ASSOCIATION AMONG FERTILITY BEHAVIOUR IN WOMEN USING VARIOUS CONTRACEPTIVE METHODS

(A Case Study of Pakistan)

By

IJAZ MAJID

A THESIS SUBMITTED TO
UNIVERSITY OF PESHAWAR IN PARTIAL FULFILMENT
FOR THE AWARD OF THE DEGREE OF
DOCTOR OF PHILOSOPHY IN ECONOMICS

DEPARTMENT OF ECONOMICS
UNIVERSITY OF PESHAWAR, PAKISTAN

August 1998

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APPROVAL CERTIFICATE

THIS THESIS ENTITLED "ASSOCIATION AMONG FERTILITY BEHAVIOR IN WOMEN USING VARIOUS CONTRACEPTIVE METHODS -----A CASE STUDY OF PAKISTAN", IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY IN ECONOMICS IS THEREBY APPROVED.

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ABSTRACT

The data collected by the National Institute of Population Studies, Islamabad in Pakistan Demographic and Health Survey, 1990-91 was analysed and investigated in this study. The data was in the computer base of the Institute consisting of 6,611 eligible women. The main emphasis of the data was on, background characteristics, reproductive history, knowledge and use of contraception, pregnancy and breast feeding, vaccinations and the health of children, marriages, family size preferences and husbands background.

The main objective of this study was to investigate statistical methods, which can be used, for the analysis of such data, so as to identify various variables that can affect the fertility pattern of the women using various types of contraceptive methods. This in turn will lead to identify variations among different methods of contraception that will have an effective control on the fertility of a woman. For this purpose, different methods of analysis previously being used and recommended in the literature were studied and new methods were developed for analysis of this data so as to identify the variables of importance. Since the main purpose of the study was to investigate an association among the Fertility Behaviour in Women using different Methods of Contraception/fertility regulation methods. The initial part of the study contained an elementary data analysis of the data. This was done to findout the major sources of variation in the data, and to investigate the important variables affecting the fertility behaviour of the women.

The current trend of rapid population growth in Pakistan calls for serious thinking and action. If it is allowed to continue with the prevailing growth

rate, it will adversely effect the socio-economic development of the country as with the current rate we are heading towards what is called population bomb. If it explodes, it would devastate the economic and social fabric of our country. Hence, it is the time that these important variables effecting the fertility behaviour of a woman should be taken care off.

In this study along with simple analysis of cross tabulation and summary statistics computed, regression analysis was also used. The method of regression analysis was used in two steps. First, simple regression models were analysed. Second, in order to see the effect of a variable on the dependent variable, new regression models were formulated and analysed. This method helped us in pinpointing the important variables and finally developing a model of choice. Further Analysis of Variance was used to see the overall significance of regression models. The important variables as identified in the present study were age of the respondent, education, living number of children, family planning practices and attitudes, spousal communication and husbands level of education etc.

Finally one of the major conclusions derived from the present study was that there was a strong association among the fertility behavior of the women using various contraceptive methods and hence its effects on the number of children ever born. Besides this, the study indicated that modern contraceptive methods are more effective as compared to traditional methods.

ACKNOWLEDGEMENTS

I would like to express my sincere thanks to my supervisor, Associate Professor, Dr. Naeem-Ur-Rehman Khattak, for his generous assistance, appreciated advice and encouragement towards, the development of this thesis.

I would like to express my gratitude to National Population Institute Islamabad for their co-operation, and assistance on many occasions.

I am profoundly indebted to Mr. Mehboob Sultan, Senior Fellow and Fateh-ud-din, programmer at the National Institute of Population Studies, Islamabad for their support and help in writing of the present thesis.

My thanks also go to Mr. Ali Gauhar, Data Entry Operator, Centre of Applied Economic Studies for typing this thesis.

All the errors and omission in this thesis are my responsibility.

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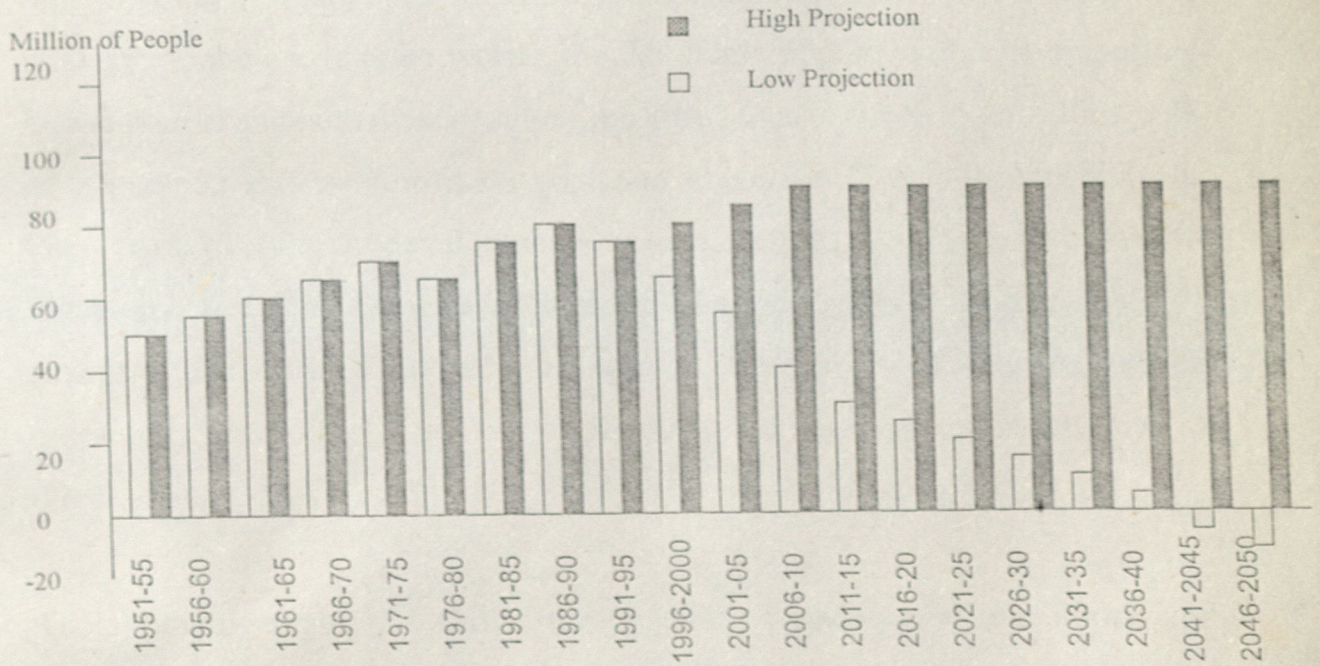
Introduction

1.1 The Population Problem

Population growth around the world affects all people through its impact on national economies, the environment, safety and health, and the habitability of the world children will inherit. Analyst have long disagreed about the precise impacts of population growth, which is not surprising, given the difficulty of tracing cause and effect in human affairs. It is argued by the analysts that the cumulative evidence is strong that current rates of population growth as shown in figure 1.1, pose significant and interacting risks to human wellbeings and is a legitimate concern for all nations.

Figure 1.1

Yearly Additions to World Population from 1950 to 2050.



Yearly additions to world population may be past their peak, or could climb well into the 21st century
Source: Engelman, R.(1997) Why Population Matters, International edition, Washington, D.C.

This increase in population especially of almost all developing countries is currently undergoing rapid transformation and the growths are unprecedented, a rate of three per cent annually say, is not uncommon, implies a population of twice the current size in less than twenty-five years.

1.2 Population Analysis

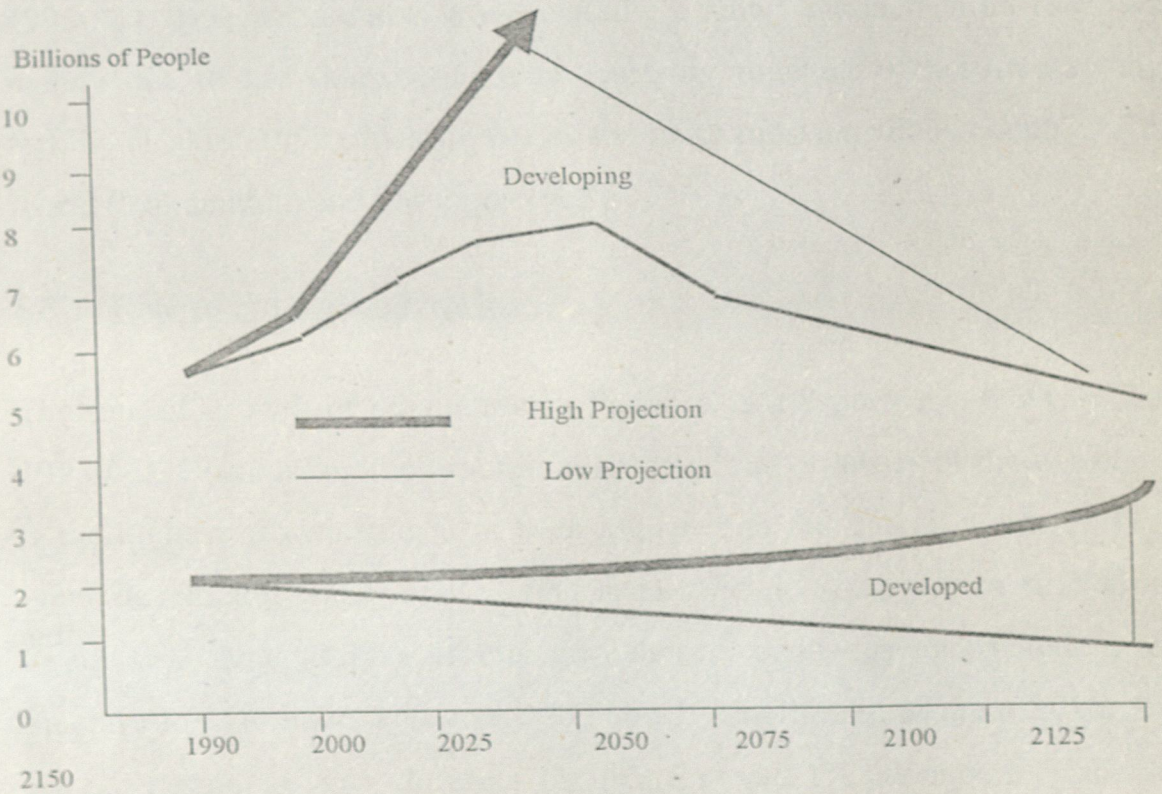
The relevance of a thorough understanding of population aspects of developing countries can very meaningfully be summarized in two points First, in the time perspective one usually deals with the planning and policy making generally upto five years, the population structure and dynamics are to a large extent given and uninfluenceables due to which only population statistics are an important standard against which the performances of others aspects of society may be evaluated. Secondly, the fact that it takes a long time to radically change the structure and dynamics that currently characterize a given population. In other words, the fact that a population has an important momentum requires that early action must be taken if the long-term time path of population differs from once goal and objective. The influenceability of long term population developments is a mater of continous debate and argument. Yet, the character of such developments hardly admits delay. If statistical/mathematical models are applied, the effects of changes can be measured, which can be used to single out more and less important areas of direct action (Doeve 1982).

The following figure 1.2 shows the projected population of developed and developing countries. In the figure thick line shows growth of population,

assuming high projection rate and the other line shows the growth of population, if low projection rate is considered. Considering these assumption the future population size is most likely to lie somewhere between the high and low projections for each group of countries.

Figure 1.2

Projected Population of Developed and Developing Countries



Source: Engelman, R.,(1977) Why Population Matters, International edition, Washington, D.C.

As far as population statistics are concerned, important progress has been made in recent years. Information on demographic subject is generally better then on nearly any other measurable social phenomenon. There is still need,

however, for much improvement. Accurate and periodic censuses of population and comprehensive systems of birth and death registration in great many countries are only a recent phenomenon. While in many other, census and registration do not exist at all. Only very rough estimates are available for the areas inhibited by atleast one-third of the worlds population and the statistics for another third are generally inadequate (U.N 1982).

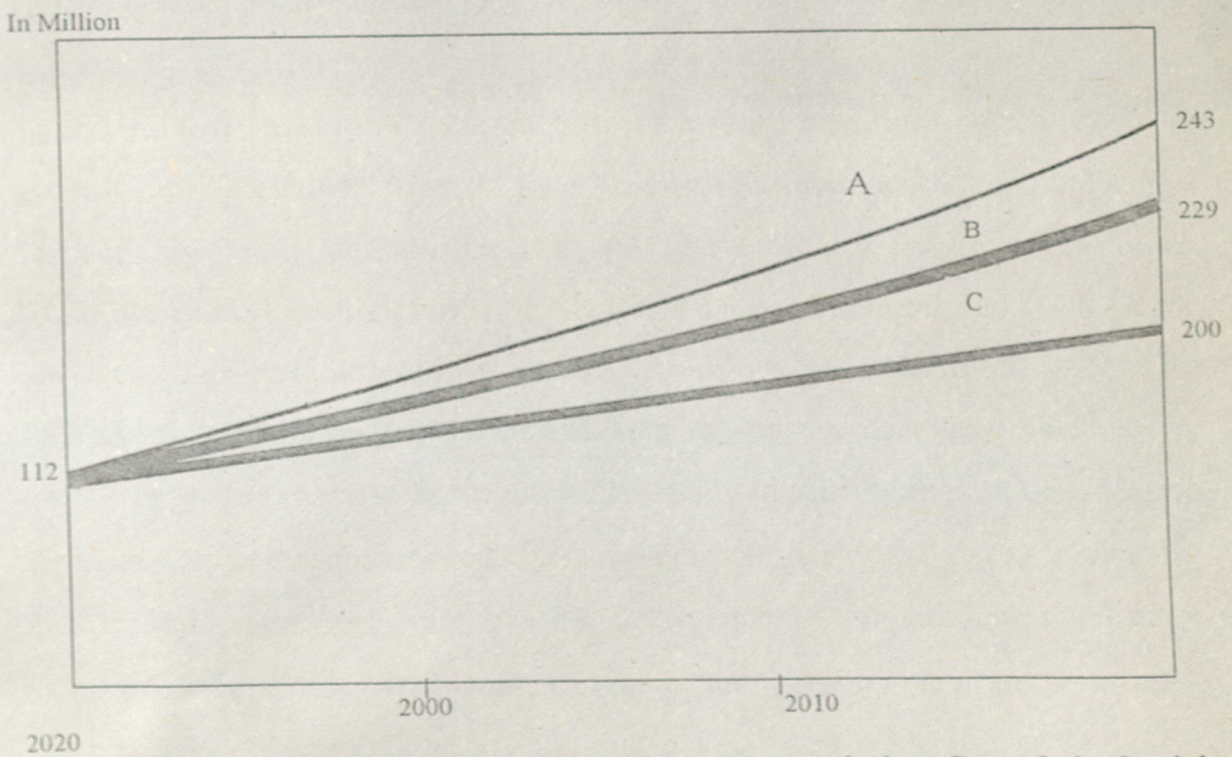
Today, the population of Pakistan is around 131.63 million (Govt.: of Pak. 1995-96). This accelerated growth of the country attained after 1947 was mainly due to the sharp decline in mortality together with sustained high fertility (Hakim 1993), making her as the ninth most populous country of the world (Rukanuddin and Farooqui 1988).

1.3 Rate of Population Growth

The rate of growth of population in Pakistan is 2.8 per cent (Govt. of Pak: 1995-96). Considering the first ten most populous countries of the world, this is the highest growth rate, it is even higher than the overall average rate of other developing countries is 2.1%, Asia (1.9%), South Africa (2.3%) and South East Asia (2.3%). If this growth rate continues unchecked, it will increase to 150 millions in year 2000 and 194 million in the year 2010. If on the other hand, the growth rate is brought down to 2% per annum by the year 2000, the projected population will be around 131 million in the year 2000 (Population Reference Bureau 1987, Rukanuddin and Farooqui 198[illegible]. However, it is argued (by the above authors) that if the population rate is left unchecked, Pakistan would be under heavy strain in years to come, particularly in the next century. This can be shown in figure 1.3, which

depicts population growth under different fertility assumption. In the figure, three projections are presented, to show the likely range of future population growth based on alternate assumptions about the success of the population-planning programme. Projection A shows the continued rapid population growth, that is, high fertility projection of 5.97 in 1990-95 to 3.94 in 2015-20. Moderate population due to strong social and economic development is shown in projection B. This projection shows a decline in total fertility rate from 5.97 today to 5.42 by 2000 and to 3.23 by 2020. While projection C show growth due to strong development and effective population welfare programme.

Figure 1.3
Total Population



Source: Hakim, A.(1994) Effects of Rapid Population Growth in Social and Economic Development in Pakistan, National Institute of Population Studies, Islamabad

This projection is shown on the assumption that total fertility rate decreases from 5.97 today to 4.60 by 2000 and to 2.1 by 2020. All these projection indicates a growth rate of 2.3% and adding 5 million people per year, 1.9% and adding about 4.4 million people per year and 1.2% and adding about 2.4 million people per year respectively. All these projections indicate undesirable effects on the key sectors of the economy.

1.3.1 Factors underlying the Growth of Population

If the net international migration of Population is assumed to be negligible, then the two basic factors determining the growth of Population are births (fertility) and deaths (mortality).

In Pakistan the average decennial birth and death rates and natural rates of growth during 1979-80 was 41.0, 12.0 per thousand population and 2.9% respectively (Govt. of Pakistan 1980-83, and 1984-86). While on the other hand, the crude birth rate during 1993 was 38.9 per thousand and crude death rate was 10.0 per thousand in the same year (Govt. of Pakistan 1995-96). The increase in population growth in Pakistan during the past few decades has largely been due to a decline in mortality owing to the elimination of epidemic diseases and better environment (Rukanuddin and Farooqui 1988). However, the decline in mortality rate has been slow when compared with those of many other developing countries. The major and classic reason perhaps being the repeated pregnancies and births and a very slow and modest decline in fertility during the same period. This situation calls for determined effort to reduce the explosive growth rate of population by lowering the fertility rate in

the country. Because as we look to the future, it is clear that if the births remain high while the death rate continues to decline, the growth rate will perpetuate to increase.

This high and rapid population growth has a number of short-term effects on social as well as on the economic development that hinders the achievement of development objectives. An effective population-planning programme to reduce the rate of population growth can enhance the development effort in a number of ways (Hakim 1994).

1.4 Socio-Economic Effects of Rapid Population Growth

The current trends of the high rate of population growth in Pakistan calls for serious action particularly by policy makers and planners for including population concerns and its remedy into their policies and programmes. Its adverse effects on the successful implementation of development strategies have long been recognized which are extremely harmful for all development programmes. The recent increase in the rate of population growth, that is 2.6% per annum, if allowed, will tend to neutralise the economic gains made in various social and economic sectors in Pakistan. A high dependency ratio resulting from high fertility implies that a large proportion of national income has to be eaten-up by rearing and caring of children, savings will be at a very low level resulting in low investment and as a result low productive capacity of the economy.

High fertility will effect and reduce the governments ability to raise funds, as there will be social pressure on the country's government to spend more on the welfare of the masses and to maintain a minimum standard of living and consumption. It will also effect the expansion of productive resources. Besides this, the rapid expansion of population growth will adversely effect the per capita income of an economy. In a country with 3% growth rate of population the per capita income will be only two percent on the assumption that the stock of capital would be roughly three times of the national income, i.e. the capital output ratio would be 3:1 only. However, an improvement in the economy can only be brought about through a decline in fertility rates. High rate of population growth ranks as one of the biggest constraint and limitation on developments and if it is not checked this population explosion will be a continuos threat to our national resources. This in turn will further aggravate the economic crises and development of the country.

This fact was also recognised in principle in the World Population Plan of Action, adopted by 136 countries, including Pakistan, at the World Population Conference in Bucharest in 1974 that population and development are interrelated. This fact was reaffirmed in the International Population Conference held in Mexico in 1984.

As said earlier, population is only one of the factors that must be taken into consideration in the process of economy's development. High rates of population growth, high fertility and very young age distribution pose difficult problems in the key sectors of the economy's development, like employment, education, health, agricultural, Industry and urban development.

In view of this, the government recognised the need for an effective population planning policy and initiated a national family planning programme in the early sixties to reduce fertility levels. Thus on one side, social cultural and economic conditions and on the other side supply side activities plays an important role in reducing the fertility level and raising the level of contraceptive use in Pakistan. Hence, it becomes very important to understand and consider the factors that are significant in promoting the practice of family planning and reducing the fertility levels. In this context it becomes important to investigate how socio-economic, demographic and Knowledge, Aptitude and Practice of family planning effects the use of fertility regulation methods and hence for this purpose different statistical models were developed and analysed in the present study.

1.5 Family Planning Policies and Programmes

Much has been written about the population problems in recent years. Over population is said to be the major reason for the poverty of the "under developed" countries; over/population is the "malaise" and family planning the "remedy". Based on this conception of the problem, there was a proliferation of birth control studies in the underdeveloped countries from 1950's till date.

Generally, family planners have been optimistic about the results, which an intensive family planning programmes can achieve. The scientific basis for this optimism is the sample survey known as KAP studies (Knowledge, Aptitude and Practice of birth control) (Mamdani 1972).

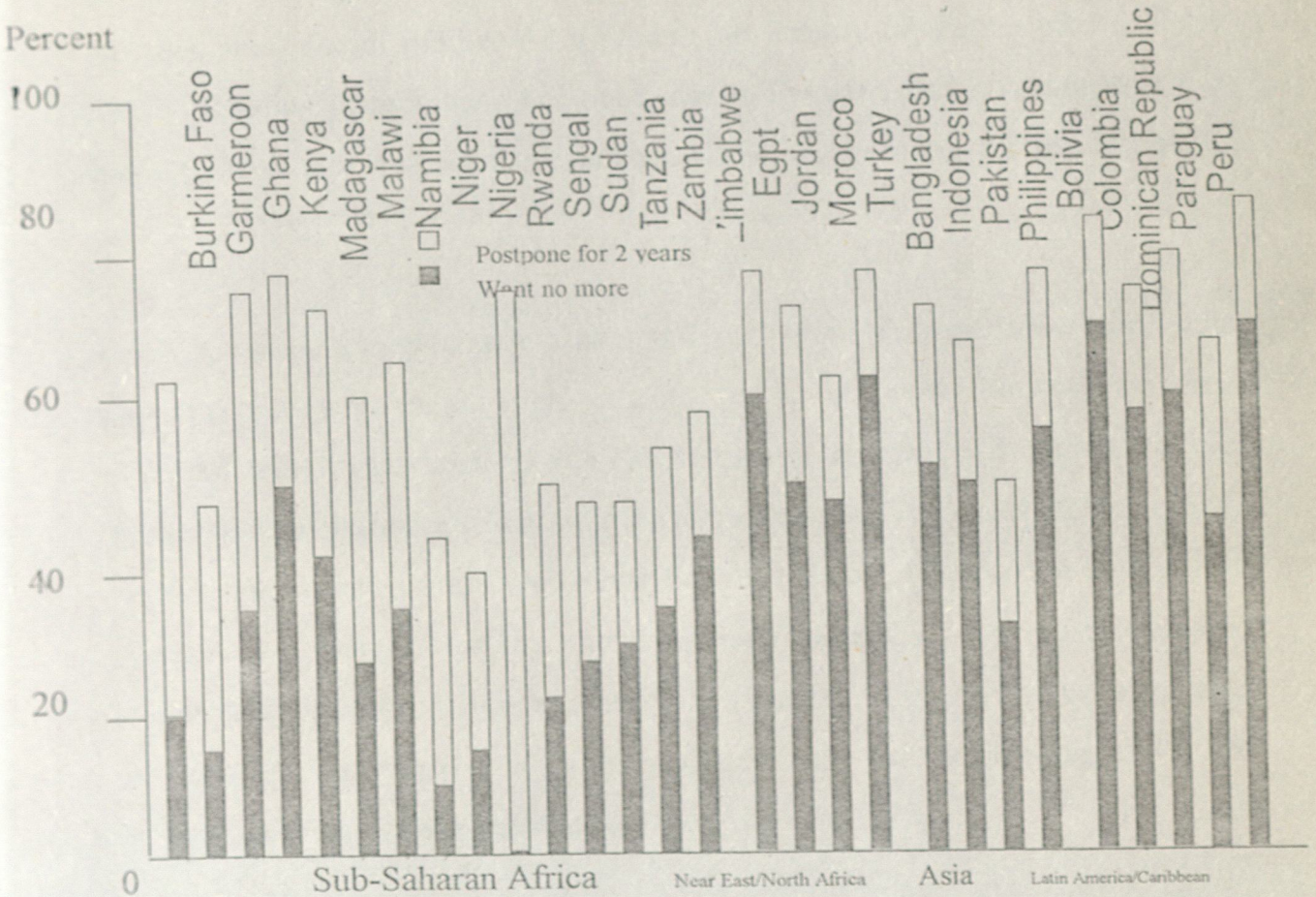
These programme work to slow population growth chiefly by improving and making more widely available safe and effective family planning services that enable couples and individuals to have children when they choose. Without these programmes, the pace of population growth could not have fallen as rapidly as it has since 1970 (Robert 1977).

Today rapid population growth is thus a relatively brief aberration in humanity's experience. The biggest question is whether this growth will slow or end due to decreases in birth rates or increases in death rates, or both. In the words of population scientist Joel E. Cohen, "The finiteness of the Earth guarantees that there are ceilings on human number" (Cohen 1995).

Based on the recent history of fertility and population growth, the challenge is not to reverse the dominant population trends but to support and accelerate them through efforts that improves the lives of women and their families. Population growth is not slowing down by happenstance, it is slowing because more men and women than ever before want to plan their families. As can be seen from the figure 1.4 below:

Figure 1.4

Women Who Want No More Children or Wish to Wait for Two Years, Selected Countries



Source: Engelman, R. (1997) Why Population Matters, International edition, Washington, D.C.

As far as developing countries are concerned and especially Pakistan, she was a pioneer among the most populated developing countries in supporting and implementing family planning activities in 1950's (NIPS 1992). Different approaches and strategies were adopted, during different plan periods to deal with population problems and to promote the concept of a small family norm and to encourage the use of modern methods of family planning, but due to

financial, social and cultural constraints and lack of government commitment, the programmes were not effective in providing family planning services and generating widespread demand for the adoption and use of contraceptives amongst the general public. As a result, the fertility inhibiting effect of the family planning programmes has been low in Pakistan and contraceptive use has remained low despite the existence of the programme for the last three decades (NIPS 1992).

Factors, which are generally associated with high fertility rates worldwide also, pertain to Pakistan: high illiteracy rates (amongst females), poverty, child-mortality, low socio-economic status of women and ignorance etc. These factors reinforced one another in maintaining high and stable fertility rates in the country. Family planning services do not exceed one-third of the population. Various fertility surveys have found a wide gap between knowledge and use of contraception in Pakistan. These surveys have also indicated the existence of a potential demand for family planning expressed by Pakistani women (Population Welfare Division 1986).

1.6 Fertility

The interest and concern of the family about procreation besides the physiological factors is effected by the facts that children in a developing society play various supportive economic, social and psychological roles. Every family, community and society is concerned with the fertility of its members, it being one of the important factors responsible for population growth. The survival and growth of any family primarily depends on the level

of fertility in relation to mortality. Analysis of fertility levels and trends is, therefore, vital for explaining and understanding demographic change. In Pakistan many attempts have been made to estimate fertility rates through direct as well as indirect methods/techniques. Different estimates based on different sets of data methods, and assumptions made, with wide variation in fertility estimates, indicating problems in data inconsistency (Rukanuddin and Farooqui 1988), due to methodological differences for instance the direct fertility estimates based on the 1975 Pakistan Fertility Survey and the 1984-85 Pakistan Contraceptive Prevalence Survey are lowers than the indirect estimates based on the population growth survey (1968 and 1979) and the Pakistan Demographic Surveys. However, prior demographic surveys confirms the persistence of a high level of fertility in Pakistan, but with a gradual decline over time, mainly for younger age groups because of increase in age at marriage and rise in the prevalence of contraceptive use. Hence information on fertility helps to determine the impact of changes in the use of family planning and other changes in the proximate determinants of fertility (NIPS 1992).

At the 1994 International Conference of Population and development in Cairo, 180 nations reached a historic consensus on both the need and the means to slow Population growth and eventually stabilize human numbers. The strategy is grounded in the recognition that couples have the right to make their own decision about childbearing and there should be the availability of a variety of contraceptive options, which in the long-term will help reduce the reliance on abortion, to which many women without access to effective contraception turns (Engelman 1997).

This study aims at analyising the Association among the Fertility Behaviors in Women Using Various Contraceptive Methods.

1.7 Contraceptive Methods

Of all the species, only man can control his fertility by interfering with the biological consequences (of sexual inter course) at any one of several steps in the process of conception, fetal development and birth (World Bank 1972).

Various methods of preventing birth control have long been known and practiced. Some of them are celibacy, coitus Interruptius, male sterilization through castration, rhythm or natural method and in some societies marriage at late age of women as given by (Pickard 1968).

With the advances in knowledge of reproductive biology and the development of contraceptive technology during the present 20th century, these methods of control are rejected by the majority of the people. With in the recent years it is the cultural factors that affect large numbers of people so that they wish to disassociate intercourse from reproduction. This has made possible with the modern methods of birth control (Rhodes 1976, Asso 1984). The following methods are used for preventing conception. A good contraceptive must be reliable, effective and simple to use (World Bank 1972). All methods now known have some disadvantages and all have their failures. However there is no perfect contraceptive method (Weideger 1976).

(i) Natural Method

The natural method sometime referred to as natural family planning is the understanding of fertility and working out those days in the month when a woman can became pregnant. This can be achieved by observing and identifying the fertile time in a natural cycle. It has been worked out that there are only four days in each menstrual cycle when intercourse may lead to conception, during the two days or so before ovulation, the day of ovulation and the first day of ovulation. These few days represent the most fertile period and intercourse during this period be avoided to avoid conception (Lein 1979, Peel and Potts 1969).

This method has no serious side effects. It is effective from 85 to 93% if used carefully (Peel and Potts 1969).

This method needs care and restraint from both partners to ensure that pregnancy does not take place around ovulation. Much care is required for women with irregular cycles, after childbirth and around the change of life.

(ii) The Combined Pill (oral contraceptives)

From very long times, there has been speculation about the use of medicines taken by mouth to prevent childbirth. This oral contraceptive became available after Pincus and Rock had worked on experiments with harmone preparations and developed their "Pill" and first tried out in 1956 in Puerto-Rico

These externally supplied harmones (estrogen and progestin) decrease the capacity of pituitary glands and the absence of the pituitary harmones causes ovulation to be suppressed (World Bank 1972, Pickard 1968). Their widespread introduction came in early 1960's.

The advantages of these "Pill" are that they give decreased menstrual cramps, regular menstrual periods, reduced pain, and pre-menstrual tension. If properly and regularly used it is 83% -99.9% effective.

This method is also not free from its side-effects. They are not suitable for an elderly woman over 45 or smoking women over 35 years of age. They are not preferable to the women with a personal or family history of strokes, heart attacks, high blood pressures and some diabetics (Weideger 1976, Peel and Potts 1969, Lein 1979).

(iii) Mini-Pill:

It is also an oral contraceptive and contains progestogen only. It preferred from fertilization of eggs if taken regularly. They are prefaced for elderly woman as it has low risk of high blood pressures and blood clotting problems. It has an effective rate of 98% if taken properly. The side effects usually, the irregular cycle's lasts for two to three months (Weideger 1976, Oldershaw 1975).

(iv) Injectable Contraceptives

Injectable contraceptives are recently introduced and work in a similar way as mini-pills. In these contraceptives, no mechanical device is used and protection against pregnancy for 8 week and 12 weeks can be achieved. It is effective by over 99%. The major problem which results from these contraceptives is that it makes the periods irregular for at least one year and protects fertility (Bennett 1974).

(v) The Intrauterine Device: (IUD)

This is a small device usually made of stainless steel or plastic impregnated with barium sulphate and is inserted into the womb by a doctor. The device is effective immediately after fitting and is effective from 2 to 5 years depending on the type of IUD's. This method is a safe, easy to use, reversible and is effective and suitable for women who intends to space her pregnancies. It is fairly effective, with a pregnancy rate of 4% at the end of one year of use.

The main disadvantage, aside from the other small chance of pregnancy, is that some women can not tolerate the presence of foreign bodies and thus suffers cramps and various degrees of bleeding (World Bank 1972). In some women, the device leads to the development of pelvic infection, which is most likely in younger women (Snowden et al., 1977, Oldershaw 1975).

(vi) Diaphragm or cap and spermicide (Traditional Methods)

Other contraceptive devices of varying efficiency, depending upon the motivation and interest of the user are diaphragm and spermicides. It is 85 to 97 % effective, if used carefully.

(vii) Condom

It is a thin sheath of rubber used by men to prevent pregnancy. It is 85 to 98% effective if used carefully.

The diaphragm and condoms have no side effects but must be used properly (Oldershaw 1975).

The above-discussed methods are frequently used for, fertility regulation in most of the family planning programmes throughout the world. These methods are mostly used by female for fertility regulation. Its effectiveness in preventing unwanted pregnancies is high but some of them are associated with problems like disruption of so-called 'normal' menstrual bleeding (Snowden 1977).

Hence, any method, which may be acceptable to most of the women, is if it does not produce changes in menstrual bleeding pattern (Belsey and Farley 1987).

1.8 The Data

In order to compare and to findout the association between the fertility behaviour of the women using contraceptives in Pakistan, data on the fertility and its regulations is required. One such data set containing information's on topics like fertility, family size preferences, knowledge and use of family planning, the potential demand and use of variety of contraceptive methods, unwanted fertility, child mortality, health and child morbidity is collected on Pakistan level and is in the computer data base of National Institute of Population Studies Islamabad (NIPS 1992, personal communications with NIPS staff July 1997). This survey was conducted in April 1990 by the National Institute of Population Studies (NIPS) on behalf of the Govt. of Pakistan in co-ordination with the USAID and IRD/Macro International Inc. (IRD), Columbia, Maryland.

The sample design used for data collection is a stratified, cluster and systematic sample of households including all urban and rural areas of the four provinces of Pakistan (as defined in the 1981 population census) excluding Federally Administered Tribal Areas (FATA), Military Restricted Areas, the district of Kohistan, Chitral, Malakand and protected areas of North West Frontier Province (NWFP), (Personal Communication with staff of Federal Bureau of Statistics, Islamabad, August, 1997).

