



# Journal of Applied Sciences

ISSN 1812-5654

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## How a Married Woman's Characteristics Affect her Contraceptive Behavior?

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**Abstract:** In Pakistan, population growth rate is 2.2% and Total Fertility Rate (TFR) is as high as 5.4. It is the result of low Contraceptive Prevalence Rate (CPR) of only 28%. Due to low CPR, women have high rate of unwanted births in Pakistan. In this study using probit estimation on primary data, we have analyzed the woman's characteristics responsible for low contraceptive prevalence among married women in urban areas of Punjab (Pakistan). For the purpose one thousand married women in the age group of 15-49 years, who were not currently pregnant were interviewed from urban areas of Bahawalpur and Lahore. The individual characteristics of married women were focused, although household characteristics, socio-economic conditions of the community where woman is living, religious and cultural factors are also important. It is found that age of woman, education of woman, woman's status, her economic activity, income level and age at marriage were found major determinants of contraceptive prevalence in women. The policies towards the education of women, status of women, labor force participation of women and legal interventions towards the increase in marriage age are stressed to increase the CPR.

**Key words:** Fertility, family planning, children, marriage, contraception, women

### INTRODUCTION

At the time of independence (1947) Pakistan's population was 32.5 million. During the last fifty-seven years, Pakistan's population increased more than four-folds. The annual growth rate of population was 1.8% annually in 1947. It increased to 3.1% in 1981, which was one of the highest rates in the world. According to 1998 census it was 2.6% for the 1990s and in 2002 the population growth remained 2.2%. Due to such a high population growth rate in Pakistan, the age composition of both men and women is heavily weighted towards younger and unproductive ages. In the year 2002, the proportion of population below 15 years of age was about 41, 20% for females and 20.9% for males.

There are huge benefits, which may be gained by low population growth in Pakistan. An apparent is the population size of school-age children. Population projections for Pakistan, Iran and Indonesia show that Iran and Indonesia are both experiencing declines in number of school-age children. But Pakistan is still facing an enormous growth in school-age children. It can not reap benefits due to falling dependency ratio. High population growth has negative implications on adult literacy rate, agricultural holding, environmental degradation, employment situation, rural-urban migration, health and sanitation facilities, housing conditions, provision of potable water supply, food and malnutrition and prevalence of poverty.

The Total Fertility Rate (TFR) in Pakistan stands at 4.6 births per women, while India at 3.0, Bangladesh 3.0, Sri-Lanka 2.1 and Myanmar at 2.9. TFR did not decrease much in Pakistan through the 1990s, but in some other countries like Iran and Bangladesh 1990s was the decade of very rapid decline in fertility. Consequently, in coming years Pakistan's population growth will remain high. United Nation's projection of TFR for Pakistan using medium variant look extremely optimistic, that is a fall in TFR from 5 in 1995-2000 to 2.9 in 2015-20. By the low variant projections, TFR is assumed to reach 2.5 in 2015-20. Even the low projection would give Pakistan much faster population growth resulting in doubling of population in just 40 years (1995-2035).

There are a number of reasons for slow progress in reduction in TFR in Pakistan, for example low adult literacy, failure to raise awareness, inefficient and unequal (regionally) distribution of birth control facilities, preference for sons and lack of security in old age are the major factors. One of the prime factors is low Contraceptive Prevalence Rate (CPR), i.e., only 28% of married women in the age group of 15-49 years are using contraception, while CPR is 52% in India and 54% in Bangladesh. The TFR has been increasing very slowly in Pakistan. National surveys carried out in 1974-75 (Pakistan Fertility Survey) and 1990-91 (Pakistan Demographic and Health Survey) documented essentially unchanging contraceptive prevalence that remained almost less than

12%. CPR began to increase in the 1990s, rising from 12 to 24% in the 1996-97 (Pakistan Fertility and Family Planning Survey), a rise of roughly 2% points per annum. Furthermore, CPR did not begin to increase in rural areas until the 1990s, therefore it had not yet a noticeable impact on fertility. Punjab has the highest prevalence levels, but North-West Frontier Province experienced the most rapid rise in CPR in early 1990s. Though, Pakistan has made investment of billions of rupees on family planning during the past three and half decades but just more than one fourth of the women are using contraceptive and only a quarter of population has easy access to family services outlets. The country has specific characteristics of contraceptive use, i.e., fertility control techniques are extremely female biased, where women are the objects and targets. Male contraceptive accounts for only 4.4%. Thus recent fertility decline is largely attributed to increase in contraceptive use with major contribution by women users.

