband's education			
	a. No education	1.353	3.869	0.020*
	b. Primary	0.731	2.076	0.091
	c. Secondary	0.882	2.417	0.036*
	d. Tertiary			
	The costs getting methods			
	a. Free	1.922	6.837	0.000*
	b. Pay			
	Discussion about FP			
a. No	0.862	2.368	0.000*	
b. Yes				
Medical	Intercept	2.263		
	Women's age			
	a. Under 25	-0.197	0.821	0.299
	b. 25-34	-0.318	0.728	0.011*
	c. 35-49			
	Husband's education			
	a. No education	-0.706	0.494	0.092
	b. Primary	-0.677	0.508	0.004*
	c. Secondary	-0.580	0.560	0.010*
	d. Tertiary			
	The costs getting methods			
	a. Free	-0.415	0.660	0.000*
b. Pay				
FP Services	Intercept	0.468		
	Wealth Index			
	a. Poor	0.526	1.692	0.000*
	b. Middle	0.252	1.287	0.146
	c. Rich			
	The costs getting methods			
a. Free	-0.507	0.603	0.000*	

	b. Pay				
Desire for pregnancy	Desired family size				
	a. Less than 2	-0.788	0.455	0.050	
	b. 2 children	-0.404	0.668	0.001*	
	c. 3 children	-0.310	0.733	0.023*	
	d. More than 3				
	Women's age				
	a. Under 25	0.738	2.091	0.000*	
	b. 25-34	0.662	1.940	0.000*	
	c. 35-49				
	Husband's education				
	a. No education	-0.608	0.545	0.133	
	b. Primary	-0.701	0.496	0.003*	
	c. Secondary	-0.643	0.526	0.004*	
d. Tertiary					
	Visited health facility				
	a. No	-0.460	0.631	0.000*	
	b. Yes				
	Discussion about FP				
	a. No	0.291	1.338	0.004*	
	b. Yes				
Contraceptive Failure	Intercept	0.647			
	Parity				
	a. Less than 2	-2.347	0.096	0.000*	
	b. 2 children	-1.273	0.280	0.000*	
	c. 3 children	-0.710	0.492	0.002*	
	d. More than 3				
	Women's age				
	a. Under 25	1.632	5.112	0.000*	
	b. 25-34	0.697	2.007	0.001*	
	c. 35-49				
		The costs getting methods			
		a. Free	-0.461	0.631	0.007*
		b. Pay			
	-2 Likelihood	9.363			
	Model χ^2 (df=80)	1.101			

Note: * signifies that the variable is statistically significant at $\alpha=0.05$ (CI=95%)

Source: Calculated from the IDHS 2007 dataset

There is only one of category of parity that statistically influences the personal reasons for discontinuation of injection use, which is women with fewer than two children. The odds ratio of this category is 1.83 meaning that the likelihood of discontinuation of injectables for personal reasons compared to “Other” reasons is increased by a factor of 1.83 if woman had fewer than two children ever born compared to those women who

had more than 3 children. It can be said that women with higher parity were the least likely to stop using injection due to personal reasons. The low probability of discontinuation for high parity women regarding personal reasons may be a consequence of the decrease of the frequency of sexual intercourse because these women already had many children.

The literature review in Chapter 2 discusses that only a few studies on the discontinuation of contraceptives find a relationship between husband's education and discontinuation of contraceptive use. However, the present study reveals that husband's education does have an influence on the possibility of discontinuation between injection users with respect to personal reasons to some extent. Women whose husbands were uneducated were 3.87 times more likely to cease using injectables compared to those whose husbands had completed academy or higher education. Moreover, the possibility of termination of injectables by women whose husbands had finished secondary school is 2.42 times higher than those women whose husbands had tertiary education. In other words, the tendency of ending the injection use is less common for women having higher educated husbands. This phenomenon may be related to the support of husbands toward family planning in which they play an important role in the decision making process to continue using the injectable. In Indonesia, husband's approval in family planning is one of the crucial issues since husbands are considered as protector, provider and the respected head of the family (Joesoef, Baughman & Utomo, 1988, p. 166). Therefore, higher educated husbands may understand more about the balanced role between husband and wife in a family, particularly in terms of fertility, which ultimately enhances the support for continuing contraceptive use.

The cost of getting the injectable shows a strong influence on discontinuation resulting from personal reasons as well. The discontinuation among women who did not need to spend any money to get the injection is higher compared to women who spent money to obtain the method. Compared to other reasons, the possibility of injection cessation because of personal reasons among women getting the method free is 6.84 times greater compared to those who paid to acquire the contraceptive. The pattern is the same as the discontinuation pattern for IUD users resulting from the same reason in which the respondents who got the method free tended to stop using the contraception more compared to those who paid for it. It may reflect a lack of motivation to continue the

use among those who did not need to pay anything to get the contraception. In contrast, their counterparts who paid might have had a strong commitment and motivation to persist using the method since they spent extra expenditure for family planning.

Discussion about family planning appears to have a positive effect on the reduction of discontinuation due to personal reasons. For those who never had a discussion about family planning with friends, neighbors, families or relatives were 2.37 times more likely to stop using injection owing to personal reasons compared to “Other” reasons and compared to those who did have such a discussion. This suggests the importance of the impetus to have a discussion among families and communities. Having a discussion with others enables women to share their problems and to overcome the obstacles regarding family planning, for example, they may ask the help of other respected family members to speak with resistant husbands and encourage their support for contraceptive use (Barnet et al, 1999, p. 30).

