FACTORS INFLUENCING CONTRACEPTIVE USE AMONG CURRENTLY MARRIED WOMEN IN SULAWESI, INDONESIA

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ABSTRACT

The study examined the relationships between demographic, socio-economic, cultural, knowledge and geographic factors and the use of modern contraceptives among married women aged 15-49 in Sulawesi, Indonesia.

The data used for this study is taken from the 1997 Indonesia Demographic and Health Survey. There were 1,692 married women included in this study. The Contraceptive Prevalence Rate in Sulawesi is 49.9 percent. This data is analyzed by using bivariate analysis and multivariate logistic regression.

The results indicate that 44.9 percent of married women in Sulawesi are using modern contraception. All the independent variables are statistically significant, at a 0.001 level, associated with current use of modern contraception in logistic regression and bivariate analysis.

The use of modern contraception among women was highest at the age groups 15-24, decreased from ages 25-29 and was lowest at the age group 45-49 years. The use of modern contraceptive increased with the number of living children. Women with secondary or higher levels of education have a high probability of using modern contraception. Women who work have a higher probability of using modern contraceptives than women with no work. Muslim women are less likely to use modern contraception than non-Muslim women. Women who know 5-8 methods are more likely to use modern contraception. Women who are exposed to family planning information from TV are more likely to use modern contraception. Urban women are less likely to use modern contraceptives than rural women. Women in North Sulawesi and Central Sulawesi are more likely to use modern contraception than women in Southeast Sulawesi. Women from South Sulawesi are less likely to use modern contraception than women in Southeast Sulawesi. The results also show that the husbands play an important role in decision making concerning modern contraceptive use.

Qualitative research should be undertaken throughout Sulawesi to understand contraceptive use and factors influencing it, so that family planning program can be more effective.

KEY WORDS: INDONESIA / SULAWESI / MARRIED WOMEN / DEMOGRAPHIC / SOCIO-ECONOMIC / RELIGION / KNOWLEDGE / GEOGRAPHIC / MODERN CONTRACEPTIVE USE / FAMILY PLANNING/2004

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LIST OF ABBREVIATIONS

BKKBN	:	Badan Koordinasi Keluarga Berencana Nasional (National Family Planning Coordinating Board)
BPS	:	Badan Pusat Statistik (Statistics Indonesia)
CBR	:	Crude Birth Rate
CDR	:	Crude Death Rate
CPR	:	Contraceptive Prevalence Rate
IDHS	:	Indonesia Demographic and Health Survey
IEC	:	Information Education Communication
IMR	:	Infant Mortality Rate
IUD	:	Intra Uterine Device
TFR	:	Total Fertility Rate
TV	:	Television

CHAPTER 1

INTRODUCTION

1.1 Problem Statement

1.1.1 Global picture of contraceptive use

Global contraceptive use has increased from 10 percent in 1960 (Ashford, 2001) to 62 percent in 2001 (United Nations, 2002). The percentage of women using contraception is higher in the developed world (70 percent) than in the developing world (60 percent) (United Nations, 2002). About half of married women in the developing countries use modern contraceptive methods. Nearly 9 in every 10 contraceptive users rely on modern methods, while only about 1 in 10 relies on the traditional methods of withdrawal and periodic abstinence, on average worldwide (Population Reports, 2000). The most common modern methods are female sterilization (20 percent of married women), IUDs (15 percent), and oral pills (8 percent). Modern methods are considered more effective at preventing pregnancy and require access to family planning services and supplies (United Nations, 2002). Contrary to what might be expected, in the developed countries a much higher percentage of women (11 percent) use traditional methods than in the developing countries (5 percent) (United Nations, 2002). This is supported by Donaldson and Tsui (cited in Robinson, 2000) that in developed countries, traditional methods are more popular, whereby approximately 30 percent of married couples choose these methods and also a study by Bulatao (1985) (cited in Robinson, 2000), suggests that the relationship between higher education and higher levels of traditional contraceptive use is a result of better information about or greater sensitivity to side-effects of modern methods.

According to Westoff and Bankole (cited in Ashford, 2001), although the great majority of people everywhere know about family planning, there are reasons why women do not use contraception.

Including the fact that some women and their husbands fear the side effects of contraceptive methods, other women are discouraged by their husbands' disapproval or by family pressure to have more children and also some couples oppose contraception for religious reasons and difficulties in obtaining contraceptives.

There is a global decline in fertility rates, fertility worldwide has fallen from about 6 in 1950 to around 3 in 1998. In the developing world, between the early 1960s and 1998, fertility rates declined from 6.1 to 3.3 (DaVanzo and David, 1998). Even though global fertility has declined so sharply, the work of family planning is not yet finished. This is because the world's population is still growing although the rate of growth has been declining since the 1960s (DaVanso and David, 1998).

1.1.2 Fertility rate in Indonesia

Total Fertility Rate (TFR) has declined from 5.6 in 1971 to 2.78 in 1997 and to 2.6 children per woman in 2002-2003 (Indonesia Demographic and Health Survey-IDHS 2002-2003). The decline took place in most provinces. However the existing TFR at the national has not yet reached the ideal number of 2.1 children per woman (Badan Koordinasi Keluarga Berencana Nasional-BKKBN, 2003).

Indonesia's fertility decline has been one of the most striking demographic transitions. Most of this decline has been attributed to two proximate determinants, a dramatic rise in contraceptive prevalence and an increase in age of marriage (Gertler and Molyneaux, 1994; BPS, 2001).

Although the fertility rate has been reduced, even in areas where fertility has declined, there are still areas and population subgroups which are in general poorer and for which access to health services, including reproductive health/family planning services, remains inadequate (Coordinating Ministry for People's Welfare, 2002).

TFRs also vary across provinces, from Central Java, East Java, DI Yogyakarta, and Bali that have reached or surpassed the replacement level of fertility (2.1 children per woman), to East Nusa Tenggara and Southeast Sulawesi, which have the highest TFRs (4.1 and 3.6 children per woman) (IDHS 2002-2003). Those variations have occurred because the family planning programmes in first four provinces began in 1970, while last two provinces started ten years later in 1980 (BPS, 2001).

1.1.3 Contraceptive use in Indonesia

Indonesia in 2000 is the world's fourth most populous nation. In the last five decades, the population of Indonesia has increased from 75 million in 1945 to 206.3 million in 2000. Population growth rate has decreased from 2.1 percent in 1971 to 1.49 percent in 2000.

From basic demographic indicators, as seen in Table 1.1, between 1971 and 2000, growth rate, Crude Birth Rate (CBR), Crude Death rate (CDR), TFR and Infant Mortality Rate (IMR) have all decreased, while population size, density, urban population size and life expectancy have increased quite dramatically.

Table 1.1 Basic Demographic Indicators from Selected Sources, Indonesia 1971-2000

Indicator	1971 Census	1980 Census	1990 Census	1995 Inter-Census	2000 Census
Population (millions)	119.2	147.5	179.4	195.3	206.3
Growth rate (percent)	2.10	2.32	1.98	1.6	1.49
Density (pop/km2)	62.4	77.0	93.0	92.0	91.0
Percent urban	17.3	22.3	30.9	34.0	42.0
Crude Birth Rate (CBR)	40.6	35.5	27.9	23.6	22.4
Crude Death Rate (CDR)	19.1	13.1	8.9	7.7	7.6
Total Fertility Rate (TFR)	5.6	4.7	3.3	2.8	2.3
Infant Mortality Rate (IMR)	142	112	70	61	47
Life Expectancy					
Male	45.0	50.9	57.9	61.9	62.8
Female	48.0	54.0	61.5	65.7	66.7

Source: BPS (Statistics Indonesia), 2002.

As shown in Table 1.1, family planning use was widespread in Indonesia, in 1997 with 57.4 percent of currently married women using contraception and 60.3 percent of currently married women using contraception in 2002-2003. Based on calculation using basic data from the 1991 IDHS, for achieving TFR 2.1 in 2015, the CPR must be increased to 73 percent (BKKBN, 2003).

The CPR in Indonesia increased from 54.7 percent in 1994 to 57.4 percent in 1997 and to 60.3 percent in 2002 (Table 1.2). By 1997, the majority of contraceptive users use injection (21 percent) followed by pill (15 percent), IUD (8 percent), implant (6 percent) and female sterilization (3 percent). Other methods for men such as male sterilization (0.4 percent) and male condom (0.7 percent) were very low.

Traditional methods are not commonly used in Indonesia; only 2.7 percent of currently married women use any traditional methods (IDHS 1997), perhaps because modern contraceptives were generally more effective in preventing pregnancy than traditional methods (Trussel & Kost, 1987, cited in Robinson, 2000).

Table 1.2 Percentage of currently married women who are currently using specific contraceptive methods, Indonesia 1991-2003

Method	IDHS 1991	IDHS 1994	IDHS 1997	IDHS 2002-2003
Any method	*49.7*	*54.7*	*57.4*	*60.3*
Modern method	*44.3*	*52.1*	*54.7*	*56.7*
Pill	14.8	17.1	15.4	13.2
IUD	13.3	10.3	8.1	6.2
Injectables	11.7	15.2	21.1	27.8
Condom	0.8	0.9	0.7	0.9
Implants	3.1	4.9	6.0	4.3
Female sterilization	2.7	3.1	3.0	3.7
Male sterilization	0.6	0.7	0.4	0.4
Traditional method	*2.7*	*2.7*	*2.7*	*3.6*
Periodic abstinence	1.1	1.1	1.1	1.6
Withdrawal	0.7	0.8	0.8	1.5
Other	0.9	0.8	0.8	0.5
Not use	*50.3*	*45.3*	*42.6*	*39.7*
Number of women	21,109	26,186	26,886	27,857

Source: The IDHS 2002-2003.