Conceptually, low contraceptive use is the result of interaction among a complex set of demand and supply aspects of family planning. It is still unclear which aspect is comparatively more important. On supply side, easy access to service outlets is strongly related to contraceptive use (Agha, 2000). In Pakistan, 31.7% of the demand for contraceptive remained un-met, which is the highest in South Asia followed by Nepal at 27.8%, India at 15.8% and Bangladesh at 15.3%. Critics of the supply-oriented family program are of the opinion that in Pakistan almost all approaches are supply-oriented and simply handing out contraceptive does not necessarily guarantee the practice of family planning.

On the demand side the most commonly cited factors obstructing the use of contraceptive by women are the husband's disapproval, lack of communication about family planning among wife, husband and mother-in-law, women's immobility and lack of exposure to family planning messages from health-care workers, lack of female autonomy, son preference, lack of knowledge of source of family planning, unequal balance of power in gender relations, fear of side effects and socio-cultural and religious taboos about birth control (Fikree *et al.*, 2001). Demand aspect is ignored in population programs of Pakistan along with the focus on only females.

A vast literature comprising micro/macro studies mainly deals with determinants, differentials and regional variations. Mahmood and Ringheim (1996) have examined the effect of socio-cultural and supply factors on contraceptive use through logistic regression by using Pakistan Demographic and Health Surveys of 1990-91. In addition to find a positive relationship of women's age, number of living children, education and place of

residence with contraceptive use, they have theorized five factors potentially affecting fertility, i.e., communication between husband and wives, religious beliefs, female autonomy, son preference and family planning services. Ali *et al.* (2004) have also used multiple logistic regression on primary data from district Naushahro Feroze to determine the factors of contraceptive use. The factors included in the model were husband's consent for the women to go alone to a health-care provider, women employment status and husband's education. Dwivedi and Sundram (2000) have used two level logistic regression for India including some different variable of pucca (brick and mortar) houses as residence of household, survival of last child, availability of all weather road to household and religion. Fikree *et al.* (2001) have made univariate and multivariate regression analysis of the influencing factors of contraceptive use in urban women of squatter settlements of Karachi. They determined the association between contraceptive use and several variables, including social and demographic characteristics; religious beliefs; communication about family planning among the family members (wife, husband and mother); women's mobility and decision-making capability; acceptance of information about family planning in the mass media; and exposure to family planning messages from health-care workers. Ali and White (2005) have determined the prevalence and socio-demographic factors associated with family planning practices in District Khairpur, Pakistan using cross-sectional primary data. They have examined the effect on contraceptive use by variables like women literacy, women age, number of children, exposure to family messages on TV and husband's approval.

We are going to do an empirical analysis of demand-side determinants of current contraceptive prevalence among married women using the non-linear maximum likelihood probability (Probit) function. The study is based on primary data comprising one thousand observations. We have excluded the issueless married women from the survey to make the results unbiased assuming that they do not need contraceptive. Though, there is possibility that newly wed women are using contraceptive to delay the first birth but it is very rare in Pakistani society. We have focused on all the women regardless of the number of children they bear, not on specific group of married women like women having one living child, two living children or three living children as a number of studies (for instance, Dwivedi and Sundram (2000) have analyzed all women as well as women having at least one child. The reason is that the gender of the first child also affects the contraceptive use and some women may prefer to have only one child though the ideal number of children in Pakistani households is two.

**MATERIALS AND METHODS**

**Sample and data collection:** Cluster sample technique was adopted. Sample of the population, i.e., Bahawalpur and Lahore districts were selected purposely. The clusters of the sample were also selected purposely to represent the average conditions of the sample. The households in the cluster were comprised of all income groups and all walks of life. Data was collected in June 2006 in Bahawalpur and August 2006 in Lahore with the specific purpose of investigating the probability of current contraceptive use by married women (in the age group of 15-49 years) in urban areas. The age group of 15-49 years is taken by following the Pakistan Fertility and Family Planning Surveys, although some girls are married off before 15 years of age. The mode of data collection was interviews with married women at their home. The divorced, separated and widows were excluded from the sample. The clusters in the city were selected purposely by keeping in mind the range of income, employment, age and education of the women. The literacy status of women is hypothesized to affect contraceptive use. The official definition of a literate individual in Pakistan is one who can read a newspaper and write a simple letter. The literacy so defined cannot be accepted as functional literacy. So we defined the adult literacy as educational endowment of individuals who have completed at least five years of formal education.