Furthermore, women’s age contributes significantly to affect discontinuation regarding medical reasons, even though only one category is statistically significant in this respect. The possibility of termination due to medical reasons compared to “Other” reasons is reduced by a factor of 0.73 for women aged 25-34 years compared to older women (aged 35-49). This finding implies that it is more common for older women to experience discontinuation due to side effects, health concerns and other medical circumstances compared to younger women (aged 25-34 years). Indeed, it is a plausible finding as younger women are more likely to discontinue because of the desire to become pregnant.

Husband’s education is also shown to have an impact on medical reasons for discontinuing the use of injectables. But, for women whose husbands have no education there appears to be no significant relation with this discontinuation since the probability of this category is greater than 0.05. Women whose husbands have finished primary school were 0.51 times less likely to discontinue using injectables compared to those whose husbands have completed academy education or above. Women whose husbands have graduated from junior or senior high school were 0.56 times less likely to stop using injection use compared to those whose husbands had academy or higher education, showing a negative relationship between husband’s education level and the probability of discontinuation owing to medical matters. This finding is unlike that for

the discontinuation reasoned by personal factors which signifies a positive association between education and discontinuation. This could be because husbands who are more educated would be more careful and protect their wives from the side effects and other consequences of injection use related to medical factors which lead to women to drop out of the method.

Different from personal reasons, women who did not spend any extra money to obtain injection have a lower probability of discontinuation because of medical reasons (0.66 times lower) compared to “Other” reasons and compared to women who paid for the contraceptive. This suggests that women may not spend to reuse injection if they experience side effects and other health concerns after starting to use it.

The discontinuation resulting from family planning service reasons is influenced by the socioeconomic status of women. This is dissimilar with the discontinuation due to personal and medical reasons in which this variable does not affect significantly on discontinuation associating with these reasons. Table 4.3 shows that compared to rich women, disadvantaged women were 1.69 times more likely to stop using injections due to reasons regarding FP service. Likewise, middle class women were 1.29 times more likely to discontinue injections compared to those who were richer. This result reveals that the possibility of discontinuation between injection users who were better-off were lesser than those who were poorer. Probably, it is because richer women may have greater ability to fulfill their needs regarding injectables, contributing to lower discontinuation among them.

With regard to cost of acquiring the method, it is the same as discontinuation owing to medical reasons that the probability of discontinuation is lower among women who got the method free rather than those who purchased it. This is understandable since women who spend money to acquire the method would wish that they got an effective method which is available anytime and anywhere, is easy to use and has a reasonable cost. Nonetheless, when their expectations were not met, they might stop using and would not be to reuse the method.

Moreover, it is expected that desired family size influences discontinuation because of wanting to get pregnant, though, there is one insignificant category here. The odds of discontinuation are 0.67 and 0.73 times lower among women who wanted to have two

children and three children, respectively compared to those who wanted to have more than three children. This shows that as the desired family size increases, the likelihood of discontinuation because of the planned pregnancy rises.

The probability of injection termination demonstrates a decline by increasing women's age as women desire to become pregnant. Women aged below 25 years were 2.091 times more likely to terminate injection use than women at age group 35-49 years. Because of the same reason, those who were at age group 25-34 years were 1.940 times more likely to discontinue than women at age group 35-49 years. This is like the prediction that younger women tend to stop practicing contraception to have planned pregnancies (Zhang, Tsui & Suchindran, 1999, p. 20).

Husband's education of primary and secondary levels significantly affects the discontinuation resulting from pregnancy desire. For those women whose husbands have finished primary education only, the odds of discontinuation are nearly 0.50 times lower than women whose husbands have attained tertiary education. Moreover, the probability of discontinuation is 0.53 times lower among women whose husbands have completed secondary education than those whose husbands have higher education. It implies that women with more educated husbands are likely to discontinue using the injectables because of desire to conceive.

Table 4.3 shows that visiting health facilities is associated with the cessation of injection use due to desire for pregnancy. The variable on discussion of family planning with others also influences the discontinuation of injectables. However, the finding about of visiting health facilities shows a negative association with injection use discontinuation and it is in line with the result of bivariate analysis which showed that women who never visited FP/health clinics were 0.631 times less likely to stop practicing the method than those women did visit the clinics. It means that discontinuation is more frequent among those who visited FP/health facilities. The most likely explanation for this may be that women who came to the FP/health facilities might not have come there with the intention to obtain contraception but to get some other service. Furthermore, similar with injection discontinuation resulting from personal causes, with respect to the desire to become pregnant, women who discussed about family planning matters with other family members, neighbors, friends or relatives were more likely to continue using this contraceptive than those who did not

discuss. It could be that by talking about family planning, others (families, neighbors, friends or relatives) might share information about the advantages of fertility control, and it might influence the women's decision to continue its use and reconsider about the desire for pregnancy.

Among women using injectables, the number of living children apparently has a significant relationship with contraceptive failure. In comparison with the injection users having more than three live born children, those with no or one live born child were 0.096 times less likely to become pregnant while practicing the method, whereas users with two children were 0.280 times less likely to fail. Moreover, the probability of contraceptive failure is smaller as well among users who had three children, in which the odds ratio is 0.492 relative to those women who have more than three live born children. In other words, the chance of failure increases with rising parity. This finding is inconsistent with the result of a study conducted by Curtis & Blanc (1997) revealing that women with larger number of live born children tend to have lower probability of failure because of strong motivation to prevent additional births. However, this incongruity may be explained argued with the same explanation as pill failure that women with higher parity may be more fecund than those with lower parity. Thus, they are more likely to experience failure when using the method. Both the pill and injectables are repeat methods, the pill to be taken for a full cycle each time and the injectable at least once a month, and any deviation from the discipline of using these methods efficiently can lead to contraceptive failure.