While contraceptive use continues to increase, unmet need for family planning services of currently married women is still seen although to a lesser extent, from 10.6 percent in 1994 (IDHS 1994) to 9.2 percent in 1997 (IDHS 1997) and 8.6 percent in 2002 (IDHS 2002-2003). The reasons are poor access to quality family planning services (including limited choice of methods), lack of information available to women on contraceptive methods, concerns about safety or side-effects of contraception, and partner's disapproval (Coordinating Ministry for People's Welfare, 2002; BKKBN, 2003; IDHS 1997; IDHS 2002-2003).

The 1997 IDHS showed that unwanted pregnancy was still high at 17.1 percent and it slightly decreased to 16.8 percent in 2002 (IDHS 2002-2003).

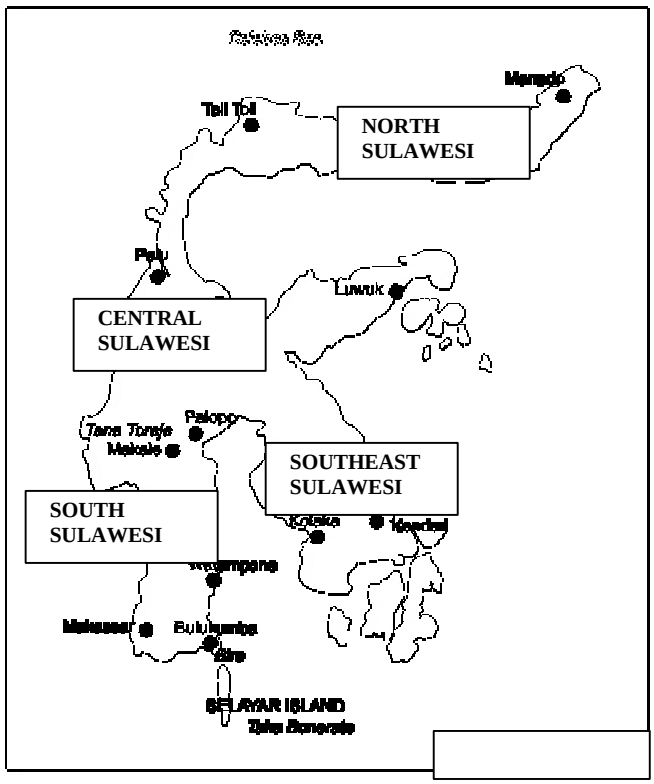
Data from the 1997 IDHS indicated that 9.5 percent of women had their first birth under age 20, 15.4 percent women who become pregnant less than 2 years after a previous birth, 11 percent women who had pregnancy over 34 years and 19.3 percent women had 4 or more pregnancies. These figures indicate that the information provided to individuals, especially women about planning of pregnancy and birth control still needs to be improved (BKKBN, 2003).

1.1.4 Contraceptive use in Sulawesi

Sulawesi is one of five major islands in the Indonesian archipelago; consisting of 4 provinces in 1997. These are North Sulawesi, Central Sulawesi, South Sulawesi and Southeast Sulawesi. Family planning programmes in North Sulawesi and South Sulawesi began in 1975, while Central Sulawesi and Southeast Sulawesi started quite late in 1980. The population in Sulawesi is 14,381,518 or about 6.97 percent of total population of Indonesia.

Figure 1.1 Map of Indonesia

Figure 1.2 Map of Sulawesi



TFR in Sulawesi region also varies among its provinces, from 3.04 in Central Sulawesi, 2.92 in Southeast Sulawesi, 2.88 in South Sulawesi and 2.60 in North Sulawesi (IDHS 1997). If compared with the national TFR 2.78, three of these provinces have TFR higher than the national TFR and only one province has TFR lower than national TFR (Table 1.3).

The average CPR among currently married women in Sulawesi is low, about 49.9 percent (IDHS 1997). The CPR also varies among its provinces (IDHS 1997), ranging from South Sulawesi (41.5 percent), Central Sulawesi (51.7 percent), Southeast Sulawesi (53.1 percent) and North Sulawesi (71.2 percent). Three provinces with CPR lower than the national average of 57.4 percent, and one province with CPR higher than the national CPR.

Table 1.3 Basic Demographic Indicators, Sulawesi region, 1997-2000

	North Sulawesi	South Sulawesi	Central Sulawesi	Southeast Sulawesi	Indonesia
Population*	2,808,063	7,778,458	2,023,952	1,771,045	206,300,000
Growth Rate (percent)*	1.33	1.49	2.57	3.15	1.49
Density (pop/km)*	132	129	35	48	91
Contraceptive use:**					
Any Methods	71.2	41.5	51.7	53.1	57.4
Modern Methods	63.5	36.7	50.2	46.7	54.7
Traditional methods	7.7	4.8	1.5	6.4	2.7
Unmet need	4.3	11.7	9.4	8.9	9.2
CBR*	20.9	22.9	24.4	24.8	22.4
CDR*	5.58	6.29	6.58	6.27	7.6
IMR***	28	57	66	53	47
TFR**	2.6	2.88	3.04	2.92	2.3
Life expectancy:*	70.9	70.5	65.8	70.6	65.4
Male	68.09	n.a	n.a	n.a	62.8
Female	72.04	n.a	n.a	n.a	66.7

Sources: BPS 2002, BPS 2001, IDHS 1997
* BPS 2002; ** IDHS 1997; *** BPS 2001; n.a.: not available

Table 1.4 shows the trend in using contraceptive methods among married women, who are currently using a specific contraceptive method, during the period 1994-2002. During the period 1994-1997, use of any methods by currently married women decreased in North Sulawesi, South Sulawesi and Central Sulawesi, but increased in Southeast Sulawesi. Use of modern methods decreased in North Sulawesi, but increased in the other three provinces. Furthermore, use of traditional methods decreased in South Sulawesi and Central Sulawesi, but increased in North Sulawesi and Southeast Sulawesi.

Table 1.4 shows that during the period 1997-2002, use of modern methods in North Sulawesi increased from 63.5 percent to 66.4 percent, in Central Sulawesi decreased from 50.2 percent to 49.8 percent, in South Sulawesi increased from 36.7 percent to 42.4 percent and in Southeast Sulawesi decreased from 46.7 percent to 40.9 percent.

Percentages of unmet needs are as follows: in North Sulawesi (4.3 percent), South Sulawesi (11.7 percent), Central Sulawesi (9.4 percent) and Southeast Sulawesi (8.9 percent) (IDHS 1997).

Therefore, this study will attempt to elicit the individual factors and other factors that impact upon the use of contraceptives in Sulawesi.

Table 1.4 Trends in use of specific contraceptive methods among currently married women in Sulawesi, 1994-2002

Province/Year		Contraceptive use			
		Any methods	Modern methods	Traditional methods	Not using
North Sulawesi	1994	72.5	69.1	3.5	27.5
	1997	71.2	63.5	7.7	28.8
	2002	70.1	66.4	3.7	29.9
South Sulawesi	1994	42.6	35.2	7.4	57.4
	1997	41.5	36.7	4.8	58.5
	2002	49.1	42.4	6.6	50.9
Central Sulawesi	1994	52.5	48.3	4.2	47.5
	1997	51.7	50.2	1.5	48.3
	2002	54.6	49.8	4.8	45.4
Southeast Sulawesi	1994	46.3	41.8	4.5	53.7
	1997	53.1	46.7	6.4	46.9
	2002	48.6	40.9	7.7	51.4

Source: The IDHS 1994, IDHS 1997 and IDHS 2002-2003

1.2 Research problem

In actual fact, family planning programs which promote the use of contraceptives have been proved as important factors in reducing fertility (BPS, 2001; IDHS 2002-2003). In generally, the focus is to motivate couples to adopt contraception. Therefore, contraceptive prevalence has been used as indicator to evaluate the implementation of family planning program or for measuring the success of the family planning programs.

Indonesia is a very heterogeneous society and attention to a particular region within Indonesia has become a more relevant approach to study Indonesia. In particular, since 2001, the Government of Indonesia has been implementing regional autonomy or decentralization policy of public authority and responsibility to districts and municipalities. The decentralization on family planning program which include the responsibilities for planning, budgeting, implementing and monitoring (Coordinating Ministry for People's Welfare, 2002; BKKBN, 2003), therefore, it is the important opportunity to improve the family planning programs at district/municipality and provincial levels.

This study especially focuses upon Sulawesi, because until now there has been no specific study about contraceptive use in this area.

The average CPR among currently married women in Sulawesi is low or only about 49.9 percent. The CPRs in this region are different among the four provinces,

ranging from the lowest in South Sulawesi (41.5 percent) to the highest in North Sulawesi (71.2 percent). Similarly, the percentage distribution of currently married women who are currently using modern methods varies from 36.7 percent in South Sulawesi to 71.2 percent in North Sulawesi.

Between 1994 and 1997, it was found that the use of modern contraception decreased (5.6 percent) in North Sulawesi, but slightly increased in South Sulawesi, Central Sulawesi and Southeast Sulawesi (1.5 percent, 1.9 percent and 4.9 percent respectively). However, between 1997 and 2002, the use of modern contraception decreased (0.4 percent & 5.8 percent) in the two provinces (Central and Southeast Sulawesi), but slightly increased (2.9 percent & 5.7 percent) in the other provinces (North and South Sulawesi).

