

Contraceptive Use Pattern among Married Women in Indonesia

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INTRODUCTION

For almost forty years fertility in Indonesia has declined dramatically. The total fertility rate (TFR) declined from 5.6 children per woman between 1967 and 1970 to 2.6 children per woman in 2007 (Indonesia Demographic and Health Survey, 2007). Much of the decline is due to an increase in the contraceptive prevalence rate (CPR) from 18 percent in 1976 to 61 percent in 2007 (Hull and Mosley, 2008; IDHS, 2007). This reflects the success of the national family planning program in Indonesia that was implemented by the National Family Planning Coordinating Board (BKKBN), the state agency that had the major responsibility for family planning. The BKKBN was created in 1970, and it became a large and dominant governmental organization with branch offices in each of the country's thirty-three provinces. The BKKBN organized the entire suite of family planning activities carried out by government and non government organizations (Pasay and Wongkaren, 2001). The central office in Jakarta has provided guiding principles for the program each year and it has approved local implementation plans while the provincial offices have organized the activities of public and private organizations in carrying out the program (Cammack and Heaton, 2002).

The activities of the BKKBN take account of rising local community and political support: health care professionals in provision of contraceptive services are trained, distribution networks are improved, and contraception through education, contraceptive subsidies, and inducement of demand are promoted (Gertler and Molyneaux, 1994). Both education and the encouragement of demand happen through a broad variety of family planning information, education and communication activities conducted continuously by

community organizations, local volunteers, and medical professionals, and through mobile clinics (Hull and Hull, 1997).

Indonesia's family planning program has been successful in bringing services to rural communities through an impressive network of family planning fieldworkers and local distribution points for contraceptives. The BKKBN worked together with various public and private organizations (Cammack and Heaton, 2002). The child and maternal health clinics in villages and sub villages (Puskesmas), together with local public health centers, have been run by BKKBN field workers, whose aim has been to recruit new contraceptive acceptors by motivating mothers to use family planning (Nangoy 1998, in Cammack and Heaton, 2001, Utomo et al., 2006). The BKKBN also collaborated with the most powerful women's organization, Family Welfare Movement (PKK), which provided family planning volunteers who collected and maintained records on individual family planning practices and carried out face to face recruitment of new contraceptive acceptors (Cammack and Heaton, 2001; Utomo et al., 2006; Shiffman, 2002).

Moreover, one of the keys to the success of Indonesia's family planning program was in defusing religious opposition. Indonesia is the world's largest Muslim nation with minority populations of Christians, Buddhists, and Hindus. Birth control is a sensitive issue in Islam. Both of Indonesia's large Islamic social welfare organizations, Nahdlatul Ulama (NU) and Muhammadiyah were consulted at national and local levels; they not only withdrew their opposition to the family planning program, but they have added their voices to the government's call for family planning (Cammack and Heaton, 2001; Shiffman, 2002).

Family planning programs have been the centerpiece of government efforts to reduce fertility. These programs, which provide access to contraceptive information and services, make it easier for couples to plan the number of children that they would like to have. In an effort to lower the desired family size, they also help to spread the idea that birth control is within the realm of human choice and they provide information about the benefits of small families (Jensen, 1996). The Indonesian family planning program promotes smaller families (two is enough) to improve family welfare by encouraging women to postpone marriage and to limit births through contraceptive use (Mize and Robey, 2006).

Furthermore, fertility declines in Indonesia have been eventually tied to the increased use of contraception (Hull and Hull, 1997). The percentage of married women of reproductive age using modern contraception has increased significantly. Based on the 1971 Indonesia Census, less than 10 percent of married women aged between fifteen and forty-nine years used modern contraception, while 54.7 percent in 1997 and 57.4 percent did so in 2007 (IDHS, 1997; IDHS, 2007).

Since 2004, the BKKBN has been officially decentralized bringing fundamental changes to family planning program management (Hull and Mosley, 2008). With decentralization, the BKKBN no longer has authority over regional governments because they have their own authority and right to make policies autonomously and to organize their budgets independently. Therefore the BKKBN cannot simply order local governments to increase their family planning budgets. However, the process of decentralization did not produce a

decline in the proportion of women using contraception (Hull and Hull, 2005). The same thing also happened in 1998, when the economic crisis struck Indonesia. It was expected that this would seriously disrupt people from accessing family planning, but in fact contraceptive use remained constant (Frankenberg et al., 2003; Mize and Robey, 2006).