The next significant variable affecting the failure of injectables is women's age. Younger women are more likely to experience injection failure than older women. For women aged below 25 years and for those aged 25-34 years, the odds of failing when using injection rather than discontinue due to "Other" reasons are increased by factors of 5.11 and 2.01, respectively compared to women aged 35-49 years. The rationale is clear that older women are less fecund than younger women (Ryder, 1973, p. 136). Additionally, since age reflects a cumulative of experiences including contraceptive use experience (i.e. how to use the method correctly), so that, the contraceptive failure may be assumed to decrease as age increases (Ryder, 1973, p. 136).

Another important variable which has a relationship with contraceptive failure is cost of acquiring the method. The possibility of failure for women who got the injection for

free is 0.63 times lower than those who spent extra money to get it. It may denote that the unintended pregnancy due to injection failure may be as a result of women's inability to purchase the method.

4.3.4 Factors Influencing Reasons for Discontinuation of Condom Use

The three selected variables in the bivariate analysis which have been statistically shown to have correlation with reasons for discontinuation of condom are taken into account in the multivariate analysis, but variable: information given to users is eliminated because it yields extremely high odds ratio (see Appendix 3.2.d). Furthermore, the analysis finds that there is only one independent variable that is related with discontinuation, and that it is significant for one reason for discontinuation only. This could happen because the sample size of condom users is quite small. Table 4.4 shows that visiting FP/health facility is the only predictor that is associated with discontinuation owing to desire for pregnancy.

Table 4.4 Final Multinomial Logistic Regression Model of the Reasons for Discontinuation among Condom Users

Reasons for Discontinuation	Variables	Logistic Coefficient (B)	Odds Ratio (Exp (B))	P-value
Desire for pregnancy	Intercept	1.503		
	Visited health facility			
	a. No	-1.540	0.214	0.003*
	b. Yes			
-2 Likelihood	68.551			
Model χ^2 (df=10)	29.798			

Note: * signifies that the variable is statistically significant at $\alpha=0.05$ (CI=95%)

Source: Calculated from the IDHS 2007 dataset

Table 4.4 shows that women who never visited FP/health clinics have a lower (0.214 times) chance of stopping the use of condom with a desire to become pregnant compared to the women who visited FP/health clinics. This indicates that the propensity of discontinuation among condom users who wanted to become pregnant is higher among those who visited FP/health facilities. This is an unexpected result indeed because women who ever visit FP/health clinics are assumed to obtain more information reducing the possibility of discontinuation.

4.3.5 Factors Influencing Reasons for Discontinuation of Implant Use

The five predictors (women's age, place of residence, place of service, costs and visiting health facilities) which notably contribute to reasons for implant discontinuation as shown by the preceding bivariate analysis are entered into multinomial logistic regression analysis. In the final model, the: place of service is omitted because the result of the likelihood ratio test shows that the presence of this variable does not significantly give an influence on the logit model of multinomial logistic regression. In addition, the cost of getting method is excluded as well because it produces a very high odd ratio (Appendix 3.2.e).

There are only three multinomial logistic regression models corresponding to three reasons for discontinuation obtained from the multivariate analysis as there are no significant relationships between the other two reasons for discontinuation. The final models are displayed in Table 4.5 below.

Table 4.5 Final Multinomial Logistic Regression Model of the Reasons for Discontinuation among Implant Users

Reasons for Discontinuation	Variables	Logistic Coefficient (B)	Odds Ratio (Exp (B))	P-value
Personal	Intercept	-2.134		
	Visited health facility			
	a. No	1.443	4.233	0.013*
	b. Yes			
FP Services	Intercept	0.746		
	Place of residence			
	a. Urban	-1.246	0.288	0.001*
	b. Rural			
Desire for pregnancy	Intercept	0.373		
	Women's age			
	a. Under 25	1.372	3.942	0.089
	b. 25-34	1.059	2.883	0.000*
	c. 35-49			
-2 Likelihood	169.979			
Model χ^2 (df=25)	77.164			

Note: * signifies that the variable is statistically significant at $\alpha=0.05$ (CI=95%)

Source: Calculated from the IDHS 2007 dataset

The only significant variable affecting discontinuation of implants due to personal reasons is visiting health facilities. Similar with the discontinuation because of personal reasons experienced by pill users, among implant users, relative to other reasons, those

who never visited FP/health facilities were 4.23 times more likely to stop using the method than who ever did. It means that the likelihood of discontinuation is lower among women who visited to FP/health facilities.

Place of residence gives the effect on implant discontinuation for family planning service reasons. Users living in cities were 0.29 times less likely to terminate using implant than their counterparts who resided in villages. This is a reasonable finding since health and/or FP services are more accessible in urban areas than in rural areas. The availability of contraception in urban areas is also more assured enabling women to retain the use of the method. Additionally, as stated in Chapter 3 rural women do not know accurately about the time for removal of the implant (Hull, 1998, pp.178). This reason may be considered as the inconvenience of use which subsequently causes rural women to no longer use the method.

According to discontinuation of implant due a desire for pregnancy, women's age is a significant determinant of this discontinuation, although for one age category only. Table 4.5 demonstrates that, compared to "Other" reasons, the odds of discontinuation because of the wish of get pregnant among women aged between 25 and 34 years is 2.88 times higher than those aged 35 years and over. In other words, older women tended to maintain implant use in comparison with younger women. It may be generally assumed that at prime reproductive ages, the desire for pregnancy is relatively high. Therefore, it is understandable that younger women are likely to stop using this contraception due to this reason.