Population growth is relatively moderate between 1.3 percent in North Sulawesi to 3.1 percent in South Sulawesi, and also IMR is relative high between 28 per 1,000 live births in North Sulawesi to 66 per 1,000 live births in Central Sulawesi (Table 1.3).

1.3 Research Question

What are the individual factors and other relevant factors influencing the contraceptive use among currently married women in Sulawesi, Indonesia?

1.4 Research Objective

To examine the relationship between demographic, socio-economic, cultural, knowledge and geographic factors and the use of modern contraceptive among currently married women in Sulawesi, Indonesia.

CHAPTER 2

LITERATURE REVIEW

Surveys in many countries, especially in developing countries, have shown the influence of socio-demographic and other related factors such as age, education, number of living children, occupation, and religion on the use of contraception (Palmore and Bulatao, 1989). Madulu (1998) pointed out in a case study of the rural areas of Tanzania, that low contraceptive prevalence was related to socioeconomic conditions.

Therefore, this chapter reviews the finding from previous studies to provide an understanding of the relationship between socio-economic, demographic, cultural, knowledge and geographic factors and the use of contraception.

2.1 Demographic factors

2.1.1 Age of women

Contraceptive use differs in each age group. A study in Java and Bali, Indonesia, found that use of effective modern contraceptive methods was found to be influenced by demographic variables including age of women (Soeradji and Hatmadji, 1980). The acceptance of contraception was higher among the older age groups than among the younger groups, it can be concluded that there was a declining need for more children as the women grow older.

Previous studies show that women in younger age groups were more likely to use contraception than older age groups. DeGraff et al. (1997) and Magnani et al. (1999) found the negative effect of age on contraceptive use, the younger women who desire additional birth may be were more likely to space births.

In 1991, Molyneaux used data of the 1987 Indonesia Contraceptive Prevalence Survey, the results show that younger women were more likely to be currently using or have used contraceptives than were older women. Additionally, younger women used them for longer durations for all methods (Samidjo, 1991).

Contraceptive use follows the inverted U relationship with age, lowest contraceptive use is found among the youngest women (most of whom are recently married, low parity women) and among the oldest (Gertler & Molyneaux, 1994)

However, in contrast, based on the 1988 Vietnam Demographic and Health Survey, Dang (1991) found that age of the women had no significant effect on contraceptive use for both modern and traditional methods.

Contraceptives use declines when women passes from her childbearing age, during which she may desire to prevent or space additional pregnancy; into her 30s, when she is still fertile but may seek to prevent more children or space additional pregnancies, and then in her 40s, when her fecundity declines and she has less need of the protection from pregnancy (Rutenberg et al, 1991). The current use of family planning is generally highest among women in the central childbearing years (age 25-44).

2.1.2 Number of living children

Number of living children can affect contraceptive use. The contraceptive use is found to be influenced to a large extent by number of living children in the family. It has been found in several past studies that the percentage of women practicing contraception increases with the increase in family size. A study in Indonesia by Joesoef et al. (1988) found that number of living children was the second important determinant of contraceptive use.

A comparative study using data in 1987 from 20 provinces of Indonesia shows that the proportion of never users tended to decrease as the number of children increased. For example, 90 percent of women with no children did not use contraceptives compared with 25 percent of women with 3 children (Samidjo, 1991).

Another study using data from Contraceptive Prevalence Survey 1987 and 1991 IDHS shows that the number of living children was positively related to choice of contraceptive (Rajagukguk, 1995).

A study in India also found that number of living children was one of the most important factors in determining for the contraceptive use (Chaco, 2001).

There is a strong positive relationship between the number of living children and the use of contraception (Malhotra and Thapa, 1991; Chaco, 2001).

Women having more children were using more contraceptive methods than women having fewer children. The use of contraception was found to increase with an increase in the number of living children, especially with the increase in number of sons.

Similarly, DeGraff (1997) argued in her study that the numbers of living children, was hypothesized to influence contraceptive use only through desire for additional children. Additionally, contraceptive use is impeded by demand for children.

Contraceptive use tends to rise with parity (the number of living children a woman has), but in some countries contraceptive use declines with increasing parity. Lower use among women with five or more children can reflect lower fecundity. Therefore, less chance of becoming pregnant, because women are near the end of their reproductive lives (Population Reports, 2000).

Contraception is most likely to be used by women with three or four children (Rutenberg et al., 1991). Among women with fewer than three living children, rates of contraceptive use increase sharply as the number of children increases. As family size increases to three and greater, increases in the use of family planning are smaller, and contraceptive use often drops off among women with five children or more. The direction of the relationship between large family size and decreased use of contraception is unclear. Women with many children may have no interest in using contraception because their goal is large family, or on the contrary a woman may have many births, and some of them are unwanted (Westoff, 1991, cited in Rutenberg et al., 1991).

2.2 Socio-economic factors

2.2.1 Education

Education plays an important role in the acceptance and use of contraception. It is often assumed that better educated couples, being more exposed to family planning information are more likely to practice contraception than others. Moreover better educated women tend to have fewer children and try to give better education to their children than do their lesser educated counterparts. Therefore, raising the costs of having children (Mason, 1984). Education has a positive effect on the use of contraception. Increase in the level of education was associated with greater use of

contraception methods. Better-educated women were more likely to practice contraception and to use modern methods (Shaphiro & Tambashe, 1994).

Data from the countries where the Demographic and Health Surveys have been conducted demonstrate the positive relationship between education and the use of family planning (Robey et al., 1992).

Rutenberg analyzed the world fertility survey that was collected from 25 countries and found that positive relationship between women's education and the contraceptive method practices, and also education was associated with increased awareness, acceptability and use of contraception (Rutenberg et al., 1991).

A study in Turkey found that educational level of women did not seem to affect the contraceptive preference of women (Uygur and Erkaya, 2001). Another study from Kuwait by Shah (1998) found that women's educational level was not a significant determinant of their ideal family size or contraceptive practice. The study pointed out that contraceptive practices vary slightly among educated women by years of schooling.

2.2.2 Occupation

The work status of women is often considered to be an important determinant of contraceptive use. Employment, especially where a woman has to work outside the home is viewed as an index of commitment to and involvement in non-familial roles. It has also been observed that female employment outside home often leads to a desire for small families and thereby increasing the acceptance rate of contraceptives (Hernandez, 1985).

A study in Indonesia by Soeradji et al. (1987) found that proportion of women who were working had a higher acceptance rate of contraceptive use. Another study done in Indonesia focused only on the woman's status and family planning found that working women had a slightly higher level of contraceptive use than non-working women. However, the difference was not significant, although women did perceive benefits from practicing family planning (Hardee et al., 1999).

Dharmalingam and Morgan (1996) conducted the study in India, revealed that women's work give women autonomy that led to limit and space birth and contraceptive use.

The probabilities of contraceptive use were higher among self employed women and women who were employees than those women who were not employed (Saphiro and Tambashe, 1994).

The type of occupation a woman has was also found to be an important determinant of contraceptive use. Lower fertility was found to be a characteristic of women in professional and technical occupation and women with higher opportunities in earnings (Cho et al., 1982).

2.2.3 Husband's approval on family planning

Husband's approval on family planning can determine contraceptive use (Khuda et al, 2002). A study in Kenya using 1989 Kenya Demographic and Health Survey also showed that husband-wife communication, particularly the wife's perception of her husband's approval of family planning, is highly associated with current contraceptive use (Lasse and Becker, 1997). In Ghana, the wife's attitude toward contraception is strongly influenced by her husband's attitudes and education (Bankole, 1998).

Majority of women in Nepal reported that their husband approved of family planning (81%) and they knew how many children they wanted (Sharan, 2002).

A study in Indonesia, using data from 1987 Indonesian Contraceptive Prevalence Survey which interviewed women in 5 largest cities, found that husband's approval of contraceptive use was the most important determinant of contraceptive use. It was also found that the use of contraception was higher among women whose husbands approved of their using contraception than for those whose husband did not (Joesoef et al., 1988).

2.3 Geographic factor

2.3.1 Place of residence (urban/rural)

The place of residence has shown to have relationship with the use of contraception. In many studies, it has been found that acceptance and the use of contraception was higher among those who reside in urban than in rural areas. This is because of easy to obtain the contraception in urban than in rural areas. The other possible reason may be that rural people are less educated and tend to prefer larger families and are usually fixed in traditional norms (United Nations, 1988).

A study by Malhotra and Thapa in Sri Lanka (1991) found that the use of contraception was higher among urban women than rural women. It was supported by Rutenberg et al. (1991). The prevalence of contraceptive use was more than double in urban area than in the countryside (Warren et al., 1992).

Urban areas generally have access to better education, a wider spectrum of job opportunities, a more positive public health environment, and generally more prospects for self-improvement and social mobility (Concepcion, 1991). Therefore, women living in urban areas have more chance to expose to family planning programs that giving them various opportunities for choosing contraceptive methods.

2.4 Cultural factor

2.4.1 Religion

Several studies found that religion have a significant role in the use of contraceptive methods.

A study by Molyneaux et al. (1990) in Indonesia shows that religion played a major role in method use and choice. Islam was strongly correlated with the probability of choosing injectable type of contraceptive compared to other modern methods. Robey (1989) has described how successful Indonesia family planning program, with a rapid decline of TFR. One important factor was religion, which Islamic leaders were consulted before program implementation.