In addition, a case study conducted in Indonesia in 2006, from ten districts in five provinces, revealed that commitment and support by regional governments for the family planning program varied depending on their perceptions of the importance of the program for their district (Herartri, 2008). Furthermore, the decentralized government structure provided a challenge to the BKKBN in the promotion of family planning programs which had stagnated. In 1997 (before decentralization), the contraceptive prevalence rate (CPR) was 57.4 percent and in 2007 (after decentralization) the CPR was 61.4 percent (IDHS, 1997; IDHS, 2007). Within a ten year period, the CPR had only increased by 4 percent. According to David Ojaka (2008), contraceptive prevalence may be related to the performance of the family planning program. These facts show the weak performance of the family planning program in Indonesia after decentralization, even though knowledge of contraception was high among married women. Knowledge of a modern method was also almost universal, (98 percent (IDHS, 2007)). However, widespread knowledge of modern methods do not guarantee the success of the family planning program unless they are accompanied by the acceptance and continued use of effective methods (Pasay and Wongkaren, 2001).

Research around the world has found that many factors affect contraceptive use. In a national survey of Kuwaiti women, Nasra M. Shah et al. (2001) found that women's age,

parity, educational level, and residence in urban areas were significantly and positively associated with current use. Ojaka in Uganda (2008) found that numbers of women not using contraception were higher among women with a primary education than among women with no education, but the numbers then decreased among women with secondary or higher education. Moreover, total non users also increased with the number of living children (Ojaka, 2008). He also found that the lower the economic status of the household, the higher the non users.

A study on contraceptive use in Bangladesh noted that women's education was positively associated with the current use of contraception, as well as husband's occupation, urban residence, visits by family planning workers and desire for more children. Women's age was the last significant variable to contribute positively to contraceptive use (Ullah and Chakraborty, 1993). In addition, in Pakistan, women's education also played an important role in relation to contraceptive use, as literate women were more likely to use contraceptives than illiterate women (Khan and Khan, 2007).

The husband's view on family planning also has been consistently found to be a significant factor affecting contraceptive use in several countries including Indonesia, Sub-Saharan Africa, the Philippines, India, Nepal, Pakistan, Kuwait, and Mali (Joesoef et al., 1988; Bongaarts and Bruce, 1995; Casterline and Sinding, 2000; Shah et al., 2004, Kaggwa et al., 2008). Meanwhile in Ghana, a husband's education had no significant effect on his wife's current contraceptive use (Tawiah, 1997). In Vanuatu, T.K. Jayaraman (1995) found that the number of living children and women's work status were important factors affecting the current use of contraception. While in Uganda,

Ntozi, J. P. and J.B. Kabera (1991) found that the low use of modern methods of contraception was caused by the lack of knowledge of supply sources, low education, low levels of employment outside the home, unavailability of supplies, and pronatalist cultures.

A study using data from the 1988 Vietnam Demographic and Health Survey found that women with three or more children were more likely to use a modern method than were those with fewer children. It also found that urban women were more likely to use contraception than rural women (Dang, 1995). While in India, religion was found to be an important determinant of the use of contraception. Muslims and Hindu castes showed a significant lower use of contraception (Bhende et al., 1991) and education was one of the factors that positively affected contraceptive use, whereas women's age was not found to significantly have an impact on contraceptive use (Iyer, 2002). Meanwhile, in Tanzania, women who were exposed to family planning messages were more likely to use contraception (Jato et al., 1999).

In Indonesia, a study conducted by Mohamad R. Joesoef and colleagues (1988) found that a husband's approval was the most significant factor in affecting contraceptive use, followed by the number of living children and the woman's education. In addition, in 1991, A. Greenspan argued that Indonesia needed to expand the contraceptive mix to encourage women to use contraception. Furthermore, in 2005, Juan Schoemaker found that wealthier women were more likely to approve of family planning and to use modern contraceptives than poor women. He also found that the number of living children had a strong relationship with contraceptive use in Indonesia.

While many studies have been done on family planning in Indonesia, there has been no study conducted on contraceptive use patterns among married women in Indonesia, either before or after decentralization. This study examines whether contraceptive-use patterns in Indonesia changed between 1997 (before decentralization) and 2007 (after three years of decentralization). The focus of this study is to analyze the demographic and socio-economic factors influencing contraceptive use before and after decentralization.