4.4 Summary of Findings

The multivariate analysis presented in this chapter is intended to distinguish between the influences of demographic, socioeconomic, quality of service, availability determinants and community level effect on discontinuation of each of five modern contraceptives for specific reasons. The results show the variation of dominant factors of discontinuation according to the types of contraceptive method.

Among pill users, with respect to personal reasons which comprise husband disagreement, infrequent sexual activities/husband away and marital dissolution, women's parity is the most important demographic factor affecting discontinuation. The finding suggests that women with lower parity tend to stop using the pill more

compared to those who with higher parity. Place of service, indicating the availability of service and associated with quality of family planning also shows the contribution to the propensity of discontinuation. Women obtaining the pill from public clinics were less likely to discontinue than those who got the pill from other sources.

Cost exhibits the strongest correlation with discontinuation regarding these reasons, although it is contradictory with the general assumption. In this study, the acceptors who got the method free were more likely to discontinue than those who paid to get it which may imply the commitment and motivation of use among those users who paid for the contraceptive. In addition, there is a positive effect of visiting FP/health facilities on lowering the probability of discontinuation. Women who never visited these facilities were more likely to terminate using the pill than those who visited the clinics. Discussion of FP also appears to have an influence on discontinuation, in which the probability is higher among those who never had a discussion with families, friends, neighbors or relatives.

Different from personal reasons, women who stopped using pill in association with family planning service reasons considered that place of service as public providers is the only significant variable affecting pill discontinuation. The finding demonstrates that the chance of discontinuation is higher for women getting pill from public clinics than those obtaining the method from other sources.

Considering the discontinuation because of the desire for pregnancy, women's age is obviously seen as the most essential factor determining the pretention to become pregnant, in which the likelihood of pill termination declines as age increases. Another factor having relationship with this reason is place of getting the method, women who got the method from other sources were more likely to discontinue than those getting it from public, private clinics and FP and health posts.

Contraceptive failure is mainly influenced by women's age, parity and the visit of clients to FP/health facilities. Women's age comes out as the strongest predictor of discontinuation owing to this reason which is showed by the high odd ratio. The logit model illustrates that the tendency of discontinuation declines with increasing age. With respect to parity, the possibility of discontinuation due to this reason is higher among

those who had more than three children. Meanwhile, contraceptive failure is more common among those who ever visited FP/health clinics than those who never did.

There are only three logit models yielded from the multinomial logistic regression for IUD users, namely cost in getting the method in relation to discontinuation due to personal reasons, women's age in association with FP service reasons and women's age with respect to desire for pregnancy. Based on personal reasons, the model describes women who got the method free tended to discontinue compared to those who paid to get it. According to FP service, the possibility of IUD removal decreases by increasing age. Conversely, among younger women, the possibility of removal increases due to the desire for pregnancy.

Among injection users, the discontinuation resulting from personal causes is influenced by these following factors: parity, husband's education, discussion of family planning and cost in getting method. In regard to parity, women who had higher parity had the lowest probability of method termination. Husband's education seems giving the positive influence on declining discontinuation, in which the tendency of ending injection is lower among women whose husbands attained tertiary education. Discussion of FP also has a positive impact on the reduction of discontinuation. Users who did a discussion about FP with others were less likely to quit. Interestingly, cost shows an unexpected result in that those who obtained the method free were more likely to discontinue.

Furthermore, women's age evidently has an effect on discontinuation in association with medical reasons. Those who were older were more frequent to experience discontinuation. Husband's education influences the discontinuation relating to these reasons as well, in which it signifies a negative relationship with the probability of abandonment. Women whose husbands attained tertiary education tended to discontinue more compared to other women. Another factor of discontinuation due to these causes is cost, in that the likelihood of discontinuation is lower among women who did not spend any extra money to obtain injection.

With respect with FP service reasons, wealth index shows an influence on injection discontinuation. Women who were well-off had the lower possibility of termination than those who were poorer. Moreover, cost in getting the method shows a positive

effect toward the discontinuation, in which the probability of discontinuation is lower among women who got the method freely.

Women's age is the strongest predictor of discontinuation due to desire for pregnancy. The pattern of the possibility of discontinuation shows a decline with increasing women's age. Additionally, desired family size also affects this discontinuation, in which the likelihood of that discontinuation because of the planned pregnancies increases as the desired number of children of the women rises. Contrary to medical reasons, women with more educated husbands were more likely to discontinue because of wanting to conceive. One of quality of service dimensions which is visiting FP/health facilities shows an influence on the desire for pregnancy, though it is unexpected. Discontinuation of the method owing to this reason is more frequent among women who have ever visited FP/health clinics. Another influencing factor in relation to the desire to get pregnant is discussion about FP between women and others. It shows a positive impact, which means that those who ever had a discussion about family planning were less likely to discontinue.

Regarding failure while adopting the injection, women's age denotes the most significant factor of this discontinuation reason. Younger women were more likely to become fail than older women. Parity contributes to this discontinuation as well, in that the chance of failure increases as parity rises. The next variable is cost of method acquirement. The relationship shows women who got the method free were less likely to fail while employing the method.

Among condom users, the notable association is only seen on the variable: visiting FP/health facilities in the context of discontinuation due to the desire for pregnancy, but this relationship is negative though. The propensity of condom termination as a result of wanting to get pregnant is in fact higher among those who visited FP/health facilities.