In case of the urban areas, sampling frame used was the master sample prepared by the Federal Bureau of Statistics. Each city/town was divided into enumeration blocks of approximately 200 to 250 households, with detailed

boundary particulars and maps. For the rural areas, the sampling frame used was the village list published by the 1988 census of establishments. The only difference in case of the urban and rural sampling frame was that, in case of urban domain, the primary sampling units were enumeration blocks, while in the rural domain they were mouzas/dehs/villages.

In the present study, the sample used is a sub-sample of the Federal Bureau of Statistics master sample, using 7,420 Primary sampling units. In this sample, consideration is given to the population parameters and levels for which estimates were desired, the resources available, rate of non-response etc. A sample of 8,044 households was selected for the coverage from 408 sample area.

To form the domain for the major cities, cities having a population of 500,000 and above were included. For the selection of sample each of the self-representing cities constituted a separate stratum, which was further, stratified into high, low and middle-income groups based on the information collected. After excluding self-representing cities from respective districts, the remaining urban cities/towns in each division were grouped together to form strata. Similarly, after excluding urban population of each district, the remaining population constituted rural domain and was considered as a stratum except in Baluchistan Province where each division constitutes a stratum.

A two stage stratified sample design was adopted for the survey. The sample of primary sampling units for each urban stratum were selected with

probability proportional to the number of household, while in case of rural stratum, probability proportional to the population was taken as the base. From this, a systematic sub-sample of one in three households was chosen for inclusion in the husband's sample. Those husbands were included in the sample, it they have slept in the household the night before the interview. In general the sample selected was considered quite sufficient and representative of the population to provide reliable estimates for the country as a whole, for urban areas, for rural areas and for each province.

Three types of questionnaires were used for the collection of data. The Household Questionnaire, the women Questionnaire and Husbands Questionnaire. In the Household Questionnaire, the main purpose was to identify women and men who were eligible for women questionnaire and husband questionnaire with some information on the household itself. The women questionnaire was used to collect information from eligible women i.e. all ever-married women age 15-49, who slept in the household the night before the household interview. Eligible women were asked questions on:

i. Background characteristic,
ii. Reproductive history,
iii. Knowledge and use of contraceptives,
iv. Vaccinations and the health of child,
v. Marriage,
vi. Family size preferences,
vii. Husbands background.

While the husband questionnaire consisted of a subset of the questions on the women questionnaires with particular emphasis on family planning, marriage and family size preferences. The target was to interview a total of 8,019 households for the woman sample, but only 90% of the selected households were successfully contacted and interviewed. In the interviewed household, 6,910 women were identified as eligible for the individual interview. Interviews were successfully completed for only 96% of eligible women i.e., 6,611 in total. While in the case of husbands sample, out of the targeted 1,757 husbands of eligible women, only 77% were contacted and interviewed (NIPS 1992, Personal communication with NIPS staff and Federal Bureau of Statistics Staff Islamabad, July-August 1997).

1.9 Outline of the Study

The main practical interest in this study was to find association among the fertility behaviour in women using various contraceptive methods in Pakistan, whether the women using different contraceptive methods are reducing the fertility (number of children born to a women) are it has no effect. Further we have to identify the variables which have effect on contraceptive used by a women.

The effect of individual characteristics of the women such as age, marital status, residence, education and work status etc., are also expected to have an effect on the fertility behaviour of the women.

The study has been arranged into five chapters. The details of each chapter are as follows.

The first chapter includes the theoretical set-up of the study. It reveals the population structure and changes, the different methods, with its definitions and their merits and demerits currently used by the women in Pakistan. Then a brief discussion is given on the nature of the data and its structure to be used in the present study.

Chapter second deals with the review of literature on contraceptives. This review will help us in developing our study and in investigating the use of methods and techniques having bearing on the fertility and population structure. This will further broadly help us to determine the dimension of the present study.

In the third chapter an elementary analysis of the data is presented, to describe the various characteristics recorded in the Pakistan Demographic and Health Survey conducted in 1990-91. This type of analysis will summarise the broad picture of data, which will be used for further analyses, being the basic requirement of the present study.

Chapter four consists of our analytical and empirical work. In this regard stepwise approach is being adopted, proceeding from one chapter to another, keeping in view the limitations of the methods applied in the previous chapters. This will help us to arrive at a better conclusion in the end.

Chapter four discusses the correlation amongst the various covariates recorded in the survey, such as age, education, residence, marital status etc., on the fertility behaviour of a Pakistani woman. For the purpose of analysis regression models will be developed to analyse the significance of the co-variates on the use of contraceptive behaviour of various methods used by the women in the mentioned study. This will also help us in determining and pinpointing the intermediate fertility variables and indirect fertility determinants.

The summary and conclusions of the study are brought together in the final chapter, along with discussions of future research area.

Chapter II

Literature Review

The world's human population currently numbers about 5.8 billion people, and the figure grows by more that 80 million people each year or around 220,000 people each day. If the population growth rate does not fall, world population will double by the year 2040 (Coale 1986).

It is generally argued that more than 90 per cent of the world's population growth is occurring in the developing countries of Asia, Africa and Latin America. The rates of natural increases on these continents vary, however, from 1.4 per cent in Asia and 1.6 per cent in Latin America and the Caribbean to 2.6 per cent in Africa (U.N. 1996).

The power of population momentum can be eased significantly by policies that encourage women to delay child bearing, as this stretches out the time between generations (Engelman 1997). Bongaarts (1994) in his article "Population Policy Options in the Developing World", remarks that the total population of developing countries could stabilize with 1.2 billion fewer people than would otherwise be the case, if the average age of child bearing were delayed in these countries by five years. This leads to a strong evidence as Sinding (1992) remarks that the average fertility rate in developing countries of 3.4 children would fall at least half way to this replacement level if all unintended pregnancies could be avoided.

In this regards (Herz 1994) is worth mentioning, as she says that population programs stressing the provision of contraceptives and of relevant information assume a desire for family planning, but recent developments suggest that this demand may be much weaker than has been thought and hence more research on fertility determinants are badly needed. She is of the view that these programs works only on theory, that is, supplying family planning services and informations, what is needed is to motivate people to practice family planning.

In this respect (WHO 1992) remarks that the use of contraception in developing countries has grown by a factor of 10 or more since the 1960's, which is a clear indication that family planning services are a need of current population. Similar views are given by U.S. Senate (1996). They reveal that the developing countries outside China, almost 250 million women use modern methods of contraceptives.

Pullum et al., (1991) made a study titled "In Search of the Silent Users: The Reliability of Reported Use and Non-Use of Contraceptive in Pakistan". The authors made use of the data of 1984-85 Pakistan Contraceptive Prevalence Survey. They found that out of the total of 16.1 current users, 7 per cent will be indicated as shy users. The paper attempts to workout whether the shy users in Pakistan do not admit contraceptive use and whether the reported use is effective. The authors found that contraceptive use was the lowest among the women in Balochistan and those with no education. Controlling for duration of breast feeding and age, no statistically significant variation in the length of open interval for never users across provinces and education level was found, indicating thereby no evidence of shy users among never

user category. Further they were of the opinion that more questions on whether women believe contraception is acceptable in her reference group be included. Hassan and Rukanuddin (1991) made a study on the analysis of variation in contraceptive use, non-use, and knowledge. Similar to Pullum et al., (1991) they also worked on the Pakistan Contraceptive Prevalence Survey 1984-85. They were of the opinion that this aggregate level data revealed significant variation in contraceptive use and knowledge across the districts in Pakistan. They further investigated the concept of shy users and found that the shy-users are older than both users and non-user of contraception, and are more educated then the non-users, but less than the current and ever users and are equally divided in terms of their rural-urban residence. Further analysis of current use of contraceptive methods indicate that female sterilization, pill, injection and IUD were used by relatively less literate and more rural respondents and withdrawal and condoms were used by more literate and urban respondents. More educated couples commence use of non-permanent methods earlier in married life but with increased duration of married years, use shifts to more or less permanent methods.

Pullum et al., (1987) in their study of fertility change were of the view that an underreporting of current use in the Population Labour Force and Migration Survey, 1979 and in Pakistan Fertility Survey of 1974 was mainly due to the religious reasons. They were of the opinion that actual decline in use of contraceptive would have led to an increase in fertility.

Yusuf and Rukanuddin (1991) examined the correlates of fertility behavior from the socio-economic, demographic and program related data. These authors also worked on the data collected through the Pakistan contraceptive

prevalence Survey 1984-85. The study indicated that education of wife has much greater impact on reproductive behavior than education of the husband alone. It was also noted that the higher parity women were more likely to have knowledge of methods and a favorable attitude towards family planning and had also experienced higher use of contraceptives. Similar results regarding female participation in labor-force were reported by Shah and Shah (1980) based on the analysis of the Pakistan Fertility Survey data.

Hashmi (1991) in a rejoinder, is of the opinion that in contraceptive prevalence or demographic and health survey the knowledge and use of contraception is more under reported than the information on birth and the discrepancy observed between the Current Prevalence Rate (CPR) and Total Fertility Rate (TFR), is more due to the under reporting of the prevalence of contraceptive use.

Laing and Alcantara (1980) made a study for Philippines based upon the 1976 National Acceptors Survey, first makes several important points concerning the continuation rates for specific contraceptives. They found that the only contraceptive which retains more than half the women accepting it for one year or more is the IUD, as there is both 'duration' dimension and an 'effectiveness' dimension interacting to determine the impact of contraceptive usage in the Philippines. To make an international comparison, the survey results on Thailand made by Knodel and Debavalya (1978) are considered. The important conclusions that can be drawn from these studies are that lower marital fertility in Thailand is related to higher utilization of effective methods. They found that it is the quality of

Selected Islamic Countries have made progress in the use of contraceptive methods and thus lowering (effecting) the level of fertility (fertility behavior). The analysis shows that strong political and administrative support, comprehensive coverage of national population and female literacy are the major factors contributing to the successful implementation of the family planning programs in the Selected Islamic Countries. Further the statistical analysis has shown that all countries have made more progress in this respect than Pakistan which has the lowest female literacy as well as contraceptive prevalence rates and highest total fertility rate, crude birth rate and the rate of natural increase. In view of the present conditions, the author is of the opinion that proper supervision, monitoring and evaluation of the programmes dealing with the welfare of population is the need of the hour.

Hashmi et al., (1993) made a survey of population and family planning indicators in 1993. The study indicates important achievements and impacts of the population welfare program. It indicates that awareness of family planning and specific contraceptive methods among currently married women 15-49 years of age has increased significantly from 62% in 1984-85 to 82% in 1993-94. Similarly the current use of contraceptive methods in the country has increased from 6.7% in 1984-85 to 12 percent in 1990-91 and to 22% of currently married women in 15-49 years of age. Further the study showed that the current use rate in urban areas is 41% and 13% in rural areas. Among the urban users, 78% women are using modern contraceptive methods and 22 percent are using traditional methods. In these 85% are using modern contraceptives methods and 15 percent are using traditional methods in rural areas. Further the increase use of contraceptive methods and other indicators have important impact on population growth rate and its

components, which were assumed for the base year 1992-93 of the eight five year plan.

Hashmi and Alam (1993) in their article on non-users and unmet need for contraceptive (study of Punjab province) shows that the knowledge of any contraceptive method in Punjab has increased from 80% in 1990-91 to 94% in 1993. The study further pointed out that the knowledge about any contraceptive method has increased significantly. Then interesting and surprising point as noted by the authors was that 51 percent of the non-users followed up women and 44 percent of newly found women either wanted no more pregnancies or births or wanted to space their pregnancies, but they were not using any contraception.

Bhatti and Hashmi (1993) in their paper on the choice System of Contraceptive Methods and Drop-out in family planning indicated that IUD followed by injection, condom, pill and the last female sterilization was the choice of the respondents. They further noted that some women, although only 5% started using contraceptive methods at an early age of 15-19. A high percentage of about 58% started practicing family planning when they were in an age group of 25-34, indicating that 80% accepted IUD as the first method. The study reveals that the main reasons for dropping the use of any contraceptive method were the wish to have more children, the side effects of contraceptive methods and the discontinuation of supplies, specially of injection. Further it was noted that the choice of contraceptive methods varied with age. It was observed that as age rose higher, women preferred more effective or permanent methods.

Bhatti (1995) in his article on correlates of choice of contraceptive methods in Pakistan, points that the issue of choice of contraceptive methods is very important, both for increasing contraceptive prevalence and for reducing drop-outs. He tried to analyse and find out choices and preferences of acceptors for particular contraceptive method, the correlates of contraceptive methods and to suggest measures to provide methods of choice and to reduce the dropout rates to the minimum. The study revealed that IUD was the most accepted method and it varied with age. It was suggested that the choice of particular contraceptive method should be freely made, on the basis of the merits of methods.

Similarly, Wells and Sherris (1992) are of the opinion that a client choice of contraceptive method and use may be influenced by many factors. Their views are in conformity with that of Bhatti (1993), while Jain (1992) is of the view similar to Bhatti (1993) that contraceptive method of choice out of the available variety of contraceptive methods ensures continuation of use and reduces the drop-out rate. Further the study showed that client are best satisfied when they get the methods of their choice from a broad variety or 'mix' of contraceptive methods offered on reliable basis.

Mahmood and Ringheim (1996) in their study of factors affecting contraceptive use in Pakistan, using data from the Pakistan Demographic and Health Survey of 1990-91 examines the effect of selected socio-cultural and supply factors on contraceptive use as reported by married women of reproductive ages. They considered five factors as basic, which affect fertility regulation in the socio-structural context of Pakistan. Using logistic regression analysis, the results of the study indicates that the explanatory

contraception accepted rather than the number of acceptors, which determines the impact of the fertility behavior.

In this context, a study made for Indonesia by Sinquefield and Sungkono (1979) is worth mentioning. In this study also it was a method mix rather than the number of acceptors appeared to be the important factors in determining the fertility behavior.

Madigani (1978) calls for noting that the present technology is based entirely on the reproductive physiology of western women. The comparative perspective permits that although the woman of the other Association of South East Asian Nation (ASEAN) Countries (Malaysia, Thailand and Indonesia), appear to be equally ill-suited to western contraceptive technology, they have obtained better results then use of it.

Hakim (1993) in his paper on contraceptive use in Pakistan: Variations and Determinants found that both the demographic and socio-economic factors influence contraceptive use in Pakistan. Among the demographic factors, age of the women, and the number of children, while in socioeconomic factor education of both husband and wife and occupation of husband showed a positive relationship to the use of contraceptives.

A similar relationship (that is of education) has been shown in the studies made by (U.N. 1981, Lapham and Mauldin 1985, and Merrick 1986).

Hashmi (1993) made a study in the fertility trends and family planning in Selected Islamic Countries and Pakistan. The study results indicate that all

power of these five factors is significant in affecting the use of contraception in both urban and rural areas. They found that scarce family planning program resources could be focused more effectively on promoting spousal communication, about family size and contraceptive use. With high quality and accessible services these measures could go a long way towards providing couples with, to meet their reproductive goals.

The spousal communication about family planning in developing countries has been found to be very low. It is indicated by many studies that lack of communication between wife and husband is a major factor constraining contraceptive use (Bertrand et al., 1982, Raju 1987). Similarly, Thomson (1986) in his study indicates that mutual influence occurring through two-way communication has been identified as the most important source of agreement in desired fertility among U.S. couples.

In the study made by Shah (1974) reveals that the use of contraception is strongly related to communication between spouses and similar views are given in the study made by (NIPS 1992).

In Pakistan about 60% of women either desire no more children or want to delay their next birth, but only 20% have an access to family planning services (NIPS 1992). Here Bulatao (1993) findings are worth mentioning that quicker and easy access can be expected to lead a greater contraceptive use and hence affecting the fertility behavior.

Siddiqui (1996) worked out the impacts of socio-economic factors on fertility behavior. She made a cross-country analysis. She is of the view that

international comparisons of fertility behavior are based on two very important assumptions. First, it is assumed that the response of fertility rates to socio-economic factors is similar across different age-cohorts of female population in the reproductive age. Second, it is assumed that country-specific effects do not influence the parameter estimates of the fertility model. The data used for 100 countries were pooled and a fertility model was estimated. The result show that the impact of socio-economic factors differs across different age-cohort particularly the negative impact of improvements in female status on the fertility rates is higher among the younger age cohort's. The results further identifies that cross-country differences affect fertility rates significantly, and changes in age-composition of female population should be taken into account in formulating the policies to affect the fertility behavior and population growth.

In this respect, the studies made by (Easterlin 1975, Freedman 1995, Shultz 1973 and Wheeler 1980) cannot be ignored. They provide a great insight and very good empirical summaries of both past and present studies.

Hashmi assisted by Faateh-ud-din (1994) worked on the fertility transition in developing countries by using the data from world fertility surveys and demographic health & family health surveys, mostly published, used and analysed throughout the world. The data was analysed by using simple regression and correlation analysis. Further the independent effect of contraceptive prevalence rate (CPR) on total fertility rate (TFR) and variables selected such as female mean/median age at marriage, mean/median length of breast feeding, mean number of children ever born

etc. were considered on total fertility rate. The comparison of the two series show a transition from high to medium fertility and found remarkable similarities in the behavior of corresponding variables of the two series.

Mahmood and Ringheim (1994) made a study on the fertility desires in Pakistan, taking in consideration the influence of husbands in decision making. The study used the data from the Pakistan Demographic and Health Survey (PDHS) 1990-91. Their analysis shows that fertility decrease is determined differently in response to the urban and rural context. However, husbands desired fertility is strongly and positively related with their wives and they continue to exert influence on wives fertility. This has also been shown in the studies made by (Khan and Sirageldin 1977 and Coombs and Chang 1981).

The surveys conducted from late 1960's (1968-69) to 1990-91, reveals that changes in fertility rates and contraceptive use have been spectacular (Mohammed et al., 1993, Shah et al., 1986 and Mahmood 1992). This point have been verified by the two most recent contraceptive prevalence surveys conducted for the year 1993 and 1994-95 indicating a rise in proportion of women using contraceptives (Brass et al., 1994 and Hashmi et al., 1993).

Hakim (1994) in his paper on the Information Education and Communications (IEC) Component of population welfare program of Pakistan 1988-93 analysed its different aspect. The questionnaire included questions more or less similar to PDH survey 1990-91. The main findings were regarding age, education, work status, fertility, pregnancy status, IEC etc. Regarding the knowledge and use of family planning, use of any

contraceptive method was 29.8% with 53.3% in urban and 20.3% in rural areas. Current use of any contraceptive was 24.4% with 44.6% in urban and 16.3% in overall areas. Highest method currently used was female sterilization followed by IUD and condom.

Literature is full of the evidences that male attitudes toward family planning do have a positive effect on the fertility behavior. One such study was conducted by (Bhatti and Hakim 1994). Their main finding was that more than 60% of males desired separate centers for males whereas 40% did not favour separate centers for males, as they were not in favour of family planning. It appears as the study reveals that if separate centers for males are established, contraceptive prevalence is likely to increase considerably and will thus affect the fertility behavior of the women.

Hashmi (1996) made a study on the shy/silent users of contraceptives in Pakistan. The analysis of the study was based on the data of three national surveys, 1984-85, Pakistan Contraceptive Prevalence Survey (PCPS), Pakistan Demographic and Health Survey (PDHS) 1990-91 and Pakistan Contraceptive Prevalence Survey (PCPS). The study tested the hypothesis of shy/silent users. All these surveys show substantial numbers of shy/silent users. The author is of the view and taking into account the results of the study, if these numbers are included, the current prevalence rate (CPR) of each survey will rise significantly. But the Current Prevalence Rate inspite of including shy users, is still far lower than most developing and neighboring countries like in India it was reported 49%, Bangladesh 41%, Indonesia 50% and Vietnam 53% during 1987-1990. Coale (1984) is of the view that fertility has been reduced during the demographic transition by the

adoption of contraceptives as a deliberate mean of avoiding additional births. Caldwell (1996) in his article, A New Look at the Asian Fertility Transition, is of the view that the significance of the Asian Fertility Transition can hardly be over-estimated. The demographic events in Asia over the last thirty years, it is said that had made possible to express the view of population growth at the 1994 International Conference for Population Development (ICPD) in Cairo. According to the authors estimates made few years ago for a World Bank Planning Meeting, about 80% of the total decline in the world's Population, had been contributed by Asia as compared with only 10% by Latin America and noting by Africa. The great anomaly in ESCAP Asia's family planning picture is, of course, Pakistan, with a total fertility rate which may still be close to six, and a contraceptive prevalence rate among married couples of 12% by all methods and 9% by modern methods, which clearly indicates the uncontrolled fertility as compared to Afghanistan, Nepal, Bhutan etc.

Robinson (1978) while giving a review on family planning in Pakistan (1955-1977) is of the view that modern theories of fertility predict that contraceptive usage rises with income and education. There is a configuration of factor income, female employment, literacy, and infant mortality, which are clearly linked to fertility through contraception. Where these setting variables are negative, the results of any program will be uncertain.

Sathar (1984) made a study on "Does Female Education affect Fertility behavior in Pakistan"? She used the data from the Pakistan Fertility Survey 1975.She found that women with more than primary education had lower

fertility .In addition to education the role of other intermediate factors like proportion married, length of breast feeding and contraceptive use had significant association with female education.

Amin et al., (1987) made a study on the Trends and Differentials in knowledge, ever use, current use, and future intended use of contraceptives in rural Bangladesh: Evidence from Three Surveys, the study examined the trends and differential in these variables/aspects and results revealed that there has been an increase in these variables. Further the results indicated that more educated women and women having higher parity will significantly more likely to adopt or to intend to adopt contraceptives in future while socio-economic factors, such as regional development or non-agricultural occupations did not show an increase in the use or future intended use of contraceptives. Similar views that the pace of diffusion of fertility control can be increased in the societies with high fertility rates by introducing advanced contraceptives and family planning programs (Knodel and Debavalya 1978 and Mauldin and Berelson 1978).

Sathar and Kiani (1986) in their study on Delayed Marriages in Pakistan, reveals the importance attached to education, particularly females as an important factor in lowering fertility behavior in women. Pre-nuptial employment of women, particularly in the modern sector is the findings of author, can effect the child bearing pattern and contraception also.

Mahmood and Khan (1985) in their study on Female Nuptiality in Pakistan are of the view that increase and enhancement in women education may have a positive effect on age at marriage and through it on the fertility

behavior .It therefore, became imperative that younger women, the potential group for determining future fertility levels, must be given more education, particularly in rural areas as an alternative to early marriage and early child bearing. Further the study reveals that a lack of differential between the fertility of women with no education and that of those exposed to some years of schooling may be due more to strict adherence of illiterate women to the traditional practices, which impairs fertility than to effective contraception. Empirical evidence on the relationship between education, marriage and fertility for Pakistan is available in the studies made by (Afzal et al., 1976, Khan and Sirageldim 1979, Karim 1979 and Hardee and Azhar 1975).

Soomro and Farooqui (1985) in their study on the contraceptive use in Pakistan, using the data for analysis from the two national surveys, that is, Pakistan Labour Force and Migration Survey (PLM) and Pakistan Fertility Survey (PFS), quoting Coale (1974) for the desired advancement of a program, three pre-conditions deduced from the demographic transition theory or perceived choice of an individual and favorable socio-economic conditions for declined fertility and in order to facilitate transformation of the perceived choice into behavior, the ability of appropriate contraceptive technology is essential .The results derived from this study and the PFS, a substantial number of married women can be observed who do not want any more children (43% in the PFS and 40% in the PLM survey). These women appears to be susceptible client of family planning programme .It proves that demand for contraceptive services already exists in a significant portion of married women. What is needed is an effective exploitation of the existing demand through an efficient supply of contraceptive service in terms of both their convenient availability and accessibility .In this respect

De Tray noted "..... it does confirm that desire for specific number of children are important in influencing couples behavior, in fact in Pakistan these demand factors appear to dominate contraceptive choice decisions".

Rukanuddin (1982) in his article, Infant-Child Mortality and son Preference as Factor Influencing Fertility in Pakistan, is of the view that if the population welfare programme is to be implemented successfully in Pakistan the current emphasis on supply of contraceptive services will have to yield on more comprehensive maternal and child health services.

Shah and Kazi (1977) in their study on communication and contraceptive practice, selected some of the background characteristic/variables like age, educational and employment status of wife, number of living children, educational level of husband etc. These particular variables were selected as reported by the author because they have been shown to be significant explanatory variables in predicting contraceptive behavior in earlier studies on Pakistan. Along with these variable the type of communication media was considered. The results indicated that parity and age of the wife were the most crucial variables which could have had a large influence on the information seeking behavior of women and hence both age of wife and number of children living had strong positive effects on contraceptive use in urban as well as rural areas and thus effecting the fertility behaviors.

Moreover, earlier works on comparison of different contraceptives methods, was carried out by (Gray et al., 1981, Belsey et al., 1988, Belsey and Peregoudov 1988 and WHO 1978 and 1986). As Belsey et al., (1988) puts that a major factor in the acceptability of modern methods for fertility

regulation is their influence on the women's menstrual pattern. The efficacy of these methods in preventing the occurrence of unwanted pregnancies is high, but some of them can result in unpredictable or prolonged problems of menstrual cycles.

Bhatti and Hakim (1996) in their report, Survey on Males Attitudes and motivation for Family Planning in Pakistan found that in the population welfare program of the country, there is a wide range of choice of contraceptive for females such as oral pills, vaginal methods, IUD, injectibles and contraceptive sterilization. The only method available for males is condom, while vasectomy is another method, which is included. Also, surveys indicate that due to the negative attitude of some husbands their wives do not use contraception. Further the study indicated that 60 percent of males desired separate centers and it appears as the authors are of the opinion, that with this contraceptive prevalence is likely to increase considerably.

Butt and Jamal (1993) in their discussion paper on Determinants of Marital Fertility in Pakistan: An application of syntheses framework, are of the view that the fertility phase of the demographic transition has increasingly been viewed as a movement from high to low levels of fertility, as well as a shift from natural fertility to deliberately controlled fertility. In an attempt to give more insight into this process, in the context of Pakistan, their study based on intensive National Population, Labor Force and Migration Survey data covering 10,000 households has focused on the determinants of fertility in Pakistan. Special attention has been put on the determinants of adoption of deliberate fertility regulation. The role of the socio-economic modernization

and cultural factors on the determinants of potential family size and the adoption of deliberate control via knowledge of fertility regulations were also explored. The synthesis framework of fertility determination applied to Sri Lanka and Columbia by (Easterlin and Crimmins 1982), with its recent modifications by (Ahmed 1987) was the vehicle of this study.

The relative merits of modern contraceptives for women, such as oral contraceptives (OCS), long acting injectibles, vaginal rings and IUD are usually examined by means of prospective randomised controlled trails in which the methods under test are randomly allocated to women who request contraception and consent participation, in trial. A discontinuation during the constitutes a method of failure of considerable importance. However, with modern contraceptive methods, unwanted pregnancies are rare events, and the major reasons for discontinuation for a particular method are disturbances in menstrual bleeding. Earlier work concerned with menstrual bleeding patterns can be divided into that which concerns the cycle as the unit of analysis as discussed by (Chiazze, Brayer, Macisco 1968). Periodogram analysis of a few long diary strings by (Pochobradsky 1970) and the reference period method first introduced by (Rodrguez, Faundes-Latham and Aitkinson 1976) and illustrated in (Snowden 1977) and (Mayes 1975).

The review papers written by (Belsey and Farley 1987), describes approaches to the analysis of the bleeding patterns among contracepting and non-contracepting women and reviews the difficulties involved. The review draws on reports convened by the WHO and the University of Exeter, family Planning unit to discuss issues in the analysis. In the review previous

unpublished methods are summarized and areas of controversy and topics for further research are identified.

Rehman (1992) used the Zeger et al., (1985) model for modelling the binary outcomes on bleeding and bleeding free days and menstrual dairy data. The logistic regression models were used for the binary outcome variable observed repeatedly for each subject together with a set of time independent covariates.

Machin et al., (1988) used the diaries completed by women for 100 and 150 mg DMPA on bleeding pattern. The diaries were studied for one particular feature on menstrual disturbances i.e. amenorrhea. Two methods were studied for the analysis of data, one method measures trend over time, in the occurrence of amenorrhea, and second the relation between women current experience and the probability of continuing the present method Rehman (1992) also used the same model.

Muenz and Rubinstein (1985) proposed a logistic regression model for the transition probabilities in a two state Markov chain. The states are denoted by 0 and 1 and the transition probabilities are modeled by two logistic regression from states ($0\rightarrow0$, $0\rightarrow1$) and ($1\rightarrow0$, $1\rightarrow1$). The model estimates the effect of covariates on probabilities of changing states. Rehman (1992) used the above model to amenorrhea status within a reference period of 90 days denoted by 0 if absent and 1, if it was present.

The rate of world population is already declining, but the number of people could still double or even triple from today's 5.8 billion before stabilizing a

century or more from now. Women in most countries are still having more than the two-child average consistent with a stable population size. It is argued that even a two-child average per couple would still boost population size for a few decades until the increase from the past growth subsides. The only reason for optimism left is that if access to family planning and other reproductive health services, education for girls and economic opportunity for women is made available, it could lower birth rates enough to lower the rapid increase in population growth before it doubles the todays total, and hence this problem of population explosion is also faced and recognized by Pakistan. In this context the data collected by National Institute of Population Studies, Islamabad, is studied and analysed in the present study.

There is a wide range of published work dealing with analysis of population problem. Only a few of these has been reviewed in this chapter. These reviewed studies have identified some of the important variables like education of women, Age, living number of children etc. having an effect on the fertility levels of a woman. These variable none-the-less are debated, but occupy an important place in the literature.

In the case of the present data, work has been done and is currently being done on its various aspects. However, mostly the studies deal with simple summary statistics, giving no meaningful results. The present study takes it a step further by analysing it, to see variations within the methods and between the methods, which ultimately leads to choose and select the variable which have strong bearing on fertility regulation and control. The variables selected are further analysed and investigated in chapter IV by using regression models. As it said that for a practical application, a model is

desired, which requires a minimum number of data. On the other hand, the more valuable the model becomes theoretically, the more information it requires. A compromise must therefore be found between the practical applicability and the theoretical reliability.

Chapter IV of the study is divided into four parts. Part I of the chapter deals with the brief summary about regression analysis, formulation of statistical model to be estimated and the basic objectives of summary statistics and graphs and diagrams. Part II., shows the variations in the fertility behaviour by important background characteristics, while Part III gives an analysis about the covariates of the choice of Contraceptive Methods, and Part IV shows the relationship of fertility behaviour of a women with Socio-Economic, Demographic and Knowledge , Aptitude and Practice variables and ends with general considerations.

Chapter III

Elementary Data Analysis

3.1 Introduction

The main objective and propose of this chapter is to provide the descriptive analysis in summarized form, the major findings of the 1990-91, Pakistan Demographic and Health Survey (PDHS), a part of the world-wide Demographic and Health Survey (DHS) programme, designed to collect data on fertility, family planning and maternal and child health. In these analysis major findings on the women using a variety of contraceptive methods, for fertility regulation along with some of the background characteristics will be emphasized. This type of elementary analysis will pinpoint some of the problems in the analysis and in the data, if any, as a result, will enable the selection of less disruptive and more efficient and easily accessible contraceptive methods. Along with this, it will help us in guiding to improve the data, regarding the choice of fertility regulation methods.

However, it is difficult to summarize all the co-variates individually and separately. The variables related to each other are grouped as follows:

i. Fertility
ii. Knowledge of Family Planning Methods and Marriages
iii. Teenage Pregnancy and Motherhood
iv. Fertility Preferences
v. Knowledge and Use of Contraception
vi. Attitudes Toward Family Planning
vii. Unmet Need for Family Planning Services
viii. Maternal and Child Health.

In this chapter the analysis relating to the female respondents i.e. eligible women are shown in Part I, while Part II deals with the results of husbands of eligible women who were married at the time of the survey. The results derived from the above-mentioned groups are shown in the following sections.

Part I.

3.2 Characteristics of House Hold and Respondent

3.2.1 Martial status

The survey gathered information on the marital status of all household members age 15 and over. As compared to the previous surveys conducted, the result of this survey shows a consistent picture, with regards to the universality of marriage for both males and females. The data in Table 3.1 reveals that female gets married by the early thirties and males by the early forties. Similarly females show an earlier transition than males to widowhood or being divorced or separated.

Table 3.1

Household Population by Age, Sex and Martial Status

Age Group	Never Married		Married		Widowed		Divorced/ Separated		Missing		Total		Number	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F
15-19	93.8	78.1	3.5	18.4	0.0	0.3	0.0	0.2	2.6	3.0	100	100	2448	2219
20-24	75.3	39.4	23.1	59.7	0.4	0.1	0.0	0.6	1.2	0.2	100	100	1883	1798
25-29	38.7	11.8	59.4	86.0	0.9	0.9	0.3	1.0	0.7	0.4	100	100	1561	1669
30-34	15.1	3.8	82.2	93.2	1.6	1.5	0.5	1.6	0.6	-	100	100	1269	1207
35-39	7.6	2.0	90.8	93.1	1.1	3.9	0.5	0.9	-	-	100	100	1083	996
40-44	2.8	2.3	93.3	92.7	2.5	4.6	1.4	0.3	-	-	100	100	951	871
45-49	2.0	2.0	93.4	90.5	3.7	7.3	1.0	0.2	-	-	100	100	766	602
50-54	2.1	0.7	92.8	81.8	4.5	15.5	0.6	2.0	-	0.1	100	100	678	805
55-59	1.8	0.3	93.3	77.3	4.6	21.4	-	0.7	0.3	0.2	100	100	506	597
60-64	0.7	0.5	87.8	72.1	11.1	26.2	0.3	0.1	0.1	1.1	100	100	708	528
65+	1.0	0.3	78.2	48.1	19.3	48.9	0.9	0.3	0.5	2.4	100	100	1398	839
total	35.3	22.6	59.5	67.8	3.8	8.0	0.4	0.7	0.9	0.9	100	100	13265	12143

- Less than 0.05 per cent.

M = Males

F = Females

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.2.2 Background Characteristics of Female Respondents

Woman were eligible for the individual interview if they were ever married, between the age 15 to 49, and stayed in the household the night before the household interview was conducted. The following Table 3.2 shows information on the background characteristics of all eligible women who were interviewed.