As contraception is one of the proximate determinants of fertility (Bongaarts, 1978), understanding the pattern of contraceptive use among married women in Indonesia is very important in relation to designing programs and policies to control fertility in order to maintain a low fertility level.

It is hypothesized that there have been some changes in contraceptive-use patterns before and after decentralization. It is also hypothesized that women using contraception increase with age, economic status, education and residential area. Women who were living in urban areas were much more likely to use contraception compared with women living in rural areas. The working status of both the husband and wife, as well the husband's approval of contraceptive use were a strong predictor of contraceptive use. Women who were visited by family planning workers and who had full exposure to family planning messages were also more likely to practice contraception.

DATA AND METHOD

The data for this study was obtained from the 1997 and the 2007 Indonesia Demographic and Health Survey (IDHS). Both surveys were conducted in Indonesia under the support of the international Demographic and Health Survey (DHS) program. Most of the data collected in the IDHS provide updated estimates of basic demographic and health indicators covered in previous IDHS surveys. A cross-sectional household survey was conducted in Indonesia in which in 1997, 35,362 households were sampled, of which 34,255 were successfully interviewed. In 2007, 42,341 households were sampled, of which 40,701 were successfully interviewed. The 1997 IDHS identified 28,810 eligible ever-married women aged between 15 and 49 while the 2007 IDHS identified 32,895 eligible ever-married women aged between 15 and 49.

Dependent variables

In the first part of the analysis, the dependent variable was contraceptive use at the time of the survey. Contraceptive use was measured as a dichotomous variable. In the first model, women who were practicing contraception at the time of the survey were coded 1 and those who were not using any method were coded 0. In the second part of the analysis, the dependent variable was modern contraceptive use at the time of the survey, which examined the odds of choosing a modern method over a traditional method. Respondents were limited to 15,438 women who were current users in 1997 and 18,981 women in 2007. Contraceptive methods were grouped into two major categories, modern and traditional (Shah et al., 2001). Contraceptive methods defined as modern include

pills, IUD (the intrauterine device), injectables, implants, female sterilization, male sterilization, condom, and LAM (Lactational Amenorrhea Method), while traditional methods include periodic abstinence, withdrawal, and folk methods. Use of a modern method was measured as a dichotomous variable. In the second model, women who were practicing modern contraception at the time of the survey were coded 1 and those who were not using modern methods were coded 0. In the third part of analysis, the dependent variable was the term of modern contraceptive method, which examined the odds of choosing a long-term contraception over a short-term contraception. Modern contraceptive methods defined as short-term include pills, injectables, condoms, and LAM, whereas long-term methods include IUD, implants, female sterilization, and male sterilization. In the third model, women who were practicing a long-term contraception method at the time of the survey were coded 1 and those who were using a short-term contraception were coded 0.

Independent variables

Every part of the analysis used the same set of independent variables. Women's age, place of residence, number of living children, household wealth index, both wives' and husbands' educational qualifications, religion, desire for more children, couple's working status, whether they were visited by a family planning worker, family planning exposure, and husband's view on family planning were used as control variables for predicting contraceptive use. The continuous variable for the woman's age was replaced by three age groups: 15-29, 30-39, and 40-49, represented by a series of dummy variables. The place of residence used categories from the IDHS: urban and rural. The continuous

variable for the number of living children was constructed with three groups: less than three children, three and four children, and more than four children. Household wealth index was a discrete variable including five categories: lowest, second, middle, fourth, and highest. Women's and husband's educational levels were grouped into four categories: no education, primary, secondary, and higher. Religion had six categories: Islam, Protestant, Catholic, Hindu, Buddhist, and other. Desire for more children was based on a question relating to whether they wanted more children or not. Those who wanted more children were coded 1 and those who did not want any more children were coded 0. A couple's working status was based on questions about whether the wives and husbands were working. If both were working they were coded 0, if only the husband was working they were coded 1, if only the wife was working they were coded 2 and if neither were working they were coded 3. Whether they were visited by a family planning worker was a dichotomous variable (yes or no). Those who were visited by a family planning worker within the last six months were coded 1 and those who were not visited were coded 0. Family planning exposure was defined as being able to recall a family planning message heard or seen on radio, television, or the newspaper during the last month. To evaluate how much exposure was experienced, the question was divided into three categories: no exposure, partial exposure, and full exposure. The husband's view on family planning was based on the wife's perception of her husband's opinion about contraceptive use: whether he approved or disapproved.