The common reasons for discontinuation between implant users are due to personal, family planning service and desire for pregnancy. The discontinuation because of personal reasons is affected by the variable: visiting FP/health clinics. The likelihood of this discontinuation is lower among women who ever did visit these clinics. Meanwhile, with respect to FP service reasons, the only significant variable influencing the removal of implants is place of residence (rural or urban), where the possibility of removal is

higher among rural women. In addition, women's age is an essential factor of discontinuation resulting from desire for pregnancy. The increase of age is likely to reduce the chance of discontinuation.

CHAPTER FIVE

CONCLUSION

5.1 Introduction

The present study aims to identify the discontinuation based on the different contribution of the reasons among women employing different contraceptive methods. The information yielded is noteworthy to recognize each role of the reasons for discontinuation in order to both reduce discontinuation and increase the continuation rates, which in turn may lower fertility rate and the level of unwanted pregnancy and birth.

There are three objectives of this research. The first is to examine the association of demographic, socioeconomic, quality of services, availability factors, and also community level effect which is reflected by discussion of family planning among currently married women aged 15-49 who ever used modern contraceptives (Pill, IUD, Injection, Condom and Implant). The second is to identify the predominant determinants of discontinuation among those women. The last objective is to provide recommendations for family planning policy and program implementation.

This chapter provides several major findings of bivariate and multivariate analysis presented in the previous chapters which refer to the first and the second objectives of the research. Within multivariate analysis, the relationship between demographic, socioeconomic, quality of service, availability and community level effect and discontinuation is based on each reason for discontinuation. Moreover, this suggests some recommendations for future research and also discusses some implications for family planning policy and program implications.

5.2 Major Findings

The bivariate analysis shows that the relationship between independent variables comprising demographic, socioeconomic, quality of service characteristics, availability and community level effect vary in respect with the types of contraception. From demographic and socioeconomic backgrounds, only variables of parity and women's age have association with reasons for discontinuation between pill users in the bivariate analysis. Based on quality of service factors, the variables of information given to users,

the visit of FP/health workers to clients' house and visiting health facilities are related to the reasons for discontinuation. Additionally, availability which is indicated by cost in obtaining method and place of service also correlates to the discontinuation among those users.

Considering personal reasons, the results of multivariate analysis indicates that only parity, place of service, cost, visiting health facilities and discussion about FP significantly give impact on discontinuation due to these reasons. The finding shows that women who had lower parity were likely to terminate employing pill than those who had higher parity. The influence of place of service differentials on discontinuation is showed through the tendency of discontinuation among women who got pill from other sources. Variable of cost indicates the strongest correlation with discontinuation due to these reasons, although the result is unexpected. The probability of discontinuing is higher among women who obtained the method free than those who spent an amount of money to obtain it. Moreover, women who ever visited FP/health facilities have lower chance of terminating than those who never visited. It implies the positive effect of visiting health facilities. Discussion of FP has a positive impact as well on reducing discontinuation, in which those who ever had a discussion with families, friends, neighbors or relatives were less likely to stop using pill.

Relating to FP service reasons, place of service with category of public providers is the only important variable affecting pill discontinuation. The finding demonstrates that the chance of discontinuation is higher for women getting pill from public clinics than those obtaining the method from other sources including drugstores, pharmacies, friends and relatives.

Women's age appears as the most significant factor affecting discontinuation due to the desire for pregnancy, that the possibility of discontinuing decreases with rising age. Respecting the same reason, place of service also influences discontinuation. The highest discontinuation is among women getting the method from other sources.

Together with parity and variable of visiting FP/health facilities, women's age significantly affect on contraceptive failure, in which it is the strongest predictor. The probability of failure decreases as age increases. In regard to parity, women who had more than three children were more likely to experience failure while using pill than

those who had two children and less. The failure is also more frequent among users who ever visited FP/health facilities than those who never did.

Among users of IUD, demographic and socioeconomic specified by women's age, women's education, husband's education and wealth index have been statistically proved to have a relationship with reasons for discontinuation in the bivariate analysis. Cost, place of service and discussion of FP denoting availability and community level effect, respectively contribute to the discontinuation relating to the reasons as well.

However, there are only three significant multinomial logistic regression models obtained from multivariate analysis, which are cost in getting method in relation to discontinuation due to personal reasons, women's age in association with FP service reasons and women's age in respect to desire for pregnancy. Women who got the method without spending any money tended to remove the IUD due to personal reasons compared to those who spent extra money to get it. The probability of IUD removal because of FP service reasons declines by increasing age. Discontinuation due to the desire for pregnancy was also common among younger women that it is showed by the likelihood of removal that rises among younger women.

The bivariate analysis demonstrates that all predictors of demographic, socioeconomic and quality of service consist of parity, desired family size, women's age, urban-rural differentials, women's and husband's education, wealth index, information given to users, the visit of family planning or health workers to clients' houses, visiting health facilities and media exposure are linked to reasons for discontinuation among injection users. Costs, place of service and discussion about FP with others also have a connection with the discontinuation.

Unlike the bivariate analysis, the results of multivariate analysis for injection users suggest that owing to personal reasons, the discontinuation is affected by parity, husband's education, discussion of FP and cost for getting method. Associating with parity, the lowest chance of terminating is among women with higher parity. Husband's education appears to give a positive impact on lowering the probability of discontinuation because of these reasons that it is lower among women whose husband had tertiary education. The positive effect on reducing discontinuation also as a result of having discussion about FP. Women who had a discussion with others were less likely

to stop using injection. Unfortunately, the unexpected result is shown by the effect of cost on discontinuation, in which the possibility of discontinuation is higher among women who got the method free.