Table 3.2

Background Characteristics of female Respondents:

Background Characteristics Age	Weighted %	Weighted no. of Women	UN-weighted no. of women
15-19	6.5	428	407
20-24	16.0	1059	1064
25-29	22.6	1494	1469
30-34	18.0	1187	1200
35-39	14.8	981	1031
40-44	12.8	844	820
45-49	9.3	617	620
Marital Status			
Married	96.3	6364	6393
Widowed	2.4	159	148
Divorced	0.3	22	19
Separated	1.0	65	51
Residence			
Total Urban	30.5	2019	3384
Major City	17.4	1151	1820
Other Urban	13.1	868	1564
Rural	69.5	4592	3227
Province			
Punjab	59.7	3948	2207
Sindh	23.1	1529	1798
NWFP	13.3	878	1665
Balochistan	3.9	255	941
Education level attended			
No Education	79.2	5237	5055
Primary	9.1	601	600
Middle	4.4	288	320
Sec.	6.2	410	522
Higher	1.1	75	114
Work status			
Currently working	16.8	1111	1057
Working only before marriage	4.4	290	292
Worked only after marriage	0.7	44	52
Worked before and after marriage	1.1	72	74
Never worked	76.7	5073	5111
Missing	0.3	21	25
Mobility			
Could go to Hospital alone	25.1	1660	1699
Would need to be accompanied	70.8	4682	4441
Depends or missing	4.1	269	471
Total	100.00	6611	6611

Never worked in the above Table 3.2, means that the woman is not currently working and she did not work either before marriage or after marriage.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The table reveals a relatively low proportion of currently married women were in age of 15-24. This means that the age of marriage has increased. As for the educational level was concerned, about 80% of the women never attended the school and only 7 percent were educated upto the secondary level. Almost 70% of the women were residents of rural areas and 16.8% of the women were currently working and 76.7 never worked. Of the total only 13% were from NWFP while majorities of them 60% were from Punjab.

3.3 Fertility

3.3.1 Fertility Levels and Trends

Although fertility level remains high, with little evidence of a sustained fertility decline (Shah and Cleland 1988). Recent years show a decline in fertility rate in response to a rising age at marriage and a modest increase in the use of family planning methods.

The following Table 3.3 shows fertility by background characteristics.

Table 3.3

Fertility by Background Characteristics

Background characteristics	Total fertility rate	Mean Number of CEB (women 40-49)
Residence		
Total urban	4.9	6.3
Major city	4.7	6.3
Other urban	5.2	6.4
Rural	5.6	6.4
Province		
Punjab	5.4	6.3
Sindh	5.1	6.6
Karachi	5.0	7.1
NWFP	5.5	6.1
Balochistan	5.8	5.7
Education level Attended		
No Education	5.7	6.5
Primary	4.9	6.1
Middle	4.3	5.3
Sec+	3.6	4.3
Total	5.4	6.4

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The data reveals that 79% of all women with no formal education can be expected to have, on average, two more children during their reproductive years than women with at least secondary education that is, 5.7 versus 3.6.

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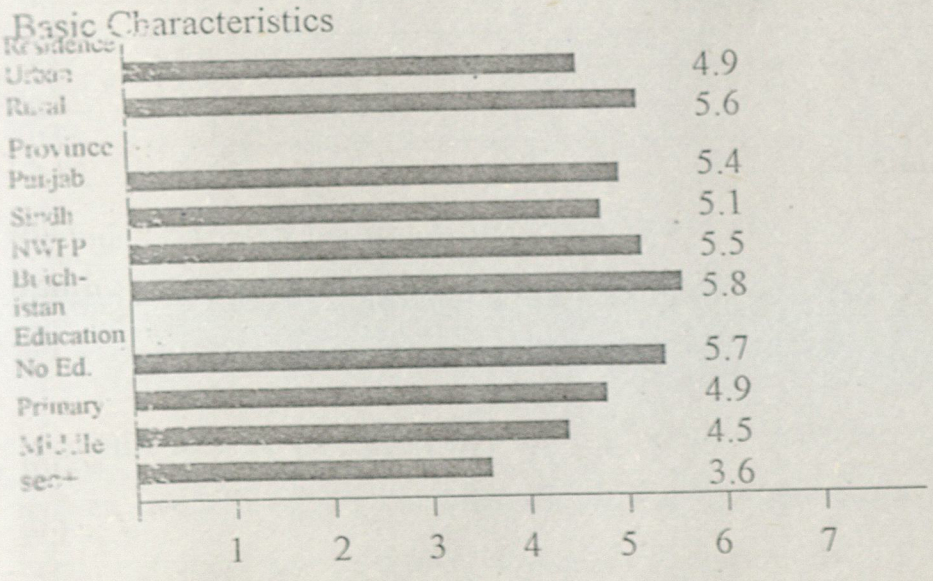
Thus at the current fertility rates, women with atleast some secondary education will bear two fewer children during their reproductive years than woman with no formal education. As far as the residence is concerned, its impact on fertility is very small. The average women living in the major city will have one child less than the rural woman (i.e. 4.7 versus 5.6). Looking at the provincial level, total fertility rates were even less, they range from 5.4 in Punjab to 5.5 in NWFP. This table can be shown diagrammatically as follows. Figure 3.1 shows that urban areas have lower fertility than rural area. While provincial differences in fertility are quite modest. The total fertility rate for women age 15 to 49 ranges from 5.1 in Sindh to 5.8 in Balochistan. Similarly, an educated women have a lower fertility rate as compared to women with no education, that, is 3.6% as compared to 5.7% respectively.

Figure 3.1
Fertility Rates by Selected Characteristics



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

This table further gives an indication that for all women the total fertility rate is exactly one child less than the mean number of children ever born, which is a further indication that fertility rates have started declining. Educational attainment have an influence on the current fertility level indicating that educated woman have been experiencing lower fertility for a longer period.

3.3.2 Children Ever Born

The following Table 3.4 indicates that the cumulative fertility of currently married women has shown a decline except in age group of 15-19.

Table 3.4

Mean Number of Children Ever Born and Mean Number of Living Children

Age	Mean no. of children ever born			Mean no. of living children		
	1975	1984-85	1990-91	1975	1984-85	1990-91
15-19	0.6[1]	0.6	0.6	0.5[1]	0.6	0.6
20-24	1.9	1.8	1.6	1.5	1.5	1.4
25-29	3.4	3.4	3.1	2.8	2.8	2.7
30-34	5.2	5.0	4.6	4.0	4.2	4.0
35-39	6.4	6.1	5.7	4.9	5.1	5.0
40-44	7.5	7.0	6.5	5.2	5.5	5.6
45-49	7.4	7.5	6.6	5.1	5.7	5.6
15-49	4.3[1]	4.3	4.1	3.2[1]	3.5	3.5

[1]Includes currently married women age 10-14.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The table reveals that currently married women between age 15 to 49 have had an average of 4.1 children which has declined from 4.3 children ever born between the 1984-85 Pakistan Contraceptive Prevalence Survey (PCPS) and the 1990-91 Pakistan Demographic and Health Survey (PDHS), while the mean number of surviving children remained constant at 3.5 children per woman. This study further reveals that birth intervals are

relatively short. The median length is 29 months. Finally one third of all births occur in less than 24 months, after the previous birth, for half of these births, the interval is shorter than 18 months.

3.3.3 Teenage Fertility

The data in column one of the Table 3.5 shows the percentage of teenagers who are already mothers; while column two shows the percentage who are pregnant with their first child. Overall sixteen percent of teenagers (age 15-19) are already mothers or are pregnant with their first child.

Table 3.5
Teenage Fertility

Background characteristics age	% age who are Mothers	Pregnant with child	% age who have begun child bearing	No. of teenagers
15	3.0	2.5	5.5	173
16	3.7	2.5	6.1	381
17	7.6	5.4	13.0	260
18	15.1	3.8	18.9	630
19	27.4	3.3	30.6	276
Residence				
Total urban	7.8	2.1	9.9	583
Major city	5.7	2.1	7.9	318
Other urban	10.2	2.1	12.3	264
Rural	14.5	4.3	18.7	1137
Province				
Punjab	12.6	4.3	16.9	1015
Sindh	12.0	2.4	14.4	345
NWFP	11.7	2.2	13.9	281
Balochistan	15.3	5.2	20.5	52
Education level				
No Education	17.4	5.0	22.4	1007
Primary	8.3	2.1	10.4	248
Middle	4.9	-	4.9	115
Sec+	3.1	2.1	5.3	256
Total	12.2	3.5	15.7	1720

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

Moreover, the above table clearly indicates that residence do have effect on the fertility behavior, that is rural teenage women are thrice as likely as total, urban to have begun child bearing. Education had even a greater impact, that is a teenage woman with secondary education only 3.1 percent were matters as compared to 17.4% with no education.

3.4 Knowledge and use of Family Planning

In a country like Pakistan, which is experiencing a high population growth, the level of knowledge about family planning and the use of family planning methods, remains a very important demographic issue. Along with this information on contraceptive use by various methods is of particular importance.

3.4.1 Levels and Trends

The following Table 3.6 shows the knowledge of modern contraceptive methods and the source for methods among currently married women by background characteristics like age, residence, province and education etc. In terms of respondents age, women 30-39 years, who are likely to have the greatest need for contraceptive, the results reveal the highest level of knowledge (81% had heard of a modern method) while 66% of the women in the age group of 15-19 years know of a modern method of contraception. Move over, the data also reveal that three-quarters of currently married women know of at least one method. However, only 45 per cent know where they could go to obtain modern methods.

Table 3.6

Knowledge of Modern Contraceptive Method and Source of Methods

Background characteristics age	Know any method	Know a modern method[1]	Know source for modern method	No. of women
15-19	66.3	65.8	32.3	418
20-24	75.0	74.4	39.2	1041
25-29	77.4	76.7	43.6	1452
30-34	81.8	81.2	48.4	1147
35-39	81.5	81.3	53.2	931
40-44	78.7	77.9	47.2	803
45-45	77.8	76.6	44.1	572
Residence				
Total urban	91.3	90.6	69.9	1930
Major city	94.5	93.8	75.7	1098
Other urban	87.2	86.4	62.3	832
Rural	72.0	71.4	34.0	4434
Province				
Punjab	80.6	79.9	46.2	3768
Sindh	74.4	73.9	45.3	1486
NWFP	83.6	83.3	44.8	856
Balochistan	38.5	36.5	23.8	254
Education level				
No Education	73.8	73.0	37.7	5044
Primary	91.7	91.7	64.3	573
Middle	93.6	93.6	72.4	279
Sec+	95.6	95.0	81.9	468
Work status	72.7	72.5	40.0	1033
Currently working	85.8	85.7	57.7	282
Worked between marriage only	81.9	81.9	64.1	43
Worked After marriage only	75.7	74.5	39.2	69
Never worked	78.5	77.7	45.0	4916
Total	77.9	77.2	44.9	6364

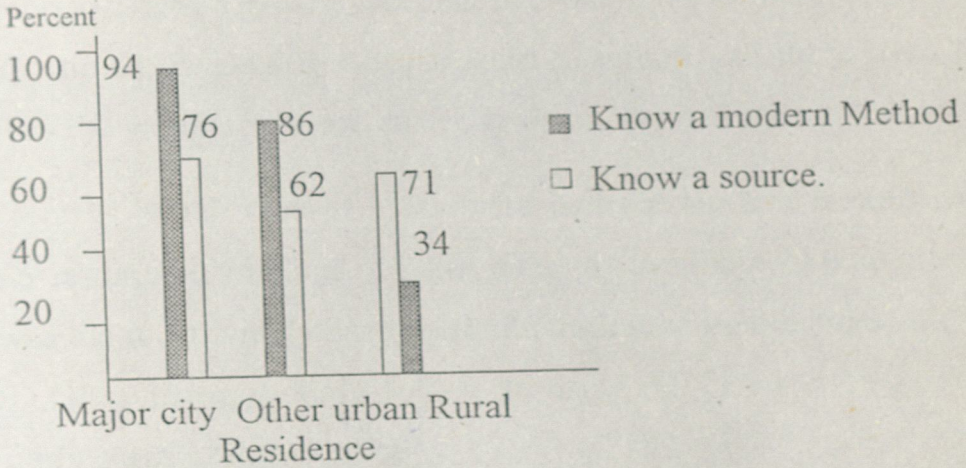
[1]Includes pill, IUD, injection, vaginal method (diaphragm/foam/jelly) condom, female sterilization & male sterilization.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

Table 3.6 can be shown in the form of diagram as follows.

Figure 3.2

Knowledge of Modern Contraceptive Methods and Sources Among Currently Married Women by Residence.



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

It is evident from the figure 3.2, that there are large differences in reported knowledge of modern contraceptive methods and the sources among currently married women. Ninety four percent of currently married women residing in major cities knew of at least one modern method of contraception and three-fourths knew where to obtain a method. Among rural women, 71 percent knew of a modern method and 34 percent knew where to obtain a method.

The data in the said table also reveals a major variation by education. Only 73% of women with no education knew of a modern method, compared with 92% of those with primary education and 95 percent of those who had received at least some education at the secondary level. Moreover, contraceptive knowledge varies greatly by residence. This is indicated by the

data in the table. In major cities, 94% of women knew of modern methods, compared with 71% in rural areas, and only 24% were only able to name a source of supply.

3.4.2 Use of Contraception

The report (PDHS, 1990-91) reveals that only twenty percent of currently married women have used a contraceptive method, but there were only 12 percent of the women who are currently using any method.

Three fourths of the current users were using a modern method and one-fourth a traditional method. Of the method, available female sterilization (4%) was the most widely used methods, followed by the condom (3%) and the IUD (1%). However only 10% were using pill or injection as they were in the early stage of introduction.

Table 3.7
Current Use of Contraception

Contraceptive Methods	15-19	20-24	25-29	30-34	34-39	40-44	45-49	Total
Any method	2.6	6.3	9.6	13.4	20.4	15.8	11.8	11.8
Any modern method	1.9	3.8	7.4	9.6	15.8	12.8	10.3	9.0
Pill	0.2	0.8	0.8	0.7	0.9	0.8	-	0.7
IUD	0.4	0.7	1.8	1.9	1.4	1.1	0.4	1.3
Injection	0.4	0.4	0.4	0.6	1.6	1.1	1.1	0.8
Vaginal method	-	-	-	-	0.1	-	-	-
Condom	08	1.5	3.6	3.6	3.8	1.8	1.9	2.7
Female Sterilisation	-	0.5	0.9	2.7	0.2	8.0	6.8	3.5
Male sterilisation	-	-	-	0.1	4.5	-	-	-
Any traditional method	0.7	2.5	2.3	3.8	4.5	3.0	1.5	2.8
Periodic abstinence	0.5	0.7	1.0	1.6	2.6	1.7	0.4	1.3
Withdrawal	0.1	1.1	1.0	1.9	1.8	1.3	0.3	1.2
Other	-	0.6	0.3	0.3	2.0	-	0.8	0.3
Not currently using	97.4	93.7	90.4	86.6	79.6	84.2	88.2	88.2
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number	418	1041	1052	1147	931	803	572	6364

- Less than .05 Percent

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The above table shows that the use of contraceptive, age wise varies significantly. The use shows an increasing trend from less than 3 percent for married women age 15-19 years to high 20% for women 35-39 years and then show a decreasing trend thereafter. The table further shows that younger women use a temporary method, as they have to complete their families while sterilization is common among the older women however, the most notable issue was that even among age 35 years and over the condom is the second most widely use method.

3.5 Trends in Contraceptive use

Table 3.8
Trends in Contraceptive Use

The following Table 3.8 shows the trend in the use of contraceptives among the currently married women.

Contraceptive Methods	1990-91 PDHS	1984-85 PCPS	1975 PFS
Any method	14.0	9.1	5.5
Any Modern method	10.7	7.6	4.0
Pill	0.8	1.4	1.0
IUD	1.5	0.8	1.7
Injection	0.9	0.6	4
Vaginal method	-	0.1	0.2
Condom	3.2	2.1	1.0
Female satiation	4.2	2.6	1.0
Male sterilization	-	-	-
Any traditional method	3.3	1.5	1.5
Periodic abstinence	1.5	0.1	0.1
Withdrawal	1.4	0.9	0.1
Other	0.4	0.5	1.3
No. of woman	5375	U	4441

- less than .05%
U = unknown.
Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The table shows that contraceptive use among married, non-pregnant women have tripled in almost 15 years from 5% in 1975 to 9% in 1984-85 and 14% in 1990-91. Of the methods, the analysis shows that female sterilization has gained importance over the last two decades. The condom was the second most widely used method as compared to the pill.

3.5.1 Current Use of Family Planning Methods by Background Characteristics

Contraceptive use has shown a great variation by residence and education. The data in Table 3.9 shows that only 6 percent of rural women are currently using contraception, when compared with 31 percent of women living in major cities and 25% in total urban areas.

Table 3.9

Current Use of Contraceptives by Background Characteristic

Background characters age	Any meth.	Any mod. met.	Pill	IUD	Inje.	Un. Met.	Con.	F. St.	M. st.	An. T. met.	Per. Ab.	Wi.	Oth.	No. cu.	Num.
Residence															
Total urban	25.7	18.7	1.4	2.0	1.2	-	6.7	7.3	0.1	7.1	3.4	3.0	0.6	74.3	1930
Major city	31.0	22.3	1.4	2.4	1.0	0.1	8.9	8.5	0.1	8.7	4.2	4.0	0.5	69.0	1098
Other urban	18.8	13.9	1.4	1.4	1.4	-	3.8	5.7	0.2	4.9	2.4	1.8	0.7	81.2	832
Rural	5.8	4.8	0.4	0.9	0.6	-	1.0	1.9	-	1.0	0.4	0.4	0.2	94.2	4434
Province															
Punjab	13.0	9.8	0.6	1.5	0.8	-	3.0	3.8	0.1	3.2	1.4	1.5	0.3	87.0	3768
Sind	12.4	9.1	0.7	0.9	0.4	-	3.4	3.5	-	3.4	1.7	1.3	0.4	87.6	1486
NWFP	8.6	7.6	1.3	1.1	1.1	0.1	0.8	3.2	-	1.0	0.6	0.3	0.1	91.4	856
Balouchistan	2.0	1.7	0.7	0.5	0.1	-	0.2	0.3	-	0.3	0.2	0.1	-	98.0	254
Education level															
No Education	7.8	6.2	0.5	1.0	0.5	-	1.1	3.0	-	1.6	0.8	0.5	0.3	92.2	5044
Primary	17.8	14.0	1.5	1.5	1.2	-	4.5	5.1	0.2	3.8	1.7	1.8	0.3	82.2	573
Middle	29.5	21.7	1.6	1.1	3.1	0.1	8.5	6.8	0.5	7.8	3.4	3.8	0.6	70.5	279
Sec+	38.0	25.9	1.1	4.0	1.1	0.1	14.4	5.2	-	12.1	4.8	7.0	0.2	62.0	468
Number of living Children															
0	0.1	0.1	-	-	-	-	0.1	-	-	-	-	-	-	99.9	810
1	3.2	2.0	0.2	-	0.4	-	1.4	-	-	1.2	0.5	0.5	0.2	96.8	834
2	10.7	8.0	0.8	1.4	0.3	-	4.5	1.0	-	2.7	1.1	1.0	0.6	89.3	812
3	11.1	7.8	0.9	1.4	0.5	-	3.1	1.9	-	3.3	1.2	2.0	0.1	88.9	914
4	17.1	12.6	1.2	1.5	0.8	-	3.9	4.8	0.3	4.5	1.7	2.4	0.4	82.9	856
5	18.0	14.0	1.4	1.7	1.8	-	4.5	4.8	-	3.9	2.6	1.1	0.2	82.0	647
6+	18.4	14.8	0.6	2.1	1.3	0.1	2.1	8.5	-	3.6	1.8	1.3	0.5	81.6	1492
Total	11.8	9.0	0.7	1.3	0.8	-	2.7	3.8	-	2.8	1.3	1.2	0.3	88.2	6364

* Number<.05

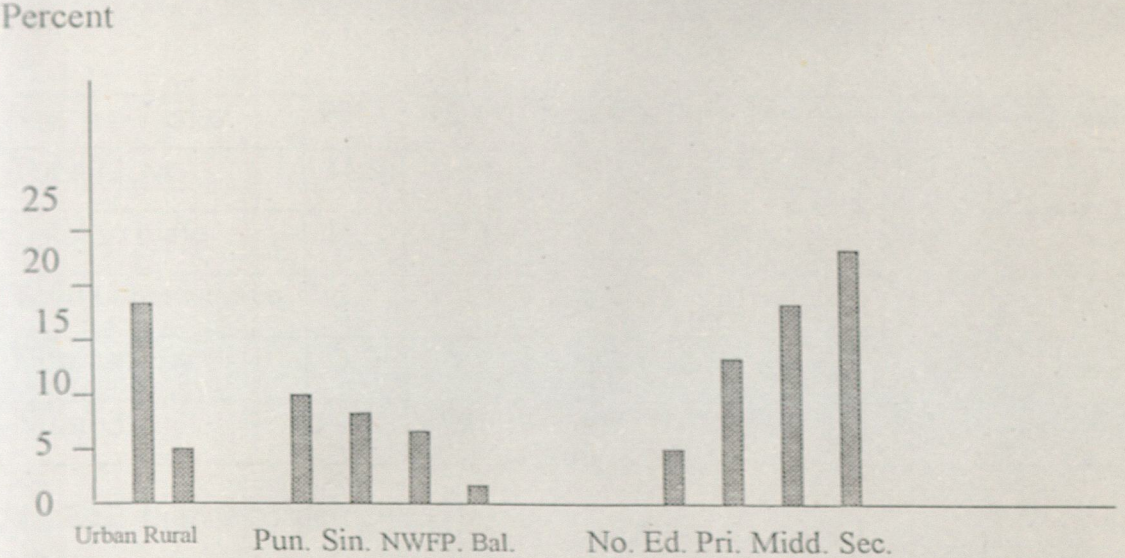
Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

If one analyse it, in terms of provincial variation, it is the women living in Balochistan with the lowest level of current use-only, 2 % were using modern methods, while in contrast to 10 percent of women in Punjab were using modern methods.

Another major differential that continues to hold is related to women's education. The data shows a strong and positive relationship exist between education and the level of current use, the percentage of women using modern contraceptive methods increases that is, from 6% of women with no education to 26% of women with secondary or higher education as shown in figure 3.3.

Figure 3.3

Current use of Modern Contraceptive Methods among currently Married woman 15-49 by residence, province and education



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

More or less, the same type of association exists between the use of condom and the use of traditional methods and between the number of living children a woman has and current use. The table as a whole shows that socio-economic differentials in current use of family planning methods exists. The proportion of married urban women using a modern method (19%) is almost four times greater than the rural women, which is about 5%.

Moreover, the data of the survey reveals that 46% who had ever used family planning initiated use when they had fewer then three children. While women living in major cities (34%) started using a method when they had fewer than four children.

3.5.2 Source of Supply and Accessibility of Contraceptive

The following Table 3.10 shows the source and accessibility of contraceptive:

Table 3.10

Source of Supply

Source of supply	Pill	IUD	Injection	Condom	Female ster	All methods
Total Govt.	34.9	81.1	53.0	11.7	85.1	55.7
Total Private	56.2	15.8	42.0	47.6	13.7	30.0
Total Other Source	5.2	-	4.7	11.5	-	4.3
Don't know	3.7	3.1	0.3	29.2	1.2	10.0
Number	45	80	48	172	225	574

- Less than 0.05 percent.

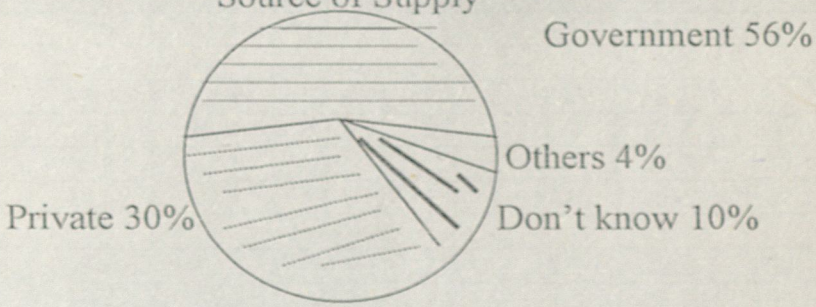
All methods include vaginal methods and male sterilization, which are not shown separately.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The data in the Table 3.10 and figure 3.4 reveals that of all the sources, the government is the most important provider of family planning services, and provides over half, of all modern method used. While the private sector supply 30%. The table further indicates for clinical methods like IUD and female sterilization obtained the services from the public sector that is from the government (Which includes hospital/clinic, family welfare centres and other government agencies). If we look at the data, pill and condom are more often obtained from the private sector and 29 percent of the women reply as don't know or missing as far as the supply of condoms are concerned. Thus it can be concluded that government and private sources are active and major supplier of various types of contraceptives.

The table can be represented diagrammatically as follows, and it clearly gives the picture of the supply and sources of contraceptive.

Figure 3.4
Source of Supply



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.5.3 Family Planning Attitudes

It is said that a positive attitude towards family planning is one of the basic pre-requisites of contraceptive use. The data in the Table 3.11 reveals that 62 percent of currently married non-sterilized women who know of a contraceptive method approved family planning use as against 38% who disapproved it. There appears to be a considerable amount of consensus between husband and wives about

family planning use, as is evident from the data given in Table 3.11. One-third of female respondents reported that both they and their husbands approved of family planning and 22% said they both disapproved.

Attitudes toward family planning use differ little by the age of the wife. However urban women are more likely than rural women to approve family planning. This is clearly depicted in the following figure 3.5. As for provincial disapproval is concerned, the highest proportion of disapproval by both husband and wife was reported in Balochistan (32%) as compared to NWFP (19%).

Table 3.11
Attitude of Couples Toward Family Planning

	Woman approvals			Women disapproval's				
Background characteristics-Age	Both appo.	Husb. Disapp	Hus. Att. Unk.	Hus. App.	Hus. Att. Unk.	Both disa.	Total	No. of wom.
15-19	33.3	10.5	17.4	2.6	19.6	15.3	100	277
20-24	35.6	11.0	13.9	2.3	12.3	23.9	100	776
25-29	34.3	12.6	18.9	2.1	12.3	19.3	100	1112
30-34	33.1	14.9	12.4	1.6	12.1	25.5	100	906
35-39	39.3	13.0	12.7	2.5	10.9	21.3	100	684
40-44	31.6	10.7	14.8	2.9	15.7	23.5	100	568
45-45	27.6	12.8	14.1	1.0	18.3	26.0	100	406
Residence								
Total urban	52.9	12.6	11.4	1.6	5.1	16.1	100	1619
Major city	59.4	11.8	10.5	2.0	3.0	12.7	100	944
Other urban	43.8	13.7	12.6	0.9	8.0	20.9	100	676
Rural	24.3	12.4	16.8	2.4	17.8	25.6	100	3109
Province								
Punjab	35.6	12.7	14.4	2.4	11.8	22.5	100	2889
Sindh	36.2	12.8	10.3	1.8	15.4	23.2	100	1054
NWFP	25.8	10.7	25.5	1.6	16.7	19.3	100	689
Balochistan	24.0	14.3	8.4	1.0	18.6	32.2	100	97
Education level								
No Education	27.1	12.6	15.6	2.3	16.6	25.3	100	3569
Primary	43.2	11.9	15.3	2.5	5.6	21.2	100	495
Middle	55.4	18.2	14.3	0.8	2.7	8.5	100	241
Sec+	70.3	9.1	9.8	1.2	2.1	7.2	100	423
Total	34.1	12.5	15.0	2.1	13.4	22.4	100	4729

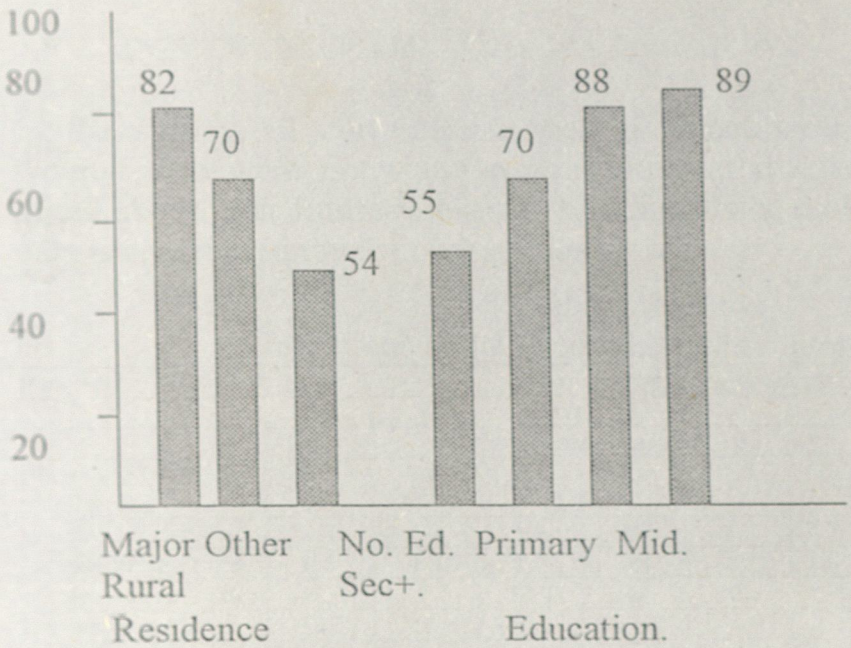
- Less than 0.05 percent.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The following figure represents the approval of the family planning among currently married women by residence and education.

Figure 3.5

Approval of Family Planning among Currently Married Women by Residence and Education



Note: Based on currently married non-sterilized women age 15-49 who know a method.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

It reveals that education of women is very important variable, which leads to the approval of family planning by both husband and wife. If a comparison is done, only 55% of uneducated women approved of family planning as compared with 89 percent of women with secondary education. It further indicates that as education increased approval of the family planning also increased.

The PDHS 1990-91 data also reveal information on exposure to family planning messages. In this respect only 21 per cent of ever-married women were exposed to a family planning messages on the radio or television. However, majorities of the women were in favour of mass media in communicating massages regarding family planning.

3.6 Intentions about Future Use of Contraceptive

In the survey all currently married pregnant women and non-pregnant women who were not using contraceptive at the time of interview were asked about their future intention regarding the use of family planning. The data is reported in the following Table 3.12.

Table 3.12
Intentions about Future Use of Contraception

Interview	Number of living children								total
	0	1	2	3	4	5	6	7+	
Never used contraceptive									
Intend use with in 12 months	0.3	3.6	6.4	6.6	7.5	9.3	9.9	13.8	7.1
Intends later	4.7	3.9	1.9	2.7	2.6	2.0	0.9	1.4	2.6
Intends-unsure time	0.3	1.3	1.0	0.9	1.5	0.4	0.4	0.7	0.8
Unsure as to intend	13.9	12.7	13.1	14.1	10.7	11.4	8.5	10.7	12.0
Do not intend to use	80.1	75.5	70.2	63.7	62.9	61.6	65.2	59.4	67.3
Previously used contraceptive									
Intend use with in 12 months	-	0.6	2.1	4.0	5.7	7.1	4.7	5.3	3.6
Intend use latter	-	0.6	0.9	3.1	1.4	1.8	1.2	1.2	1.3
Intend-unsure time	-	-	0.2	0.2	0.4	0.3	0.7	-	0.2
Unsure as to without	-	0.2	0.8	0.8	1.9	0.7	1.9	0.9	0.9
Unsure as to intent									
Do not intend to use	0.7	1.5	3.4	3.7	5.4	5.6	6.5	6.4	4.1
Total %	100	100	100	100	100	100	100	100	100
Currently married non-users									
Intend use with in 12 months	0.3	4.2	8.4	10.6	13.3	16.3	14.6	19.0	10.7
Intends use later	4.7	4.5	2.8	5.8	4.0	3.7	2.1	2.7	3.9
Intends-unsure time	0.3	1.3	1.2	1.1	1.9	0.7	1.1	0.7	1.1
Unsure as to intent	13.9	12.9	13.9	15.0	12.5	12.1	10.4	11.6	12.9
Do not intend to use	80.8	77.1	73.6	67.4	68.3	67.1	71.7	65.7	71.4
Total percent	100	100	100	100	100	100	100	100	100
No.	601	853	744	808	737	578	498	792	5610

- Less than 0.05%.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The table shows that seven out of 10 (71%) currently married non-user reported, they do not intend to use contraceptive in the future, While one of six (16%) said that they would use contraceptive in the future. Seven of ten of the intended users (69%) said they would use contraceptive within the next 12 months. The result of the table does not indicate a consistent trend by parity.

3.7 Reasons for non-use of contraception

However, the currently married women who do not intend to use contraceptive in the future, gave various reasons, which are shown in the Table 3.13.

Table 3.13
Reasons For Non Use of Contraception

	Age		
Reasons	15-29	30-49	Total
Wants children	64.0	24.6	42.7
Lack of knowledge	7.4	13.2	10.5
Husband opposed	5.4	7.3	6.4
Costs too much	0.3	0.8	0.6
Worry about side effects	2.1	3.3	2.8
Health concerns	0.5	2.4	1.5
Hard to get methods	0.5	1.1	0.8
Religion	9.9	16.0	13.2
Opposed to family planning	1.0	2.1	1.6
Fatalistic	2.5	3.7	3.1
Other people opposed	0.3	0.1	0.2
Infrequent sex	0.7	1.1	1.0
Difficult to get pregnant	1.8	11.9	7.3
Menopausal/had hysterectomy	-	8.3	4.5
Inconvenient	-	0.3	0.2
Others	1.5	2.3	1.9
Don't know	2.1	1.1	1.6
Total	100	100	
No.	1842	2162	

- Less than 0.05

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The result in table indicates that of those women, who are not currently using contraception, 71 per cent do not intend to use in the future. Their main reason cited are the desire for more children, particularly of younger women that is 43 percent. The next reason most commonly cited was religion, which came to 13 percent followed by the lack of knowledge, which was reported by 11 per cent.