Analysis

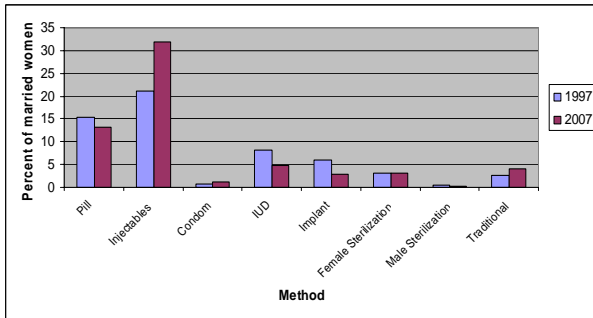
Because this study focuses on the contraceptive use pattern among married women, only those who were currently married at the time of the survey were selected (26,886 women in 1997 and 30,931 women in 2007). Those involved in this study, conducted bivariate and multivariate analyses to examine the patterns of contraceptive use. Odds ratios from logistic regression analysis were applied to identify associations between contraceptive use and the selected demographic and socio-economic characteristics of respondents. All analyses were conducted using SPSS version 16.

RESULTS

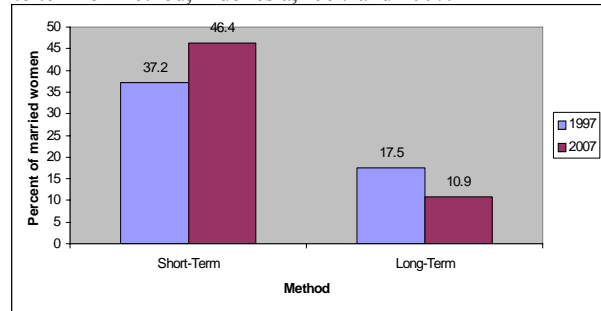
Graph 1 shows overall trends in contraceptive use by method among currently married women in Indonesia in 1997 and 2007. Overall, contraceptive use among married women increased by 4 percent during the period, from 57.4 percent in 1997 to 61.4 percent in 2007. In addition, the use of a modern method was 54.7 percent in 1997 and 57.4 percent in 2007, whereas the use of a traditional method was not common in Indonesia. The use of injectables has shown the most remarkable increase during the period. The percentage of women using injectables has increased from 21 percent in 1997 to 32 percent in 2007, while the other contraceptive methods have decreased during the period except for female sterilization, which has not changed during the period. This was possibly due to the involvement of the village midwives who become private family planning service providers who offered injectables to increase their income flow (Hull and Mosley, 2008). Furthermore, the proportion of women choosing a short-term method increased 9 percent during the period, from 37.2 percent in 1997 to 46.4 percent in 2007. On the other hand,

the proportion of long-term method users decreased from 17.5 percent in 1997 to 10.9 percent in 2007, as illustrated in Graph 2.

Graph 1 Trends in contraceptive method choice (current use) among married women aged 15-49, Indonesia, 1997 and 2007.



Graph 2 Trends in modern contraceptive method choice (current use) among married women aged 15-49, according to term of method, Indonesia, 1997 and 2007.



Short-Term methods include pills, injectables, condom, and LAM.

Long-term methods include IUD, implants, female sterilization, and male sterilization.

Table 1 presents the percentage distribution of currently-married women aged between 15 and 49 who are currently using contraception, modern contraception, or long-term contraception by selected demographic and socio-economic characteristics. There were significant variations in contraceptive use among women with different demographic and socio-economic characteristics. The use of contraception among currently-married women increased with age as might be expected in both years. In 1997 and 2007, the highest proportion of users was in the age group 30-39, while the lowest proportion was in the age group 40-49. The older age group might assume that they were less fertile or they believed themselves to be infecund. For the young reproductive age group (15-29), the low proportion of contraceptive use can be interpreted because the women were at the beginning of childbearing and hence they limited their use of family planning methods. Even so, those who were using a contraceptive were more likely to use a modern method but only for a short term. On the other hand, the highest proportion of long-term method

users in both years was the older age group (40-49). In addition, a study about contraceptive use in Indonesia shows that older women tended to have a longer duration of contraceptive use (lower discontinuation) than did younger women (Fathonah, 2000).

Women in urban areas were more likely than rural women to practice contraception, but they were less likely to use a modern method compared to women in rural areas in both years. However, there was a significant decrease in long-term method users in rural areas between the periods. This was probably due to the preference of rural women for using short-term contraceptives such as pills and injectables because the prices were cheaper than long term contraceptives.