Furthermore, women's age influences discontinuation in relation to medical reasons, that those who were older have greater chance of stopping injection use. Husband's education also shows having a negative correlation with the chance of discontinuing because these reasons. Women whose husbands had academy or higher education level were more likely to discontinue than other women. Cost is another determinant of injection abandonment due to medical reasons. The probability of the discontinuation is lower among women who acquired the contraception free.

Wealth index has been significantly proved to have effect on injection termination due to FP service causes. The chance of terminating declines as the socioeconomic increases, implying richer women were less likely to discontinue than poorer women. Moreover, cost of method acquirement influences positively discontinuation because of the same causes. The likelihood of discontinuation is lower for those obtaining the method free.

In regard to desire for pregnancy, women's age seems as the strongest predictor of this discontinuation. The probability of ending injection use shows a decline as the women's age increases. In addition, the discontinuation is affected by desired family size as well, in which the probability of discontinuation resulted from planned pregnancy increases by increasing desired family size. Different from medical reasons, the discontinuation due to want to get pregnant were common among women whose husband more educated. Considering the quality of service factor, visiting FP/health facilities significantly affects the desire for pregnancy, even though it is unexpected. Women who ever visited FP/health facilities were more likely to stop using injection because of this reason. Another important factor of the desire for pregnancy is discussion about FP between women and others. The association is positive, in which women who ever had a discussion tended to continue the method use.

Women's age is obvious to have an important effect on discontinuation because of contraceptive failure. Younger women tended to experience failure rather than older women. Moreover, parity also contributes to cause the failure, in which the possibility

of failure increases with rising parity. The next significant variable is cost in getting method, in which women who did not spend any money to get the method were less likely to experience failure while practicing injection.

Between users of condom, the bivariate analysis provides information that only women's age as a demographic factor has effect on reasons for discontinuation. Based on quality of service factors, there are two variables which are significant, namely information given to users and visiting health facilities. The result of multivariate analysis shows there is only one logit model yielded that it explains the association between variable of visiting FP/health facilities and discontinuation due to wanting to get pregnant. It illustrates a negative association, in which the tendency of condom discontinuation resulting from desire for pregnancy reason is higher among those who did a visit to FP/health facilities.

Furthermore, between implant users, there are two variables obtained from bivariate analysis which significantly influence discontinuation signifying demographic and socioeconomic backgrounds; they are variables of women's age and place of residence, respectively. Other factors like cost and variable of place of service that signifies availability also have been proved affecting the discontinuation. Meanwhile, from quality of service variables, only variable of visiting health facilities is associated with reasons for discontinuation.

Nevertheless, referring to the multivariate analysis, there are only three variables representing demographic, socioeconomic and quality of service characteristics which statistically influence discontinuation due to desire for pregnancy, FP service and personal reasons. Women's age as one of demographic characteristics is the most notable variable affecting the desire for pregnancy, in which the possibility of discontinuation decreases as age increases. Urban-rural differentials which signify socioeconomic background, significantly give impact on implant removal relating to FP service reasons. The propensity of removal is more common among women living in rural areas. Implant removal because of personal reasons is influenced by one of quality of service indicators, namely visiting FP/health facilities. It demonstrates a positive relationship, that the chance of discontinuation is lower among women who ever visited the facilities.

5.3 Research Implications

As stated in the first chapter, this study employs the calendar data for identifying the last method and also the reasons for discontinuation that was terminated by reversible contraceptive users in Indonesia. The data are retrospective, in which the respondents had to recall information occurring in the last five years before the survey. Thus, it is inevitable that some biases may appear in the analysis when the respondents gave wrong information due to fail to remember their behavior regarding contraceptive use in the past.

A bias may also happen when the information obtained from calendar data is related to information got from other parts of questionnaire that was collected at the time of survey since it involves different times. For example, it is necessary to include variables of visiting FP/health facilities and visited by FP/health workers as elements of quality of service, however, the available information about these terms are only for visiting during the last six months preceding the survey. In fact, the contraceptive use information from calendar data was assessed for the use within five years before the survey. Because this study assumes that the episode of discontinuation occurred within the same time span, consequently, the bias analysis is unavoidable.

In addition, since this research only examines the last contraceptive methods which stopped by the users, the information acquired, such as factors affecting discontinuation, only reflects the discontinuation occurring during the last episode of use. Hence, it is impossible to generalize the result regardless the time of termination because the determinants of this within a period will be different from those determinants within different period (Tripathi, 2008, p. 18).

Investigating elements of quality of service is useful to improve the quality of family planning service since it contributes to both higher acceptance and continuation of contraceptive use (Bruce, 1990, p. 61). It is argued that availability is a supply factor determining quality of service, and that it may encourage someone to practice contraception (Jain, 1989, p. 3). In the present research, unfortunately, there are only a few of quality service elements particularly about the availability which can be assessed due to the lack of available data. There is no information available in IDHS 2007 data set about the travel time and/or distance from clients' house to place of services. Indeed, this information is important to improve and ensure the availability of service and

method since it commonly influences the decision to continue use. Hence, it is recommended that this variable is included in the next survey.