**Model and parameterization:** The study estimated the regression model in which Current Contraceptive Use by Women (CCUW) is a function of explanatory variables related to individual characteristics of women. The estimation includes those predictor variables which are known to have substantial effects on contraceptive use. The dependent variable can take only two binary values: 1 if a woman uses contraceptive and 0 if she does not. The study estimated non linear maximum likelihood function for the normal probability (probit) model. It starts with a general function

$$Y = f(X_1, \dots, X_n) \tag{1}$$

Where, Y denotes CCUW and  $X_1, \dots, X_n$  represent various women's characteristics leading to women's decision to use contraceptive.

The women's characteristics are the age of woman (WAGE), the women' age squared (WAGESQ), education of woman---completed years of education as a continuous variable (WEDU), literacy status of woman---whether the

Table 1: Definitions of independent and explanatory variables used in probit model

Variables	Definitions
	Dependent variable
CCUW	Current contraceptive use by woman (1 if the woman uses contraceptive, 0 otherwise)
	Independent variable
WAGE	Present age of woman in completed years
WAGESQ	Woman's present age squared
WEDU	Education of woman in completed years
WLIT	Literacy status of woman (1 if the woman is literate, 0 otherwise)
WECO	Economic activity of woman (1 if the woman is economically active, 0 otherwise)
WY	Income of woman (earned or non-earned) per month in Rupees (1000s)
WAGEM	Women's age at marriage in completed years
SWEDU	Ratio of number of years of education of women to her husband in percentage
SWY	Ratio of woman income to the household income in percentage

Table 2: Results of probit model for contraceptive use by married women (15-49 years)

Variables	Results		
	Mean	Standard deviation	Probability derivative
Constant	-	-	0.2208 (0.4292)
CCUW	0.5400	0.5034	-
WAGE	37.3642	5.4875	0.0192 (1.4299)**
WAGESQ	1386.05	790.08	-0.1062 (-1.9817)*
WEDU	3.1270	2.4960	0.0384 (1.7297)**
WLIT	0.3794	0.6475	0.2573 (1.9837)*
WECO	0.7134	0.4184	0.0598 (1.9638)*
WY	0.9202	1.6643	0.0136 (1.6490)*
WAGEM	20.1824	4.0942	0.0168 (1.9054)*
SWEDU	22.4973	271.47	0.8596 (0.7853)
SWY	15.1483	224.4661	0.1219 (1.0672)
Log of likelihood function		-297.74	
No. of observations		996	
R-squared		0.6264	
Percent correct prediction		0.7418*	

Indicates significant at 5% level and \*\* indicates significant at 10% level

woman is literate or illiterate as a binary variable (WLIT), economic activity of woman (WECO), income of woman (WY), woman's age at marriage (WAGEM), status of woman in the household proxied by education (SWEDU) and status of woman in the household (SWY) proxied by her income contribution in the household. Status of woman by her education is proxied by ratio of number of years of education of woman to her husband and by her income proxied by her contribution in the household income. The set of explanatory variables included in the analysis are selected after a preliminary analysis of several related covariates. The definition of variables is given in Table 1.

The decision is estimated using maximum likelihood probit-method. Summary statistics and probit estimation results are shown in Table 2.