The percentage of modern method users declined slightly with the number of living children, whereas the percentage of long-term method users increased with the number of living children during the period. However, there was a significant decrease in the percentage of long-term method users between 1997 and 2007. Wealthier women were slightly more likely to use contraception and to use a modern method than those who were in the middle and lower classes. In 1997, the wealthier women were more likely to use long-term methods, but this pattern was reverse in 2007. This could be explained since wealthier women in the latter year (2007) had the ability to pay private practitioners for a long-term contraceptive. This could also be because of the transformation of family planning service delivery from the public or government sector to private practitioners that occurred between 1987 and 2007 (Hull and Mosley, 2008).

Women with primary, secondary and higher education were more likely to use contraception than those with no education in both of the years under consideration. The proportion of women using a modern method increased slightly from uneducated women to women with primary education and then decreased considerably with increased educational attainment during the period. Meanwhile, the cohort of women with higher education made up the highest percentage of long-term method users compared with those with lower education in both years, even though uneducated women were more likely to use a long-term method than those with primary and secondary education.

The proportion of wives using contraception increased with their husbands' education level during the period. Wives whose husbands had primary education comprised the highest percentage of modern method users in both years, while wives whose husbands had higher levels of education had the lowest percentage. Interestingly, in 1997, the highest proportion of long-term method users was wives whose husbands had no education. On the other hand, in 2007, wives whose husbands had higher levels of education were the highest proportion of long-term method users.

The highest proportion of women using contraception was among Hindu women during the period. In 1997, Hindu women comprised the highest proportion of modern method users, while in 2007 Moslem women were more likely to use a modern method. However, the percentage of women using a long-term method was highest among Buddhist women in 1997, but it was highest among Hindu women in 2007.

Women who did not desire additional children were more likely to use contraception than those who desired additional children during the period. Interestingly, those who wanted more children were more likely to use a modern method but were less likely to use a long-term method than those who did not want more children in both years. Dual-earner couples were more likely to use contraception than those who had only one income source—either from the wife or husband—or who were not working at all in both years. Interestingly, women as single earners were more likely to use a long-term method than those who were either both working and not working or where only the husband was working. This was probably due to the fact that working women were more autonomous, independent, and knew the consequences for their careers of having more children.

Being visited by a family planning worker seemed to very strongly affect women's use of contraception in 1997, since the proportion of contraceptive use was the highest among those who had been visited by such a worker. The proportion of women using contraception was 80 percent among women who had been visited by a family planning worker and 50 percent among those who had not been visited. On the contrary, in 2007, even though the proportion of contraceptive users among those who had been visited by family planning worker was still higher than those who had not been visited, there was only a slight difference in the proportion: 64.5 percent versus 61.2 percent. Meanwhile, those who had been visited by a family planning worker were more likely to use a modern method than those who had not been visited between 1997 and 2007. Nevertheless, in 1997, those who had been visited by a family planning worker were significantly less likely to use a long-term method than those who had not been visited. Whereas, in 2007 those who had been visited by a family planning worker were slightly

more likely to use a long-term method than those who had not been visited, however this was not significant.

Women who had been more exposed to family planning messages were significantly more likely to use contraception than those who had not been exposed during the decade. In terms of modern methods, women with full exposure to family planning messages were less likely to use a modern method than those who had had partial or no exposure. However, the percentages of women using long-term methods increased with the level of exposure in each of the years.

A husband's view on family planning had a substantial effect on contraceptive use and modern method usage. In each of the years, wives with the perception that their husbands approved of contraceptive use, were more likely to use contraceptives, and a modern method, than wives with the perception that their husbands disapproved. About 66 percent (1997 and 2007) of the wives whose husbands approved of family planning were using contraceptives compared with only 9 percent in 1997 and 25 percent in 2007 of wives whose husbands disapproved. In addition, in 1997, wives whose husbands approved of family planning were more likely to use long-term methods than women whose husbands disapproved, but this pattern was reversed in 2007.