3.7.1 Preferred Future Method

Among the women who reported their intentions of using contraception in the future, is shown in Table 3.14. The figures in the table show that one of six (17%) reported female sterilization as their preferred methods of contraception. A little less than half that is about 45 percent said they preferred to use modern spacing method like injections (16%), the pill (13%), condom (10 %) and the IUD (7%). A note worthy point here is that none of the respondents indicated male sterilization or vaginal methods as their preferred method. Overall, a sizable number of women did not know what method they would prefer to use. Which is a clear indication that method-specific knowledge needs to the spread and disseminated, so to help women to make informed choices about the use of various methods.

Table 3.14

Preferred Method of Contraception for Future Use

Preferred method of contraception	IN next 12 months	After 12 months	Total
Pill	14.5	12.0	13.0
IUD	8.7	3.6	6.8
Injection	17.5	14.6	15.7
Diaphragm/foam and Jelly	0.3	-	0.2
Condom	10.4	9.5	9.5
Female sterilisation	18.9	14.1	17.1
Periodic abstinence	2.4	1.9	2.1
Withdrawal	1.5	3.4	1.9
Other	7.9	5.2	7.6
Don't know/missing	17.9	35.7	15.9
Total	100	100	100
Number	602	217	878

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.8 Proximate Determinants of Fertility

If a complete analysis of the fertility/reproductive behavior is to be made, than factors related to exposure to the risk of pregnancy cannot be ignored. However, previous studies of the proximate determinants made by Karim, (1990) and Sathar (1984) have pinpointed towards age at marriage and duration of breastfeedings an inquiry into these determinants and their

pattern is important in examining the course of socio-demographic changes. The following Table 3.15 shows differentials, in the median age at marriage for various groups of women. Overall, for women age 25-49, the median age at marriage is 18.6 years. If we look at the data, it indicates that on the basis of provinces the median age is highest in NWFP and Punjab and substantially lower in Balochistan and Sindh. Finally it also indicates a positive association between the median age at marriage for women and their educational attainment, women with no education marry four year earlier, on average, than women with secondary or higher education.

Table 3.15

Median Age at first Marriage

	Current Age					
Background characteristics	25-29	39-34	35-39	40-44	45-49	25-49
Residence						
Total urban	19.9	19.1	18.7	9.2	18.3	19.1
Major city	20.1	19.4	18.5	18.8	18.5	19.2
Other urban	19.5	18.4	18.9	20.1	17.8	19.0
Rural	18.4	18.0	18.6	18.3	19.0	18.4
Province						
Punjab	19.4	18.5	19.0	18.9	19.0	19.0
Sindh	17.5	17.2	17.6	16.5	16.0	17.1
NWFP	19.5	18.6	19.0	18.9	20.8	19.3
Balochistan	16.8	17.7	18.3	18.2	21.9	17.7
Education level						
No Education	18.2	17.8	18.4	18.4	18.8	18.3
Primary	19.1	19.1	18.6	17.7	(16.9)	18.7
Middle	20.6	18.4	(17.9)	a	(19.6)	18.9
Sec+	22.9	23.3	21.5	21.6	(20.0)	22.5
Total	18.9	18.2	18.6	18.5	18.8	18.6

Figures in Parentheses or based on 25-49 unweighted cases.
[a]Based on fewer than 25 unweighted cases, median not shown.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

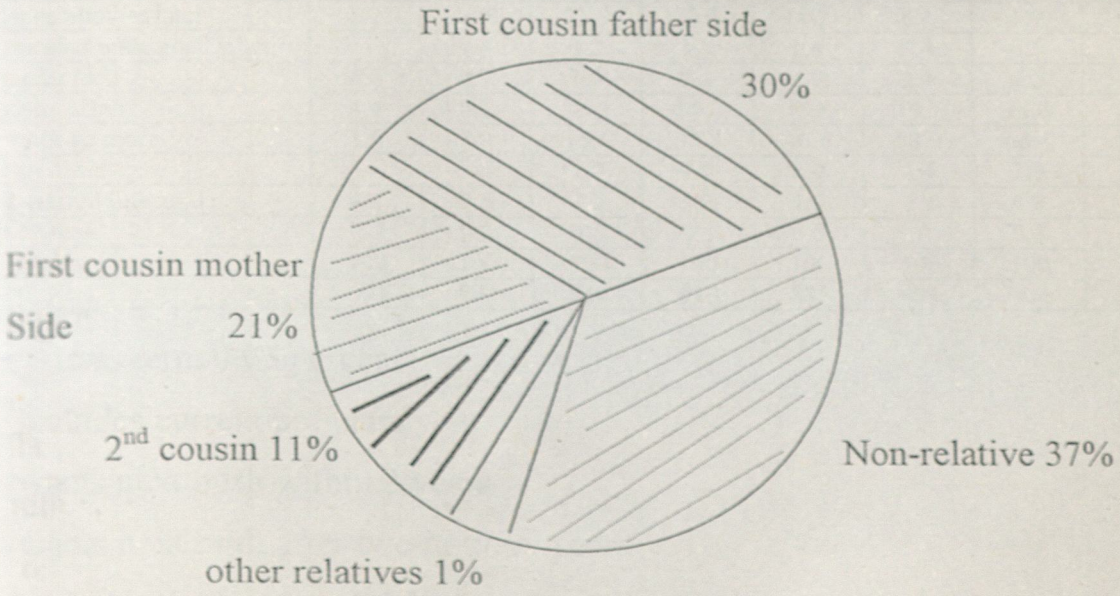
3.8.1 Marriage Between Relatives and Between Non-Relatives

In this context Bittles et al., (1992) found that union between close biological relatives in Pakistan were characterised, by higher fertility as well as higher mortality among the offspring of such marriages. However, such data have not previously been available for Pakistan at the national level.

The data in figure 3.6 reveals that most women are married to a close blood relative, half of them are married to their first cousin, and 11% are married to their 2nd cousin. Moreover, 37 percent married are not related to their spouse before marriage. The figure reveals that first cousin marriages occur more frequently on the fathers side (30%), but are also common on the mothers side (21%).

Figure 3.6

Marriage between Relatives and Between Non-Relatives



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.8.2 Desire for Children

The following Table 3.16 shows the potential need for contraceptive services for spacing as well as limiting births. The data reveals that 36 percent of women reported that they wanted no more children at all in the future. This indicates that there is a general awareness of the need to regulate the level of fertility and willingness to do so. An additional 18 percent said that they wanted to wait for two years before having another child. Thus there is a need of family planning sources.

Table 3.16

Fertility Preferences by Number of Living Children

	Number of Living Children[1]							
Desire for more children	0	1	2	3	4	5	6	7
Have another soon[2]	77.8	38.4	27.3	19.0	12.8	7.6	3.1	22.5
Have another later[3]	7.2	40.9	32.9	23.4	14.2	8.4	1.9	17.6
Another undecided when[4]	-	1.4	3.2	1.7	1.4	0.4	0.5	1.2
Undecided	4.6	4.7	1.0	2.3	1.7	2.4	0.5	2.3
Upto Allah	4.4	8.1	15.2	14.7	15.8	14.7	14.8	13.1
Want no more	1.6	3.8	15.6	33.8	46.6	58.9	66.4	36.4
Sterilized	-	-	1.0	1.9	5.0	4.4	7.8	3.6
Declared infecund	4.1	2.5	3.2	3.0	2.0	3.2	4.8	3.1
Missing	0.2	0.2	0.5	0.1	0.5	-	0.3	0.2
Total	100	100	100	100	100	100	100	100
No.	602	880	830	910	885	694	901	6364

- Less term 0.05 percent

[1]includes current pregnancy

[2]wants next birth within 2 years

[3]wants next birth after two or more years

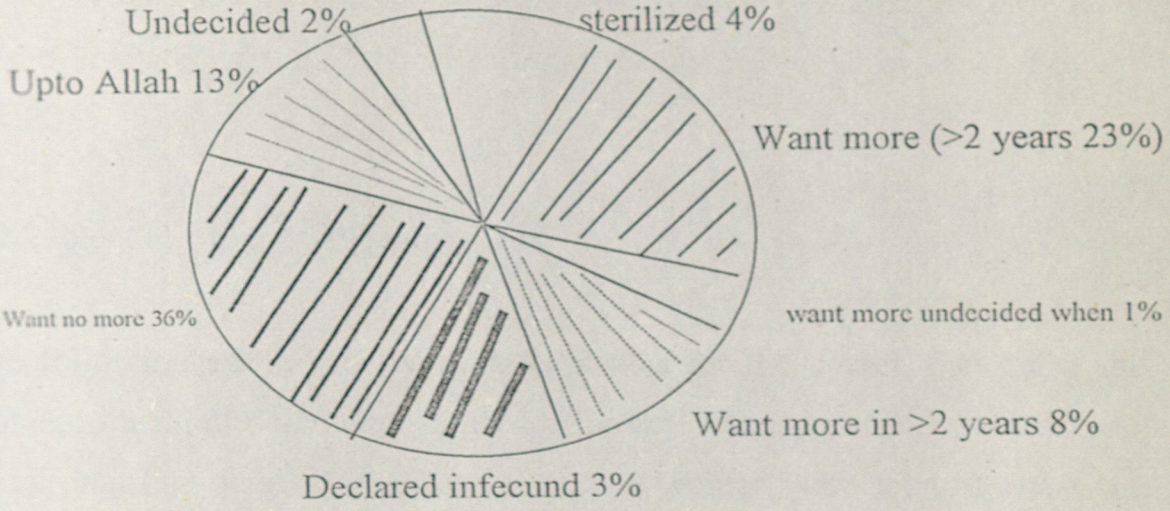
[4]includes timing upto Allah and other non-numeric responses

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The above table can be represented in the form of pie diagram so as to give a clear picture of use fertility preferences by number of living children.

Figure 3.7

Desire for Children



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

More over, among all childless women, 85 percent definitely want children and nine-tenths of the women desiring children wants a child with in 2 years. The desires to have another child falls sharply after having one child to 38 percent. The data of the survey further revealed that among the provinces, women in Punjab have the strongest preference to stop childbearing (44% wants no more children), followed by NWFP (37%) and Sindh (36%). The women living in Balochistan indicated the least potential demand for fertility control, since only 9% said they did not want more children. This is an indication towards the need for family planning.

Figure 3.7 shows that majority of women can be considered to be potentially in need for family planning services. Only 23% of women wanted another child within two years. Moreover, 13% indicated that the decision was "upto Allah". This analysis indicated a pattern of preferences similar to that found in the analysis of the 1984-85 Pakistan Contraceptive Prevalence Survey (PCPS).

3.9 Need for Family Planning.

The following Table 3.17 presents estimates for the unmet, met and total demand for family planning services by selected background characteristics. More than one-quarter of currently married women were found to have an unmet need for family planning services, while those who were practicing family planning methods 12% of currently married women were considered to have a met need for family planning. From this a conclusion can be drawn assuming that the responses/intentions of the women's are true, the contraceptive prevalence rate could be increased to 40% at all, if all women in need of family planning services actually used contraceptive. The unmet need for spacing of births was highest among younger women. Younger women were least likely to have their need for family planning services satisfied. Only 9 percent of currently married women age 15-19 had their demand for family planning services satisfied, compared to 40% of women aged 45-49.

Table 3.17

Need for Family Planning

Background characters Age	Total unmet need for F.P	Total met need for F.P	Total demand	%age demand satisfied	No. of women
15-19	24.7	2.6	27.3	9.4	418
20-24	24.5	6.3	30.8	20.5	1041
25-29	27.9	9.6	37.6	25.6	1452
30-34	28.9	13.4	42.3	31.6	1147
35-39	35.1	20.4	55.5	36.7	931
40-44	32.4	15.8	48.2	32.8	803
45-45	17.8	11.8	29.6	40.0	572
Residence					
Total urban	29.3	25.7	55.1	46.7	1930
Major city	28.5	31.0	59.5	52.1	1098
Other urban	30.5	18.8	49.3	38.2	832
Rural	27.5	5.8	33.3	17.4	4434
Province					
Punjab	30.5	13.0	43.5	29.9	3768
Sindh	23.9	12.4	36.3	34.2	1486
NWFP	29.6	8.6	38.1	22.5	856
Balochistan	11.4	2.0	13.3	14.9	254
Ed. Attended					
No Education	27.8	7.8	35.6	21.8	5044
Primary	30.1	17.8	47.8	37.2	573
Middle	30.8	29.5	60.3	48.9	279
Sec+	26.1	38.0	64.0	59.3	468
Total	28.0	11.8	39.9	29.7	6364

- Less than 0.05 percent.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The unmet need for family planning is nearly the same in urban and rural areas, but urban-rural differentials are quite pronounced for current use of contraception. Moreover, the table shows that more than half of the overall demand for family planning is satisfied in major cities compared to only 17 percent of demand in rural areas. In short only 12 percent of married women are currently using contraception, 28 percent have an unmet need for family services i.e. more than one in four currently married women has an unmet need for family planning.

3.10 Fertility Planning

The following Table 3.18 shows a comparison between the wanted fertility rate and the actual total fertility rate by background characteristics. The wanted total fertility rate was 4.7 children per woman for Pakistan as a whole, but it exceeded 5 in rural areas and in Balochistan. Education is strongly related to the wanted total fertility rate. The differences between the actual total fertility rate and the wanted total fertility rate were highest for the major cities, clearly implying the prevalence of substantial unwanted fertility in those areas.

Table 3.18

Wanted Fertility Rates

Background characteristics	Total wanted fertility rate	Total fertility Rate
Residence		
Total urban	3.8	4.9
Major city	3.3	4.7
Other urban	4.5	5.2
Rural	5.1	5.6
Province		
Punjab	4.8	5.4
Sindh	4.4	5.1
Karachi	3.6	5.0
NWFP	4.9	5.5
Balochistan	5.7	5.8
Ed. Attended		
1 No Education	5.1	5.7
Primary	3.8	4.9
Middle	3.4	4.5
Sec+	2.9	3.6
Total	4.7	5.4

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

Part II.

Husbands Survey

A systematic sub-sample of one of every three households in the women's survey was selected to collect and obtain information from the husbands of currently married women 15-49 years of age. The data collected are on demographic, social and economic background, family planning knowledge, attitudes and practice; and fertility preferences. In these cases, only those husbands who had spent the night before the interview in the same household as their wives were interviewed in the survey.

3.11 Background Characteristics

The following Table 3.19 presents the background characteristics of the husbands who were under 25 years of age. The data shows that very few husbands were under 25 years. About 17 percent of husbands were at the age of 50 years and above. As compared to this, there were no wives over age of 49 years.

The distribution of husbands by place and province of residence is similar to that of ever-married women. As far as education is concerned, husbands were better educated than the ever-married women. The occupation of husband conforms generally to the national pattern measured in the 1986-87 labour force survey. This shows a shift from agricultural to non-agricultural occupation in the period between the two surveys.

Table 3.19
Husbands Background Characteristics

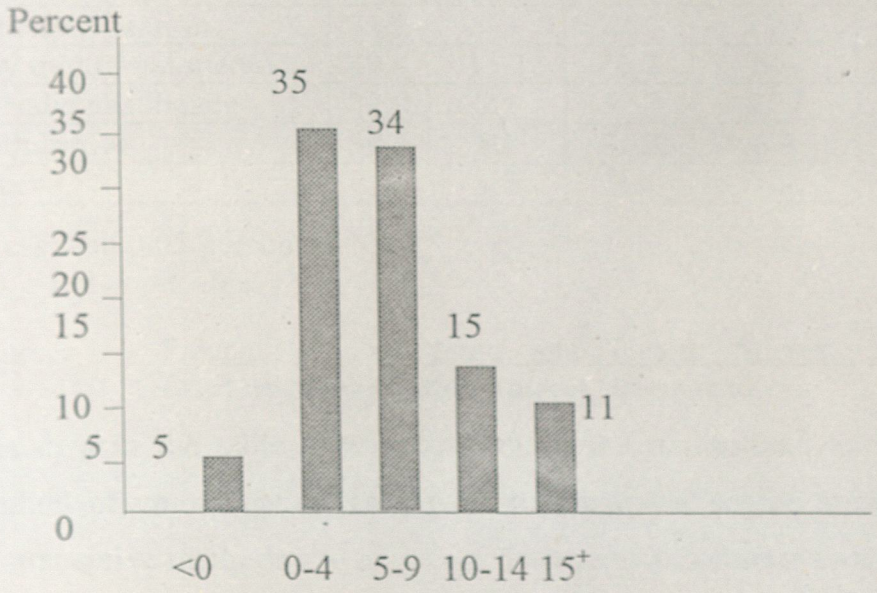
Background characteristics Age	Weighted percent	Weighted no. of husband	Unweighted number of husbands
< 20	06	8	7
20-24	7.4	100	94
25-29	16.0	216	209
30-34	18.2	246	217
35-39	16.4	223	234
40-44	12.9	175	184
45-45	11.4	154	162
50^{+}	17.2	233	247
Residence			
Total urban	31.9	432	696
Major city	18.4	250	380
Other urban	13.5	183	316
Rural	68.1	922	658
Province			
Punjab	59.2	801	461
Sindh	25.8	350	364
NWFP	11.2	151	313
Balochistan	3.8	52	216
Ed. Level Attended			
2 No Education	50.2	680	633
Primary	19.9	269	249
Middle	9.5	128	129
Sec+	20.4	276	343
Occupation			
Professional, tech.	5.3	72	101
Adm. Managerial	0.7	10	16
Clerical	4.2	56	79
Sales	13.4	181	235
Service	4.9	67	97
Agri-fishing	38.7	525	363
Prod. Transportation labor	28.9	39	402
Not classifiable	3.9	52	61
Total	100	1354	1354

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The figure shows the pattern of older men marrying younger women. The wife was older then husbands in 5 percent cases; however in the remaining 95% of the cases the husband was of the same age as his wife or older. In two-third of the cases, the husband was older than his wife by 5 years or more, and in over one-fourth of cases, the husband was 10 or more years older than his wife. More striking is the proportion of couples in which the husband was older than his wife by 15 or more years (11%). The mean difference in ages was nearly seven years in favour of males.

Figure 3.8

Age Differentials between the Husband and Wives are Shown in the Following Figure



Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.11.1 Knowledge and Use of Contraception

Knowledge and use of contraception can be shown in the following Table 3.20.

Table 3.20

Knowledge and Use of Contraception

Contraception method	Know Method					
	Total	Unprompted	Prompted	know source of method	ever used	Currently using
Any method	79.3	50.8	28.5	65.1	24.7	15.1
Any modern method	77.7	48.4	29.4	62.4	18.2	10.1
Pill	54.9	24.1	30.8	37.6	4.6	0.8
IUD	28.6	6.8	21.8	20.9	2.9	1.4
Injection	50.0	19.5	30.5	36.9	2.9	0.5
Vaginal method	12.6	3.2	9.5	10.4	0.4	-
Condom	58.8	32.3	26.4	50.1	12.1	3.6
Female sterilization	65.7	26.1	39.6	48.6	4.0	3.8
Male sterilization	31.7	9.3	22.4	22.7	0.1	-
Any traditional methods	49.4	13.2	36.2	NA	15.7	5.0
Periodic abstinence	38.9	7.1	31.7	27.7	11.7	3.2
Withdrawal	39.9	8.5	31.3	NA	8.3	1.7
Other	1.6	1.6	NA	NA	0.3	0.2

- Less than 0.05 percent
NA = not applicable

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

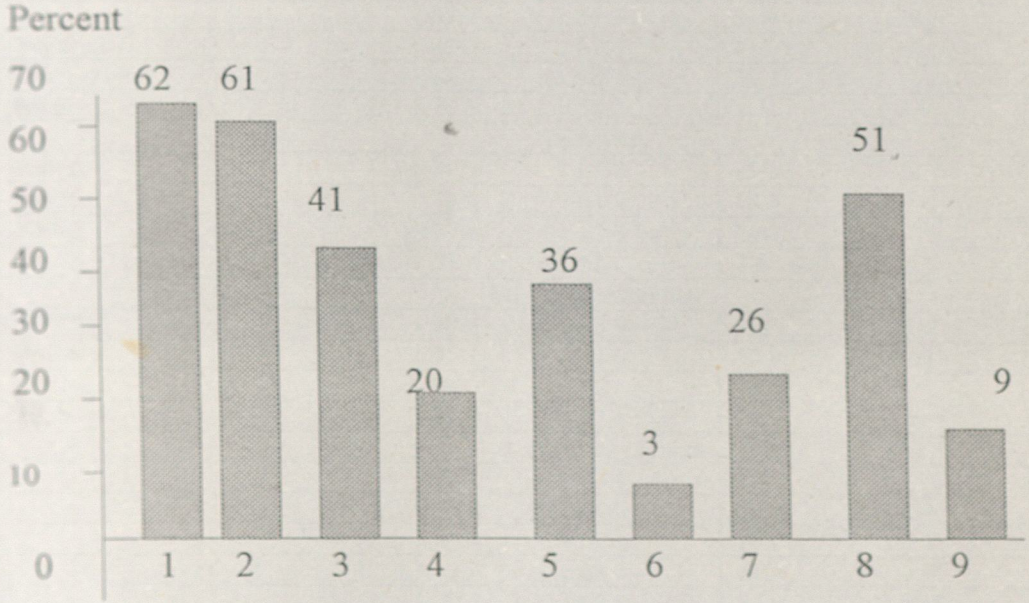
The data in the table reveals that four-fifths of husband knew of at least one method of contraception and two-thirds knew a source from which to obtain contraceptive methods and about one in seven were current users.

Knowledge of modern methods was highest for female sterilization (66%) followed by condom (59%) and Pill (55%). Of all the available methods, male sterilization was the least known method (32 percent). As far as the knowledge of a source for obtaining a method was very low, indicating the need for improving knowledge about family planning sources and proper streamlining the information and motivation of family planning programme.

As far as the comparison of contraceptive knowledge of husbands and wife's are concerned, it can be shown as follows in the figure 3.9. The figure shows that the proportion of couples in which both the husband and the wife had no knowledge of contraception was quite small (only 9%). For more than 60% of couples, both spouses knew one or more modern methods of family planning. The best-known methods for both husbands and wives were female sterilization, pill and injection respectively, while vaginal methods and male sterilization were least well known.

Figure 3.9

Percentage of Couples in Which Both the Husband and Wife Know Specific Contraceptive Methods.



1=Any methods 2= any Modern methods 3=Pill 4=IUD 5=injection 6=vaginal method 7=condom 8=female sterilization 9=male sterilization

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

The data of the survey further reveals that differences among provinces with respect to knowledge of contraception, as shown in Table 3.21 are negligible, while differences in knowledge of a source for a modern method, differences in ever use and current use of modern methods are more pronounced. Husbands in Punjab and Sindh had more knowledge of family planning sources as well as

higher ever use and current use than husbands in NWFP and Balochistan. Similarly knowledge of contraception is uniformly high, irrespective of the number of living children ranging from 71% for husbands who had no living children to 84% for those who had two living children.

Knowledge and use of Modern Contraceptives Methods are shown in Table 3.21.

Table 3.21
Knowledge and Use of Modern Contraceptive Methods

Background characteristics	know a modern method	know source of modern method	Ever used modern method	Currently using modern method	No. of husband
Residence					
Total urban	87.2	80.5	36.9	18.9	432
Major city	87.5	81.7	41.8	20.5	250
Other urban	86.7	78.9	30.1	16.6	183
Rural	73.3	54.0	9.4	5.9	922
Province					
Punjab	78.9	63.8	19.9	11.5	8.1
Sindh	75.4	64.9	18.3	9.1	350
NWFP	77.8	52.8	14.1	7.8	151
Balochistan	75.4	52.2	2.4	1.3	52
Ed. Level Attended					
No Education	68.6	45.9	9.8	5.4	680
Primary	75.1	64.0	12.9	6.9	269
Middle	94.6	82.7	31.6	19.0	128
Sec+	95.0	92.1	37.7	20.5	276
No. of living children					
0	71.2	43.4	2.4	-	159
1	76.7	64.8	5.6	2.4	164
2	84.2	67.1	20.9	9.3	122
3	79.3	68.1	21.3	6.9	176
4	80.9	67.0	21.9	14.2	239
5	73.1	61.6	30.0	12.7	149
6+	78.3	62.9	21.3	12.7	344
Fertility desires					
Want more children	77.4	58.9	10.1	4.0	581
Want no more children	83.0	73.5	27.5	12.4	393
Say wife can not get pregnant	(57.7)	(52.9)	(21.4)	(6.4)	43
Upto Allah	68.4	45.2	5.8	3.1	238
Undecided/don't know	77.5	(64.9)	(5.0)	(2.8)	43
Sterilized	100	(100)	100	(100)	52
Total	77	62.4	18.2	10.1	1354

- Less than 0.05 percent
Figures in parentheses are based on 25 to 49 un weighted cases.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

Regarding the source of contraception, except for those with no living children, the contraceptive knowledge of husbands varies with in a narrow range from 62% for those who had five living children to 68% for those who had three living children.

Among husbands who said they did not want any more children, 83% knew at least one modern method of contraception and 74% knew a source for obtaining contraception. Only 12%, however, reported that they were currently using a method. This wide gap suggests that the family planning needs of respondents are not being met. Moreover, husbands in Balochistan had very low levels of ever use and current use of contraception.

3.11.2 Prospective Users

The data in the following Table 3.22 shows that large majority of husbands did not intend to use contraception at any time in the future. The major reason given by 47 per cent of husbands was the desire for more children. However, there were differences in the reasons given for not intending to use contraception among younger and older men. For men under 30 years of age, the major reason was desire for more children, for men age 30 and above the reasons were more varied and perceived religious prohibitions on family planning were the basic reason given

Table 3.22

Reasons for Not Intending to Use Contraception

Reasons	Age < 30	30+	Total
Want children	80.9	35.3	46.8
Lack of knowledge	5.8	12.2	10.6
Wife opposed	-	0.6	0.5
Costs too much	-	1.5	1.1
Side effects	0.4	2.4	1.9
Health concerns	0.6	1.2	1.0
Hard to get methods	-	0.6	0.4
Religion	8.3	21.8	18.4
Opposed to family planning	0.6	2.0	1.6
Fatalistic	1.6	5.9	4.8
Infrequent sex	-	4.2	3.2
Hard for wife to get pregnant	0.8	5.8	4.6
Wife menopausal had hysterectomy	-	2.1	1.6
Inconvenient Other	-	0.2	0.2
don't know, missing	0.5	3.3	2.6
Other	0.5	1.0	0.8
Total	100	100	100
Number	213	633	846

- Less than 0.05 percent.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

About 15% of all husbands were not using contraception but intended to adopt family planning in the future. Three-fourths of these husbands wanted to start using contraception within the next 12 months, as revealed in the Table 3.22. The contraceptive method preferred by those who intended to use during the next 12 months were female sterilization (22%), condoms (21%) and injections (13%). Among those who intended to use contraception after more than one year 46 percent wanted to use either injections, condoms or female sterilization, but 41 percent did not know what method they preferred to use.

Table 3.23
Preferred Method of Contraception for Future Use.

Contraceptive method	in next 12 months	After 12 months	Total
Pill	9.0	3.9	7.7
IUD	1.2	-	0.9
Injection	12.5	17.4	13.7
Condom	20.8	15.3	19.4
Female sterilization	22.3	13.3	20.0
Periodic abstinence	12.3	-	9.2
Withdrawal	3.0	6.7	3.9
Other	4.8	2.3	4.2
Don't know	14.2	41.0	21.0
Total	100	100	100
Number	149	51	200

- Less than 0.05 percent

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.11.3 Approval of Family Planning

About 56 percent of the husbands approved the family planning. More over, the data shows that wives have a more favourable attitude towards family planning than their husbands. Similarly, 64 percent of husbands reported that it was acceptable to have such messages broadcast on radio and television. As for as provinces are concerned, the acceptability was highest in Punjab (68%) and in NWFP it was acceptable to only 47 percent.

3.11.4 Fertility Desires and Sex Preference for Children

The Table 3.24 reveals that 21 percent of husbands wanted another child soon (within two years). While the largest proportion of husbands that is, about 29 percent did not want any more children at all. The percentage of husbands who

want no more children is much larger than the 15% of husbands who reported current use of contraception. If those who wanted to postpone having another child were combined with those who did not want any more, the sum would constitute about half of all husband. This is clearly indicative that there is ample need for family planning, but that motivational programmes and services delivery is not keeping pace with the need.

Table 3.24

Reproductive Intentions

		Number of Children[1]							
Desire for more children	0	1	2	3	4	5	6	7+	total[2]
Want another soon[3]	67.4	41.5	27.9	19.3	14.2	8.5	8.8	4.1	21.4
Want another later[4]	16.5	40.1	35.4	30.5	16.4	12.2	8.5	4.9	19.8
Want another, when[5]									
Undecided	2.9	1.2	2.0	1.5	3.9	0.1	1.8	0.3	1.6
Undecided	-	0.1	2.9	3.3	3.0	2.4	8.9	4.7	3.2
Upto Allah	8.4	14.8	15.0	19.1	26.5	16.5	17.4	17.6	17.6
Want no more	-	1.3	15.9	23.3	28.0	48.9	42.5	54.9	29.0
Sterilized	-	-	0.8	0.4	3.2	7.5	7.3	8.9	3.8
Declared infecund	4.4	1.0	-	2.3	4.4	3.4	4.4	4.6	3.2
Missing	0.5	-	-	0.2	0.5	0.5	0.3	-	0.3
Total	100	100	100	100	100	100	100	100	100
Number	120	170	133	172	216	182	138	221	1354

- Less term 0.05 percent

[1]includes current pregnancy

[2]two husband whose nimbler of living children is unknown

[3]wants next birth with in 2 years

[4]wants next birth after two or more years

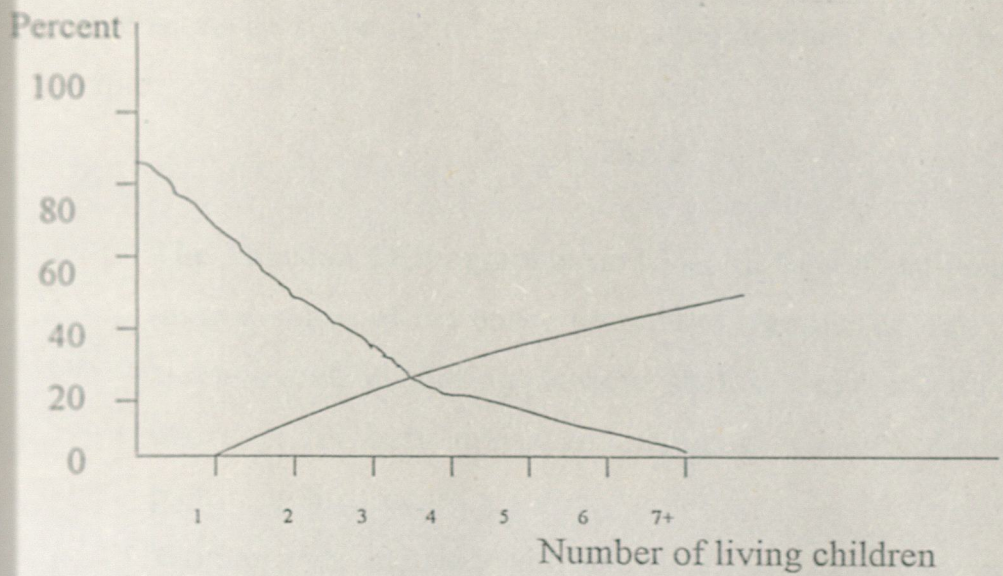
[5]includes timing upto Allah and no anther non-numeric responses

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

As far as the desire for more children by both husband and wives are concerned, it is shown graphically as follows.

Figure 3.10

Desire for More Children among Husbands and Wives by Number of Living Children



- Both want more

__ Both want no more.

Note: number of living children includes current pregnancy.

The graph shows the desire of couples for more children decreases as the number of children increases.

Source: Pakistan Demographic and Health Survey 1990-91. National Institute of Population Studies, Islamabad.

3.12 Summary and Conclusions

This section of the chapter presents summary and conclusions of both eligible women of the survey in Part I, while Part II give the summary and conclusions of husbands of eligible women as stated in the beginning of the chapter.

Part I

i. The Pakistan Demographic and Health Survey collected data on the marital status of the entire household member consist of age 15 years and above. Considering previous such surveys, and the universality of marriage for both males and females, the data shows a consistent picture in this regard.

ii. Women ever married with age of 15-49 years were interviewed. As regards the age distribution and considering four basic sources (i.e. PDHS, 1990-91, PCPS, 1984-85, Population census 1981, and PFS, 1975), majority of the women was in the age group of 20-34 with largest number in 25-29. The relatively low proportion of currently married women (age 15-24 years) shows that average age of marriage in Pakistan has been rising with time. About 80% of women never attended the school, while 70% of the women were rural residents and 77% never worked.

iii. Differentials in fertility by type of place and residence showed that urban areas have lower fertility rates than rural areas. Fertility rates in urban and rural areas were very similar during the prime childbearing years, that it ages 20 to 34. Differences in urban and rural fertility levels are striking in the youngest and oldest age group. Overall, at

current fertility rates, the average women living a large city can be expected to have nearly one child less than her rural counterpart (4.7 children compared to 5.6 children).

iv. For all women, the total fertility rate is exactly one child less than the mean number of children ever born, indicating a decrease in fertility.

v. Cumulative fertility for currently married women has shown a decline over time in all age groups except age (15-19 years). As far as the birth interval is concerned, the median interval since the previous birth is 29 months.

vi. Early childbearing is particularly characteristic of rural women and women who have not attended school. In this respect, a woman living in Balochistan has shown some signs of early childbearing as compared to other provinces. The findings suggest that the recent increase in the average age at first marriage in Pakistan has had a dampening effect on early childbearing and large majority of women to delay childbearing at-least until they have completed their teenage years.

vii. Almost four-fifths of ever married and currently married women reported knowledge of at-least one method. Of all currently married women 20 to 30% knew where they can obtain the contraception, while only 9% know where to get advice on how to use the method.

viii. The major difference in contraceptive knowledge by education is between women with no education and those who have at least some education, while the relative level of contraceptive knowledge of working and non-working women does not show any clear pattern.

ix. Regarding the current use of contraception it was reported that 12% of currently married women reported that they were using some method

to delay pregnancy. The most widely used methods was female sterilization (4%) followed by the condom (3%) and the IUD (1%). Only less than 1% were using either Pills or injection (a recently introduced method).

x. Contraceptive use among married, non-pregnant women has almost tripled in 15 years, from 5% in 1975 to 9% in 1984-85 and 14% in 1990-91. In particular, female sterilization has gain importance over the last two decades.

xi. The urban-rural differential holds for each method. However, it should be noted that in both rural and urban areas, current use of any method has increased since the 1984-85 PCPS, which showed a rate of 16% for urban and 5% for rural areas. In terms of provincial variation, the women living in Balochistan reported the lowest level of current use. However, a strong positive relationship exists between education and the level of current use and between the number of living children and current use.

xii. As far as the supply of contraceptive is concerned, government supplied over half of all the modern methods. While a mix of public versus private sources varied according to the method used and for specific sources. Family Welfare Centers were the main institutional structure through which contraceptives are provided

xiii. There appears to be a considerable amount of consensus between husband and wives about family planning. One-third of female respondents repeated that both they and their husbands approved of family planning and 22 percent said they both disapproved. Only 15 percent of women reported an opposite opinion to that of their

husbands, and in such cases, the husband was usually reported to have a less favorable attitude towards family planning.

xiv. The proportion of women who intend to use, does not indicate a consistent trend by parity, although women with three or fewer children are less likely to express their intention to use family planning in the future, while three-quarters reported that they did not intend to use in the future. In contrast, a majority of those who used in the past intended to use contraceptive again in the future.

xv. The reason cited for the non-use was the desire for more children by 43 percent of currently married women. A significant proportion of older women reported their actual or perceived sterility as the main reason for not intending to use contraception in the future.

xvi. Among the women reported for intending to use contraception, 17 percent reported female sterilization as their most preferred method. None of them indicated male sterilization or vaginal methods as their preferred method.

xvii. Among Pakistan's four provinces, the median age is the highest in NWFP and Punjab. A positive association between the median age for women and their educational attainment. Women with no education marry four-year earlier, on average, than women with secondary or higher education.

xviii. Most of the women are married to their close blood relatives, half of them are married to their first cousin.

xix. The proportion of women who do not want more children was strongly associated with the number of living children. About 52 percent of women at parity four and almost three-quarters of women (71%) at parity six want to stop child bearing.

xx. More than one-quarter of currently married woman were found to have an unmet need for family planning services, while 12% of currently married women who are practicing family planning methods have a met need for family planning. These results if considered as true intentions of women, the contraceptive prevalence rate could be increased to 40% if all women in need of family planning services actually used contraception. Presently, less than one-third of the stated need is being met.

xxi. Over all, the wanted total fertility rate was 0.7 children or 12 percent lower than the actual total fertility rate. This difference was highest for the major cities, implying the prevalence of substantial unwanted fertility areas.