5.4 Policy Implications

Considering the major findings which have been discussed in the previous session, this session provides some implications for program and policy. Even though the affecting factors diverge across the reasons for discontinuation and contraceptive methods, it is highlighted that demographic factors such as parity, women's age and desired family size contribute to give effect on discontinuation. Husband's education, place of residence and wealth index are the socioeconomic variables which significantly affect discontinuation. Visiting FP/health facilities is the only predominant factor of discontinuation reflecting the quality of service. Moreover, the availability components including cost and place of service appear to have correlation with discontinuation as well. Another variable is community level effect. The variable denoted by discussion about family planning with others showing to have a positive impact on reducing discontinuation. Therefore, the following strategies are expected to contribute to lowering discontinuation, and subsequently increasing continuation rates.

The first is providing appropriate counseling. The appropriate counseling must integrate all circumstances related to contraceptive use, like the selection of effective contraceptive methods, management of side effects, guidance of correct contraceptive use and counseling about the right time to get pregnant. The most effective contraception may be different between young and old women, as well as, women who have high fecundity and those who have low fecundity. Additionally, the selection of contraceptive must consider about women's health history to avoid side effects or other health concerns. Thus, probe and in depth inquiry are acquired during the counseling in order to determine the most suitable method related to women's condition. Furthermore, the guidance of correct contraceptive use is needed to prevent failure during contraception use. It is also entailed to prevent the complication resulting from incorrect use. Counseling about the right time to conceive must regard women's age and their parity in which this is expected to avoid contraceptive failure and unwanted pregnancies as well.

The second is concerning the availability of contraception related to supply and cost. The strategy is controlling and ensuring the availability/supply of contraception in all

sources of service including public, private clinics, FP and health posts, drug stores and pharmacies through monitoring system. The different pattern of probability of discontinuation among these sources may indicate that the contraception is unevenly distributed. Thus, monitoring is intended to anticipate the possible delay of contraception supply. In addition, in order to persuade current users to retain the use, it is better to provide leaflets, brochures and pamphlets in those sources. These are also as media to inform the correct use of contraception, so that, the contraceptive failure (due to incorrect use) and discontinuation because of inconvenience of use reasons can be reduced. Other than ensuring the contraception supply in all places of services, ensuring the even distribution in all areas is absolutely necessary. Although in some places, particularly in remote areas, there is a scarce number of health facility, the provision of contraception can utilize the existing facilities. For example, since mostly in villages in Indonesia have an organization called family welfare movement (PKK) the distribution of contraception can be through this movement, so women do not need to go to health facilities if they need contraception. Actually, this distribution scheme had already practiced, but as the finding suggests that rural women were more likely to discontinue, this entails to be empowered and revitalized. Furthermore, in respect with availability, it is also important to ensure that contraception is available at affordable cost. This is a crucial issue since based on the result of multivariate analysis poorer women were more likely to terminate using injection due to FP service reasons (availability, cost, etc). Consequently, the discontinuation can be averted.

The third strategy is providing skilled FP/health workers in adequate number. The research finding confirms that according to some reasons for discontinuation the possibility of discontinuation is higher among women who ever visited FP/health facilities. Other than lack of motivation, this situation may be due to dissatisfaction of services by FP/health workers. The provision of professional workers may encourage acceptors to continue use because they feel safer if someday they face a problem relating to contraceptive use. Additionally, mostly acceptors tend to believe and prefer to receive information regarding contraception from persons who they consider experts (Pariani, Heer & Arsdol, 1991, p. 385). Hence, the provision of skilled FP/health workers is assumed to lower discontinuation. Moreover, the adequate number of workers will ensure that every client is served appropriately since the workers have

enough time to give a good quality service, which in turn it is expected to increase continuation rate.

The propensity of discontinuation among women who got the method free may confirm that they are the less committed and motivated users. Therefore, the fourth policy is intensifying information, education and communication (IEC) program in order to enhance the commitment and motivation of users. The IEC program can be conducted through campaigns, advertising contraceptive use in radio, television and internet, and promoting it in public events including the celebration of national days. The stronger IEC activities are also intended to encourage other elements of communities to be aware about the benefit of family planning program, and subsequently persuade others to practice contraception through discussions. The discussion about FP has to be intensified since the study finding reveals that this influences positively in reducing discontinuation for almost all reasons which are statistically significant. Establishing peer groups which enables family and communities elements to discuss about FP is likely to mediate culture and other barriers of contraceptive use, and ultimately influence women's decision to employ contraception (Hodgins, 1999, p. 24).

The next strategy is increasing education, both among women and men, in formal form as well as informal. It has been proved that the probability of discontinuation is lower among women whose husband attained academy or higher education level. This shows that the role of men's education is significant to ensure the continuity of contraceptive adoption. Education may encourage men to participate both directly and indirectly on contraceptive use. In terms of indirect participation, more educated men tend to understand and respect the role between husband and wife in family. In turn, the decision regarding family planning and fertility preference will not be dominated by them, and they will support their wife to continue practicing contraception. Furthermore, enhancing women's education is also necessary, though it does not statistically affect on discontinuation related for any reason. Educating women is necessary as women are frequently in disadvantaged position associated with family planning issues, in which their role is commonly neglected. By education, women will conceive their rights especially in fertility preference, and it will provide them greater decision making power within family and also society. Ultimately, it will enable them to use contraception without feeling afraid. Lastly, the adoption of contraceptive

method will be easier among women who are educated because they are more confident in adopting new ideas (McDonald, 2000, p. 434). It affirms that education is important for women.

Lastly, the finding shows that only one of quality of service indicators significantly influencing discontinuation (variable of visiting health facilities) in multivariate analysis. Yet, improvements all elements of quality of services are required in order for reducing discontinuation and increasing continuation rates.