## RESULTS AND DISCUSSION

**Woman's age:** Contraceptive use is known to depend on a woman's age. The newly wed and young women strongly demand for children to complete their desired family size. The strong desire for at least some children and/or substantial social pressure to bear children after marriage are existing norms not only in South Asia but in numerous developing countries that favor the early establishment of a family. It results into lower contraceptive use in younger women. On the other hand the older women who have been married off for some years ago and already have some living children tend to use contraceptive more frequently. But a young woman may likely to use contraceptive because she wants to space the child births or no more children, while an older woman may likely not to use contraceptive because of menopause. Present results support the view that present age of woman plays a major role in the decision to use contraceptive. The likelihood of contraceptive use increases by increase in age of the woman (Mahmood and Dure-e-Nayab, 2000; Mahmood and Ringheim, 1996). The possible explanation may be as older women are much more mobile and have a greater share in decision-making. Furthermore, older women have more number of children as compared to younger mothers so older mothers are more likely to use contraceptives. We have also estimated quadratic relationship between contraceptive use and woman's age. The negative sign of age squared parameter suggested an inverted U-shaped relationship between age of the woman and contraceptive use leading to increased contraceptive use and then decreasing by increase in age. (The parameter estimates of WAGE is 0.2656 and WAGESQ is 0.0033). The contraceptive use is highest at the age of 41.55 years.

**Woman's education:** A woman's education is likely to affect her knowledge of contraceptive methods and side effects, her preconceptions about family planning and a host of other factors that may influence intention to use contraception. The increase in woman's education is consistent with increased gender equity within the household which have a major role in fertility decision-making (Abbasi-Shavazi and McDonald, 2005). The woman's level of education is a good determinant of contraceptive use, particularly in South Asia and other developing countries. We have estimated the impact of education of a woman on contraceptive use by using two types of variables, i.e., (i) No. of years of education of women as a continuous variable and (ii) whether the

woman is literate or illiterate as a binary variable. It is found that both types of variables have positive impact on the contraceptive use (Hakim, 2000; Koc, 2000 for Turkey; Dwivedi and Sundarm, 2000 for India; Fikree *et al.*, 2001). One additional year of the education of woman results into 3.8% increase in contraceptive use. Similarly literate women are 25.7% more likely to use contraceptive. These findings are supported by the results of Mahmood and Dure-e-Nayab (2000) which show that level of education of women results into smaller number of births. It reaffirms the fact that educated women are more likely to meet their reproductive goals than women with no education. The possible explanation may be that literacy and educational attainment enhance women's perception of small families positively. It brings changes in the status of women and changes their social and economic aspirations. The education of women affects the ability to understand contraception and makes use of particular methods. Education has positive effects on knowledge of contraception and communication between husband and wife which increase contraceptive usage. Educated women have slightly higher say in decision-making. Education provides additional mobility for women. It may be further explained by the fact that education of woman contributes to increase in marriage age. For instance one more year of education delays the marriage of girls by one or more years (Mahmood and Dure-e-Nayab, 2000). Increase in age at marriage attributes to decline in fertility. On the other hand illiterate women hesitate to use contraception due to misconception of side effects.

**Economic activity of woman:** It is generally perceived that economic activity of women increases the contraceptive prevalence and decreases fertility. Khan (1997 for Bangladesh) have found a little effect of women's work experience on contraceptive use. Abbasi-Shavazi and McDonald (2005) concluded that women's labor force participation had remained the most important factor of lower fertility in Iran. The probit estimation results of present study revealed that economic activity of the woman impacts the contraceptive prevalence positively (Hakim, 2000; Fikree *et al.*, 2001; Ali *et al.*, 2004). Economic activity of women increases the contraceptive use in women by 5.9%. The possible explanation for the positive relation between economic activity and contraceptive use may be that the economically active women contribute to the household income. The women status and bargaining power in the household is associated with the extent of their contribution in

household income. The paid work especially outside the home raises autonomy of women. The higher women status, bargaining power and autonomy of economically active women results into higher contraceptive use. The women's education and labor force participation are interrelated. If a woman is engaged in employment outside home, it is more likely that she had some schooling. That is why educational level and economic activity of women enhance contraceptive use.

**Woman's income:** It is found that women having higher level of income are more likely to use contraceptive. It may be explained by the fact that level of education and employment enhance the income level of women, which is a symbol of status of women and leads to women's autonomy. It increases the mobility of women physically and socially and enhances the decision-making authority within the household (Sathar and Kazi, 2000).

**Women's age at marriage:** Most of the women in Pakistan are married off relatively at an early age. After marriage women want to have children as soon as possible. Therefore, a women age at marriage is important to explain variations in contraceptive use. We have found that women's age at marriage is positively related to contraceptive use. The age at marriage is linked with education. Resultantly it may be argued that education of women is the most significant factor effecting contraceptive prevalence.