Part II.

i. The data reveals that very few husbands were under 25 years of age, 17 percent were at the age of 50 years and above. While no wives were over age of 49 years.

ii. Husbands were found to be better educated than their wives.

iii. About four-fifths of husbands knew of at least one method of contraception. Knowledge of modern methods was highest for female sterilization i.e. about 66 percent. However, need for improving knowledge about family planning sources was the least. Of all the methods, male sterilization was the least known method

iv. Husbands in Punjab and Sindh had more knowledge of family planning sources as well as higher ever-use and current use levels then husbands in NWFP and Balochistan. Regarding the source of contraception, except for those with no living children, the contraceptive knowledge of husbands varies with a narrow range for those having five living children and those who had three living children.

v. A large majority of husbands did not intend to use contraception at any time in the future, by giving a major reason of having desire for more children. Furthermore under the age of 30, the over ridding reason was the desire for more children and for the men age 30 and over, the reasons were varied and perceived, religious prohibitions on family planning were a major consideration.

vi. Those husbands wanting to start-using contraception within the next 12 months, the most preferred methods was female sterilization (22%) condom (21%) and injection (13%). None of the husbands mentioned, male sterilization as their preferred method.

vii. Those intended to use contraception after more than one year (46%) wanted to use either injections, condoms or female sterilisation, but 41% did not know what method they preferred to used.

viii. Majority of the husbands (i.e. 56%) approves of family planning.

ix. About the fertility desires and sex preference for children, the results suggested that there is an ample need for family planning, but that motivational programmes and service delivery are not keeping pace with the need.

x. The result shows that the desire of couples for more children decreases as the number of children increases.

3.13 Some General Considerations

Although fertility levels in Pakistan remain high, they have declined in recent years because of a rapid rise in the age at marriage and a modest increase in the use of family planning methods. It is reported that at present 12 percent of currently married women use a contraceptive method. This shows a three-fold increase in 15 years preceding the survey. It has not yet closed the gap between contraceptive use and the need for family planning. As far as the unmet need for family planning services are concerned, it is reported that one in four Pakistani women has faced this problem, either to space the next birth or to stop child bearing. Most of the women know of at least one modern contraceptive method and approve the use of family planning. The urban residences (women) are more likely to use the methods of contraceptive and put the knowledge to use. Women living in major cities are twice as likely as rural women to know a source of supply of modern

contraceptives and five times as likely to be current users. Differences of the same magnitude exist between women who have attended secondary school and women with no formal education.

Husbands report level of contraceptive knowledge and use is similar to those of their wives. While 56 percent of men approve of family planning, women are more likely to favor family planning than are their husbands. Since in Pakistan family is male dominated in decision making, efforts to educate and motivate husbands about family planning and to promote communication between spouses should be increased.

This result indicates clearly that as the level of education increases, knowledge about family planning increases, contraceptive practice increases and fertility level decreases. It is also revealed that illiterate women have more children ever born than literate women. It is therefore, recommended that special counselling should be provided to women who have low education and those who are illiterate.

Chapter IV

Analysis of the Covariates Affecting the Fertility Behaviour of A Pakistani Woman

4.1 Introduction

The literature review of chapter two introduced and provided a basis for the methods to be used for the analysis of the covariates of the fertility behaviour, in the present study. In this chapter methods used to test the hypotheses and its results will be discussed and reviewed.

Regression Analysis will be used to determine the effects of different socio-economic, Knowledge, Aptitude and Practice (KAP), and demographic factors on the cumulative fertility level of women. This will help us in identifying the factors important in affecting the fertility behaviour of a woman and its interrelationship amongst itself and on the dependent variable, i.e. fertility level.

The information as discussed in chapter 1 of the present study was collected for 6611 ever-married women and 1354 husbands of these women at Pakistan level or simply from the four provinces of the country.

In this chapter, the nature and application of regression analysis applied to different models will be discussed. These results will be supplemented by graphic and diagrammatic representation along with some cross-tabulation and analysis of variance. This will be followed by discussion on functional forms. Finally, a summary and some general consideration is presented.

4.2 Regression Analysis

Various methods could be used to determine the relationship between economic variables. Regression analysis is one of these methods and is extensively used in population studies, economics and outdoor recreation research. With the help of this, not only the relationship but also the extent of the relationship can be estimated quantitatively.

Situations where many factors operate require a multivariate analysis to assess the simultaneous effects of all the relevant factors. Regression analysis can be used to estimate the numerical estimates of economic relationship to test economic theory and any set of hypotheses. The technique of simple regression and correlation in, a study of 83 countries was also used by Bongaarts (1984). The same author used the same technique for an another study of 74 countries (1987). Similarly this regression technique was used by Mauldin and Segal (1988) for the study of the data of 86 countries of the world. In an another article by Westaff (1990) used the technique of simple regression for the data of 134 national surveys of 84 countries. The study made by Weinberger (1991) also used the same technique. These are the few examples of studies undertaken by using the simple regression technique. The worth mentoring point in all these studies is that the main focus is on the Contraceptive Prevalence Rate (CPR) as a major determinant of Total Fertility Rate (TFR).

However, like any other method, regression analysis is not free from problems like specification, identification and the quantification of data. The

problem of quantification can sometimes be over-come by using dummy or proxy variables. These problems may not be serious because the estimated equations (models) are just the necessary approximation to the reality. The present analysis of women using various methods was carried out in different stages. In all the cases children even born (TFR) was taken as the dependent variable, which was related to socio-economic, socio-demographic, Knowledge, Aptitude and Practice (KAP), and the variables classified as direct, (Intermediate fertility variables) and Indirect fertility variables (i.e. characteristics of eligible women and household and household head). The method helped in determining which independent variables were related to the dependent variable and also at what level of statistical significance. These analysis will help (a) to show whether and how Total Fertility Rate (TFR) is affected by these characteristics, (b) to show what variation in Total Fertility Rate (TFR) might be expected, and (c) to test the validity of responses. A brief review of the nature of regression analysis is presented in the following section.

4.3 The Nature of Regression Analysis

The economic relationship between two variables is called a simple correlation. When more than two variables are correlated, then the relationship is called multiple correlation. In economic studies a researcher is often interested in estimating the coefficients of the relationship between the dependent and more than one independent variable.

The general relationship between the dependent and independent variables in linear form can be expressed algebraically as follows:

$Y_i = b_0 + b_1x_1 + b_2x_2 +----------+ b_kx_{ki}+ u_i$

Where

y_i = Dependent variable (or regressand)

b_0 = intercept term (to be estimated)

b_1--------b_k = coefficients to be estimated

x_1 ------- x_k = independent variables (or regressors)

u_i = disturbance term.

The basic idea in multiple regressions is to use observations on Y and each of the x's to gain information about the k + 1 coefficients b_0 , b_1 -------b_k. This information is represented by point estimates or confidence interval and is used for hypothesis testing or predication of Y for given values of the x's.

After the coefficients are estimated, their statistical significance must be tested. For judging their significance different test such as "t" and "F" are used. These tests are important in the sense that it indicates which variables are significant in influencing the dependent variable. The explanatory power of the equation can be judged by using the coefficient of multiple determination denoted by R^2. It shows the percentage of total variations in the dependent variable, Y explained by the changes in the independent variables, x's (Koutsoyiannis 1977). The difficulty with R^2as a measure of goodness of fit is that R^2 pertains to explained and unexplained variation in dependent variable (Y) and therefore does not take into account for the number of degrees of freedom in the problem. A natural solution is to concern oneself

with variances, and not variables, thus eliminating the dependence of goodness of fit on the number of independent variables in the model (Pindyck and Rubinfeld 1976). This can be done by the use of adjusted coefficients of multiple determination (R^{-2}) which accounts for the degrees of freedom, and can be used for measuring of the explanatory power of the model. It can be used in choosing between the alternative equations provided the equation has an intercept term, the same dependent variable and the same number of independent variables (regressors). The use of R^{-2} is important in studies where several models are to be estimated and where discussion on the omission and inclusion is to be made. It can also be helpful in choosing between the models, if the above mentioned conditions hold. In addition, F-test will be used to test for the significance of a model as a whole.

In the present study regression analysis will be used by two methods. One method to be used is termed as 'Enter' method. In this method all the variables, which are considered, is given in the model and analysis is done. The other method used Regression models with a 'mix' of variables so as to isolate the significant variables that influence the dependent variables.

The first step in regression analysis is the specification of a model in a mathematical form expressing the relationship between the variables. This specified model will be tested and results presented in this chapter.

4.4 The Model to be Estimated

For the purpose of analysis different models were used. Socio-Economic model was used to examine the effects of the selected variables on the

contraceptive use as reported by the married women. Another model was formulated by considering Knowledge, Aptitude and Practice (KAP) factors that effect fertility, and which are assumed to effect potentially the use of contraceptives/fertility. To investigate further, demographic variables that have a strong bearing on the fertility behaviour of a woman were taken into consideration. This was done to investigate the effects of demographic variables on the fertility of a woman. For the purpose of a detailed comparison and investigation, the variable expected to have an effect on the fertility level/behaviour, were divided into direct and indirect determinants and models were constructed and tested in different steps, by dividing direct variables into two subsets and same procedure was applied in the case of indirect variables. These models were little different from the other model in a sense that in these models characteristics of the household head and household were also added.

Some of the variables, which were considered to influence the fertility behaviour of a woman are now defined and discussed.

Dependent Variable

Children Ever Born

The number of children born to a woman is a measure of her fertility behaviour. Thus then to investigate the relationship of the fertility to the other variables, children even born is considered and used as a dependent variable in all models. Different models were constructed having different or a 'mix' of variables and were analysed.

Y_1 = Socio-Economic model

Y_2 = Demographic Model or Socio-Demographic model

Y_3 = Knowledge, Aptitude and Practice model (KAP)

Independent Variables

(i) Inter Personal Communication

Inter personal communication is said to be generally associated with a small family size, resulting an increase in the use of contraception. It is generally assumed that if couples can discuss their desires and liking for children with each other, a smaller family size will take place. But in a society like our, it is not so, for the reason of modesty, privacy and considering women as a subordinate or of lower status as compared to man. Hence it is a major factor constraining contraceptive use. Thus using the available information on this aspect and empirically testing it would be of special importance for the demographic transition of Pakistan. Thus on the basis of the above reasoning if spousal communication is increased about family sizes it will have a direct effect on the use of contraception. In other worlds, there is a negative relationship between the spousal communication and family planning methods and fertility.

(ii) Number of Living Sons

Pakistan is one of the few countries where son preference is still a predominant factor influencing the use of contraception and hence effecting

the fertility and family size. It is assumed that higher the number of living sons lower will be the fertility level other things remaining the same, hence a negative relationship.

(iii) Children Alive

In Pakistan, there is a desire for big families. As it is a predominantly an agricultural country, with low education and literacy level, there is a norm for big families. Under these conditions, other things remaining the same there is an indirect relationship between the number of children alive, the fertility behaviour and the use of contraception.

(iv) Ideal Family Size

This variable has a direct and positive effect on the fertility behaviour of a family. It clearly signifies that once the family size is completed which the couple thinks to be an ideal for them, then they may resort to contraception and hence lower or affect the fertility, other things remaining the same.

(v) Education

Education, particularly female education is expected to be strongly correlated with fertility. It directly affects the supply and demand for children and hence the regulatory costs of fertility. It is suggested that the impact of education on fertility is negative, that is, higher education means lower fertility, other things remaining the same.

While on the other hand male education may have a positive affect on fertility. This may be because of better ability to afford children. Higher education may mean better jobs and hence better salaries as a result, ability to support more children. Nevertheless, the relationship may be negative mainly due to the delay in marriages and more emphasis on the quality rather then the quantity of children.

(vi) Residence

Residence in this study is taken as a place of residence that is urban or rural. If we consider urbanisation than the expected relationship may be negative, because of the cost of raising children, and considering quality rather than the quantity of the children. While on the other hand if the place of residence is considered as a rural area, with low education and literacy level, the relationship may be positive, as to the environment in which they are living or the area surrounding them with minimal costs. However, in view of such problems about the residence, the variable may be significant, and no a priori reasoning can be made about the relationship and hence the expected sign.

(vii) Contraceptive Use and Source

As far as this variable is concerned, a strong direct negative relationship is expected with the fertility behaviour, this is due to the fact that family planning programmes are very powerful instrument in reducing the fertility

and hence an important variable to be included in the present study. However, the same argument applies for the variable current users.

(viii) Respondents Knowledge About Family Planning

This variable has an important impact on the fertility behaviour of a family. If couples have a proper knowledge about the family planning and its use, it will have a positive effect. Once the desired family size is completed, the knowledge of family planning can play an effective role in regulating the fertility behaviour of the family. Similarly regarding attitude towards family planning it directly depends on education, place of residence. A better educated preferably with higher education may have a better attitude towards family planning programme as compared to a person with no or little education. Similar reasoning can be applied for the place of residence. Under these conditions and problems the variable may be significant and no a-priori reasoning can be made about the relationship and hence the expected sign.

(ix) Husbands Attitude

As in Pakistan the society is male dominated, therefore, this variable is of great significance. The expected relationship of this variable with the fertility does depend on many other variables. But however a negative sign and relationship is expected.

(x) Age at Marriage

Age at marriage of either partner, especially of female are expected to be positively related to the desire for no additional children, because, the desire to stop childbearing increase with age and attainment of a certain family size.

(xi) Female Autonomy

A positive relationship between female autonomy and the dependent variable is hypothesized because women who can move outside alone are likely to be more independent and are expected to have a lower demand for children.

(xii) Number of Rooms and Type of Household

While they are not so intimately related to fertility as the attributes of eligible women, these variables may be critical determinants of household socio-economic status. No a priori reasoning can be made about the relationship and hence the expected signs.

(xiii) Religion or Religious Beliefs

In Pakistan, it is argued that religious beliefs are not in favor of the practice of family planning and contributes to a lack of self-efficacy in limiting family size. Moreover, most of the people do consider that the family size is or the fertility control depends on fate, then, under these conditions, the use of family planning or control of fertility is meaningless. In the light of the above problems, a negative a priori sign is expected.

In summary then, the previous a priori reasoning indicates that the signs of the coefficients are as follows.

Age at Marriage > 0

Children alive <0

Number of living sons >0

Ideal family size >0

Education of women <0

Education of husband >0

<0 education as whole

Respondents knowledge about family planning >0

Attitudes towards family planning >or< 0

Husbands Attitude <0

Current Users <0

Contraceptive use and source <0

Number of rooms and Type of Household > or < 0

Interpersonal Communications between husband and wife <0

Female autonomy >0

Religion or Religious Beliefs <0

4.4.1 The Statistical Models

From the information discussed above, the general models can be specified as follows:

(i) Children Ever Born = f (Age of the respondent, Number of living children, Place of residence, knowledge of any Method, Communication between Husband and wife about family planning)

(ii) Children Ever Born = f (Age of the respondent, Number of living children, highest education level, place of residence).

(iii) Children Ever Born = f (Age of the respondent, Communication between husband and wife about family planning, son preference, family planning service).

(iv) Children Ever Born = f (Age of the respondent, number of living children, son preference, Highest level of Education, Place of residence).

(v) Children Ever Born = f (Reasons for not using family planning, Husband level of education, number of living boys, communication between husband and wife about family planning, Place of residence).

(vi) Children Ever Born = f (Current age of the respondent, number of living boys, preference for son, Highest education level, Place of residence).

(vii) Children Ever Born = f (Age of the respondent, number of living children, Highest educational level, Place of residence, Region of residence).

These seven different models were used for analysis by using the method 'enter'. All these models include factors, which are related to socio-economic, demographic variables and factors associated with the family planning practice (KAP Variables). Similarly models were formulated and analysed by using 'mix' of variables so as to isolate the effect of variables on the dependent variable. In these models again socio-economic, demographic and variables related to knowledge, Aptitude and Practice of family planning were used. These models can be written as:

(i) Children Ever Born = f (Age at marriage, sons preference, Ideal Family Size, Number of living children).

(ii) Children Ever Born = f (Age at marriage, currently using any method, place of residence, Highest educational level, Number of living children).

(iii) Children Ever Born = f (Age at marriage, Currently using any Method, number of living boys).

(iv) Children Ever Born = f (highest education level, place of residence, currently using any method, communication between Husband and wife about family planning).

(v) Children Ever Born = f (Highest Educational level, place of residence, sons preference, Communication between husband and wife about family planning, number of living boys).

(vi) Children Ever Born = f (Highest educational level, Age at marriage, Husbands level of Education, number of rooms in the house, main material of outer walls, main material of roof).

(vii) Children Ever Born = f (Current age of respondent, Husbands level of education, number of rooms in the house, main material of outer walls, main material of roof).

At this stage seven different models were constructed and tested. In these models as in generally said, intermediate fertility variables, like age at marriage, contraceptive use, education and place of residence etc. were considered. At the next stage another important variable (contraception) that is currently using any method was included and model was tested. Next indirect fertility variables, like sons preference, residence, spousal

communication etc. were included. However, it is also considered that characteristics of household, and household head, also have an effect on the fertility behaviour of the women, and hence, these variables were also taken into consideration and models tested.

These models can be written as a general regression model of the form:

$Y_1 = b_0$, b_1 educational level, b_2 husbands attitudes towards family planning, b_3 currently using any method, b_4 Age of the respondent, b_5 Age at marriage, b_6 sons preference, b_7 number of living children.

The above equation is an example in form of which all other models can be written. In other models the main difference is just of the variable included in it.

For written convenience the disturbance term U can be omitted and the structural parameters (b's) can be replaced by b^'s.

4.5 Functional Forms

In estimating the general form of equation, economic theory does not always explicitly indicate the precise mathematical form of the relationship (Koutsoyiannis 1976). In an early application of the Box-Cox transformation, Zarembka (1968) noted that economic theory may provide little guidance on the appropriate functional form of demand equation. Sinden (1974) made a similar observation in special reference to recreation. McConnell (1975)

noted that demand theory does not require a specific functional form to allow the cross partial derivatives of quantity with respect to price and income to be non zero. Ziemer et al., (1980) argue that the choice of functional form for demand equations (like linear, quadratic and log-log) can have a significant effect on consumers surplus value derived from the equation. They suggest that consideration should be given to functional form as well as to the choice of regressors, when specifying the recreational demand equation.

Linear models have principally been used, although quadratic models (involving squares of the independent variables), semi-log (involving the natural logarithm of some variables) and log-log models have been considered. In the present study, linear specification has been employed for computational and analytical ease and because of no strong a priori beliefs that any variables should be non-linear. Linear specifications have been used by (Hashimi 1994, Bongaarts 1987 and Westaff 1990).

Arithmetic models were used by Burt and Brewer (1971). They applied them to water oriented out door recreation.

The equations to be estimated become

$Y_1 = \hat{b}_0 + \hat{b}_1$ educational level $+ \hat{b}_2$ husband attitudes towards family planning $+ \hat{b}_3$ currently using any method $+ \hat{b}_4$ Age of the respondent $+ \hat{b}_5$ Age at marriage $+ \hat{b}_6$ sons preference $+ \hat{b}_7$ number of living children.

The ordinary least square technique can be applied to estimate the parameters (b_{is}) of the equation to obtain the numerical estimates.

Along with these estimates through the regression analysis correlation matrix will also be obtained. Correlation analysis will help us in obtaining a measure of the degree of association or correlation that exists between the two variables, while in studding the relationship between two variables, it is advisable as a first step to plot the data on a graph. This allows visual examination of the extent to which the variables are related and helps in choosing the type of model that would by appropriate for estimation (Hamburg 1970).

4.6 Graphs, Diagrams and Summary Statistics

Graphs and diagrams are often useful for presenting the salient features of a set of statistical data as contrasted with statistical tables, which shows more specific details. Although the field of statistical graphics presents a powerful system of visual communication, it has been burdened for many decades with a substantial number of questionable practices and unresolved problems, which have led to confusion and unresolved problems. However, it is generally said that providing the chart is accurate, relatively simple, easily interpretable, forceful, convincing, revealing and attractive, the proverb is relevant and meaningful when applied to statistical charts. "One picture can be worth a thousand words or figures" (Schmid 1983).

There are numerous advantages of well-designed statistical charts. First they communicate quickly and directly, second, they provide complete and

coherent message, third they are more convincing, revealing and make the data more inviting and provocative.

4.6.1 Two Primary Functions of Statistical Charts

The two major functions that a statistical chart provides are that of presentation and analysis. Thus when statistical charts are used for analysis and presentation, they serve as essential media of visual communication. Hence the role of communication is more important when the function of a chart is primarily that of presentation. In the present study charts and diagrams are used mainly for the purpose of illustration, description elucidating, interpreting, and transmitting information. Traditionally, it is the presentation aspect of statistical graphics, which has played a dominant role. To cite few examples as quoted by Schmid (1983) are (Fitz Patrick 1962, Brinton 1914, Fienberg 1979).

In order to have a more exact description of the main characteristics of the graphs and diagrams, analytical measures are computed in the present study. These measures describe such characteristics, as the central tendency, dispersion, skewness and ranges of data. They are often referred to as summary statistics, which is itself a summarization of the set of original data.

4.6.2 Nature of Summary Statistics

As discussed that in the present study along with graphs and diagram summary statistics will be calculated.

Averages are the measures used to describe the characteristics of central tendency or location of the data. Averages attempt to convey in summary form the "middle property" of a set of data. While dispersion refer to the spread or variability in a set of data. Dispersion is a very important characteristic of data, in that interest frequently centers as much upon the uniformity or lack of uniformity in a set of data as upon their central tendency. Skewness refers to lack of symmetry in the shape of frequency distribution. This characteristic is of particular importance in connection with judging the typicality of certain measures of central tendency (Hamburg 1970).

In short all these aspects are important for the present study and will be used and calculated for the purposes of analysis and interpretation. The main objective of this section of the chapter was to review the nature of regression analysis, graphs, diagrams and statistical summaries followed by its application. In addition to this Analysis of Variance table is calculated to study the effect of metric independent variables.

Results

4.7.1 Variations in the Fertility Behaviour by Important Background Characteristics

Pakistan was one of the developing countries to recognize the problem of rapid increase in population. After 1965, efforts were made to achieve decline in the fertility through various family planning strategies. This decline in fertility was supposed to be achieved through the use of contraception and availability of contraceptives to the couples. In this respect various programmes were made and implemented and various surveys were conducted. One such survey was Pakistan Demographic and Health Survey 1990-91. The tables and results presented in the present study are based on the data collected through this survey.

The decline in the fertility level may be the result of many factors, one of, which is variation in the use of contraception as given in chapter 3 of this study. This variation may be due to some of the basic determinants associated with its use. The table given below identifies the effect of some of the factors on the use of contraception or contraceptive use, for the regulation of fertility behaviour of the women in Pakistan.

In Pakistan, like many other societies, age, number of living children, number of living sons, educational level and husbands level of education are considered to be the important variables in the use of contraception.
Table 4.1 shows percent distribution of currently married women by their background characteristic and place of residence.

Tables 4.1

Percent Distribution of Currently Married Women By their Background Characteristic and Place of Residence

Background Characteristics	Major Urban		Other Urban		Rural		Total	
	%	(N)	%	(N)	%	(N)	%	(N)
Age of Respondent								
15-19	3.5	38	4.7	39	7.7	342	6.6	419
20-24	16.3	179	14.6	122	16.7	740	16.3	1040
25-29	24.1	265	21.5	179	22.7	1008	22.8	1452
30-34	17.2	189	20.6	172	17.7	787	18.0	1147
35-39	18.8	207	16.4	136	13.3	588	14.6	931
40-44	11.9	131	12.2	101	12.9	571	12.6	803
45-45	8.2	90	10.0	83	9.0	399	9.0	572
Number of Total Living Children								
0	108	118	11.1	92	13.5	599	12.7	810
1	11.1	122	12.2	101	13.8	611	13.1	834
2	15.0	164	11.3	94	12.5	553	12.8	812
3	15.6	172	13.1	109	14.3	633	14.4	914
4	13.7	150	14.4	119	13.2	587	13.5	856
5	10.3	113	11.7	97	9.9	437	10.2	647
6+	23.6	259	26.3	219	22.9	1014	23.4	1492
Number of Living Boys								
0	23.8	261	23.6	196	25.3	1120	24.8	1577
1	24.0	263	22.4	186	24.0	1066	23.8	1516
2	23.3	256	24.0	200	21.8	966	22.3	1421
3	15.2	167	13.0	108	13.6	604	13.8	879
4	6.8	75	9.3	77	8.3	370	8.2	522
5	4.2	46	4.5	38	4.4	196	4.4	280
6	1.8	20	1.9	16	1.7	75	1.7	111
7	.6	7	.9	7	.6	25	.6	40
8	.2	2	.3	3	.3	11	.3	16
9	.1	1	.1	0	.0	1	.0	3
10			.0	0			.0	0
Highest Educational Level								
No Educat.	47.4	520	64.4	536	89.9	3988	79.3	5044
Primary	15.4	169	13.5	112	6.6	291	9.0	573
Middle	10.8	119	7.2	60	2.3	101	4.4	279
Secondary	20.9	230	13.4	111	1.2	52	6.2	393
Higher	5.5	60	1.5	13	0.0	2	1.2	75
Husbands Level of Education								
No. educat.	28.3	311	30.1	250	57.5	2549	48.9	3110
Primary	12.1	133	18.1	151	17.9	796	17.0	1079
Middle	12.1	133	13.3	110	10.4	460	11.1	704
Secondary	32.6	358	30.6	254	12.1	536	18.0	1148
Higher	14.7	161	7.7	64	2.0	88	4.9	313
Dont know	.2	2	.3	2	.1	6	.2	10
Total	100	1098	100.0	832	100.0	4434	100.0	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results shows that majority i.e. 24.1% of the currently married women in major urban areas lies in the age group of 25-29. While there are 21.5% in other urban areas in the same age group. Similarly in the rural areas 22.7% are in the age group similar to that of urban and major urban areas. This indicates that in Pakistan the tendency of getting married at an early age is decreasing. While 23.6% of the population were having 6 plus children alive in other urban areas. As far as rural areas are concerned this percentage deceased to 22.9%. For Pakistan as a whole it is 23.4%. The number of living boys shows decreasing trend, 24% of the women are having one son alive while 0.2% have 8 living sons. As on the other extreme, in rural areas, there is a very negligible difference, that is 24% have one son alive and only 0.3% have 2 sons alive. Thus, in short the majority has only one or two sons alive both in rural or urban areas.

The pattern of education is somewhat different. In major urban areas 47.4 percent were with no education and 64.4% with no education were from other urban areas. A vast majority, that is, 89.9% were having no education, belonged to rural areas. Only 15.4% had primary education is major urban and 13.5% were from other urban areas. This percentage deceased substantially in case of rural areas, that is 6.6% and 9.0% for Pakistan as a whole. While for the women who attained secondary education, the table shows that only 1.2% were from rural areas as compared to 20.9% and 13.4% for major urban and other urban areas respectively.

In the case of husbands level of education 32.6% attained secondary education and were from major urban areas and 30.6% were from other

urban areas. While in rural areas this ratio was much higher when compared to the education of women that is 12.1% and 1.2% respectively.

The Table 4.2 shows that 23.5% of the women in the age group of 25 to 29 years are non-pregnant and resides in major urban areas. As compared to this 20.8% are from other urban areas. In case of rural areas, again the majority of the women that is 21.8% in rural areas are in the age group of 25 to 29 years. Out of the total 15.3% of the women have two living children in major urban areas and 12.1% with the same number of living children in rural areas. The women with two living sons are 24.2% in major urban and 24.7% in other urban areas while this percentage is 22.6 for rural areas. From this, it shows a decline for all the areas as well as for Pakistan as a whole.

The women with no education were 47.7%, 64.2% and 89.6% for the major urban, other urban and rural areas respectively. This percentage, as shown in the table decreases to as the level of education increases. While the level of education attained by the husbands was much better as compared to the women. Majority of the husbands attained education upto secondary level. This percentage was 32.8%, 31.8% and 12.0% for the major urban, other urban and rural areas.

Tables 4.2

Percent Distribution of Currently Married Non Pregnant Women By their Background Characteristic and Place of Residence

Background Characteristics	Major Urban		Other Urban		Rural		Total	
	%	(N)	%	(N)	%	(N)	%	(N)
Age of Respondent								
15-19	3.3	32	3.6	26	7.2	266	6.0	324
20-24	14.5	140	13.6	97	15.2	563	14.9	799
25-29	23.5	226	20.8	148	21.8	806	22.0	1181
30-34	16.3	157	20.3	145	17.2	638	17.5	940
35-39	19.9	191	17.2	123	14.0	520	15.5	834
40-44	13.2	127	13.2	94	13.9	515	13.7	736
45-45	9.3	90	11.2	79	10.6	392	10.4	561
No of Total living Children								
0	9.8	94	9.7	69	11.9	439	11.2	602
1	10.2	98	10.9	78	13.4	496	12.5	672
2	15.3	147	10.4	74	12.1	447	12.4	668
3	15.1	145	13.6	96	14.2	525	14.3	767
4	13.8	133	14.9	106	13.4	498	13.7	737
5	10.8	104	12.2	87	10.4	384	10.7	575
6+	25.1	242	28.3	201	24.6	912	25.2	1354
No of living Boys								
0	21.8	210	21.3	151	23.0	850	22.5	1212
1	23.5	226	21.7	155	23.8	880	23.5	1261
2	24.2	233	24.7	176	22.6	835	23.1	1244
3	15.7	151	14.1	100	14.0	517	14.3	768
4	7.5	72	9.8	70	9.1	337	8.9	479
5	4.4	43	4.9	35	4.7	175	4.7	253
6	1.9	18	2.0	14	1.9	71	1.9	103
7	.7	7	1.0	7	.6	23	.7	37
8	.2	2	.4	3	.3	11	.3	16
9	.1	1	.1	0	.0	1	.0	3
10			.0	0			.0	0
Highest Educational Level								
No Educat.	47.7	459	64.2	457	89.6	3317	78.8	4233
Primary	14.6	140	13.6	97	6.6	243	8.9	480
Middle	11.5	111	6.8	49	2.5	93	4.7	253
Secondary	21.1	203	13.9	99	1.2	46	6.5	348
Higher	5.1	49	1.4	10	.0	2	1.1	61
Husbands Level of Education								
No. educat.	28.2	272	28.7	204	56.8	2102	48.0	2578
Primary	12.6	121	18.8	134	18.1	668	17.2	923
Middle	11.7	113	13.1	93	10.8	399	11.3	606
Secondary	32.8	316	31.8	226	12.0	443	18.3	985
Higher	14.6	140	7.2	51	2.2	83	5.1	275
Dont know	.2	2	.3	2	.2	6	.2	10
Total	100.0	963	100.0	711	100	3700	100	5375

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

Table 4.3 shows the results on non-pregnant women who were current users by their background characteristics.

Table 4.3

Percentage Distribution of Currently Married Women, Non Pregnant, Who Were Current Users by Their Background Characteristics

Background Characteristics	Any Method	Any Modern Method	Any Trad. Method
Age of Respondent			
15-19	3.3	2.5	.8
20-24	8.2	5.0	3.2
25-29	11.8	9.1	2.8
30-34	16.3	11.7	4.6
35-39	22.7	17.7	5.1
40-44	17.2	14.0	3.3
45-49	12.4	10.9	1.5
Number of Total Live children			
0	.2	.2	.0
1	4.0	2.6	1.5
2	13.0	9.7	3.3
3	13.3	9.3	3.9
4	19.9	14.7	5.2
5	20.2	15.8	4.4
6+	20.5	16.5	4.0
Highest education level			
No Education	9.3	7.4	1.9
Primary	21.2	16.7	4.6
Middle	32.6	24.0	8.6
Secondary	40.9	27.5	13.5
Higher	58.0	43.3	16.1
Husbands Level of Education			
No Education	8.3	6.7	1.6
Primary	9.3	7.3	1.9
Middle	20.4	16.4	4.1
Secondary	23.5	16.6	6.9
Higher	35.7	26.2	9.8
Don't know	33.4	11.9	21.5
Place of Residence			
Major Urban	35.3	25.5	9.9
Others Urban	22.0	16.3	5.7
Rural	7.0	5.8	1.2
Region of residence			
Punjab	15.5	11.7	3.8
Sindh	14.7	10.8	4.0
NWFP	9.9	8.8	1.2
Balochistan	2.5	2.1	.4
Total	14.1	10.7	3.3

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The methods of contraceptives as shown in Table 4.3 are divided into three broad categories as, any method which mean method used from modern or traditional, any modern method and any traditional method. The table shows that 22.7% of the women who are current users are in the age group of 35-39, and are using any method. While 17.7% are the women who are using modern method but are in the same age group and 5.1% of the women are using any traditional methods. The use of all these methods increase from the age group of 15-19 years reaches a peak at the age of 35-39 and shows a decrease with the increase in the age group. This means that the maximum usage of the contraception is within the age group of 35-39. This usage shows an increasing trend in all the methods with the number of living children. As the table shows that only 4.0%, 2.6% and 1.5% of the women are the current users with one living child. But as the living children increases the use also increase, as can be seen from the table. The use increases to 20.2%, 15.8% and 4.4% with the living number of children of 5 (five).