Both working	7,475	59.0	11,021	61.4	7,077	94.7	10,216	92.7	2,598	36.7	2,215	21.7
Only husband working	7,766	56.7	7,612	62.3	7,447	95.9	7,212	94.7	2,006	26.9	1,088	15.1
Only wife working	99	38.5	238	48.7	94	94.9	218	92.0	56	59.6	58	26.5
Both not working	98	35.5	110	38.6	96	97.0	100	90.9	31	32.3	23	23.0
Visited by family planning worker	**		*		**				**			
No	10,051	49.8	17,977	61.2	9,403	93.6	16,793	93.4	3,728	39.6	3,188	19.0
Yes	5,387	80.1	1,001	64.5	5,310	98.6	950	94.9	964	18.2	195	20.5
Family planning exposure	**		**		**		*		**		**	
No exposure	8,099	53.7	12,978	60.1	7,740	95.6	12,173	93.8	2,563	33.1	2,186	18.0
Partial exposure	6,282	62.0	5,156	64.0	5,989	95.4	4,798	93.1	1,789	29.9	1,006	21.0
Full exposure	1,058	62.6	827	65.5	984	93.0	759	91.8	339	34.5	191	25.2
Husband's view on family planning	**		**		**		**		*		*	
Disapproves	235	8.9	425	24.9	163	69.1	319	75.1	40	24.5	75	23.6
Approves	15,138	65.8	18,248	65.9	14,503	95.8	17,187	94.2	4,624	31.9	3,258	19.0

Source: Indonesia Demographic and Health Survey, 1997 and 2007. Notes: * indicates significant at $p < 0.05$ ** indicates significant at $p < 0.01$

Multivariate Analysis

Table 2 describes the results of logistic regression analysis of predictors of contraceptive use, modern method use, and long-term method use. The logistic regression analysis shows that a woman's age in Indonesia is a significant predictor of contraceptive use in each of the years under review. In comparison with women aged from 15 to 29 years, women aged between 30 and 39, and 40 and 49 were less likely to use contraception in 1997, while in 2007, women aged from 30 to 39 were slightly more likely to practice contraception, however, this is not significant. Women aged from 40 to 49 were significantly less likely to use contraception than those aged between 15 and 29 during the period. Women aged from 30 to 39 and 40 to 49 were also significantly less likely to use a modern method than those who were aged between 15 and 29. This finding may reflect a decreasing need for modern contraception among the oldest group of women. This could be explained, perhaps, because they were less fertile, they believed themselves

to be infecund, or they were beginning to enter menopause. However, older women were significantly more likely to use a long-term method than younger women.

Urban women were slightly more likely to use contraception than their rural counterparts in 1997. However this was not significant. In 2007, urban women were 7 percent less likely to use contraception than rural women. Furthermore, urban women were less likely to use a modern method than those who were residing in rural areas during the period. In 1997, the odds of long-term method use were 14 percent lower among women in urban areas than women in rural areas, but in 2007, the odds of long-term method use were 10 percent higher among women in urban areas than those in rural areas.

Women with three or four children were significantly more likely to use contraception than those who had two children or less in each of the years under consideration. Interestingly, in 1997, women with five children or more were 2 percent less likely to practice contraception than women with two children or less, whereas in 2007, women with five children or more were 24 percent less likely to practice contraception than women with two children or less. This result is surprising because the use of contraception usually increases with parity. This finding may reflect the relaxation of the family planning program after decentralization. Moreover, the odds of modern method use were lower among women with three children or more than among those with two children or less, even though the odds of long-term method use were slightly higher among women with three children or more than those with two children or less.

The household wealth index bore a positive relation to the use of contraceptive methods. Compared with poor women, better-off women were more likely to adopt a method, modern method, and long-term method of contraception. Furthermore, women's education had a significant effect in promoting a positive relationship with contraceptive use. More educated women were more likely to use contraceptives than were those without education. Nevertheless, more educated women were less likely to use modern methods than those with no education. However, women with higher education were more likely to use long-term methods than those who were uneducated. Meanwhile, there was no significant difference in the use of contraception brought about by the husband's education during the period under analysis. However, wives whose husbands had primary schooling or secondary or higher education were only slightly more likely to use contraception than those whose husbands had no education. In addition, the odds of modern method use among wives whose husbands had primary education or higher were lower than they were among wives with uneducated husbands in each of the years. Although in 1997 the odds of long-term method use were significantly lower among wives with educated husbands than they were for wives with uneducated husbands, in 2007, wives with educated husbands were more likely to use long-term methods than those with uneducated husbands.