The relationship between religion and contraceptive use was observed in Kinshasa, Zaire by Shapiro et al. (1994). All Non-Catholic religious groups had slightly higher rates of contraceptive prevalence compared with Catholics. Women who indicated no religious membership reported a definitely lower likelihood of practicing contraception.

On other hand, the effect of religion on contraceptive use was also observed in a study in Greater Freetown, Sierra Leone, by Amin et al. (1992). They found higher contraceptive prevalence rate among women affiliated with Catholics or another Christian religion than among those affiliated with Islam (28 percent, 24 percent and 13 percent respectively). The lower use of contraceptives among Islam women was positively associated with the desire for more children. The report from Population Matters, RAND Policy Brief (2002), that the majority of couples in predominantly

Catholic and Islamic countries used contraception. One important observation from research is that involving religious leaders in policy development has improved acceptance and understanding of family planning programs.

A study in Bangladesh indicated the association between the practice of contraception and religion operates at the community level, but not in the individual level, a religious woman is not less likely to practice, but a woman living in a religious community is (Population Briefs, 1996).

2.5 Knowledge factors

2.5.1 Knowledge of family planning methods

Knowledge of contraceptive methods can play an important role in the receiving and use of various contraceptive methods. Previous research has shown that women who had knowledgeable about contraceptive use were more likely to use contraception (Hogan et al., 1999; DeGraff, 1991). Therefore, the higher their knowledge, the more likely they use contraception.

A study in Ilorin, Nigeria, found that increased knowledge of contraceptive has been accompanied by increased in current use (Oni and McCarthy, 1990). Unless a woman knows about the different methods available in family planning, it is unlikely that she will practice family planning. On the contrary, it can not be assumed that having knowledge of family planning will guarantee that the woman will accept the method. The study by Regmi (1980) noted the higher knowledge did not necessarily lead to higher level of contraceptive use. Knowledge was a pre-requisite to contraceptive use. He argued by giving the example of Pakistan and Bangladesh fertility surveys where the higher level of knowledge on contraception was followed by relatively low use of contraception.

In Ankola, Uganda, the women who had the knowledge of methods and sources of contraception were using more modern methods than those having no knowledge at all (Ntozi and Kalbera, 1991).

Another study in Myanmar by Wai (1995), found that women who knew three or more methods were more likely to use contraceptives than others. The knowledge of methods had significant relationship with the use of contraception. The chances of

using contraception were higher among women having more knowledge of the methods and sources of family planning than those lacking of knowledge.

2.5.2 Exposure to family planning information from mass media

The study by Das et al. (1994) shows that about 45 percent of people practicing family planning were exposed to media. The results also suggest that having a radio set is potentially associated with practice of family planning methods.

Oni and McCarthy (1990) in their study in Ilorin, Nigeria, noted that the mass media such as radio, television and newspaper were the greatest single role in providing knowledge on family planning to women and increasing current use of contraception.

Radio and television are two important mass media for disseminating family planning information in Bangladesh (Islam and Hasan, 2000). However, accessibility and exposure to family planning information through radio and television is still limited. The similar finding was found by Olenick (2000) that women in Pakistan, India and Bangladesh who watched television regularly and exposed to explicit family planning messages use contraception.

Jato et al. (1999) conducted bivariate analysis to study the association between social and demographic characteristics, family planning communications campaigns and contraceptive behavior. They found that the more types of media those women were exposed, the more likely they were practice contraception. Women who could recall six media sources of family planning messages were 11 times more likely than women who recalled no media sources to be using modern contraceptives.

2.6 Conceptual Framework

Conceptually, this framework is developed based mainly on the general knowledge that contraceptive use by currently married women is occurred in reproductive ages (15-49 years).

According to literature review shown previously, contraceptive use is very much related to demographic, socio-economic, cultural, knowledge and geographic factors of currently married women. Demographic factors such as age of women and number of living children show strong influence over contraceptive use among currently

married women. In this study, it would also predict that contraceptive use will decrease as age increased, and conversely, it will increase as the number of living children is increased.

Likewise, socio-economic factors such as women's education, occupation and husband's approval on family planning are also important factors determining contraceptive use. Especially about education and occupation factors, I would foresee the same direction of relationships as happened in previous studies. That the more education women obtain as well as their non-agriculture occupation, the higher percentage of contraceptive use among these women will be also likely to prevail.

Place of residence is certainly an important factor related to contraceptive use. Use of contraception is found higher among those who live in urban than in rural areas. And the finding of this study in the same respect will be again confirmed.

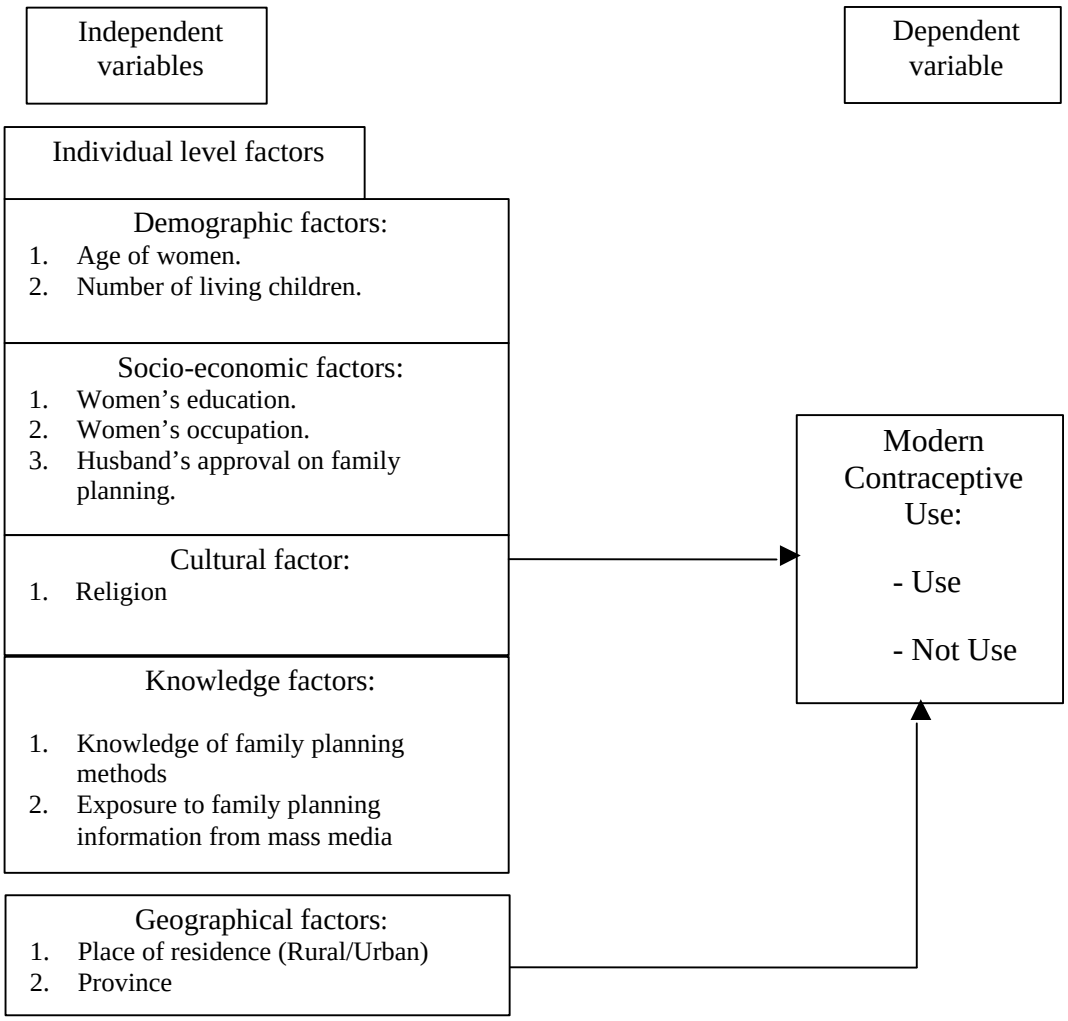
Religion also significantly influences over contraceptive use. The proportion of contraceptive use will be lower among Muslim women than the Christian and other religious groups.

Knowledge of contraceptive methods and exposure to family planning information via mass media are important factors influencing the use of modern contraception. The proportion of current users who are exposed to family planning information from any media (radio, TV or printed media) will be higher than the proportion of users who are not exposed to any family planning information from any media.

Moreover, this study divides contraceptive use into two categories: 1) use modern contraceptives and 2) do not use modern contraceptives. However, non- users in this study also cover those using traditional methods.

Disposition of this conceptual framework in the form of visual diagram is also elicited in Figure 2.

Figure 2 Conceptual Framework for analyzing the relationships of various factors influencing modern contraceptive use in Sulawesi, Indonesia



2.7 Research Hypotheses

2.7.1 Modern contraceptive use will decrease as age increased.

2.7.2 The use of modern contraception will increase as the number of living children decreased.

2.7.3 The more education women obtain the higher percentage of modern contraceptive use among these women.

2.7.4 Women engaged in non-agricultural occupation are more likely to use modern contraception than those in agricultural sector and do not work.

2.7.5 The use of modern contraception is higher among those who live in urban than in rural areas.

2.7.6 The proportion of modern contraceptive use will be lower among Moslem women than Christian and other religious groups.

2.7.7 The more family planning methods that women know the more they are using modern contraception.

2.7.8 The proportion of current users who are exposed to family planning information from any media will be higher than those who are not exposed to any family planning information from mass media.