Similar pattern can be seen with the advancement of education. With no education the use is 9.3%, 7.4% and 1.9% but as the level of education increases to secondary this usage increases four times in case of any method (i.e. 40.9%) three times in case of modern method (i.e. 27.5%) and by about 12 times in case of traditional method. The same pattern is followed in the case of husbands education. Moreover, urban area shows higher usage as compared to rural areas. In case of modern methods in major urban areas as are 25.5% and other urban areas shows a usage of 16.3%. While in case of rural areas this usage is far less, that is 5.8%, which is roughly 6 times higher in major urban areas.

When the data was analysed by provinces, the highest usage was in Punjab, that is 15.5% in case of any method, 11.7% in case of any modern method and 3.8% in case of any traditional method. The province of Sindh was the second highest user followed by NWFP and Balochistan. The table clearly indicates that modern methods are mostly used by the women as compared to traditional methods. The results coincide with the results given in Chapter III of this study.

Table 4.4 shows the data of the currently married women and who were currently using contraceptives.

Table 4.4
Percentage Distribution of Currently Married Women, Who Were Current Users by Their Background Characteristics

Background Characteristics	Any Method	Any Modern Method	Any Trad. Method
Age of Respondent			
15-19	2.6	1.9	.6
20-24	6.3	3.8	2.5
25-29	9.6	7.4	2.3
30-34	13.4	9.6	3.8
45-39	20.4	15.9	4.5
40-44	15.8	12.8	3.0
45-49	12.2	10.7	1.5
Number of Total Live children			
0	.1	.1	.0
1	3.2	2.1	1.2
2	10.7	8.0	2.7
3	11.1	7.8	3.3
4	17.1	12.6	4.5
5	18.0	14.0	3.9
6+	18.6	15.0	3.6
Highest education level			
No Education	7.8	6.2	1.6
Primary	17.8	14.0	3.8
Middle	29.5	21.7	7.8
Secondary	36.2	24.3	11.9
Higher	47.2	35.3	13.1
Husbands Level of Education			
No Education	6.9	5.6	1.3
Primary	7.9	6.3	1.7
Middle	17.6	14.1	3.5
Secondary	20.2	14.3	5.8
Fugher	31.3	23.0	8.6
Don't know	33.4	11.9	21.5
Place of Residence			
Major Urban	31.0	22.4	8.7
Others Urban	18.8	14.0	4.9
Rural	5.8	4.9	1.0
Region of residence			
Punjab	13.1	9.9	3.2
Sindh	12.4	9.1	3.4
NWFP	8.6	7.6	1.0
Balochistan	2.0	1.7	.3
Total	11.9	9.1	2.8

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

If we compare this Table 4.4 to Table 4.3, almost the same pattern or picture is followed. For example maximum users were in the age group of 35-39 years, showing an increasing trend from age 15-19 years, showing an increasing trend from age 15-39, reaching the maximum at the age of 35-39 and then showing a decline. The usage of both the modern methods and traditional methods increase with an increase in the number of living children, education and husbands level of education. The province of Punjab as the users of contraceptive stands first followed by Sindh, NWFP and Balochistan respectively. An important fact, which is revealed from Tables 4.3 and 4.4 is that its usage increases with the background characteristic considered, and women rely on modern methods as compared to traditional methods. This usage could be increased provided effective, easy and reliable methods are provided and are in the easy reach of the users, which can be provided by the organisations like family planning clinics both the government and non-government sponsored.

It is generally assumed and is confirmed by the data of Pakistan Demographic and Health Survey 1990-91, that number of living children and age are the factors which results in the fertility control differentials. The data was analysed and the results are shown in Table 4.5.

Table 4.5

Percentage Distribution of Currently Married Non-Pregnant Women Who Where Current Contraceptive Users by Number of Living Children and Age

	Number of Total Live Children							
	0	1	2	3	4	5	6+	Total
Age of Respondent								
15-19	.0	5.7	11.9	.0	.			3.3
20-24	.0	5.8	15.1	9.7	19.7	61.4	17.8	8.2
25-29	.8	2.4	13.3	12.2	19.4	13.9	18.5	11.8
30-34	.0	1.1	14.8	12.9	20.8	24.1	19.6	16.3
35-39	.4	.1	10.2	27.3	27.9	22.3	26.6	22.7
40-44	.0	.8	1.6	15.5	16.0	26.1	18.5	17.2
45-49	.0	.0	10.6	3.7	11.1	8.6	16.9	12.4
Total	.2	4.0	13.0	13.3	19.9	20.2	20.5	14.1

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results reveal that as the number of living children increases, the control and regulation of fertility also increases, which indicates that number of living children have a bearing on the fertility control. As can be seen from the table that an early age, that is, 15-19 the use of contraceptives is relatively small as compared to the age group of 20-24. At the age of 25-29 the usage decreases, while at the age group of 30-40 the use and control increases as the number of living children increases. However, an important point, that can be deduced from these results is that at a higher age group the fertility control increases with an increase in the number of living children.

Along with the number of living children, number of living sons is an important factor as both the factors are interdependent. To have a son in

Pakistan is still a very high desire of the families. Table 4.6 shows the findings.

Table 4.6

Percentage Distribution of Currently Married Non-Pregnant Women Who Where Current Contraceptive Users by Number of Living Children and Sons

	Number of Total Living Boys							
Number of Living children	0	1	2	3	4	5	6+	Tota l
0	.2	.	.	.	.	.	.	.2
1	4.1	3.8	.	.	.	.	.	4.0
2	11.0	15.0	11.1	.	.	.	.	13.0
3	12.3	10.7	16.1	10.9			.	13.3
4	8.5	13.1	22.8	25.5	15.6	.	.	19.9
5	10.5	21.0	21.0	22.1	18.1	16.6	.	20.2
6+	6.0	18.6	19.6	22.6	21.1	19.5	18.9	20.5
Total	3.8	11.3	18.2	21.8	19.9	19.2	18.9	14.1

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results show that fertility regulation and control increases as the number of son increases. For example if the number of living children are four and when compared with the number of living sons, the control of fertility increases, similar is the situation in the case of five living children. The main point, which can be derived from this table, is that number of living sons are an important factor in determining the fertility regulation rather than the number of living children. Further-more, a Pakistani women uses

contraception for limiting the family size once the desired family size is achieved rather then for spacing purpose.

In the Table 4.7 below, the effect of education on the fertility control or use of contraceptive is analysed.

Table 4.7

Percentage Distribution of Currently Married Non-Pregnant Women Who Where Current Contraceptive Users by Number of Living Children and Level of Education

	Number of Total Living Children							
	0	1	2	3	4	5	6+	Total
No Education	.0	1.3	5.5	5.8	11.0	13.9	17.2	9.3
Primary	.0	7.0	17.9	11.4	28.6	32.4	41.8	21.2
Middle	.0	12.8	43.3	31.7	51.6	39.9	43.1	32.6
Secondary	.0	16.5	40.0	49.8	63.4	56.7	43.9	40.9
Higher	18.2	44.0	61.1	66.2	84.6	34.7	100.0	58.0
Total	.0	4.0	13.0	13.0	19.9	20.2	20.5	14.1

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results of the table reveals that fertility control increases with the increase in the number of living children except in the case of three living children with primary and middle education. The table reveals that desire to control family size increases systematically with an increase in living children. For example with two living children and no education, 5.5% of

the women are in favor of limiting the family size, but as the level of education increases to primary the use of contraceptive increases to 17.9%. With the attainment of secondary education and two living children this increases to 40.0%. With the attainment of secondary education and having five and 6 plus living children the use of contraceptive decreases, to 56.7% and 43.9% respectively. However, various reasons can be found but one of the important reasons may be the desire for a son.

Table 4.8 shows the use of contraceptive or fertility control when the education of both the husband and wife are controlled. The results are shown in the table below.

Table 4.8

Percentage Distribution of Currently Married Non-Pregnant Women Who Where Current Contraceptive Users by Level of Education and Husbands Level of Education

	Husbands Level of Education						
Education level of Respondent	No Education	Primary	Middle	Secondary	Higher	Don't Know	Total
No Education	7.5	7.8	14.3	15.2	18.0	3.2	9.3
Primary	20.7	11.0	31.5	24.6	9.4	.	21.2
Middle	29.4	29.8	40.7	34.4	16.3	100.0	32.6
Secondary	26.8	38.2	45.8	35.8	50.6	100.0	40.9
Higher	62.8	.	.	46.0	61.3	.	58.0
Total	8.5	9.3	20.4	23.5	35.7	33.4	14.1

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The table clearly indicates that husbands primary education level do not have any effect on the fertility control (that is 7.5% to 7.8%). The table shows that even with no education of women there is a positive effect on the fertility control (that is 7.5% of the women are using fertility control methods (contraceptives). The table further shows that as the education of women increases, even when their husbands have no education the use rate or fertility control increase, that is with no education 7.5% increases to 26.8% when she acquires education at secondary level. This means an educated woman feels independent and has an access to the contraception. Moreover, the table indicates that if the husband have primary education and the women have primary education the fertility control is decreased. Similarly if husband have attained education of secondary level and wife is also educated of the same level (that is secondary) the use of contraceptive decreases. This indicates that Pakistan is a male dominated society and even perhaps less educated husband does not allow the educated wife to enjoy a higher status. However, this is reversed, if we consider the education of the husband. The use of contraception increases as the level of education of wife increases. This may be because of the fact, that the couples believe in quality rather that the quantity of the children. Further, it points that both the husbands and wife education affects the use of contraceptives and fertility control. The table 4.9 shows the use of contraceptives by level of education and place of residence.

Table 4.9

Percentage Distribution of Currently Married Non-Pregnant Women Who Where Current Contraceptive Users by Level of Education and Place of Residence

	Place of Residence			
Education level of Respondent	Major Urban	Other Urban	Rural	Total
No Education	26.7	15.5	6.0	9.3
Primary	35.4	26.7	10.9	21.2
Middle	42.1	32.1	21.4	32.6
Secondary	43.9	41.4	27.0	40.9
Higher	65.1	32.4	.0	58.0
Total	35.3	22.0	7.0	14.1

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results show that the use of contraception is higher in the urban areas as compared to rural areas. It we consider major urban area, with no education of the women 26.7% as compared to 6.0% are contraceptive users. Further education has a strong positive effect on the use of contraceptive. As can be seen from the results in the table, that the use of contraceptive/fertility control both in the urban (major urban and other urban) and rural areas increases with the increase in education. Hence education along with other factors mentioned, have a strong and positive effect on the use of contraceptive. Table 4.10 shows the results on the use of contraceptive by level of education and Age.

Table 4.10

Percentage Distribution of Currently Married Non-Pregnant Women Who Where Current Contraceptive Users by Level of Education and Age

	Age of Respondent							
Education level of Respondent	15-19	20-24	25-29	30-34	35-39	40-44	45-49	Total
No Education	1.5	5.1	5.1	10.1	17.7	12.2	10.2	9.3
Primary	2.5	11.1	15.8	26.2	26.1	40.9	35.4	21.2
Middle	13.4	17.5	36.9	35.1	43.9	48.7	10.4	32.6
Secondary	31.2	25.5	40.6	46.6	50.5	37.6	53.5	40.9
Higher	.	70.5	50.5	60.0	86.2	46.7	103	58.0
Total	3.3	8.5	11.8	16.3	22.7	17.2	12.4	14.1

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The table reveals that as education of the women increases with the increase in age, the use of contraceptive increases, except in the higher ages that is, 40-49, where the use of fertility regulation methods have decreased. For example women in the age group of 30-34, with the increase in education, the use of contraception also increases. Further the results indicate that as education increases and age also increases the use of contraceptives are decreased as is evident from the table.

The following Table 4.11 shows the number of children ever born to the currently married women by background characteristics.

Table 4.11

Percentage Distribution of Currently Married Women, Who Were Current Users by Their Background Characteristics

Background Characteristics	Children ever born							
Age of Respondent	0	1	2	3	4	5	6+	No.
15-19	51.5	36.8	7.4	4.0	.2			419
20-24	24.2	28.0	25.3	13.7	6.1	1.6	1.2	1040
25-29	9.5	11.8	17.2	20.5	18.2	13.2	9.5	1452
30-34	4.7	4.6	8.7	15.4	17.8	14.5	34.3	1147
35-39	2.7	3.3	4.5	9.0	8.9	17.5	54.1	931
40-44	3.1	1.1	3.1	7.3	8.9	11.7	64.9	803
45-49	3.8	2.8	3.5	7.4	6.1	10.1	66.5	572
Place of Residence								
Major Urban	9.9	9.9	13.6	14.8	12.8	10.4	28.7	1098
Others Urban	10.4	10.9	10.1	12.3	11.8	11.2	33.2	832
Rural	12.1	11.9	11.2	12.5	10.9	10.9	30.6	4434
Region of Residence								
Punjab	12.3	11.0	11.2	13.4	11.6	11.1	29.5	3768
Sindh	9.6	11.7	11.2	12.8	11.7	10.5	32.5	1486
NWFP	11.9	11.9	12.7	10.6	9.3	10.5	33.1	856
Balochistan	10.2	14.3	12.6	12.4	12.3	10.1	28.1	254
Highest Educational level								
No Education	11.0	11.1	10.7	11.7	11.0	10.7	33.8	5044
Primary	13.6	10.6	12.9	16.6	8.4	14.1	23.8	573
Middle	13.0	13.4	13.0	14.1	14.2	8.2	24.0	279
Secondary	12.8	14.2	15.7	18.1	18.7	10.7	9.7	393
Higher	14.0	16.1	25.7	29.3	9.2	3.6	2.1	75
Number of Total Live Children								
0	90.3	6.6	2.2	.6	.2		.0	810
1		80.5	12.5	4.6	1.3	.6	.4	834
2			74.9	14.2	6.9	3.0	1.0	812
3				72.1	14.1	8.7	5.1	914
4					61.3	18.4	20.3	856
5						65.2	34.8	674
6+							100.0	1492
Total	11.5	11.4	11.5	12.8	11.4	10.8	30.6	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The data reveals that 25.3% of women in the age group of 20-24 have two children. This is the highest percentage in this age group. While 18.2% have 4 children and are in the age group of 25-29. Similarly there are a total of 572 women in the age group of 45-49, with 66.5% having 6 plus children.

If we consider the place of residence, the data shows that a rural women have more children as compared to her urban counterpart except in the case where their number of children are in a range of two to four. But the difference is very small. On the whole the ratio of children is higher in the rural areas.

Regional analysis shows that in Punjab the ratio of the children are the highest as compared to the other provinces. The province of North West Frontier occupies the second position in this respect, followed by Balochistan.

To see the effect of the educational level, the data shows that higher percentage of women, having three children is with higher education. After this, the percentage of women with 4 plus children decreases. This may be because of the effect that a women with higher education may have an ideal family size of three children or may be after the third child her family is completed. In contrast to this, 18.7% women with secondary education, have 4 children. After that, the percentage decreases. For the decrease the same line of reasoning can be applied. While women with no education, 11.7% have three children and 33.8% have six plus children. The net result is that women with higher education, that is, 29.3% have three children. Similarly, the number of children alive shows that 72.1% of the women had three

children and all three were alive, while 14.1% had four children and only three were alive. Thus the data results reveal that the mortality rate has shown a sharp decrease. So far the analysis basically reveals the variations in the fertility control by important background characteristics. In order to further investigate the impact of the contraceptives on fertility control, the choice of contraceptives is an important factor and should be analysed. This choice does depend on certain factors.

Part III.

4.8 The Covariates of the Choice of Contraceptive Methods

This part of study deals with covariates of the choice of contraceptive methods. The needs and values of the individual changes over time, a method currently using may not be preferable to the individual at all times. So if a mix of method is available the user can always switch from one method to another. If the choice is of an individual user, it will ensure the continuation of use. Some of the important factors that influence the choice of contraceptive methods are as under:

(i) Age of the women
(ii) Place of residence
(iii) Region of residence
(iv) Education
(v) Number of living children

Table 4.12 shows the percentage distribution of currently married women who were current users by age.

Table 4.12

Percentage Distribution of Currently Married Women, Who Were Current Users by Age and Contraceptive Methods

Age of respondent	Any Method	Any Modern Method	Pills	IUD	Injection	Vaginal Method	Condom	F. Sterilization	m. Sterilization	Periodic Abstinence	Withdrawal	Others	Not Currently Using	Any Trad. Method	No. 00
15-19	2.6	1.9	.2	.4	.4		.8			.5	.1		97.4	.6	419
20-24	6.3	3.8	.8	.7	.4		1.5	.5		.7	1.1	.6	93.7	2.5	1040
25-29	9.6	7.4	.8	1.8	.4	.0	3.6	.9		1.0	1.0	.3	90.4	2.3	1452
30-34	13.4	9.6	.7	1.9	.6	.0	3.6	2.7	.1	1.6	1.9	.3	86.6	3.8	1147
35-39	20.4	15.9	.9	1.4	1.6	.1	3.8	7.9	.2	2.6	1.8	.2	79.6	4.5	931
40-44	15.8	12.8	.8	1.1	1.1		1.8	8.0		1.7	1.3	.0	84.2	3.0	803
45-49	12.2	10.7	.0	.4	1.1		1.9	6.8		.4	.3	.8	88.2	1.5	572
Total	11.9	9.1	.7	1.3	.8	.0	2.7	3.5	.0	1.3	1.2	.3	88.2	2.8	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The data shows that as age increases from 15-19 years to 35-39 years the use of any method increases. The maximum amount of contraception is used in the age group of 35-39 years. After that it shows a decrease in the use. This decease may be attributed to the fact, that as age increase, women tends to have permanent or more effective method solution. Again, considering any

modern method, the maximum women, using these methods lies in the age group of 35-39 years. At the early ages it shows an increasing trend and at the latter ages that is after the age of 35-39 years the use of contraceptive decease. To this, the same reasons can be applied. Similarly, the women using any traditional method shows the same trend, that is increasing at an early ages that is, 15-19 years to 25-29 years, reaches the maximum at an age of 35-39 years, that is 4.5% and then starts decreasing. Similarly 0.9% of the women are using Pills at an age group of 35-39 years, showing an increase in the early age and then a decreasing pattern. While IUD shows that it is used by 1.9% in the age group of 30-34, after that decreasing trend is followed. Condom, the most commonly used method for males is maximum again at the age of 35-39 years, after which it shows a decreasing trend and increasing trend in the early age. The data on the female sterilization shows that maximum number of women chose female sterilization as a method that is 8.0% in the age group of 40-44 years. Which shows that as age increase female prefers permanent solution. On the whole the data in the said table shows that most of the women are the users of different contraceptive methods in an age group of 35-39 years. This is also evident from the fact that women who are not currently using any method increases from the age group of 15-19 years to 25-29 years, and then decreases in the age group of 30-34 years to 35-39 years (that is, from 90.4% in age group of 25 to 29 years to 79.6% in the age of 35-39 years). In short, it can said that in the age group of 35-39 women are mostly contraceptive users this may be because either their family size is completed or the couples wants to space their pregnancies.

The data was also analysed by the place of residence, (that is major urban, other urban and rural) as shown in Table 4.13.

Table 4.13

Percentage Distribution of Currently Married Women, Who Were Current Users by Place of Residence and Contraceptive Methods

Place of Residence	Any Method	Any Modern Method	Pills	IUD	Injection	Vaginal Method	Condom	F. Sterilization	m. Sterilisation	Periodic Abstinence	Withdrawal	Others	Not Currently Using	Any Trad. Method	No. .00
Major Urban	31.0	22.4	1.4	2.4	1.0	.1	8.9	8.5	.1	4.2	4.0	.5	69.0	8.7	1098
Others Urban	18.8	14.0	1.4	1.4	1.4	.0	3.8	5.7	.2	2.4	1.8	.7	81.2	4.9	832
Rural	5.8	4.9	.4	.9	.6	.0	1.0	1.9		.4	.4	.2	94.2	1.0	4434
Total	11.9	9.1	.7	1.3	.8	.0	2.7	3.5	.0	1.3	1.2	.3	88.2	2.8	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

As far as the major urban areas are concerned, 31.0% of the women are using any method while only 5.8% of the rural women are using any contraceptive method. In major urban areas, 22.4% are using modern method and 4.9% are being used by the rural women. Similarly 8.7% of the women are using any traditional method in the major urban areas, and only 1.0% in the rural areas is using any traditional method. On the whole 94.2% of the rural women are the non-users and 69.0 and 81.2% are the non-users of contraceptives in the major and other urban areas respectively. The data

on the break up of contraceptives indicates that almost all the methods used in major urban and other urban areas are the highest as compared to the usage in the rural areas. One interesting point is that none of the rural man preferred male sterilization. The use of condoms (that is, 8.9%) is the preferred method in the major urban areas. While in the rural areas the situation is the reverse, female sterilization (that is 1.9%) followed by condoms (that is 1.0%). In short in major urban areas, most women chose female sterilization, periodic abstinence and withdrawal as the first method of choice where as, in rural areas, most women chose female sterilization, IUD and injections. In order to investigate the regional variations, the data was analysed as is shown in Table 4.14.

Table 4.14

Percentage Distribution of Currently Married Women, Who Were Current Users by Region of Residence and Contraceptive Methods

Region of residence	Any Method	Any Modern Method	Pills	IUD	Injection	Vaginal Method	Condom	F. Sterilization	m. Sterilization	Periodic Abstinences	Withdrawal	Others	Not Currently Using	Any Trad. Method	No. .00
Punjab	13.1	9.9	.6	1.5	.8	.0	3.0	3.8	.1	1.4	1.5	.3	87.0	3.2	3768
Sindh	12.4	9.1	.7	.9	.4	.0	3.4	3.5		1.7	1.3	.4	87.6	3.4	1486
NWFP	8.6	7.6	1.3	1.1	1.1	.1	.8	3.2		.6	.3	.1	91.4	1.0	856
Balochistan	2.0	1.7	.7	.5	.1	.0	.2	.3		.2	.1	.0	98.0	.3	254
Total	11.9	9.1	.7	1.3	.8	.0	2.7	3.5	.0	1.3	1.2	.3	88.2	2.8	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

In case of any method, 13.1% of the women were from Punjab, followed by Sindh with 12.4% and only 8.6% were from NWF Province followed by Balochistan with only 2.0%. Again in case of any modern method in Punjab 9.9% of the women were currently using contraceptive, followed by Sindh with 9.1% and in Balochistan only 1.7 percent were the users of modern methods. As far as traditional methods are concerned only 0.3% were using in Balochistan as compared to 3.2% and 3.4% in Punjab and Sindh respectively. Out of the total women 87.0% in Punjab and 98.0% in Balochistan were not currently using any method. The break-up of the methods shows that the women of NWFP were the highest users of Pill, (that is 1.3% while IUD was the preferred method of the women in Punjab with 1.5%. Similarly female sterilization was the most preferred method in Punjab followed by Sindh and NWFP while condom was the most preferred method in Sindh followed by Punjab. In short women of the Punjab province were the major users of any method and any modern method followed by Sindh, NWFP and Balochistan respectively. Although variations in the different methods used are apparent from the data in the table.

In Table 4.15 the effects of number of living children on the contraceptive use is analysed.

Table 4.15

Percentage Distribution of Currently Married Women, Who Were Current Users by Living Children and Contraceptive Methods

No. of Liv. Children	Any Method	Any Modern Method	Pills	IUD	Injection	Vaginal Method	Condom	F. Sterilization	m. Sterilization	Periodic Abstinence	Withdrawal	Others	Not Currently Using	Any Trad. Method	No. .00
0	.1	.1					.1	.0					99.9	.0	810
1	3.2	2.1	.2	.0	4		1.4			.5	.5	.2	96.6	1.2	834
2	10.7	8.0	.8	1.4	.3		4.5	1.0		1.1	1.0	.6	89.3	2.7	812
3	11.1	7.8	.9	1.4	.5	.0	3.1	1.9		1.2	2.0	.1	88.9	3.3	914
4	17.1	12.6	1.2	1.5	.8	.0	3.9	4.8	.3	1.7	2.4	.4	82.9	4.5	856
5	18.0	14.0	1.4	1.7	1.8		4.5	4.8		2.6	1.1	.2	82.0	3.9	647
6+	18.6	15.0	.6	2.1	1.3	.1	2.1	8.5		1.8	1.3	.5	81.6	3.6	1492
Total	11.9	9.1	.7	1.3	.8	.0	2.7	3.5	.0	1.3	1.2	.3	88.2	2.8	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The data reveals that as the number of living children increases the use of any method of contraceptive also increases. Similar is the situation with the use of any modern method except when the number of living children is three. The use of the Pills, IUD, injections show a positive relationship with the number of living children. In simple words, when the number children increases the use of these methods also increases. The use of condoms shows an increasing trend when the number of children are two, decreases when the number of living children are three. Again female sterilization is the most

preferred method followed by the use of condoms. This means that as the number of living children increases, and family size which the couple is ideal, is completed, women prefers permanent solutions. Thus the first choice is female sterilization, condom and IUD. The use of traditional method is maximum with living children of four in number.

Moreover, education is also considered as one of the covariant of the use of contraceptives. The data was analysed with education also, as shown in Table 4.16.

Table 4.16

Percentage Distribution of Currently Married Women, Who Were Current Users by Education and Contraceptive Methods

Level of the ed.	Any Method	Any Modern Method	Pills	IUD	Injection	Vaginal Method	Condom	F. Sterilization	m. Sterilization	Periodic Abstinence	Withdrawal	Others	Not Currently Using	Any Trad. Method	No. .00
No Education	7.8	6.2	.5	1.0	.5	.0	1.1	3.0		.8	.5	.3	92.2	1.6	5044
Primary	17.8	14.0	1.5	1.5	1.2		4.5	5.1	.2	1.7	1.8	.3	82.2	3.8	573
Middle	29.5	21.7	1.6	1.1	3.1	.1	8.5	6.8	.5	3.4	3.8	.6	70.5	7.8	279
Secondary	36.2	24.3	.9	4.4	1.3	.1	12.2	5.4		5.2	6.4	.3	63.8	11.9	393
Higher	47.2	35.3	2.0	2.4		.1	25.9	3.7		2.9	10.2		52.8	13.1	75
Total	11.9	9.1	.7	1.3	.8	.0	2.7	3.5	.0	1.3	1.2	.3	88.2	2.8	6364

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The use of any method increases as the educational level of the women increases. While the use of any modern method also increases with the increase in educational level. The modern method like Pills shows an increase with the increase in education till middle level, decreases at secondary level, but again increases at the attainment of higher education. IUD is used at the maximum level when the woman has attained secondary education. The use of condoms shows an increasing trend with increase in education. While female sterilization is the most preferred choice when the educational attainment is of the middle level. Thus most of these methods shows curvilinear relationships with the number of living children.

The analysis indicates that female sterilization was the most preferred choice of contraceptive followed by the use of condoms, IUD and injections. However, it can not be said that whether their choices were due to the first choice in current use or change in choice. Moreover, these methods had a curvilinear shape that is, it does not show a linear trend, but it shows rise and fall in different methods, and changes in use of contraceptives with age was observed. Finally it was observed that as age of the women increases the women tried for a permanent and preferred method.

Different statistics for the current age of the respondent was calculated. The Table 4.17 shows these statistics.

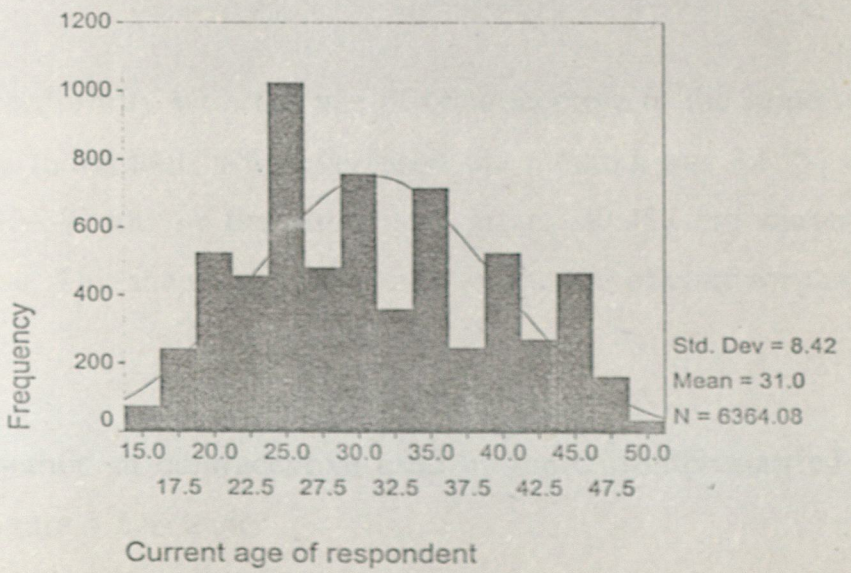
Table 4.17
Current Age of the Respondent

N	Valid	6364
Mean		31.03
Median		30.00
Mode		25
Std. Deviation		8.42
Variance		70.83
Skewness		.276
Std Error of Skewness		.031
Range		34
Minimum		15
Maximum		49

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The mean age of the respondent in the study was 31.03 years with a modal age of 25 years. The minimum age considered was 15 years and a maximum of 49 years with the range of 34 years was studied. However, the standard deviation was 8.42. The data indicates that women are in favor of the use of contraceptives however this is also shown in the figure 4.1.

Figure 4.1
Diagrammatic Representation of the Current Age of the Respondent



Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

Of the currently married women, the knowledge of the contraceptive use was highest in the age group of 30-39 years as shown in Table 4.18.

Table 4.18

Percentage Distribution of Currently Married Women by Their individual Knowledge, individual Ever Used and individual Currently Used a Contraceptive Methods

Current Age	IND-KNO	IND-EVER	IND-CANY
15-19	66.1	3.1	2.6
20-24	75.1	12.9	6.3
25-29	77.4	19.1	9.6
30-34	81.5	24.0	13.4
35-39	81.5	32.1	20.4
40-44	78.7	25.9	15.8
45-49	77.8	19.6	12.2
Total	77.9	20.7	11.9

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

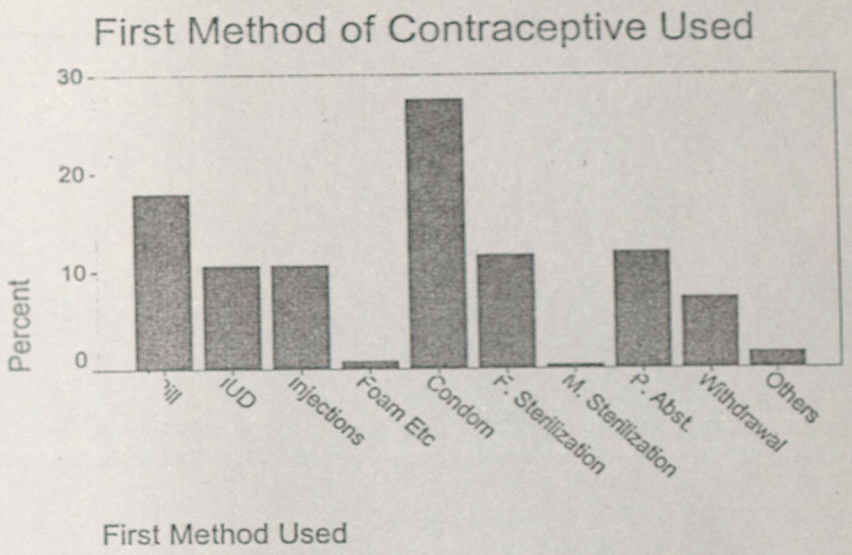
This is in conformity with the use of contraceptive in the same age group. While those individuals who ever used the method was 32.1% in the age group of 35-39 and in the same age group 20.4% are currently using contraceptive. This means the prime age for the use of contraceptive is 35-39 years.

The first method of contraceptive used by the currently married women is shown in figure 4.2 as under.