Moslem women were less likely to use contraception than women of other religious persuasions between 1997 and 2007. This might indicate that birth control or family planning was still a sensitive issue in Islam at this time. However this was not significant. Meanwhile, during the same period, desire for more children had a significant affect on the current use of contraception. Women who desired additional children were less likely

to use a method of contraception than those who did not want more children. A couple's working status also had a significant affect on the current use of contraception in both years under review. Both working couples and couples with no jobs were more likely to practice contraception than those with one source of income either from the wife or husband. Interestingly, in 1997, non-working couples were 97 percent more likely to use modern methods than those who were both working. On the other hand, not working couples were 27 percent less likely to use a modern method than working couples. Furthermore, single-earner women were 88 percent more likely to use long-term contraception than those where each member of the couple was working in 1997. While in 2007, those who worked as the only earner were 29 percent more likely to use long-term methods than those who were both working.

Being visited by family planning worker also had a significant affect on contraceptive use in 1997. In 2007 this was no longer significant. Women who were visited by a family planning worker were more likely to use a method than those who were not visited in either of the years (3.2 and 1.1, respectively). Moreover, those who were visited by a family planning worker were significantly more likely to use modern methods than those who were not visited during the period. Meanwhile, compared to those who were not visited by a family planning worker, those who were visited were less likely to use a long-term method in 1997, but they were more likely to use a long-term method in 2007.

Women who were fully exposed to family planning messages were less likely to use contraception than those who were not exposed in both 1997 and 2007. However this was not significant. In the contrary, those who were only partially exposed to family planning

messages were more likely to use contraception in 1997, but this was not the case in 2007. Those who were partially or fully exposed to family planning messages were more likely to use either modern methods or long-term methods of contraception than those who were not exposed between 1997 and 2007.

As expected, there was a significant positive relationship between a husband's view on family planning and his wife's current use of contraception in 1997 and 2007. Wives with the perception that their husbands approved of contraceptive use were more likely to use contraception and modern contraception than those who with the perception that their husbands disapproved. Wives who perceived that their husbands approved of family planning were 46 percent more likely to use long-term methods of contraception than those who believed they did not. But this was not the case in 2007, when those who believed that their husbands approved of family planning were 13 percent less likely to use long-term methods than those who held the perception that their husbands disapproved. However, the relationship between these two variables was not significant for this model.

Table 2. Odds ratios from logistic regression analyses assessing the association between the use of contraceptive methods, modern methods, and long-term methods, by selected demographic and socio-economic characteristics, Indonesia, 1997 and 2007

Characteristics	Method users		Modern method users		Long-term method users	
	1997	2007	1997	2007	1997	2007
	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio	Odds ratio
Total	(N=15,438)	(N=18,981)	(N=14,714)	(N=17,746)	(N=4,691)	(N=3,384)
Age						
15-29 (ref)	1.00	1.00	1.00	1.00	1.00	1.00
30-39	0.78 **	1.01	0.43 **	0.53 **	1.62 **	2.00 **
40-49	0.41 **	0.42 **	0.35 **	0.42 **	3.02 **	4.59 **
Residence						
Rural (ref)	1.00	1.00	1.00	1.00	1.00	1.00
Urban	1.03	0.93	0.72 **	0.63 **	0.86 **	1.10 **

Approves	16.2 **	5.18 **	11.30 **	5.03 **	1.46	0.86
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Notes: * indicates significant at p < 0.05 ** indicates significant at p < 0.01; ref= reference category

DISCUSSION

This study has examined the pattern of contraceptive use and choice of methods among married women of reproductive age in Indonesia between 1997 (before decentralization) and 2007 (after decentralization), with a particular focus on the extent to which demographic and socio-economic characteristics influenced the practice of contraceptive use. The results show that almost all characteristics such as women's age, number of living children, household wealth index, women's education, religion, desire for more children, a couple's working status, being visited by a family planning worker, and the husband's view on family planning all have significant relationships with contraceptive use. This was supported by previous studies in other countries (Joesoef et al., 1988; Ntozi and Kabera, 1991; Dang, 1995; Jayaraman, 1995; Mahmood and Ringheim, 1996; Douthwaite and Ward, 2005; Schoemaker, 2005). Results also show that the husband's education and family planning exposure had no significant relationship with contraceptive use. There were eight characteristics that had a significant relationship upon modern method use: age, residence, number of living children, woman's education, religion, desire for more children, visit by a family planning worker, and husband's view on family planning. The other characteristics no longer had a significant relationship with modern method use. Moreover, there were only three characteristics that no longer had a significant relationship with long-term method use. There were the number of living children, religion, and the husband's view on family planning.