2.7.9 The women whose husbands approved family planning are more likely to use modern contraception than those whose husbands disapproved.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Source of data

The data used for this study are from the 1997 Indonesia Demography and Health Survey (IDHS), conducted by the Central Bureau of Statistics, National Family Planning Coordination Board, and Ministry of Health with the assistance of Macro International Inc.

Actually, the survey interviewed 28,810 ever-married women aged 15-49 years old from 27 provinces. But the complete interview covered 26,886 currently married women.

And the number of currently married women in Sulawesi could be distributed by its provinces as follows:

1. North Sulawesi Province : 329 currently married women aged 15-49 years.
2. Central Sulawesi Province: 251 currently married women aged 15-49 years.
3. South Sulawesi Province : 945 currently married women aged 15-49 years.
4. Southeast Sulawesi Province: 167 currently married women aged 15-49 years.

Thus, the total sample size of this study is 1,692 currently married women. The findings derived in this study are weighted.

3.2 Analysis of the data

Statistic Package for the Social Sciences (SPSS) version 11.5 is used in data analysis stage. The unit of analysis in this study is each individual or each currently married women aged 15-49.

Frequency distribution and descriptive statistics are used to present the background characteristics of the currently married women including socio-economic, demographic, cultural, geographic characteristics and knowledge of family planning methods.

Bivariate analysis is also applied in order to examine the association between each independent variable and the dependent variable.

In the multivariate analysis, logistic regression is used to determine factors influencing modern contraceptive use of currently married women.

3.3 Operationalization of variables

3.3.1 Dependent variable

The dependent variable is modern contraceptive use, which is divided into two categories as follows:

Modern contraceptives use refers to currently use of modern methods such as pills, condom, IUD, Injectable, implant, male and female sterilization that being by currently married women and their husband for the prevention of pregnancy and spacing or limiting births.

Not use modern contraception refers to the non-use of modern methods and this also includes the use of traditional methods by currently married women.

3.3.2 Independent variables

The independent variables are classified into five major groups as follows: demographic factors, socio-economic characteristics, cultural or religious factors, knowledge of family planning methods and geographic factors.

3.3.2.1 Demographic factors

Age of women refers to the current age of the respondents, it is an interval scale variable and measured in completed years of currently married women at the time of survey, ranged from 15 years to 49 years. It is categorized into seven categories: 15-19; 20-24; 25-29; 30-34; 35-39; 40-44 and 45-49.

Number of living children refers to the total number of living children of the couples at the time of interview. It is an interval scale, ranging from 0 – 12. It was classified into five categories as follows: no children, 1 child, 2 children, 3 children, 4 and more children.

3.3.2.2 Socio-economic factors

Education refers to highest level of education that respondent have completed. The level of education is categorized into three groups: no education, primary and secondary or higher.

Occupation refers to respondent who reported themselves as employed at the time of the survey. It is grouped into 3 categories: did not work, working in agriculture and working in non-agriculture.

Husband's approval on family planning refers to respondent's husband approval on contraceptive use. It is grouped into 2 categories: approved and disapproved.

3.3.2.3 Geographic factors

Place of residence refers to the respondent's place of residence at the time of interview. It is categorized into two categories: urban and rural.

Province refers to the respondent's location in the province in Sulawesi. It is categorized as: North Sulawesi, Central Sulawesi, South Sulawesi and Southeast Sulawesi.

3.3.2.4 Cultural factor

Religion refers to respondent's religion at the time of interview. It is classified into two groups: Muslim and Christian and other (including Catholic, Hindu, Buddhist and other).

3.3.2.5 Knowledge factors

Knowledge of family planning methods refers to spontaneous and probed knowledge of family planning methods by respondents, according to their knowledge about modern method, ranging from 1-12 family planning methods. This variable is categorized into 3 groups: know 1-4 methods, 5-8 methods and more than 9 methods. However, women who have no knowledge are excluded from the analysis, because all of them do not use modern contraception.

Exposure to family planning information from mass media refers to respondents whether the respondents had heard or seen a message about family planning in the last six months from mass media: radio, TV, and newspaper.

Table 3.1 Summarized description of the dependent variable and independent variables derived from multivariate analysis

Variable	Operational Definition (Category)	Type of measure
Dependent variable		
Modern contraceptive use	The use of modern methods (Pills, condom, IUD, Injectable, Implant, male and female sterilization) by currently married women and their husband for preventing pregnancy and spacing or limiting births. Categorized into: 0=not-use and 1=use.	Categorical
Independent variables		
Demographic factors 1. Age	Age of currently married women in 15-49 years. Categorized into: 15-19, 20-24, 25-29, 30-34, 35-39, 40-44 and 45-49. 15-19 as the reference category.	Interval
2. Number of living children	Number of living children in family, ranging from 0-12. Categorized into: no living children=1, 1 living child=2, 2 living children=3, 4 and more living children=4. 4 and more living children as the reference category	Interval
Socio-economic factors 1. Education	Refers to the highest level of education that respondent have completed, categorized into: no education=1, primary=2 and secondary/more=3. No education as the reference category.	Categorical
2. Occupation	Refers to respondent who reported themselves as employed at the time of the survey, categorized into: Did not work=1, working in agriculture=2, working in non-agriculture=3. Did not work as the reference category.	Categorical
3. Husband's approval on family planning	Refers to respondent's husband approved on contraceptive use, and grouped into 2 categories: approved=1 and disapproved=2. Disapproved as the reference category.	Categorical
Geographic factors Place of residence	Refers where the respondent's place of residence at the time of interview. Categorized into: urban=1, rural=2. Rural as the reference category.	Categorical
Province	Refers where the respondent's location in province in Sulawesi. Categorized into: North Sulawesi=1, Central Sulawesi=2, South Sulawesi=3 and Southeast Sulawesi=4. Southeast Sulawesi as the reference category	Categorical

Table 3.1 Summarized description of the dependent variable and independent variables derived from multivariate analysis (continued).

Variable	Operational Definition (Category)	Type of measure
Cultural factor Religion	Refers to respondent's religion at the time of interview. Categorized into: Muslim=1, Christian and others=2. Muslim as the reference category.	Categorical
Knowledge factors 1. Knowledge of family planning methods	Refers to spontaneous and probed knowledge of family planning methods by respondents, according to their knowledge, ranged from 1-12 family planning methods. Categorized into: Know 1-4 methods=1, know 5-8 methods=2 and know >9 methods=3. Know 1-4 methods as the reference category.	Categorical
2. Exposure to family planning information from mass media.	Refers to whether the respondent has heard a message about family planning from mass media: radio, TV, and newspaper, Categorized into: from radio (yes=1, no=2), from TV (yes=1, no=2), from newspaper (yes=1, no=2). Not exposed to family planning mass media as the reference category.	Categorical

3.4 Limitation of the study

The study is conducted based on the 1997 Indonesian Demographic and Health Survey (IDHS). In fact, the most updated data-base the 2002-2003 IDHS data set is not yet available. Another limitation is that the variables and information available in the IDHS are also limited. Therefore, this study has focused upon only some of the factors influencing the contraceptive use in Sulawesi, Indonesia; although there may be other important factors influencing the use and non-use of contraception. Because of its secondary data in nature and time limitation, only quantitative approach is adopted. In actual happenings of contraceptive use, qualitative information is not carried out for this study even though both quantitative and qualitative explanations are equally important.

CHAPTER 4

RESULTS AND DISCUSSION

This chapter deals with the findings and discussions of the study. The results are delineated in three sections. The background characteristics of the sample population are presented in the first section. The second section shows the relationship between selected indicators and modern contraceptive use from the bivariate analysis. The third section deals with results derived from the multivariate analysis or the investigation of factors associated with modern contraceptive use.

4.1 Background information

4.1.1 Demographic characteristics

Table 4.1 shows the frequency distribution of the respondents by age and number of living children. The mean age was 32.7 years, and the standard deviation was 8.5 years. More than half of the women were below 34 years (58.6 percent). While looking at the individual age groups, 36.2 percent were at the young age group between 20-29 years, 34.6 percent at the 30-39 years group, 24.7 percent at the 40-49 years group and the least 4.6 percent at the 15-19 years group.

Regarding the number of living children of the respondents, it is found that a majority of the respondents have 1-3 living children (61.5 percent). Those women with 1 child account for one-fifths (20.8 percent), women with 2 living children account for 23.4 percent, those women with 3 living children account for 17.3 percent, and those with 4 or more living children was nearly one-thirds (29.2 percent). Women who have no living children represent 9.3 percent. On average, a woman has 2.7 living children. The maximum number of living children was very high (or twelve children), range from 0-12 children.

Table 4.1 Percentage distribution of currently married women aged 15-49 by age and number of living children (N = 1,692)

Characteristics	Number	Percent
Age of women		
15-19	78	4.6
20-24	251	14.9
25-29	360	21.3
30-34	302	17.8
35-39	284	16.8
40-44	204	12.1
45-49	213	12.6
Mean =32.7; Median=32.00; Mode=27		
Standard deviation = 8.581		
Number of living children		
0	158	9.3
1	323	20.8
2	395	23.4
3	292	17.3
4 and more	524	29.2
Mean = 2.7; Median=2.00; Mode=2		
Standard deviation=1.922		

4.1.2 Socio-economic, geographic and cultural characteristics

Table 4.2 presents the distribution of the respondents by selected socio-economic, geographic and cultural characteristics.