Figure 4.2

Percent Distribution of Currently Married Womens

First Method of Contraceptive Used



Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

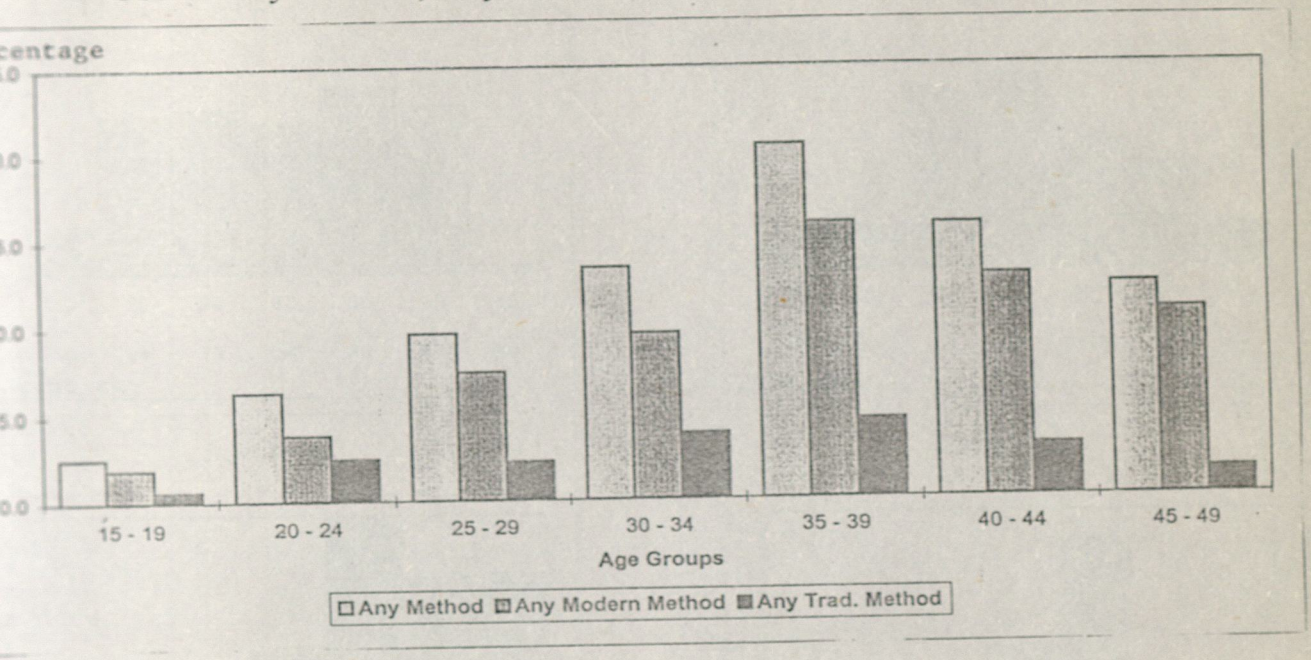
The figure shows that condom followed by Pills, periodical abstinence, female sterilization and IUD were the first method of contraceptive used by majority of the currently married women.

The use of the contraceptives by different methods, broadly classified into three categories of any method, any modern method and any traditional method is shown in figure 4.3

Figure 4.3

Diagrammatic Representation of

Use of Any Method, Any Modern Method and Any Traditional Method



Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

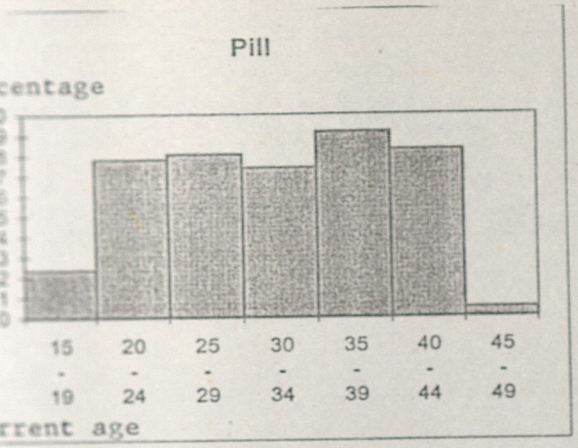
The figure shows that most of the women in the age group of 35-39 years uses contraceptives. In the early ages it shows and increasing trend and the maximum use of the methods is in the age of 35-39 after which it starts declining. It is clearly evident from the diagram also that the nature of usage is not linear but curvilinear and decreases with the increase in age.

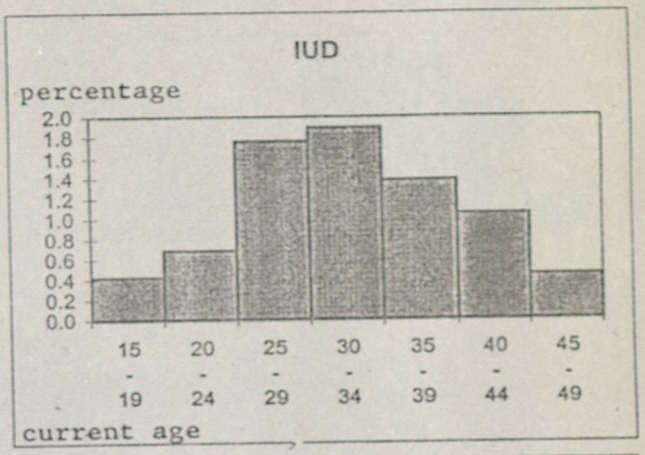
The use of different methods by current age of the currently married women is shown in figure 4.4.

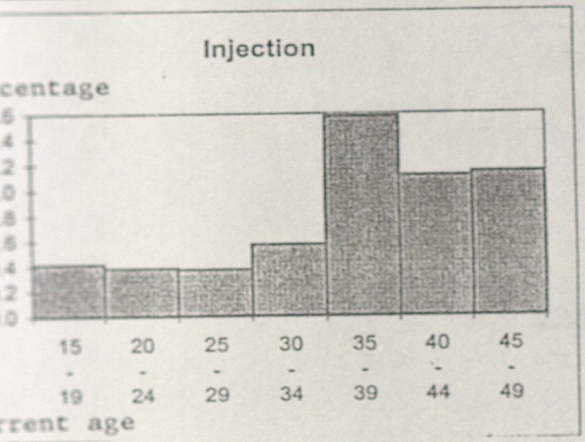
Figure 4.4

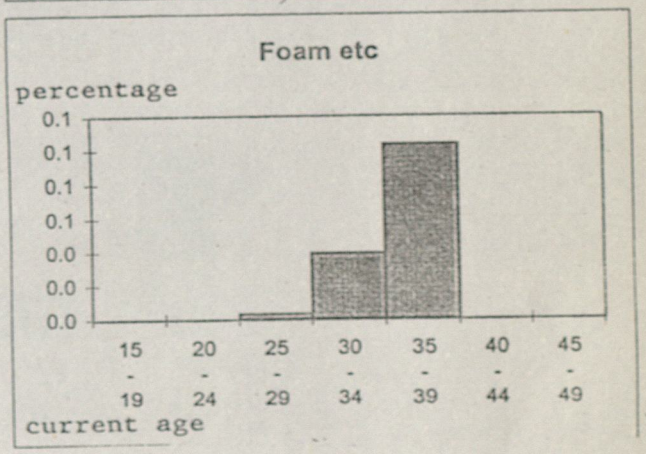
Diagrammatic Representation of Use of different

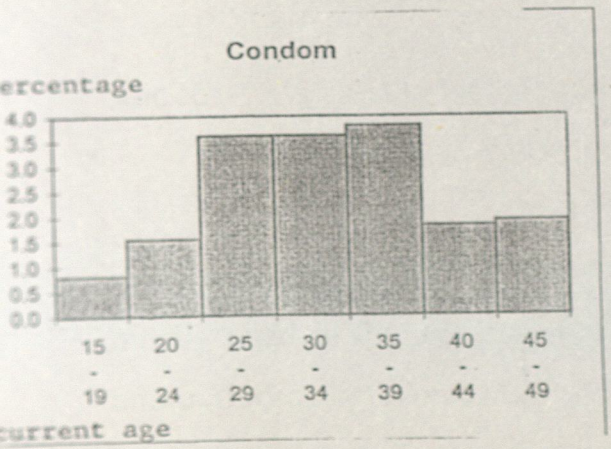
Contraceptive Methods by Current Age of the Respondents

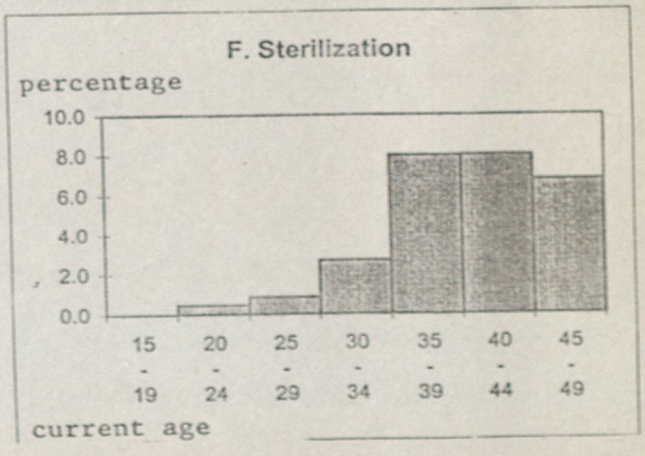


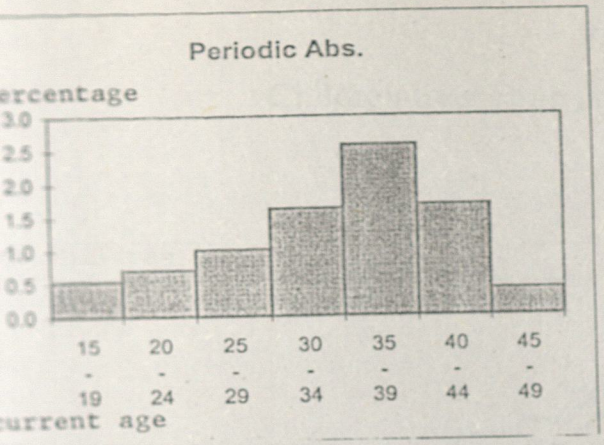


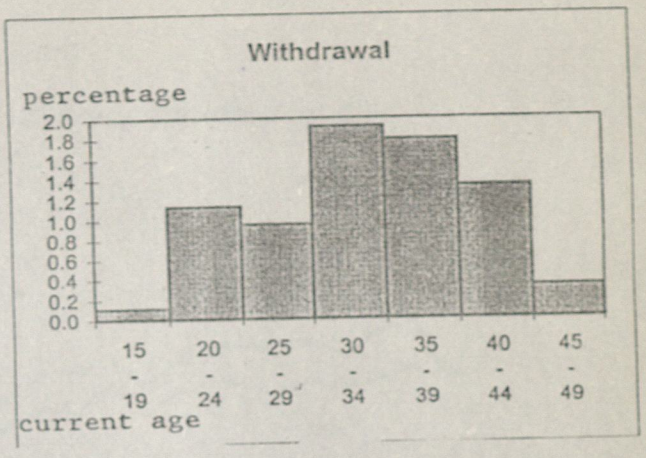


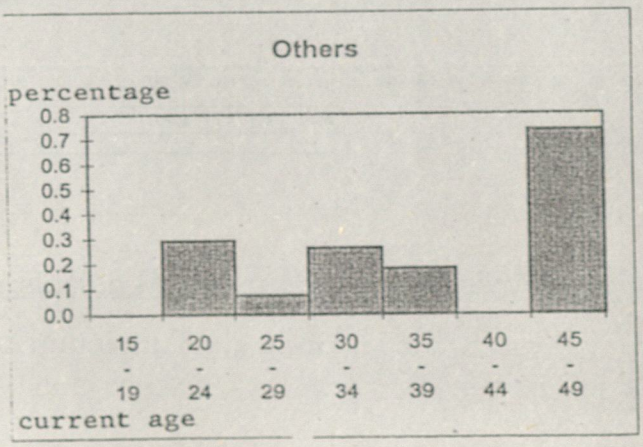












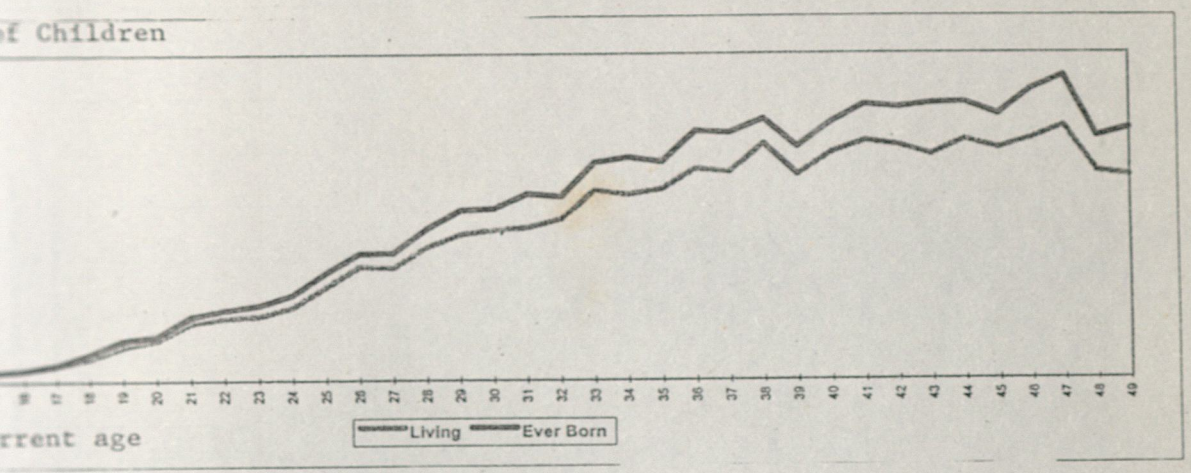
Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

It is evident from the figures that Pills, IUD, and Withdrawal method are mostly used in the age group of 30-35, while injections, foam etc, condom and periodic abstinence is mostly used in the age group of 35-39 years.

Figure 4.5 shows total children ever born and living children by womens age.

Figure 4.5

Children Ever Born and Surviving Children by Age



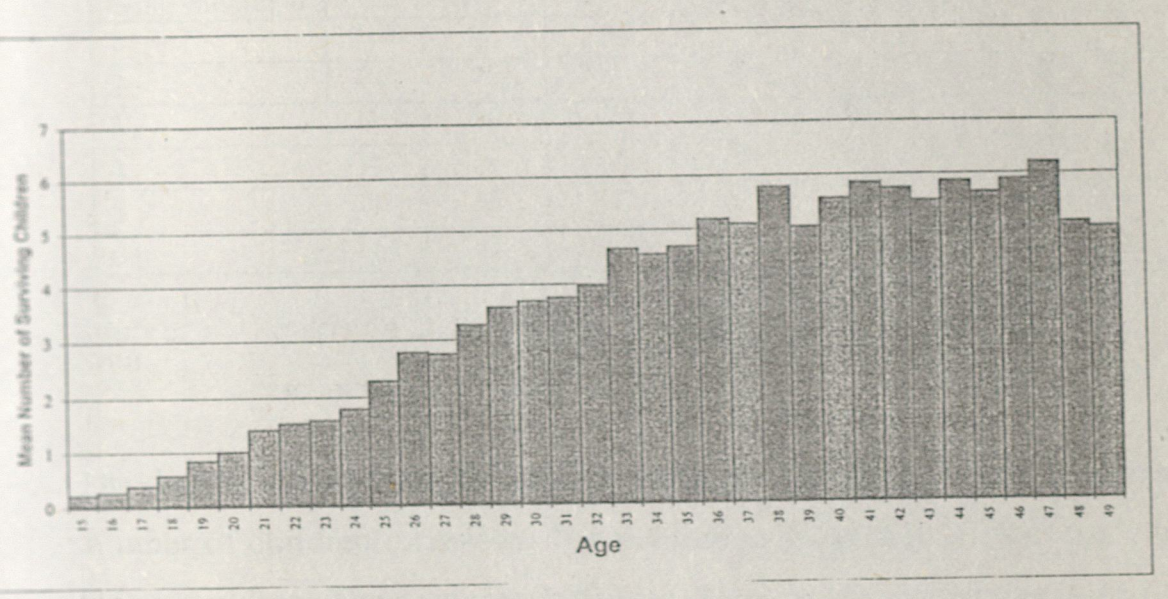
Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

At the age of 30 years a Pakistani women has 4 ever born children with three surviving children. The gap between the ever born and surviving children increases with an increase of age of the women. The implication of this graph is that the country as a whole has still much to do in terms of fertility control to achieve the target of family size with two children.

While figure 4.6 shows the mean number of surviving children with age.

Figure 4.6

Diagrammatic Representation of Mean number of Surviving Children with age.



Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The general trend that this figure shows is that mean number of surviving children increase with age upto 47 year

Table 4.19 gives the summary distribution of age by number of living children, who were current users. It is assumed that age is one of the main factors that affect the fertility behavior of a woman. Moreover, the use of contraception is also assumed to depend on the number of living children.

Table 4.19

Summary Distribution of Age by Number of Living Children who were Current Users

Living children	Mean	Median	Minimum	Mode	Range	Std. Deviation	Variance	Max.
No. of total living children 0	28.2	27	27	27	9	40	1572	36
1	21.8	21	17	18	23	4	13	40
2	26.8	25	18	24	27	6	32	45
3	31.3	30	20	25	28	7	44	48
4	32.7	32	22	30	27	6	40	49
5	35.0	35	22	35	24	6	32	46
6+	38.4	38	23	35	26	5	28	49

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The data in the table reveals that as the mean age of the women increase, the number of children increases. The maximum mean age is 38.4 years, having 6 plus children. The data also indicates that when the mean age is 28.2 years, there is zero number of living children. However, if we compare the mean age with the median age there is a very negligible difference, which shows that the distribution of the age is symmetrical with the model age of 35 years. The minimum age is 27 years with no living children and the maximum is 36 years. With a minimum age of 22 year and a maximum of 49 years, the women, who were current users were having 4 living children.

Similarly, the use of contraceptive method is also affected by age. At different ages women prefer different methods of their choice Table 4.20 shows the summary distribution of age by contraceptive methods currently using.

Table 4.20

Summary Distribution of Age by Contraceptive Methods Currently Using

Contraceptive Methods	Mean	Median	Minimum	Maximum	Mode	Range	Std. Deviation	Variance
Currently Using contraceptive								
Pills	30.4	30	18	45	35	27	7.1	50.0
IUD	30.8	30	19	47	30	28	6.4	40.9
Injection	35.1	37	18	48	35	30	8.3	68.6
Vaginal Methods	36.5	37	28	39	39	11	5.1	25.8
Condom	31.7	30	18	48	30	30	6.8	46.2
F. Sterilization	38.0	39	22	49	40	27	5.8	33.6
M. Sterilization	33.3	35	30	36	36	6	3.8	14.1
Periodic Abstinence	33.1	34	17	48	35	31	6.8	46.1
Withdrawal	32.3	32	18	46	30	28	6.5	42.7
Other	31.5	28	20	48	24	28	9.5	90.3
Not Currently Using	42.5	45	33	49	45	16	6.2	38.5

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

At a younger ages women prefer temporary contraception. As it is evident from the table, that with a mean age of 31.7 years women would prefer their husbands to use condom. Similarly with a mean age of 30.4 and 30.8 years, women are using Pills and IUD respectively. Women with a minimum age of 18 start using pills, injections and withdrawal methods, while periodic abstinence is used at an age of 17 years. The results also show that at a higher age, that is, with an average age of 42.5 years women do not prefer to use contraceptives. However, in this respect if we compare the mean age and median age, the difference is very negligible, indicating a symmetrical distribution. The model age at which the woman starts using contraceptives is 30 years.

Further analyses were done to see the effect of age on the ideal number of children. These results are presented in Table 4.21.

Table 4.21

Summary Distribution of Age by Number of Ideal Children Who Were Current Users

Ideal Number of Children	Mean	Median	Minimum	Mode	Range	Std. Deviation	Variance	Max.
Ideal Number of Children								
1	29.1	31	22	36	32	14	5.0	24.5
2	31.0	30	18	48	35	30	6.8	45.8
3	33.0	32	18	48	25	30	8.2	66.7
4	32.6	32	17	49	30	32	6.8	46.8
5	36.3	38	22	48	30	26	6.7	45.1
6+	37.1	37	23	46	35	23	5.0	24.7
Upto God, Allah	35.9	37	18	49	35	31	7.2	51.5
Other Answer	30.5	30	30	36	30	6	2.7	7.4

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results indicate that ideal number of children increases with the increase in the age. At a mean age of 32.6 years these women prefer to have four children. While at the mean age of 35.9 years, the ideal number of children is upto God, Allah. At this age the women are indecisive. However, the minimum age is 18 years and the maximum age is 49 years in this respect. While again at the modal age of 30 years they prefer four to five children as ideal. This indicates again that the norm of small family is still not popular among these women.

In addition to the summary statistics, correlations were calculated amongst the variables of importance, which are used latter in the study in regression

analysis. The results in the Table 4.22 shows that Age of the respondent with total children ever born have strong positive relationship, that is 0.906 and is significant at 1% level. Similarly number of living boys showed a positive and strong relationship with the children ever born, that is correlation coefficient = 0.751 and was found to be significant at 1% level, number of living boys when compared with number of living children, the correlation coefficient was 0.772 with a positive relationship and significant at 1% level. Educational level with the place of residence showed a negative relationship with the correlation coefficient of -0.455 and significant while place of residence with the total children ever born had a low correlation of coefficient that is, .007, but with the age of the respondent, the coefficient of correlation = -0.022 and hence negative correlation. Husbands level of education with sons preference showed a negative relationship, with the coefficient of correlation =-0.015, and significant at 1% level.

Moreover, sons preference with the number of living boys showed a coefficient correlation of =-0.394 and significant at 0.01 level. However most of the variables shows a very low correlation amongst each other. The relationship between the spousal communication and husbands attitude toward family planing showed a negative correlation coefficient of –0.340 and significant at 0.01 level. However, knowledge of any method when compared with currently using any method had a negative relationship with a coefficient of correlation =0.196 and significant at 0.01 level.

Table 4.22

CORRELATION COFFICIENTS

		Total children ever born	Age of Respondent	No. of Total Live Children	Place of Residace	Region of residence	Ideal Children	Highest educational level	Husbands Level of Education	Currently Using Any Method	Age at Marriage	No of Living Boys	Sons Preference	Religious Belief	Husband Talked About FP	Source of Method	Husband Attitude towards FP	Knowledge of Any Method	IND EVER
Total children ever born	Pearson Correlation	1.000	.643**	.906**	-.010	.007	.084**	-.140**	-.124**	.159**	-.098**	.751**	-.255**	.022*	.091**	-.007	-.081**	.096**	.201**
	Sig. (1-tailed)		.000	.000	.221	.283	.000	.000	.000	.000	.000	.000	.000	.040	.000	.313	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Age of Respondent	Pearson Correlation	.643**	1.000	.634**	-.030**	-.022*	.049**	-.062**	-.088**	.117**	-.006	.516**	-.260**	.038**	.010	-.007	-.023*	.057**	.130**
	Sig. (1-tailed)	.000		.000	.008	.040	.006	.000	.000	.000	.329	.000	.000	.001	.209	.299	.038	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
No. of Total Live Children	Pearson Correlation	.906**	.634**	1.000	-.035**	.026*	.061**	-.098**	-.079**	.201**	-.097**	.772**	-.260**	.028*	.115**	-.007	-.106**	.107**	.246**
	Sig. (1-tailed)	.000	.000		.003	.019	.001	.000	.000	.000	.000	.000	.000	.013	.000	.302	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Place of Residace	Pearson Correlation	-.010	-.030**	-.035**	1.000	.036**	.038*	-.455**	-.335**	-.301**	-.009	-.009	.091**	.011	-.224**	.148**	.229**	-.217**	-.361**
	Sig. (1-tailed)	.221	.008	.003		.002	.029	.000	.000	.000	.328	.248	.000	.180	.000	.000	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Region of residence	Pearson Correlation	.007	-.022*	.026*	.036**	1.000	.070**	-.113**	-.072**	-.070**	-.038**	.032*	-.044**	-.010	-.073**	-.005	.124**	-.111**	-.109**
	Sig. (1-tailed)	.283	.040	.019	.002		.000	.000	.000	.000	.001	.005	.000	.218	.000	.329	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Ideal Children	Pearson Correlation	.084**	.049**	.061**	.038*	.070**	1.000	-.052**	-.115**	.090**	.043*	.016	.021	-.002	-.009	.116**	.044*	-.059**	-.048**
	Sig. (1-tailed)	.000	.006	.001	.029	.000		.004	.000	.000	.018	.452	.141	.323	.000	.015	.093	.007	
	N	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2526	2369	1878	2369	2526	2526
Highest educational level	Pearson Correlation	-.140**	-.062**	-.098**	-.455**	-.113**	-.052**	1.000	.522**	.278**	.055**	-.094**	-.029**	-.021*	.228**	-.158**	-.163**	.178**	.321**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.004		.000	.000	.000	.000	.010	.048	.000	.000	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Husbands Level of Education	Pearson Correlation	-.124**	-.088**	-.079**	-.335**	-.072**	-.115**	.522**	1.000	.210**	.031**	-.071**	-.015	-.010	.161**	-.147**	-.179**	.194**	.252**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.000	.000		.000	.007	.000	.116	.214	.000	.000	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Currently Using Any Method	Pearson Correlation	.159**	.117**	.201**	-.301**	-.070**	-.027	.278**	.210**	1.000	-.022*	.161**	-.129**	-.017	.314**	-.029*	-.203**	.196**	.719**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.090	.000	.000		.036	.000	.000	.082	.000	.019	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Age at Marriage	Pearson Correlation	-.098**	-.006	-.097**	-.008	-.038**	.181**	.055**	.031**	-.022*	1.000	-.070**	-.004	-.007	.009	.006	.029*	-.018	-.033**
	Sig. (1-tailed)	.000	.329	.000	.328	.001	.000	.000	.007	.036		.000	.361	.293	.497	.327	.012	.073	.004
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
No of Living Boys	Pearson Correlation	.751**	.516**	.772**	-.009	.032**	.043*	-.094**	-.071**	.161**	-.070**	1.000	-.394**	.009	.098**	-.004	-.064**	.085**	.183**
	Sig. (1-tailed)	.000	.000	.000	.248	.005	.016	.000	.000	.000	.000		.000	.237	.000	.387	.000	.000	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Sons Preference	Pearson Correlation	-.255**	-.260**	-.280**	.091**	-.044**	.021	-.029**	-.015	-.129**	-.004	-.394**	1.000	-.002	-.056**	-.003	.011	-.036**	-.134**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.141	.010	.116	.000	.361	.000		.438	.000	.401	.191	.002	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Religious Belief	Pearson Correlation	.022*	.038**	.028*	.011	-.010	-.002	-.021*	-.010	-.017	-.007	.009	-.002	1.000	-.021	.009	.001	.025*	.093**
	Sig. (1-tailed)	.040	.001	.013	.180	.218	.452	.048	.214	.082	.293	.237	.438		.051	.252	.477	.022	.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
Husband Talked About FP	Pearson Correlation	.091**	.010	.115**	-.224**	-.073**	-.009	.228**	.161**	.314**	.000	.098**	-.056**	-.021	1.000	-.080**	-.349**	.179**	.321**
	Sig. (1-tailed)	.000	.209	.000	.000	.000	.323	.000	.000	.000	.497	.000	.000	.051		.000	.000	.000	.000
	N	6136	6136	6136	6136	6136	2389	6136	6136	6136	6136	6136	6136	6136	6136	5158	6136	6136	6136
Source of Method	Pearson Correlation	-.007	-.007	-.007	.146**	-.006	.116**	-.158**	-.147**	-.029**	.006	-.004	-.003	.009	-.080**	1.000	.145**	-.238**	-.178**
	Sig. (1-tailed)	.313	.299	.302	.000	.329	.000	.000	.000	.019	.327	.387	.401	.252	.000		.000	.000	.000
	N	5158	5158	5158	5158	5158	1678	5158	5158	5158	5158	5158	5158	5158	5158	5158	5158	5158	5158
Husband Attitude towards FP	Pearson Correlation	-.081**	-.023*	-.106**	.229**	.124**	.044*	-.183**	-.179**	-.203**	.029*	-.064**	.011	.001	-.349**	.145**	1.000	-.166**	-.253**
	Sig. (1-tailed)	.000	.038	.000	.000	.000	.015	.000	.000	.000	.012	.000	.191	.477	.000	.000		.000	.000
	N	6136	6136	6136	6136	6136	2389	6136	6136	6136	6136	6136	6136	6136	6136	5158	6136	6136	6136
Knowledge of Any Method	Pearson Correlation	.096**	.057**	.107**	-.217**	-.111**	-.059**	.178**	.194**	.196**	.018	.085**	-.036**	.025*	.179**	-.238**	-.166**	1.000	.272**
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.003	.000	.000	.000	.073	.000	.002	.022	.000	.000	.000		.000
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364
IND EVER	Pearson Correlation	.201**	.130**	.246**	-.361**	-.109**	-.048**	.321**	.252**	.719**	-.033**	.183**	-.134**	.093**	.321**	-.178**	-.253**	.272**	1.000
	Sig. (1-tailed)	.000	.000	.000	.000	.000	.007	.000	.000	.000	.004	.000	.000	.000	.000	.000	.000	.000	
	N	6364	6364	6364	6364	6364	2526	6364	6364	6364	6364	6364	6364	6364	6136	5158	6136	6364	6364

Overall, in short except few variables, with high correlation, most of the variables were having very low correlation amongst each other and were mainly significant at 1% level.

Part IV

Regression Analyses

4.9.1 'Relationship of Fertility Behaviour of a Women With Socio-Economic, Demographic and Knowledge, Aptitude and Practice (KAP) Variables

Regression analysis is now used to investigate the factors, which influence the fertility behaviour of a woman with different variables. It was hypothesised that factors like age of the respondent, age at marriage, number of living children, son preference, place of residence and region of residence etc. influence the fertility behaviour of a woman. To test this hypotheses the ordinary least square technique is used. The standard statistical tests are used, which will help in identifying whether and how fertility behaviour varies with these different variables.

The estimated regression gave the results for the different models having different variables. In all the cases, the dependent variable was the children ever born as a measure of total fertility. The estimated regression equations are discussed in the following section as under:

Table 4.23

	Parameters	Estimate	SE	t-ratio
i.	Husband Talked about family planning	-.005	0.025	-0.202
ii.	Current age of respondent	0.030	0.001	15.358
iii.	Knowledge of any method	0.052	0.031	1.671
iv.	Locality	0.113	0.017	6.430
v.	Number of living children	1.021	0.006	153.530
	Constant	-0.804	0.085	-9.421

$R^2 = 0.882$ $\bar{R}^2 = 0.882$

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The coefficients of current age of the respondent, knowledge of any method, locality and number of living children were found to be significant. While variable of spousal communication was significant but with a negative sign. This negative sign indicates that the communication between husband and wife is not properly taking place or may be it is because of no proper understanding about the fertility control. All the variables do explain that fertility behaviour of the women is effected by this variables/parameter and explains 88% of the variation in the dependent variable. In order to test for the over all significance of the model, analysis of variance was conducted with the following results.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	5	46706.352	9341.270	9197.366
Residual	630	6226.214	1.015	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The F-statistic was also highly significant indicating the over all significance of the effects of these variables in explaining the variation in the dependent variable.

In the second model spousal communication and knowledge of any method was dropped as it was assumed to be correlated with other variables and a

new variable of education was included. The results of model are shown as under.

Table 4.24

Parameters	Estimate	SE	t-ratio
i. Local	0.032	0.018	1.744
ii. Living number of children	1.012	0.006	156.277
iii. Highest Education level	-0.120	0.015	-7.722
iv. Current age of the respondent	0.030	0.001	15.733
v. Constant	-0.489	0.732	-6.676.

$R^2 = 0.883$ $\bar{R}^2 = 0.883$

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

These results show a priori expected signs except number of living children. All the variables except the variable of place of residence were found to be insignificant. The positive sign of the variable, number of living children is unexpected, as it was assumed to have an indirect relationship with the dependent variable and hence negative sign. This positive relationship indicated that families still value children at a high rate and hence wants to have big family size. That is, the norm of small family size that is of two children still not popular in this country. While education was found to be with the expected sign, showing that as the education of women increases delays in marriages takes place and hence lower fertility.

These variables show 88% of the variation in the dependent variable. The overall F-statistic was also highly significant, indicating a good fit. Moreover, the variables are different from zero. The results of analysis of variance are as under

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	4	48945.595	12236.398	12059.184
Residual	6359	6452.528	1.014	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

So in order to have a positive effect on the dependent variable i.e. total children ever born used, as a measure of total fertility, the variables in the model should be taken care-off. The third model, variables relating to the Knowledge, Aptitude (KAP) and Practice was added by dropping some of the variables. In this model family planning service and sons preference was included in addition to current age of the respondent and spousal communication about family planning. The results of the model are given as follows:

Table 4.25

Parameters	Estimate	SE	t-ratio
i. Family planning service	0.029	0.055	0.530
ii. Sons preference	-0.499	0.075	-6.591
iii. Spousal communication about family planning	0.393	0.720	5.469
iv. Age of the respondent	0.216	0.003	57.799
v. Constant	-3.205	0.185	17.243.

$R^2 = 0.427$ $\bar{R}^2 = 0.427$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

In this model, all the variables were with the a priori expected signs. These variables explain 42% of total variation in the dependent variable. The negative sign of the sons preference, as expected shows that the gender difference in the families may have little importance, which may be because of increase in education level. All the variables except family planning service were found to be insignificant. This may be due to the fact that organisations providing family planning service are not approaching the target population or the population have some misunderstanding and fears of the services provided by them. F-statistic was calculated to test the over all significance of the model.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	4	19255.670	4813.917	962.403
Residual	5153	25774.358	5.001	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results indicate that the variables included in the model have an effect on the dependent variable. If the dependent variable is to be effected, these non-zero parameters are important to be considered.

The results of the analysis of demographic variables with socio-economic variables are shown in Table 4.26:

Table 4.26

Parameters	Estimate	SE	t-ratio
i. Locality	0.028	0.018	1.561
ii. Number of living children	1.015	0.006	155.022
iii. Sons preference	0.096	0.032	2.958
iv. Education	- 0.119	0.015	-7.650
v. Current age of the respondent	0.031	0.001	15.977.
vi. Constant	-0.532	0.074	-7.131

$R^2 = 0.883$ $\bar{R}^2 = 0.883$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results of this model indicate that all the variables are with expected signs. The variable of number of living children was found to be highly significant. All the variables except the variable locality and sons preference are insignificant. The insignificance of the variable of sons preference may be due to the level of education. If a woman is highly educated then the basic difference between a boy and girl finishes or has no value for the couple. Current age of the respondent was found significant in all the models with the expected sign. The variables included in the model have significant effect on the dependent variable, that is, 88%. This model indicates that social factor in combination with demographic variables are the important variables. Moreover, the coefficient of all the variables is non-zero. In order to examine the over all significance of the model, analysis of variance was conducted. The results are as follows.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	5	48954.465	9790.893	9660.858
Residual	5358	6443.659	1.013	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The F-statistic indicates the over all significance of the model and hence the variable in the model have a significant effect on the dependent variable.