In both years, 1997 and 2007, the results indicate that women's education was one of the most important factors relating to contraceptive use. This was similar to findings of studies conducted in other countries which also indicate that women's education had a strong positive effect on their current use of contraception (Martin, 1995; Arokiasamy, 2002; Iyer, 2002; Khan and Khan, 2007). This was also noted by Shireen J. Jejeebhoy (1995) who argued that educated women were more likely to use contraception than uneducated women since education is expected to improve the motivation to practice birth control. Increasing the education levels of women may be one effective way of advancing the practice of family planning in Indonesia. This suggests that the government should encourage more young women to attain higher education levels.

The results also suggest that before decentralization, visits by a family planning worker had a significant impact on contraceptive use. However, after decentralization, visits by a family planning worker no longer had a significant influence on current use of contraception, even though there was still a positive effect. After decentralization, the numbers of family planning workers decreased as they decided to move to other government jobs which afforded them better income and status (Utomo et al., 2006). These results suggest that the government should give better remuneration to family planning workers so that more adequately qualified people will be available to visit married couples to encourage those people to participate in family planning.

A couple's working status also had a significant effect on contraceptive use. Working women tended to choose more long term effective modern methods since they were more likely to have the ability to make a fertility choice. As Jayaraman argues, improving

employment opportunities for women will increase the prevalence of contraception thus, hopefully, lower the birth rate (Jayaraman, 1995).

The results also suggest that urban women were less likely to use modern methods than their rural counterparts. This indicates that the availability and access of family planning services in rural areas were wider in 2007 and that those women in rural areas were more accepting of family planning programs and more likely to use effective methods. These results also suggest that the national family planning program successfully reached women in rural areas even though the use of long-term methods needed promoting. On the other hand, women in urban areas were more reliant on traditional methods, although those who did use modern methods were more likely to use long term effective methods.

The results also show that a husband's view on family planning is one of the significant factors that influenced use of contraception in 2007. Since a woman's perception of her husband's opinion about contraceptive use had a significant influence on her contraception practice, it seems that a husband's attitudes acted as a serious obstacle to a woman's contraceptive use (Joesoef et al., 1988; Bongaarts and Bruce, 1995; Casterline and Sinding, 2000; Shah et al., 2004). Therefore, policy makers responsible for national family planning programs need to target husbands by constructing a message that encourages male participation in family planning.

Regarding methods of contraception, injectables have shown the most remarkable increase during the periods under consideration, while other contraceptives have decreased during the period except female sterilization, which has not changed during the

period. Such patterns indicate that some thought will need to be given to the way contraceptive services are provided. There is obvious scope for efforts to broaden the range of options available to include methods such as pills, condoms, LAM, and long effective methods; IUD, implants, and sterilization and to deepen the efforts to promote responsible family planning, particularly among men (Hull, 2000).

However, this study has some limitations. Since this study examined contraceptive use pattern only among married women, the sample is limited to only currently-married women at the time of the IDHS survey in both years. Therefore it does not include non-married women or ever-married women. Hence these results may not be able to be generalized to all women in Indonesia.

Despite the limitations, this study has some strengths which contribute to the existing research literature on contraceptive use. This study has compared statistics gathered in 1997 and 2007 to observe whether there are changes in contraceptive use patterns before and after decentralization. As no previous studies about contraceptive use patterns in Indonesia have been conducted to examine changes during the periods under consideration, this study helps to fill a gap in the literature. However, further studies are needed to explore factors affecting the use of contraception in Indonesia using longitudinal data to examine trends and causality.

Policy and program implications

The low increase in the rate of contraceptive use over the ten-year period suggests stagnation in the family planning program. The results of this study highlight the impact of the relaxation in family planning programs in Indonesia that occurred after decentralization. This stagnation suggests that the challenge for the government of Indonesia is to promote family planning by providing better information, supply, access and services about family planning as well as reproductive health, especially in rural areas. It is important that both national and local governments view fertility-control programs through family planning as an integral part of an effective poverty-alleviation program by increasing welfare through the development of a small family norm. Strategies that make family planning services available, affordable and accessible for all people, and that offer a wider range of contraceptive methods will have the greatest impact on increasing contraceptive use. In addition, it is essential to promote long-term methods of contraception. Raising levels of education, improving employment opportunities for women, and encouraging males to participate in family planning are all effective means of advancing family planning acceptance and increasing the prevalence of contraceptive use. Moreover, it is important to increase the number of family planning workers as they contribute to the success of family planning in Indonesia.

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