Slightly more than half of the respondents (51.3 percent) obtained only primary school whereas 38.4 percent of women have secondary school or higher education and 10.3 percent of them have no education.

More than half of the women (62 percent) do not work, 17.4 percent worked in the agricultural sector and one-fifths worked in the non agricultural sectors such as professional, technician, manager, administrator, clerical, sales, services, industrial workers.

Most of the respondents' partners approved contraceptive use (85.7 percent) and 14.3 percent did not approve.

Most of the respondents (80.8 percent) were living in rural areas. The percentage of urban population was only 19.2 percent.

About 55.9 percent of the respondents were living in South Sulawesi Province, 19.4 percent in North Sulawesi Province, 14.8 percent in Central Sulawesi Province and 9.9 percent in Southeast Sulawesi Province.

About 82.1 percent of the respondents' religion was Muslim and 17.9 percent are Christian and others.

Table 4.2 Percentage distribution of currently married women aged 15-49 by selected socio-economic, geographic and cultural characteristics (N = 1,692)

Characteristics	Number	Percent
Education		
No education	175	10.3
Primary	868	51.3
Secondary and higher	649	38.4
Occupation		
Did not work	1,048	62.0
Agriculture	294	17.4
Non agriculture	349	20.6
(1 missing case)		
Husband's approval on family planning		
Approves	1,320	85.7
Disapproves	221	14.3
(151 missing case)		
Place of residence		
Urban	325	19.2
Rural	1,367	80.8
Province		
North Sulawesi	329	19.4
Central Sulawesi	251	14.8
South Sulawesi	945	55.9
Southeast Sulawesi	167	9.9
Religion		
Muslim	1,388	82.1
Christian and others	303	17.9
(1missing case)		

Note: Others refer to Catholic, Hindu, Buddhist and other.

4.1.3 Knowledge characteristics

Table 4.3 presents frequency distribution of the respondents relating to their knowledge of family planning methods and exposure to family planning information from mass media including radio, TV and newspaper.

The respondents' knowledge on family planning methods is quite high. More than half of them know 5-8 family planning methods, whereas 29 percent know 1-4 methods, 11.8 percent know 9 or more methods, and only 4.2 percent of them have no knowledge on family planning methods.

The respondents are exposed to family planning information from TV more than the sources such as radio and printed media (41.1 percent, 25.9 percent, and 5.7 percent respectively). Percentage of women who are exposed to radio and newspaper or other printed matters is apparently very low (Table 4.3)

Table 4.3 Percentage distribution of currently married women aged 15-49 by selected knowledge of family planning methods and exposure to family planning information from mass media (N = 1,692)

Characteristics	Number	Percent
Knowledge of family planning methods		
No knowledge	71	
Know 1-4 methods	490	4.2
Know 5-8 methods	931	29.0
Know >= 9 methods	200	55.0
		11.8
Exposure to family planning information from mass media		
-Radio (1missing case)		
Yes	437	
No	1,254	25.9
-TV (1 missing case)		74.1
Yes	695	
No	996	41.1
-Printed media (only newspaper) (1 missing case)		58.9
Yes	180	
No	1,511	5.7
		94.3

4.1.4 Contraceptive practice

Table 4.4 shows that 44.9 percent are using modern methods, and over half (55.1 percent) of the currently married women are not using any modern methods (about 5.0 percent are using traditional methods and 50.1 percent are not using any methods). The possible factors explaining the non-use of contraception is that they might want to have children or more children, unmet need, afraid of side effects, medical reasons, husband's disapproval and religious reasons (Setiogi, 2003). And also, they might be using traditional methods.

Table 4.4 Percentage distribution of currently married women aged 15-49 by family planning practice (N = 1,692)

Family planning practice	Number	Percent
Contraceptive use		
Use modern method	759	44.9
Not use modern method	933	55.1

4.2 Results of bivariate analysis

The results of bivariate analysis are presented and discussed in this section. The investigation of the relationships between demographic, socio-economic, cultural, knowledge of family planning methods, geographic factors and modern contraceptive use is carried out. The results show that all the independent variables are statistically significant at the 0.001 level, associated with current contraceptive use.

4.2.1 Demographic characteristics and modern contraceptive use

Table 4.5 presents the relationships between selected demographic characteristics (education, occupation and husband's approval on family planning) and current modern contraceptive use and non use.

Contraceptive use is low at the younger age (15-19 years) and increases as age increases up to the 30-34 years age group. After that the percentage of women who used contraceptive decreased, especially at older ages (45-49 years). This indicates that women at 20-44 years are more likely to use modern contraceptives than women at 15-19 years and 45-49 years.

Proportion of current contraceptive use increased as the number of living children increased that is from 1.1 percent among women with no living children to 60.3 percent for women with two living children. After that it declines to 56.8 percent for women with three living children and 42 percent for women with four or more living children.

Table 4.5 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by demographic characteristics

Characteristics	Use	Not use	Total
Age			
15-19	25.4	74.6	100.0
20-24	43.2	56.8	100.0
25-29	53.8	46.2	100.0
30-34	54.7	45.3	100.0
35-39	46.0	54.0	100.0
40-44	46.8	53.2	100.0
45-49	21.5	78.5	100.0
Total	44.9	55.1	100.0
p= 0.000***; Df = 6			

Table 4.5 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by demographic characteristics (continued)

Characteristics	Use	Not use	Total
Number of living children			
0	1.1	98.9	100.0
1	41.3	58.7	100.0
2	60.3	39.7	100.0
3	56.8	43.2	100.0
4 and more	42.0	58.0	100.0
Total	44.9	55.1	100.0
P=0.000***; Df=4			

Level of significance: ***=p<0.001

4.2.2 Socio-economic characteristics and modern contraceptive use

Table 4.6 presents the relationships between selected socio-economic characteristics and current modern contraceptive use and non use.

Regarding educational status of women and contraceptive use, women who have higher education used modern contraceptive more than less educated women and that contraceptive use increases in accordance with the respondent's level of education. About 26 percent of currently married women with no education are using a modern contraception, compared to 42.3 percent of women with primary education and 53.4 percent of women with secondary or higher education.

However, percentages of current contraceptive use are not different regarding their work status in the two categories, between not working and those working in the agricultural sector (43.2 and 44.2 percent respectively). However, as expected, for women engaged in non-agriculture, the proportion of contraceptive use relatively quite higher (50.3 percent) than those with no work and those engaged in agriculture sector (43.2 and 44.2 percent respectively).

Table 4.6 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by socio-economic characteristics

Characteristics	Use	Not use	Total
Education			
No education	26.0	74.0	100.0
Primary	42.3	57.7	100.0
Secondary and higher	53.4	46.6	100.0
Total	44.9	55.1	100.0
p= 0.000***; Df = 2			

Table 4.6 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by socio-economic characteristics (continued)

Characteristics	Use	Not use	Total
Occupation			
Did not work	43.2	56.8	100.0
Agriculture	44.2	55.8	100.0
Non agriculture	50.3	49.7	100.0
Total	44.9	55.1	100.0
p = 0.000***; Df = 2			
Husband's approval on family planning			
Approves	56.5	43.5	100.0
Disapproves	3.6	96.4	100.0
Total	48.9	51.1	100.0
p = 0.000***; Df = 1			

Level of significance: ***=p<0.001

However, within the non-agriculture group itself, it is interestingly found that the use and non-use of this category is almost the same.

Proportions of current users whose husbands approved family planning are higher (56.5 percent) than those whose husbands disapproved (3.6 percent).

4.2.3 Geographical characteristics and modern contraceptive use

Table 4.7 shows that the use of modern contraceptive is nearly the same in urban and rural areas (46.8 and 44.4 percent respectively). It is interesting that within the same category of urban women, the percentage of non-use is still higher than those who live in urban areas and use modern contraception.

The use of modern contraception among currently married women is highest in North Sulawesi Province (63.5 percent), followed by Central Sulawesi (50.2 percent), Southeast Sulawesi (46.7 percent) and lowest in South Sulawesi (36.7 percent).

Table 4.7 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by geographic characteristics

Characteristics	Use	Not use	Total
Place of residence			
Urban	46.8	53.2	100.0
Rural	44.4	55.6	100.0
Total	44.9	55.1	100.0
p= 0.000***; Df = 1			

Table 4.7 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by geographic characteristics (continued)

Characteristics	Use	Not use	Total
Province			
North Sulawesi	63.5	36.5	100.0
Central Sulawesi	50.2	49.8	100.0
South Sulawesi	36.7	63.3	100.0
Southeast Sulawesi	46.7	53.3	100.0
Total	44.9	55.1	100.0
p = 0.000***;Df = 3			

Level of significance: ***=p<0.001

4.2.4 Cultural characteristic and modern contraceptive use

Table 4.8 shows that the use of modern contraception is higher among the Christian women and women who profess Buddhist, Hindu and other religions (54.6 percent) than among Muslim women (42.8 percent). It is also clear that within the same religious category (Muslim), the percentage of non-use group is still much higher than the use one.

Table 4.8 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by cultural characteristics

Characteristics	Use	Not use	Total
Religion			
Muslim	42.8	57.2	100.0
Christian and others	54.6	45.4	100.0
Total	44.9	55.1	100.0
p = 0.000***; Df = 1			

Level of significance: ***=p<0.001

4.2.5 Knowledge of family planning methods, sources of family planning information and modern contraceptive use

Table 4.9 shows the relationship between knowledge of family planning methods and current use of modern contraception.