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Appendix 1.1

The Matrix of Calendar Data

		1	2	3	4		
2007	DEC 01					DEC 01	2007
	NOV 02					NOV 02	
	OCT 03					OCT 03	
	SEP 04					SEP 04	
	AUG05					AUG05	
	JUL 06					JUL 06	
	JUN 07					JUN 07	
	MAY 08					MAY 08	
	APR 09					APR 09	
	MAR10					MAR10	
	FEB 11					FEB 11	
	JAN 12					JAN 12	
2006	DEC 01					DEC 01	2006
	NOV 02					NOV 02	
	OCT 03					OCT 03	
	SEP 04					SEP 04	
	AUG05					AUG05	
	JUL 06					JUL 06	
	JUN 07					JUN 07	
	MAY 08					MAY 08	
	APR 09					APR 09	
	MAR10					MAR10	
	FEB 11					FEB 11	
	JAN 12					JAN 12	
2005	DEC 01					DEC 01	2005
	NOV 02					NOV 02	
	OCT 03					OCT 03	
	SEP 04					SEP 04	
	AUG05					AUG05	
	JUL 06					JUL 06	
	JUN 07					JUN 07	
	MAY 08					MAY 08	
	APR 09					APR 09	
	MAR10					MAR10	
	FEB 11					FEB 11	
	JAN 12					JAN 12	
2004	DEC 01					DEC 01	2004
	NOV 02					NOV 02	
	OCT 03					OCT 03	
	SEP 04					SEP 04	
	AUG05					AUG05	
	JUL 06					JUL 06	
	JUN 07					JUN 07	
	MAY 08					MAY 08	
	APR 09					APR 09	
	MAR10					MAR10	
	FEB 11					FEB 11	
	JAN 12					JAN 12	

Continued

		1	2	3	4		
2003	DEC 01					DEC 01	2003
	NOV 02					NOV 02	
	OCT 03					OCT 03	
	SEP 04					SEP 04	
	AUG05					AUG05	
	JUL 06					JUL 06	
	JUN 07					JUN 07	
	MAY 08					MAY 08	
	APR 09					APR 09	
	MAR10					MAR10	
	FEB 11					FEB 11	
	JAN 12					JAN 12	
2002	DEC 01					DEC 01	2002
	NOV 02					NOV 02	
	OCT 03					OCT 03	
	SEP 04					SEP 04	
	AUG05					AUG05	
	JUL 06					JUL 06	
	JUN 07					JUN 07	
	MAY 08					MAY 08	
	APR 09					APR 09	
	MAR10					MAR10	
	FEB 11					FEB 11	
	JAN 12					JAN 12	

INSTRUCTIONS:

ONLY ONE CODE SHOULD APPEAR IN ANY BOX

ALL MONTHS SHOULD BE FILLED IN.

INFORMATION TO BE CODED FOR EACH COLUMN

COL. (1) BIRTHS, PREGNANCIES, CONTRACEPTIVE USE

B Births

P Pregnancies

T Terminations

0 No method

1 Female Sterilization

2 Male Sterilization

3 Pill

- 4 IUD
- 5 Injectables
- 6 Implants
- 7 Condom
- 8 Intravag/ Diaphragm
- J Foam or Jelly
- M Lactational Amenorrhea Method
- P Rhythm Method
- T Withdrawal
- D Emergency Contraception
- X Other _____(specify)

COL. (2) COURSE OF CONTRACEPTION

- 1 Govt. Hospital
- 2 Govt. Health Center
- 3 Govt. Clinic
- 4 FP Fieldworker
- 5 FP Mobile Clinic
- 6 PVT. Hospital
- 7 PVT. Clinic
- 8 Private Doctor
- 9 Midwife
- A Village Midwife
- B Pharmacy/ Drugstore
- C Delivery Post
- D Health Post
- E FP Post
- F Friends/ Relatives
- G Shop
- X Other

COL. (3) DISCONTINUATION OF CONTRACEPTION

- 0 Infrequent Sex/ Husband away
- 1 Became Pregnant While Using
- 2 Wanted to Become Pregnant

- 3 Husband Disapproved
- 4 Wanted More Effective Method
- 5 Health Concerns
- 6 Side Effects
- 7 Lack of Access/ too far
- 8 Costs too much
- 9 Inconvenient to Use
- F Fatalistic
- M Menopausal
- C Marital Dissolution/ Separation
- N IUD Expelled
- X Other _____(specify)
- T Don't know

COL. (4) MARRIAGE/ UNION

- X In Union
- 0 Not in Union

Appendix 2

2.1 Example for scoring

Respondent No.	Television	Radio	Newspaper	Poster	Pamphlet	Score	New_code
1	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0
3	0	0	1	0	1	2	0
4	0	0	1	0	1	2	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	0	1	0	0	1	0
8	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0
12	0	0	1	0	0	1	0
13	0	0	0	0	0	0	0
14	0	0	1	0	1	2	0
15	0	1	0	0	0	1	0
16	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0
18	1	1	1	0	0	3	1
19	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0

25	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0

2.2 The Percentage of Last Method Discontinuation in Five Years Preceding the Survey

Last method discont

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No discontinuation	14032	56.6	56.6	56.6
	Pill	3427	13.8	13.8	70.5
	IUD	520	2.1	2.1	72.5
	Injections	6016	24.3	24.3	96.8
	Condom	188	.8	.8	97.6
	Norplant	599	2.4	2.4	100.0
	Total	24782	100.0	100.0	

Last method discont

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No discontinuation	14032	56.6	56.6	56.6
	Discontinuation	10750	43.4	43.4	100.0
	Total	24782	100.0	100.0	