**Status of woman in the household:** The economic literature about fertility agreed that higher status of women tends to have a negative effect on fertility. This is in line with the gender equity argument made by McDonald (2000) and supported by Dyson's (2002) hypothesis that one of the main factors of fall of fertility in developing countries is that women become more like men. Shadi-Talab (2001) has also noted that Iranian girls are gradually practicing democracy within the families, that is based on their education and labor force participation. It has reduced fertility in Iran. Status of women is a complex phenomenon and is defined differently by scholars. In the context of contraceptive prevalence the aspects of woman status that are interest of policy makers are the ability of woman to plan her reproductive behavior and her capacity to limit her fertility to a desired number of children. We have used two conventional variables to represent woman status, i.e., relative education of a woman to her husband (ratio of number of years of woman to her husband in percentage)

and contribution of woman in household income (ratio of woman income to household income in percentage). Both variables have shown positive impact on the contraceptive use. The relative education variable has shown stronger impact than income variable.

## CONCLUSION AND RECOMMENDATIONS

It is concluded that women characteristics are intertwined and mutually reinforcing each other for contraceptive use. For example, education, economic activity, income and marriage age of women are interrelated and these variables reinforce each other's impact. A substantial increase in contraceptive use resulting in decline in fertility and ultimately population growth could occur if these variables are adjusted. The provision of education to females and their gainful employment are the most important factors requiring attention. It will increase social and economic value of females at the household level and in the society. The legal measure in the form of increase in female's marriage age and implementation of concerned law may support the objective of lower fertility. The increase in legal age of marriage age may increase girls' education as trickle down effect which may again affect the contraceptive use positively. Contraceptive prevalence in women is inversely related to the woman income. If the aim of family programs is to reach low-income people, the supply of contraceptive should be free or at a nominal cost.

## REFERENCES

- Abbasi-Shavazi, M.J. and P. McDonald, 2005. National and provincial level fertility trends in Iran, 1972-2000. Working Paper in Demography No. 94. Research School of Social Sciences. ANU Australia.
- Agha, S., 2000. Is low income a constraint to contraceptive use among the Pakistani poor. *J. Biol. Sci.*, 32: 161-175.
- Ali, S., S. Rozi and M.A. Mahmood, 2004. Prevalence and factors associated with practice of modern contraceptive methods among currently married women in district naushahro feroze. *J. Pak. Med. Ass.*, 54: 461-465.
- Ali, S. and F.M.M. White, 2005. Family planning practices among currently married women in Khairpur district, sindh. *Pakistan. J. Col. Phys. Surg. Pak.*, 15: 422-425.
- Dwivedi, S.N. and K.R. Sundarm, 2000. Epidemiological models and related simulation results for understanding of contraceptive adoption in India. *Int. J. Epid.*, 29: 300-307.

- Dyson, T., 2002. On the future of human fertility in India. Paper prepared for expert group meeting on continuing the fertility transition. Population Division of the United Nations. New York 11-14 March.
- Fikree, F.F. *et al.*, 2001. What influences contraceptive use among young women in urban squatter settlements in Karachi, Pakistan?. *Int. Fam. Plan. Persp.*, 27: 130-136.
- Hakim, A., 2000. Are status of woman and contraceptive prevalence correlated in Pakistan?. *Pak. Dev. Rev.*, 39:
- Khan, H.T.A., 1997. A hierarchical model of contraceptive use in urban and rural Bangladesh. *Contraception*, 55: 91-96.
- Koc, I., 2000. Determinants of contraceptive use and method choice in Turkey. *J. Biosoc. Sci.*, 32: 329-342.
- Mahmood, N. and Dure-e-Nayab, 2000. An analysis of reproductive health issues in Pakistan. *Pak. Dev. Rev.*, 39: 675-693.
- Mahmood, N. and K. Ringeim, 1996. Factors affecting contraceptive use in Pakistan. *Pak. Dev. Rev.*, 35:
- McDonald, P., 2000. Gender equity, social institutions and future of fertility. *J. Pop. Res.*, 17: 1-16.
- Sathar, Z.A. and S. Kazi, 2000. Pakistani couples: Different productive and reproductive realities? *Pak. Dev. Rev.*, 39: 891-912.
- Shadi-Talab, J., 2001. Iranian women: Rising expectations. Paper Presented at MESA, Florida, 27-28 November.