The more family planning methods that women know the more they were current users. It can be seen in Table 4.9 that about 32.5 percent of women who know 1-4 methods are using modern contraception, compared to 53.1 percent of women who

know 5-8 methods are using modern contraception. About 52.8 percent of women who know 9 and more methods are using modern contraception. Meanwhile, all women who have no knowledge on family planning methods, definitely, all of them do not use modern contraception.

Table 4.9 Percentage distribution of modern contraceptive use among currently married women aged 15-49, by knowledge characteristics

Characteristics	Use	Not use	Total
Knowledge of family planning methods			
No knowledge	0.0	100.0	100.0
Know 1-4 methods	32.5	67.5	100.0
Know 5-8 methods	53.1	46.9	100.0
Know >9 methods	52.8	47.2	100.0
Total	46.8	53.2	100.0
p = 0.000***; Df = 2			
Exposure to family planning information from mass media			
Radio			
- No	42.2	57.8	100.0
- Yes	52.6	47.4	100.0
- Total	44.9	55.1	100.0
p = 0.000***; Df = 2			
TV			
- No	37.3	62.7	100.0
- Yes	55.7	44.3	100.0
- Total	44.9	55.1	100.0
p = 0.000***; Df = 2			
Newspaper			
- No	43.8	56.2	100.0
- Yes	53.7	46.3	100.0
- Total	44.9	55.1	100.0
p = 0.000***; Df = 2			

Level of significance: ***=p<0.001

The proportion of current users who are exposed to family planning information from any media is higher than the proportion of users who are not exposed to any family planning messages from any media such as radio, TV and printed media.

About 52.6 percent of women who have heard of family planning on the radio are using modern contraceptives, while 55.7 percent women who have watched the family planning program on television are practicing modern contraception. Furthermore,

53.7 percent of women who have read about family planning program in newspapers are using modern contraceptives.

4.3 Results of multivariate analysis (factors influencing modern contraceptive use)

The effects of demographic, socio-economic, cultural, knowledge and geographic factors on modern contraceptive use have been considered separately in the previous section. However, it is noted that there are associated effects among these factors on contraceptive use. Therefore, these variables are also considered simultaneously in order to assess their relative strength. This study uses logistic regression to determine the effects of independent variables on modern contraceptive use. The dependent variable in this study is a dichotomous variable; consisting of two categories of modern contraceptive use that are use and non-use. Since this dependent variable is a categorical variable that has two categories (dichotomous), the logistic regression is appropriate. The odds ratios obtained from this analysis estimates the relationship of each independent variable and the use of modern contraception.

Table 4.10 Logistic regression analysis of factors relating to modern contraceptive use among currently married women aged 15-49 years

Indicators/Independent variables	Logistic coefficient (B)	Odds ratio
Age of women		
15-19 #		1.00
20-24	-0.120	0.89 ***
25-29	-0.353	0.70***
30-34	-0.711	0.49 ***
35-39	-1.165	0.31 ***
40-44	-1.104	0.33 ***
45-49	-2.301	0.10 ***
Number of living children		
0	-5.318	0.005 ***
1	-1.251	0.29 ***
2	-0.057	0.95 ***
3	-0.012	0.99 ***
4 and more #		1.00

Table 4.10 Logistic regression analysis of factors relating to modern contraceptive use among currently married women aged 15-49 years (continued)

Indicators/Independent variables	Logistic coefficient (B)	Odds ratio
Education		
No education #		1.00
Primary	-0.185	0.83 ***
Secondary and higher	0.059	1.06 ***
Occupation		
Did not work #		1.00
Agriculture	0.340	1.40***
Non agriculture	0.102	1.11***
Place of residence		
Urban	-0.055	0.95***
Rural #		1.00
Province		
North Sulawesi	0.668	1.95***
Central Sulawesi	0.074	1.08***
South Sulawesi	-0.222	0.80***
Southeast Sulawesi #		1.00
Religion		
Muslim #		1.00
Christian and others	0.229	1.26***
Knowledge of family planning methods		
Know 1-4 methods #		1.00
Know 5-8 methods	0.122	1.13 ***
Know >9 methods	-0.158	0.85 ***
Exposure to family planning information from mass media		
Radio		
- Yes	-0.112	0.89 ***
- No #		1.00
TV		
- Yes	0.400	1.49 ***
- No #		1.00
Newspaper		
- Yes	-0.082	0.92 ***
- No #		1.00
Constant	-2.061	0.13 ***

(# = reference category; * significance p<0.05; ** = p<0.01; *** = p<0.001)

Table 4.10 presents the findings of the relationships between each independent variable and modern contraceptive use after controlling the other independent variables. The coefficients and the odds ratio are presented for predicting the use of modern contraception.

4.4 Discussion of the multivariate analysis results

The results from logistic regression show that all the independent variables are statistically significant determining the use of modern contraception (Table 4.10).

This finding is similar to those from bivariate analysis.

The results indicate that the probability of modern contraceptives use declines significantly with increasing of age. The hypothesis is also supported by this finding. Women at the oldest age 45-49 years are less likely to use modern contraception than those aged 15-19 years. This is probably because they perceive lower risk of pregnancy due to lower fecundity or less frequent sexual activity (Magnani et al., 1999; Rutenberg et al., 1991) and they were favor to large families or do not want to use contraceptive for other reasons.

Women at the younger age are most likely to use modern contraception. This is probably because they use contraception in order to delay their first birth. This finding is consistent with the previous studies that women in younger age groups are more likely to use modern contraception than the older age (DeGraff et al., 1997; Magnani et al., 1999 and Samidjo, 1991)

Regarding number of living children, the use of modern contraception increases with the number of living children. The hypothesis is also supported by this finding. The possible explanation that the women have reaches their ideal number of children, therefore, they need to use modern contraceptive for limiting childbearing.

Women with secondary or higher-levels education show a highest probability of using modern contraceptive. The hypothesis that the more education women obtain the higher percentage of modern contraceptive use among these women is also supported by this result. The similar finding is also found by other studies by Robey et al. (1992), Saphiro & Tambashe (1994) and Rutenberg et al. (1991), that education has a positive effect on contraceptive use. In contrast, women with primary education was less likely to use modern contraception, perhaps because of lack of knowledge of family planning methods, fear about side effects or health concerns of modern methods. These factors, thus, decrease their awareness, their acceptability, and thereafter, effect on the use of contraception.

Education helps increase women's participation in the decision-making process with regard to family size. Kasmiyati and Kantner (1998) found in 1991 and 1994

IDHS that a large proportion of women, at all levels of education, plan to space their children more closely than recommended. This is, in actual fact, done in order for protecting their own, and also, their children's health risks. Another explanation could also be possible in relation to breast-feeding pattern of mothers with high education. This group of women tends to initiate breast-feeding less and to breast-feed for shorter duration. Since breast-feeding inhibits the return of ovulation postpartum, women with high education who do not breast-feed could perceive or consider the use of contraception sooner than expected (Iskandar et al, 1991, cited in Gertler & Molyneaux, 1994:53).

Women who are working in the non-agricultural and agricultural sectors also exhibit a higher probability of using modern contraceptive than women with no work. The hypothesis that women engaged in non-agricultural occupation are more likely to use modern contraception than those in agricultural sector and do not work is not supported by this result. The possible explanation is that those women engaged in non-agriculture most of them are more educated, and prefer to small families. The employment factor increases the status of women and gives them a higher sense of independence. In fact, the previous studies shown that women who are working had a higher acceptance of contraceptive use (Suradji et al., 1987; Dharmalingam & Morgan, 1996). A study in Indonesia by Amal et al. (1997) shows that work status is associated with social-autonomy. The women who are working are more likely than non-working women to ask their husbands about using contraception and also to have social decision-making power.

Husband’s approval on family planning has significantly positive influence on modern contraceptive use. Therefore, the hypothesis is also supported by this analysis. The women who received approval to use contraception from their husband are 29.7 times more likely to use modern contraception than those who did not. The finding suggests that the husband plays an important role in making decision to practice contraception. This is consistent with the result from a study in Indonesia by Joesoef et al. (1988) that husband’s approval on family planning is the most important determinant of contraceptive use.

Muslim women are less likely to use modern contraception than non-Muslim women. Hence, the hypothesis relating to religion is also accepted. This finding is the

same as previous studies by Oni & McCarthy (1986) and Amin et al. (1992) that there was more contraceptive use among Christians than Muslims. This is probably due to Muslims normally preferring large family size. Another possible explanation is that the women are fear of side effects, for example in Family Health International (FHI) study in Lampung and South Sumatra, Indonesia, found that frequent complaints by users of injectables and IUDs was menstrual irregularities often disturbed them. Muslim women whose religion teaches that a menstruating woman should not fast, pray, have sex or touch holy books could reduce their quality of life (FHI's Quarterly Health Bulletin Network, 1998).

Knowledge of family planning has a positive effect on determining on the use of modern contraceptive among women who knew 5-8 methods, but has a negative determining effect among women who knew 9 and more methods. The more family planning methods women knew especially 5-8 methods, the more likely to use modern contraception. Thus, the hypothesis that the more family planning methods that women know, the more they likely to use modern methods is supported by this analysis. This result is related with other studies that the higher the woman's knowledge of contraceptive method, the more likely to use modern contraception (Hogan et al., 1999; DeGraff, 1991; Oni & Mc.Carthy, 1990; Ntozi & Kalbera, 1991). In contrast, women who knew 9 and more methods are less likely to use modern contraception, therefore, the hypotheses is not supported by this finding. It may be that the more family planning methods they know, the more side-effects they know. This finding is similar with a study by Regmi (1980) that the higher knowledge did not necessarily lead to higher level of contraceptive use.