In order to examine the relationship of number of living boys and reasons for not using family planning with the dependent variable following model was constructed with the results as follows:

Table 4.27

Parameters	Estimate	SE	t-ratio
i. Reasons for not using Family planning (Religion)	0.479	0.088	5.400
ii. Husband level of education	-0.174	0.019	-8.949
iii. Number of living boys	1.352	0.015	86.569
iv. Spousal communication about family planning	0.179	0.048	3.664
v. Locality	-0.077	0.034	-2.208
vi. Constant	1.728	0.127	13.613

$R^2 = 0.572$ $\bar{R}^2 = 0.572$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

In this model all the variables were as expected. Spousal communication and locality were found to be insignificant variables and thus not effecting the dependent variable. While the variable of the number of living boys was highly significant. The variables included in the model showed 57% of the variation in the dependent variable. To examine the overall significance of the model F-statistic was calculated, which indicated that the model as a

whole is highly significant. The result of the analysis of variance is shown as under.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	5	30298.365	6059.673	1641.215
Residual	6130	22634.201	3.692	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The model in Table 4.28 was constructed by including demographic variables. The results of the model are as follows:

Table 4.28

Parameters	Estimate	SE	t-ratio
i. Local	-0.114	0.313	-3.649
ii. Number of living boys	1.065	0.016	64.851
iii. Sons preference	0.507	0.057	8.832
iv. Highest Education level	-0.255	0.026	-9.686
v. Current age of the respondent	0.126	0.002	42.249
vi. Constant	-1.489	0.125	11.839

$R^2 = 0.665$ $\bar{R}^2 = 0.665$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results of this model again indicates that the place of residence (city, town, rural) do not exert any influence on the dependent variable and this variable was defined that it may have positive or negative a priori sign. This was done on the condition that if a person is of urban area, it may have a positive relationship, but if the person belongs to rural area than it may have a negative sign. On the whole it was assumed to have either positive or negative sign. Moreover, all the other variables were having a priori signs and were significant. Again in this model the number of living boys was highly significant as compared to other variables. Age of the respondent was as usual having the expected sign and significant. The variables in the model explain 66% of the variation in the dependent variable. Analysis of variance was calculated to see for the overall significance. The results are as follows:

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	5	36860.889	7372.177	2528.580
Residual	6358	18537.235	2.915	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

These results indicates the overall significance of the model, having an F-statistic = 2528.580.

In order to analyse for the regional effect on the dependent variable, the variable of region of residence was included along with socio-demographic variables. The results are shown as follows, in Table 4.29.

Table 4.29

Parameters	Estimate	SE	t-ratio
i. Region	-0.077	0.014	-5.276
ii. Number of living children	1.013	0.006	156.755
iii. Locality	0.020	0.018	1.107
iv. Husband level of education	-0.044	0.011	-3.981
v. Highest level of education	-0.099	0.070	-5.743
vi. Current age of the respondent	0.029	0.001	15.217
vii. Constant	-0.265	0.080	-3.299.

$R^2 = 0.884$ $\bar{R}^2 = 0.884$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results indicate that all the variable except for locality again was found to be insignificant, which mean locality that is, whether one is from city, town or rural area does not effect the fertility level. However, region with the expected sign was found to be significant. These variables altogether explains 88% of the variation in the dependent variable. If the effect of the independent variables is be fruitful and recognised then these parameters should be considered. For the purpose of examining the overall significance model, analysis of variance was carried out. The results of which are as under:

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	6	48988.820	8164.803	8098.274
Residual	6357	6409.304	1.008	

F-statistic signifies the overall significance of the model.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

In short, based on $\bar{R}^2$ the best results are in Tables 4.23, 4.24, 4.26, 4.29, followed by other three models. The variables/parameters mostly included in these models are significant and exerts about 88% of the variation in the dependent variable. If proper results are to be expected, then these variables of significance should be considered. Other three models are also good models, and the $\bar{R}^2$ of being low to the other models is not an unusual phenomenon in such type of studies.

4.9.2 Regression Models With 'Mix' of Variables

An initial problem in specifying a general form of equation is the choice of an appropriate set of independent variables. In regression analysis a variable, which may have been the 'best' single variable to enter at an early stage, but may, at a latter stage, become superfluous because of its place in the regression.

In these analysis, as discussed earlier, the objective was to isolate the variables of importance and as before the variable of 'Children Ever Born' as a measure of fertility level is taken as a dependent variable in all the models.

Table 4.30

Parameters	Estimate	SE	t-ratio
1. Living Number of Children	1.077	0.005	212.667
2. Ideal family size	0.002	2.911-04	7.424
3. Constant	0.136	0.026	5.081.

$R^2 = 0.878$ $\bar{R}^2 = 0.878$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

These two variables alone in the model explain 87% of the variation in the dependent variable and were highly significant. While the variable age at marriage and preference of sons were insignificant, and were not added to the model. This means that these two variables did not show any dependence on the dependent variable. Moreover, F-statistic also verifies the significance of the variable and the result of analysis of variance is as follows:

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	2	48665.288	24332.644	22989.108
Residual	6361	6732.835	1.058	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

In the next model (that is, model 2) along with socio-economic variables, variables relating to Knowledge, Aptitude and Practice (KAP) were added. The results of the model is as under:

Table 4.31

Parameters	Estimate	SE	t-ratio
i. Number of living children	1.079	0.005	207.273
ii. Highest level of education	-0.116	0.014	-7.848
iii. Currently using any method	-0.101	0.042	-2.389
iv. Constant	0.319	0.023	13.670

$R^2 = 0.879$ $\bar{R}^2 = 0.879$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The result shows that the variable, number of living children was highly significant and hence was entered first in the model. It alone showed 87% of

the variation in the dependent variable. While the variable highest level of education was also significant, but the variable of currently using any method was with the right sign but was insignificant. The variable of the age at marriage and locality were not included in the model and were at the same time insignificant. The significance of the variable was also justified by analysis of variance. The results are as under:

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	3	48698.530	16232.843	15410.214
Residual	6360	6699.593	1.053	

The result shows that F-statistic justifies the fit of the model.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

It is generally assumed that the use of contraception is associated with the number of living children and number of living boys. The model used with these variable shows the following results:

Table 4.32

Parameters	Estimate	SE	t-ratio
i. Number of living children	1.086	0.005	210.756
ii. Currently using any method	-0.204	0.040	-5.011
iii. Constant	0.258	0.022	11.684

$R^2 = 0.877$ $\bar{R}^2 = 0.877$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

These results indicate that number of living children is highly significant and explain 87% of the variation in the dependent variable. The variable of currently using any method was also significant but with a small explanatory power. With these two variables, the overall model shows a good fit, using F-Statistics.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	3	48633.653	24316.826	22866.722
Residual	6361	6764.470	1.063	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The two variables of age at marriage and number of living boys were not included in the model and were insignificant.

In the next model (model 3) the variable, spousal communication was included. Since the use of any method may be affected by this variable. The model showed the following results:

Table 4.33

Parameters	Estimate	SE	t-ratio
i. Highest level of education	-0.717	0.046	-15.438
ii. Currently using any Method	1.250	0.142	8.753
iii. Spousal Communication about family planning	0.539	0.074	7.206
iv. Locality	-0.149	0.055	-2.707
v. Constant	3.879	0.186	20.793

$R^2 = 0.051$ $\bar{R}^2 = 0.051$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

Again in this model all the variables were significant with the expected signs. But $\bar{R}^2$ (i.e. 0.051) was very low, while F-statistic shows that the overall model has a good fit.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	4	2752.133	688.033	84.067
Residual	6131	50180.433	8.184	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

This low explanatory power may be because some of the independent variables may be highly correlated. But studies suggest that low R^{-2} is not an uncommon feature, particularly in cross sectional data (Butt and Jamal 1993). In order to investigate the effects of demographic variables, on the explanatory variable, model with variables like sons preference, number of living boys, spousal communication about family planning were analysed. The results of the model are as follows:

Table 4.34

Parameters	Estimate	SE	t-ratio
i. Number of living boys	1.395	0.168	82.676
ii. Highest level of education	-0.298	0.030	-9.651
iii. Sons preference	0.372	0.064	5.770
iv. Locality	-0.143	0.036	-3.877
v. Spousal communication about family planning	0.184	0.049	3.761
vi. Constant	1.697	0.128	13.169

$R^2 = 0.573$ $\bar{R}^2 = 0.573$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The result in model reveals that all these variable have an effect on the dependent variable. The most significant variable was the number of living boys, which alone showed 56% of the variation in the dependent variable. This variable indicated that if number of living boys are more, than it may have positive effect on the fertility behaviour of a woman, that is, as number of living boys increases, the use of contraception increases, indicating gender differences. Almost all the variables were significant with the exception of locality and spousal communication about the family planning. To test the overall significance of the model, F-statistic was calculated through analysis of variance. The results are as follows:

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	5	30366.497	6073.299	1649.872
Residual	6130	22566.069	3.681	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The F-statistic shows that all the variables included in the model have effect on the dependent variable and hence a good fit.

In order to examine the effects of household and household 'heads' characteristics, variable relating to these was included in the model along with other variables. The results of the model are as follows:

The model was modified by dropping some of the variables and adding a new demographic variable current age of respondent. The results of the model were improved as shown under:

Table 4.36

Parameters	Estimate	SE	t-ratio
i. Current age of the respondent	0.226	0.003	67.889
ii. Husband level of education	-0.165	0.020	-7.976
iii. Constant	-2.743	0.111	-24.646

$R^2 = 0.428$ $\bar{R}^2 = 0.428$.

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

The results of the model indicate that the current age of the respondent is very crucial variable and is highly significant with the expected sign. Moreover the variable of husbands level of education was also found to be significant with the expected sign. The currents age of the respondent alone showed 42% of the variation in the dependent variable. Moreover, F-statistic also indicates the over all significance of the model.

Analysis of Variance Table

	D.F	Sum of Squares	Mean Squares	F-ratio
Regression	2	23765.504	11882.752	2389.531
Residual	6361	61632.620	4.972	

Source: Pakistan Demographic and Health Survey 1990-91, original analysis of data.

However again the variables relating to the household were not found significant and were not included in the model.

In short, if we consider $\bar{R}^2$ and the significance of the variables, the results in tables 4.30, 4.31, 4.32, 4.34 and 4.36 are preferred models, indicating that these variables (included in the models) have an effect on the dependent variable. If results are to be achieved, then these variables of importance should be considered.

4.10 Summary and Conclusion

This section of the chapter presents summary and conclusion.

1. Majority of currently married women is in the age group of 25-29 years, indicating a delayed marriage age.
2. In Pakistan there is still desires to have large families. The norm of small family is still not achieved. On the average a family is having four children.
3. The trend in the number of living sons has declined. Majority of the women had one or two living sons both in rural and urban areas.
4. Education level showed that majority of rural women are uneducated (illiterate) as compared to the urban areas (i.e. 47.4% and 89.0% respectively).
5. Husbands were more educated than their wives especially in rural areas, this ratio was 12.1% and 1.2% respectively.
6. The number of living children shows a declining trend both in rural and urban areas. Majority of them had two living children.

7. The use of any method increased from 3.3% to 22.7%, modern method increased from 2.5% to 17.7% and any traditional method increased from 0.8% to 5.1% from the age group of 15 to 19 years with maximum usage in the age group of 35 to 39 years.
8. The use of contraception decreases with the increases in the age as at older age women prefers permanent solution or method of their choice.
9. The use of contraception increases with the number of living children and with the attainment of higher education by both husband and wife and this usage is greater in urban areas as compared to rural areas.
10. Provincial usage shows that Punjab is ranked as first followed by Sindh, NWFP and Balochistan respectively.
11. Number of living sons play a vital role in fertility control/regulation rather than the number of living children. Moreover, contraception is used for limiting the family size rather than spacing, once the desired family size is complete.
12. Education as a whole, both of husband and wife has a strong and positive effect on the fertility behaviour of a Pakistani woman.
13. The ratio of the children is higher in the rural area as compared to urban areas, indicating that fertility control and use of contraception is more a problem of a rural woman as compared to her urban counterpart.
14. On the whole the data shows that most of the women are the users of different contraceptive methods.
15. In urban areas most of the womens choice of contraceptives was female sterilisation, periodic abstinence and withdrawal as the first

method, where as in rural areas, female sterilisation, IUD and injections were there first method of choice.

16. The women of NWFP were the highest users of Pill, while IUD was the preferred method of the women living in Punjab. In short women of the Punjab province were the highest users of modern method followed by Sindh, NWFP and Balochistan.

17. The use and popularity of contraceptives with married women has a curvilinear association and changes in the use of contraceptives with age were observed.

18. The mean age of the respondent in the study was 31.03 years with a modal age of 25 years and shows a symmetrical distribution.

19. The first method of contraceptive used by the currently married women is Pill, followed by periodic abstinence and female sterilisation.

20. As the number of children showed an increasing trend, the women preferred to use the modern contraceptive methods.

21. Two types of regression methods were used. One commonly known as a method "Enter" and the second regression method used was to isolate the important variables. In the first type of the models, considering $\bar{R}^2$ as a criterion, tables 4.23, 4.24, 4.26, 4.29 were the most preferred models and hence the variables or parameters were considered as significant in explaining the variation in the dependent variable. While in the regression Tables 4.30,4.31, 4.32, 4.34 and 4.36 are the most preferred models and hence the variables have affect on the dependent variable. Some of these variables are current age of the respondent, knowledge of any method, spousal communication about

family planning, living number of children, female education, sons preference and number of living boys etc.

4.11 Some General Considerations

It is a fact that reliable data on population is lacking in the country. During the last three decades, many (about 25) national sample surveys are undertaken so as to provide continuos data on population and family planning services. However, the results of these surveys are to be used carefully, as there are limitations in the scope, quality and timeliness of the data (Hashmi et al., 1994).

The data collected through these surveys should be cross-checked by the new surveys undertaken, so as to produce more reliable data on important issues to the policy and decision-makers. The analysis has shown that majority of the currently married women are in the age group of 25 to 29 years. If some support programmes are provided to the women like education to the females, the marriage age can be further delayed and hence will affect the fertility behaviour of the women. Many empirical studies as discussed earlier in the thesis and even the present analysis has shown that female education is positively and strongly related to the fertility behaviour. The basic objective of the family welfare programme, a small family size is still not popular amongst the couples. There is still on the average a family size of four children, which needs a careful attention in emphasising a two-child family. This can be achieved if proper spousal communication about family planning is increased and emphasised. To achieve this end, education of both husband and wife is essential. Moreover, in such cases special

attention should be provided to the couples. Knowledge and awareness about fertility regulation should if possible were provided at the doorsteps. Moreover, a 'mix' of contraceptives should be given so that the client makes a choice from it, according to their need, as it is the acceptability rather than the numbers important. If this condition is not satisfied it results in dropouts or discontinuation of contraception. Since most of the population in Pakistan is illiterate or with low education, this problem is mostly, a rural problem. So more attentions should be given to the rural areas, and should be educated in this respect. In rural areas, the use of contraception is low and mostly uses traditional methods. Here if any fears or misunderstandings about contraception are their follow up of the acceptors should be made and fears of side effects be removed. This should be a vital part of the programme. Moreover, counselling of the client and prompt treatment if necessary should be given. The programmes should be organised in such a manner, that it systematically educates women and men about their fertility and hence emphasis should be on the concept, that fertility is within a women power to control. Moreover, men reproductive health should also be one of the strongholds of the programme, making male partners involved not only in the decision making process but in practice as well. Women, who do not want any more children, should be motivated to become the users. If all these women become current users, the level of total fertility would decline and the replacement level, which is the goal of many developing countries including Pakistan, will be achieved sooner (Hashmi et al., 1994). Most of the women uses traditional methods, although being not effective, they are used because of the fear of side effects and also may be due to the belief that the use of modern methods are not permitted by the religion. All such type of fears and misunderstandings be removed and providing couple with safer

and high-continuation methods. Further, the knowledge of spacing rather than limiting the family size be provided. As evident from the study that most of the women use contraception for limiting rather than spacing family size. Mostly in Pakistan, women are using different contraceptive methods, the problems of which will also be solved if proper education is given on the use of contraception. Most of the men feel shy going to the centres, for this purpose a few separate centres for males should be established on experimental basis. Current use can be considerably increased if Male Family Welfare Centres are also established and Population Welfare programme includes a choice of vasectomy also as one of the most important contraceptive method specially for males. Thus in short, it is very important that Information, Education and Counselling Programmes are modified, and attention be given to widen the choice of contraceptives methods for males. For this purpose more family welfare centres, reproductive health centres should be established so that the fast increasing population can be benefited from the services they extend. The basic objective should be to bring a change in the attitude and behaviours of the people. For this purpose population education projects, formal and non-formal should be started, to enable the masses to understand the implication of the non-adoption of the programme.

Chapter V

Conclusions

5.1 A Recapitulation of the Nature of the Study and the Hypotheses

The basic objective of the study reveals around the fertility behaviour of women using various contraceptive methods. In order to investigate the association between the fertility behaviour and contraceptive methods, factors like fertility differences, among the women of different regions, and areas etc. teenage fertility, women using different contraceptive methods and preferences by important background characteristics were analysed. These factors are closely associated with the variables and factors that determine the use of the choice of contraceptives. Thus, the correlates or covariates of importance were also investigated. This in turn helped in investigating the effects of the use of contraceptives on the fertility behaviour of the women. In short all these aspects were studied and analysed with respect to important socio-economic, socio-demographic and Knowledge, Aptitude and Practice (KAP) context.

For the purpose of analysis following hypotheses were formulated:

1. The status improvement of women strongly and positively effects their reproductive performance.
2. The household heads occupation and education has strong and positive implications on fertility behaviour of his family.

3. The fertility behaviour of married women is directly and strongly effected by the direct (like population structure, marital composition and contraception) and indirect (like education of the respondent, education of the husband and place of residence etc.) determinants of fertility.
4. Age and residence class (place of residence) directly effects the proportion of married women i.e. the population at risk for conception and pregnancy and hence influencing the fertility.
5. The use of contraceptives has produced a substantial fertility decline in Pakistan.
6. Contraceptive popularity with married women has a curvilinear association with age and older women tend to rely more frequently upon effective contraceptives and thus fewer births.
7. Fertility rates are determined by the number of acceptors, using various contraceptive methods.
8. Fertility rate is higher in rural areas of Pakistan than the urban areas, thus a rural problem
9. The average attainment of education of females is an important and growing determinant of their reproductive behaviour and in influencing a direct variable (contraception).

In order to meet the aims of the study and to test the hypotheses, the following techniques were used:

i. Simple cross tabulation to examine the relationships of variables amongst each other.
ii. Multiple regression analysis to determine the effects of different socio-economic, demographic, and Knowledge Aptitude and Practice (KAP) variables.

iii. Correlation tables to check the relationship amongst the variables of importance.

In addition to the above-mentioned technique, following methods of analysis were also used. Summary statistics graphs and diagrams to measure the central value, dispersion, ranges, and the type of skewness and shape of the data/curve. To measure the fertility level of a woman, direct variable 'children ever born' was selected from the data and thus measures the fertility level. But this fertility level has been determined by many types of variables like social, economic, demographic, and Knowledge Aptitude and Practice (KAP) variables. The effect of these variables was investigated by expressing children ever born as a function of some of the important variables as mentioned above. A regression analysis was used to estimate the linear equation and selecting the statistically significant variables.

5.2 A summary of and Discussion of Results

1. The percentage of women currently married mostly lies in the age group of 25 to 29 years. The results further shows that 24.1% are in the major urban areas, 21.5% in the other urban areas and, 22.7% in the rural areas. This increase in the age of the currently married women is an indication of a change, that the marriage age of the women has increased and hence is a supporting evidence for the decline in the fertility level and shortening the age of child bearing.

2. The data on the number of children alive indicates that 15.6% women were having three children alive in major urban areas and in other urban

areas, 14.4% were having four living children, while in rural areas it was 14.3% of the women who were having three children alive. Similarly 23.6% of the major urban areas were having 6 plus children alive, 26.3% were from the other urban areas having the same number of alive children and 22.9% were having 6 plus alive children, but were from the rural areas. It indicates that in Pakistan we still have a long way to go, to achieve a small family of two children.

3. An examination of the data on the number of living boys indicates that 24.0% were having one son alive in major urban areas and 24.0% were having two sons alive in the other urban areas and 24.0% were having two sons alive and were in the rural areas. The percentage decreases as the number of living sons increases. This indicates that son's preference is still an important issue.
4. The data on the education and literacy of the respondents shows that twice the number (89.9%) in the rural areas were having no education as compared to major urban areas (47%). Similarly 20.9% were with secondary education in major urban areas as compared to only 1.2% in the rural areas. This shows that illiteracy is mostly in the rural areas, if support program like education is made universal and popular in rural areas, it may further result in lowering the level of fertility and hence affecting the fertility behaviour.
5. The education and literacy levels of husbands shows that husbands were more educated as compared to their wives. This indicates that education of both husband and wife should be emphasised.
6. The usage of the contraceptive methods can be classified broadly into two categories, modern method and traditional method, shows that majority of the women are using modern method, (that is 17.7%) and

only 4.6% are using traditional methods. While 22.7% are using any method. Majority of woman using these methods is in the age group of 35 to 39 years. This indicates that modern methods are more preferred as compared to the traditional methods.

7. The use of any modern method when compared to the total numbers of living children, the data shows the usage decreases when three children are alive but shows an increasing trend with the increase in the number of living children while traditional method shows a decreasing trend, when four children are alive. Here again, the data indicates that women mostly use modern methods of contraception, and hence it is the quality of contraceptives, which is an important factor.
8. With an increase in the education level, the use of both modern and traditional methods increased, indicating that education had a strong and positive relationship with the use of contraceptive methods, similar pattern is shown when husbands level of education is considered.
9. When the data was analysed with respect of place and region of residence, the results revealed that urban residents are more users of modern methods as compared to rural counterparts. Again, this signifies that it is the rural area residents who are to be the major focus of the family planning organisation. In respect of residence, the province of Punjab was ranked first (11.7%) followed by Sindh (10.8%), NWFP (8.8%) and Balochistan with only 2.1% using modern methods. These differences in urban and rural areas show the preference of respondents by the region of residence.
10. Another useful finding of the study is that women who were current users, were 20.4% in the age group of 30 to 39 years and in this age group 15.9% were using modern methods and 4.5% were using

traditional methods. Again the use of modern methods showed an increasing trend with the number of living children. Similarly education level also showed that the usage of both modern and traditional methods increases with the increase in education.

11. Place of residence shows that majority of the urban women are using modern methods as compared to rural women, that is, in case of rural areas 4.9% were using modern methods and 22.4% using modern methods belonged to major urban areas. Overall, in short, the urban-rural differences in the use rates shows the preference of respondents by the place of their residence.
12. When age was compared with the number of children, 27.9% in the age group of 35 to 39 years were having four children alive. Thus on the average the family were in favour of four children as desired family. This is the age where maximum usage of contraception takes place.
13. The maximum number of non-pregnant women who were current users was 25.5% who were having four living children and three of them were boys. This means that may be, sons preference still prevails in this society, that is, gender differences are valued high.
14. The data reveals that 84.6% of the respondents having higher education were having four children. This shows that education is an important factor in deciding or choosing the number of children.
15. Most of the urban women were highly educated and current user as compared to rural women.
16. It was observed that 86.2% women in the age group of 35 to 39 years with higher education were non-pregnant and were currently using contraception. Similarly with no education, the highest percentage of women was in the same age group of 35 to 39 years.

17. In the age group of 35 to 39 years amongst the women 15.9% were using modern methods 7.9% preferred female sterilisation, 3.8% condom, 2.6% periodic abstinence, 1.8% withdrawal and only 0.9% used pills, and only 4.5% were using traditional methods.

18. As for the urban - rural differences in the use of different contraceptive methods, in major urban areas condom was the most preferred method (that is 8.9%) followed by female sterilisation (8.5%), and 8.7% out of the total of 31% were using traditional methods. In rural areas, female sterilisation (i.e. 1.9%) followed by condoms (1.0%) were the preferred methods. This urban - rural difference in the use rates shows the preference of respondents by the place of residence.

19. The use of condoms and withdrawal increased with the increase in education, while female sterilisation increased till the education level of middle, but decreased with secondary and higher education.

20. In the age - group of 30 to 34 years, 81.8% of the currently married women were having knowledge of the contraceptive methods, out of which 2.4% ever used and 13.4% is currently using the contraception.

21. First method of contraceptive used by the currently married women, shows that majority of the women preferred the use of condoms, followed by pill, periodic abstinence and female sterilisation etc. while male sterilisation was the least preferred.

22. The nature of the usage shows curvilinear shapes in most of the methods such as pills, IUD, injections and condom etc, and a similar pattern is followed if we compare modern method to any traditional method.

23. At the age of 30 years on the average, the number of ever born children to Pakistani women is four, out of which three are surviving. The gap between the ever born and surviving children increases with an increase

in age, indicating that the country has still much to do in terms of fertility control.

24. A Pakistani women uses variety of methods. At a mean age of 38.0 years women prefers female sterilisation while at a mean age of 36.5 years, preference is for the vaginal methods. Pills and IUD are used at mean age of 30.4 years and 30.8 years respectively. This indicates that at early ages women prefers temporary methods of contraception, while at an older age they seek permanent and acceptable solutions.
25. In the estimated regression models, variables like current age of the respondent, number of living children, educational level of both husband and wife and especially of female (wife), son preference, family planning service, spousal communication about family planning, place of residence and number of living boys, current use of any method were found to be significant in explaining the fertility behaviour of a woman. These variables had strong and positive relationships with the dependent variable that is children ever born as a measure of fertility level.

In the light of the results given, and data analysed, it was empirically verified that:

1. The status improvement of the women was assumed and has been empirically verified by other studies, to have a bearing on the fertility (Hackenberg and Magalit 1985). However, in the present study this hypothesis was not statistically verified.
2. The hypothesis that heads occupation and education has a strong and positive implication on the fertility behaviour of his family, was partly accepted. Household heads occupation was found to be insignificant

while that of heads education had an effect, but the evidence was mild and not strong.

3. The fourth hypotheses that fertility behaviour is affected by the direct and indirect determinants was totally accepted. The use of contraception, population structure along with the socio-economic factors like education of the respondent, education of the husband and place of residence were found to be significant. However to this demographic, and KAP variables were also considered. The highly significant variables were number of living children, number of sons while respondents knowledge and attitude towards family planning were also significant.
4. The fifth hypothesis was fully accepted. Age of the respondent was found to be highly significant in almost all the models and estimation while place of residence showed a milder affect in regressions but was strongly and positively associated when simple cross tabulation of the data was done.
5. The decline in the fertility level is attributed to the increased use of contraception. This was verified both by simple cross tabulation and by using, estimating statistical, and regression models.
6. It was verified that the use of contraception had a curvilinear shape with the age. It was indicated and revealed from the results that as age increases women prefer a permanent solution and most accepted method.
7. Some of the women reported side effects, which led to their discontinuation. This would have not been the case, if quality rather than the acceptors are considered.
8. It was verified that women in rural areas were mostly illiterate as compared to urban areas, hence relied more on the traditional methods, moreover this was also partly verified by including and estimating it in

the statistical models, thus it was accepted that high fertility rate is the problem of rural areas.

9. The hypothesis of education of females was fully accepted and verified both by cross tabulation and in the estimation of statistical models. Throughout the analysis, increases in education led to the increase in use of contraception and delayed marriage age, hence had an affect on the fertility level of the women (in the present case children ever born was used as a measure of fertility level).

5.3 Recommendations

1. When collecting informations on the use of contraceptives most of the women do not give answers on such question, especially in the presence of other. It is recommended that in future to collect such informations privacy during the interview should be maintained. These as is termed shy/silent users, if included may lead to an increase in the current users. That is, under reporting on the use can be avoided.
2. The information on the acceptability of contraception in the reference group of a woman should be included. This can be achieved if more questions regarding the acceptability is included.
3. The respondents, who are in the category of currently users, should be monitored and followed for more than one year. It would be helpful in finding the women who rely on traditional methods, if informations provided may switch over to the more modern methods, which are effective and easily accessible and available.
4. The data collection should not be for a period of one year. As this provides little or poor information. However retrospective histories on the fertility and contraceptive use for at least three to five years before the interview should be given consideration.
5. Most of the surveys conducted on the fertility behaviour and use of contraception in Pakistan are faced with data problems, like over estimations and under estimations in some case, poor reporting on the dates and durations which give biased results. If a proper monitoring is done, may be this basic problem is solved.
6. In order to make Population Welfare Program a success, future survey on the fertility and contraceptive prevalence should take in to consideration

all the live births, that is, by taking cohort analysis of total live births say in the first 5 or 10 years. The analysis of such type of data will give information on the changes in the fertility pattern and use of different methods.

7. In such type of studies, sociological and cultural factors should be given importance. This will help us in analysing that whether a respondent is able to distinguish between the different methods or not. This will also be helpful for the family planning organisations and to population welfare centres, to see which methods should be introduced and what should be available in the market. Hence it will increase the efficiency of these organisation in fulfilling their goals and objectives.
8. In both the rural and urban areas, family planning programmes were started at the same time, but urban areas have better facilities for family planning as most of the family welfare centre, health clinics and hospital which provides such facilities are located in these urban areas. So more family welfare centres, reproductive health centres should be established in the rural areas so that the rural population can take full advantage of the services of these population welfare centres.
9. Masses of the country are illiterate and hence they do not understand what functions these centres perform. In order to make it more effective these centres should conduct effective motivational programmes so that the knowledge about the programmes is disseminated among the poor masses of the country.
10. Efforts should be made to motivate more and uneducated couples to understand the benefits of such programmes and hence initiate the use of fertility regulation methods at a low parity.

11. In order to make the family planning programme effective, strong and continuos political and administrative support is first and the most important pre-condition. The programmes, which are undertaken, should be properly monitored so as to ensure its implementation.
12. As female education plays a vital role in the decision of family size, the literacy level of the women/females should be increased and other more productive jobs and support programmes to promote females into the stream of development process should be initiated.
13. The three programmes currently in operation in the country that is, the programme of ministry of population welfare, the programme of ministry of Health and the programmes of non-governmental organisations should be supervised and evaluated periodically and promptly to ensure its proper implementation.
14. One of the major factors that discourage the users of fertility regulation method is the fear of side effects of the modern methods. It is therefore recommended that follow up of the acceptors, and prompt treatment of those who experience side effects should be the vital part of the programme.
15. The misconceptions about the use of the modern methods, that it is only used for limiting the family size should be removed. Counselling the clients should be the integral part of the Programme that these are appropriate methods, which can be used for spacing the births.
16. The basic objective of the Population Welfare programme is small family norm, that is, two children. But the ideal family size shows at least four children and the desired number of the children are even higher. This problem should be given due attention through more and unambiguous emphasis in the Information, Education and Counselling

(IEC) campaign on the ideal and desired number of children a couple should have.

17. It should be an important consideration of the Population Welfare Organisation that a high priority and more concentration to the rural areas of the country be given where majority of population resides and where the birth rate is very high as compared to the urban areas. And at the same time people wants to take advantage of the services of the programme.

18. A basic requirement for the success of any programme of social change is the change in the attitudes and behaviour of the people. To create awareness of the population problems and bring about the needed behavioural change, population education projects, formal and non-formal should be started, to enable the masses to understand the implication of the non-adoption of the programme. Which in turn will require the co-operation and participation of all development sectors and agencies, as broad based changes in attitudes and behaviour of both individuals and communities are involved.

19. Availability of the contraceptives should be free of cost if possible, otherwise, should be provided at very low and subsidised rates. At the same time, its availability and quality should be ensured. This will help in lowering the fertility rate and popularise the programme in the country.

20. Age at marriage for the female is very low in rural areas, which implies a long childbearing period and high fertility potentials. So for this purpose, education and other social support facilities for girls should be provided for delayed marriage for the women, so as to reduce the present long childbearing period which will contribute much to reduce the present high fertility level.

21. Special attention should be given to convince the males of the society in favour of family planning. Being decision makers in most cases, the overall involvement of men in the programme whether as a client or support is essential, for this purpose male motivators should be included in the programmes and there is a need to devise a suitable Information, Education and Counselling (IEC) campaign to bring behavioural change in their attitudes towards small family norm, and separate service delivery centres for males should be established where they can discuss family planning aspects and get advice and services.
22. The studies and research done so far, indicates that factors like level of education, knowledge about family planning, fertility regulation practice increases and fertility level decreases. It also shows that illiterate and less educated women have more children ever born than educated and literate women. It is, on the basis of this assumption recommended that special advisory cell should be established to provide counselling to women who have low education or those who are illiterate.
23. Moreover, if the data is collected according to the international standards, and as per the required formats, it will give us more accurate and powerful results rather than simple statistical analysis.

5.4 Recommendations for Future Research

Fertility regulation analysis and techniques generally differ in the type of information they provide and their sensitivities to the various socio-economic, demographic and Knowledge, Aptitude and Practice (KAP) factors that determine the fertility levels and practices. Therefore, research

could be directed to determine such factors, which can help the policy maker in policy formulation and in determining his decision rather than justifying it. This can be done by determining exactly what different methods of analysis mean and measure, rather then simple estimation for comparison proposes.

Development of some techniques for estimating the fertility level and family planning practices and estimation of some statistical and predictive models by considering both the supply and demand factors may be interesting. Further, research may be useful if directed towards the quality rather the quantity and the standards of the services and facilities provided by the agencies working in this field. Inclusion of the factors like quality of the service, may be more significant in determining the demand and use of family planing practices to regulate fertility levels, than the generally accepted variables like age of the respondent, income and number of living sons etc.

The data should be collected according to the international standards. Females using various contraceptive methods should be supplied cards where they may write their experiences about using the methods. The woman write her menstrual diary by recording bleeding days, when bleeding occurs, bleeding free day, when it is free and spotting, when it is neither bleeding nor a free days. These diaries should be recorded for women using various contraceptive methods in different age groups. Alongside recording the menstrual diary variable like age, height, and weight, of a woman total number of previous pregnancies, outcome of last pregnancy, discontinuation reason, day of discontinuation, last contraceptive methods used, day last

pregnancy ended and diary length should be recorded. This will facilitate the comparison of different contraceptive methods. This will also help us in finding the more appropriate and suitable method which on one-side will fulfil the needs of acceptors and on the other side, it will regularise the menstrual bleeding cycle of a women with out any problem. Thus, care should taken of recording such informations over a period of time as the variables of time is very crucial, along with the other informations collected in usual contraceptive prevalence surveys. The contraceptive of their choice should freely be provided to the acceptors, even payments should be made to encourage the woman about the small family size.

In this programme, doctors from medical profession, researchers from universities and other research organisation and Ulema's from Deni Madrassas and Mosques, should be involved to make the programme more successful.

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