Women who are exposed to family planning information from TV are more likely to use modern contraception than those who are not. The hypothesis is supported especially for women who are exposed to TV, but it is not supported for women who are exposed to radio and newspaper. Nowadays Indonesian TV programs are accessible in almost everywhere. Relatively, women who are exposed to family planning information from radio and newspaper are less likely to use modern contraception than those who watch TV. A possible reason is that women forgot what they have read from newspapers and heard from radio about family planning during the six months before being interviewed, or there were not enough family planning

messages on newspaper. Additionally, the percentage of women who are not exposed to family planning information from radio and newspapers is high (74.1 percent, 94.3 percent respectively). The result suggests that even though radio dominates in rural areas, women prefer to watch TV than to listen to radio program.

Place of residence has a negative relationship on modern contraceptive use. Women who live in urban areas are less likely to use modern contraceptive than those who live in rural areas. The hypothesis related to place of residence is supported by this analysis. Even though other studies found that use of contraceptive methods is higher among those who live in urban than in rural areas (United Nations, 1988; Malhotra & Thapa, 1991; Rutenberg et al., 1991; Warren et al., 1992). However, in this study the difference between the modern contraceptive use of urban and rural women is very small. The differences were smallest where the CPR is high (Robey, 1992; Population Report, 2000). And also the Government of Indonesia have invested heavily in rural family planning programs and services from the beginning, therefore urban-rural differences in the use of modern method have always been small (Robey, 1992; Population Report, 2000).

The variable on province also has a significant relationship with the use of modern contraception. The logistic regression shows that women from North Sulawesi and Central Sulawesi are 1.95 and 1.08 times more likely to use modern contraception than those women from Southeast Sulawesi. Women from South Sulawesi are 0.80 times less likely to use modern contraception than those women from Southeast Sulawesi. High using of modern contraceptive in North Sulawesi, probably because of the majority of its province are Christians. Low use of modern contraception in South Sulawesi, and Southeast Sulawesi, this is probably because the majority of the people in these areas are Muslims, low demand of family planning methods, using traditional methods, high IMR, unmeet need and geographical barrier. Moreover, the community-based distribution systems function probably is not sufficient in this area (Lerman et al., 1989).

CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

5.1 Conclusion

The objective of this study was to examine the relationships between demographic, socio-economic, cultural, geographic characteristics and knowledge of contraception factors and the use of modern contraceptives among currently married women aged 15-49 in Sulawesi, Indonesia. The data used for this study are from the 1997 Indonesia Demographic and Health Survey. There were 28,810 ever-married women aged 15-49 interviewed in this survey, and among them 26,886 people were currently married women from 27 provinces. However, only Sulawesi Island is selected for the study. There are four provinces in Sulawesi as follows: North Sulawesi, Central Sulawesi, South Sulawesi and Southeast Sulawesi. There were 1,692 currently married women included in this study.

Family planning programs started since 1975 in North Sulawesi and South Sulawesi, and 1980 in Central Sulawesi and Southeast Sulawesi. The Contraceptive Prevalence Rate varied among its provinces, ranging from South Sulawesi (41.5 percent), Central Sulawesi (51.7 percent), Southeast Sulawesi (53.1 percent) and North Sulawesi (71.2 percent). The CPR in Sulawesi was 49.9 percent.

Results from analysis indicate that only 44.9 percent of currently married women in Sulawesi were using modern contraception. On average, the women were 32.7 years old and have 2.7 living children. The overwhelming majority of them were Muslim (82.1 percent), from rural areas (80.8 percent) and from South Sulawesi (55.8 percent). More than half of them have primary education (51.3 percent). About 62 percent of them do not work. About 85.7 percent of the women have husband approved on family planning. 55 percent of them know 5-8 family planning methods and 41.1 percent of them have heard about family planning program on television. Television is more effective channel in family planning campaign than any other media.

In the bivariate analysis, it is confirmed that the relationships between demographic, socio-economic, geographic, cultural and knowledge characteristics such as age, number of living children, education, occupation, husband's approval on family planning, settlements in urban or rural areas, province, knowledge about family planning methods and exposure to family planning information from mass media and modern contraceptives use were statistically significant.

Furthermore, in the logistic regression analysis, it reveals that all the independent variables after controlling the other independent variables are also statistically significant determining the use of modern contraception. The probability of using modern contraceptive among women in Sulawesi was influenced by age of women, number of living children, women's education, women's occupation, husband's approval on family planning, religion, knowledge of family planning methods, exposure to family planning information from mass media, place of residence and province. Therefore, the results of bivariate analysis are parallel with those of logistic regression results.

The study shows that husbands play an important role in decision making concerning modern contraceptive use.

However, the other factors that determine the use of modern contraception are number of living children, religion, age, occupation, education, knowledge of family planning methods, exposure to family planning information of mass media, place of residence and province also are an important factors.

The use of modern contraception is higher among women at younger and the middle of reproductive age (15-49 years), women with secondary or higher level of education, women working in the non-agricultural sector and agricultural sector, women who have more than 2 living children, women who live in rural areas and in the North and Central Sulawesi, Non-Muslim women, women who know 5-8 methods and women who are exposed to family planning information from TV

On the other hand, the use of modern contraception is lower among women at the older age (30-49 years), women with primary school and no education, women who do not work, have less than 1 living children, women who live in urban areas and South Sulawesi and Southeast Sulawesi, Muslim women, women who know 1-4 and more

than 9 methods and women who are exposed to family planning information from radio and newspaper.

Family planning programs, thus, have to pay attention to women who were more likely to use modern contraception, for more effort to sustain their contraceptive use and prevent the discontinuation of contraception. For women who were less likely to use contraception, the priority for motivating and encouraging them and their husbands to participate in family planning programs should, thus, be given.

5.2 Recommendations

5.2.1 Policy implications

The government should give priority to develop the social sector, including improvement of women's status, through upgrading female education and employment opportunities, and improved access to the media, especially on TV programs', with a greater awareness at provincial level.

Family planning programs should also focus upon specific groups, such as women at age between 15-29 years and 35-49 years, with 0-2 number of living children, with no education and primary education, with no occupation, living in urban areas, Muslim religion and no knowledge of family planning.

In terms of modern contraceptive use in the region or administrative division (province), the results from logistic regression show that women in South Sulawesi Province were less likely to use modern contraception than their counterparts in the other provinces. Therefore, more program intervention needs to be taken in this province, although this province was, in actual fact, more developed than the other provinces in Sulawesi.

Husband's approval on family planning is one of the most important determinants of modern contraceptive use. This finding has important program implication because most family planning programs in Indonesia are designed primarily for women. Therefore, husband's involvement is important at all stages of contraceptive use, be that the decision to seek for contraceptive information and services, consideration of types of contraception, and length of contraceptive practice (IPPF, 1984, cited in Joesoef et al., 1988). Furthermore, the programs could also be well achieved by enhancing husband's roles and responsibilities with regarding to the issues of human

rights of women, protection of women's health, including supporting roles for their partners' access to reproductive health services, especially family planning. Therefore men should as well be included in all aspects of reproductive health.

Regarding women's work status, as the figure in this study shows that 62 percent of the sample did not work, and women who work in the agricultural and non-agricultural sectors were more likely to use contraceptives than those who do not work. Work or employment is, thus, clearly seen as a factor that provides women with more autonomy. Younger women who were more likely to use contraception was the ones who would like to work if they could (Hardee et al., 1999). This finding suggests that the Government should provide greater employment opportunities for women.

5.2.2 Information Education Communication program

In this study, it is found out that effect of exposure to family planning information from mass media on the use of modern contraception is not maximal. Therefore the effectiveness of the existing information, education and communication programs should be taken into account. Focusing IEC activities to married couples in order to increase awareness of the benefits of family planning for both individuals and family is still very important. Adequate information about variety of contraceptive methods is as well important to women. The IEC materials about contraceptive methods should be produced and distributed to communities and health service delivery stations. Improving and developing mass media programs, especially television programs, to clearly disseminate messages about the benefits of small family size or small number of children and giving the information about contraceptive methods would be a vital issue as well. Television should have specific programs on family planning and reproductive health issues and should be made to reach people both in rural and urban areas.

5.2.3 Recommendations for future study

This study does not focus on availability and accessibility of family planning, because of the limitation of the data, future study should, thus, find out about these in Sulawesi.

The Government of Indonesia has started implementing decentralization policy at provincial and district levels with focus upon districts and municipalities. This means that more authorities and responsibilities of local governments will be expanded. The decentralization of family planning programs is also performed and this includes the responsibilities for planning, budgeting, implementing and monitoring. It is, therefore, a challenging opportunity for the improvements and development of family planning programs at the district and municipality levels. Therefore, with provincial and district variations and characteristics, family planning programs should be designed specifically and accordingly to specific areas and contexts. Although there may be some limitations in National Family Planning Coordinating Board's resources such as policies, manpower, budget (financial) and logistics at district and municipalities levels, but these could hopefully, be overcome by adopting various strategies at the level of local governments. Furthermore, in order to monitor various types of programs towards this direction, special attention should be given to facilitate on-going studies at district level.

In order to evaluate the family planning programs and to realize the actual direction of causal relationships between many other intertwined and complex factors that are not yet touched upon in this study, qualitative research is strongly recommended in Sulawesi.

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