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DETERMINANTS OF CONTRACEPTIVE USE AND METHOD CHOICE IN TURKEY

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Summary. In this study, the determinants of contraceptive use and method choice are examined based on various variables, classified as individual, cultural, fertility and contextual. The data used came from the 1993 Turkish Demographic and Health Survey. The main finding is that there exists a positive association between the educational level of both spouses and the use of contraceptive methods in Turkey. After all individual, cultural, fertility and contextual variables are controlled, a woman's education is a stronger predictor of method use and method choice than that of her husband. Increasing the educational level of women may be the most effective means of advancing family planning acceptance and increasing the demand for contraceptive services in Turkey. The study also shows that, to a great extent, contraceptive use and choice of modern method depend on the sex of a couple's living children, implying some preference for sons, although generally women prefer to have children of both sexes.

Introduction

Turkey is one of the most densely populated countries in the world, with a population of 61 million. Over the last three decades, from 1960 to 1990, the population has grown at an average rate of 2·4%. Like many other developing countries, Turkey has a relatively young population due to the combination of a moderately high birth rate (23 per thousand) and comparatively low death rate (7 per thousand). Recent data show that approximately two-fifths of the Turkish population are under the age of 15 and only about 5% are over the age of 65 (Unalan & Hancioglu, 1994). Although the government has made efforts to lower the fertility rate through a subsidized family planning programme, the total fertility rate for the entire population is 2·7 live births per women in Turkey. The level of fertility shows variations across regions: the Eastern region is notable as a high fertility region with a total fertility rate exceeding four children (4·4), while the Western region has the lowest rate (2·0) which is comparable to that of many Western European countries.

Turkey's official policy to reduce fertility started in the early 1960s when the total fertility rate was around 6 children per woman with a 15% contraceptive prevalence

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rate among married women aged 15–49 (Shorter & Macura, 1982). Total fertility rate decreased to 4·9 children per woman in 1978 and to 2·7 children per woman in 1993, and contraceptive prevalence rate increased to 38% in 1978 and to 63% in 1993 (HIPS, 1980, 1994). The most recent national demographic survey – the 1993 Turkish Demographic and Health Survey (TDHS) – shows that knowledge of any modern contraceptive method is almost universal among currently married women of reproductive age (98·6%) in Turkey. The pill (95·7%) and IUD (97·1%) are the most widely known modern methods, followed by the condom (80·8%). Of the traditional methods, withdrawal is the most widely known (87·4%) in Turkey. Almost everyone who knows a method also knows the source of a method: approximately 95% of currently married women are aware of at least one place where they can obtain family planning information or services. These figures clearly imply that lack of information about where to obtain a method is not a barrier to contraceptive use in Turkey. The results of the 1993 TDHS imply that the high level of knowledge of modern contraception and awareness of sources of modern contraceptive methods among exposed women have not led the country to a corresponding level of modern contraceptive use: approximately one-third of women do not use any contraceptive method and approximately half of the current users practise traditional methods. Among currently married women, the most commonly used methods are withdrawal (26%), the IUD (19%), the condom (7%) and the pill (5%). Unlike many Islamic countries, Turkey legalized abortion in the early 1980s. The 1983 Population Planning Law authorized all health personnel with approved training to insert IUDs, allowed sterilization for men and women. The new law also legalized induced abortion during the first 10 weeks of pregnancy. After 10 weeks, abortion is permitted under certain conditions (Unalan & Icduygu, 1996; Dervisoglu & Ergor, 1994). The effect of this law is reflected in increased use of abortion over the years. The number of induced abortions per 100 pregnancies increased from 13·9 in 1978 to 18 in 1993 (Hancioglu, 1997; Unalan & Icduygu, 1997). While the law in Turkey facilitated one dimension of women's reproductive choice and induced abortion became one of the most efficient and widely used methods of family planning, it also constrained the expansion of modern methods of family planning while reliance on traditional methods continued to be strong. The high and rising incidence of induced abortion is a result of widespread but unfulfilled desire to limit fertility. Consistent with these findings, various studies show that unmet need for contraception among exposed women is relatively high in Turkey (Akadli-Ergocmen & Kulu, 1989; Dervisoglu & Ergor, 1994).

Within this context, this study is an attempt to examine the factors that may have played roles in determining contraceptive use and method choice in Turkey. Two different but highly interrelated policy issues guide the analysis: (1) Are there differentials in contraceptive use in Turkey, and if so, what factor or combination of factors accounts for them? (2) Do current users choose modern or traditional methods, and what factors explain their choice?

Data and methods

Data used in the study mainly come from the Women's Questionnaire of the 1993 Turkish Demographic and Health Survey (TDHS) which was conducted by Hacettepe

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University Institute of Population Studies (HIPS). Macro International Inc. provided technical assistance and the US Agency for International Development (USAID) provided funding for the TDHS. The TDHS was based on a nationally representative probability sample of 8619 households and 6519 ever-married women under 50 years of age. A weighted, stratified cluster sampling approach was used in the selection of the TDHS sample. The TDHS was designed so that a variety of characteristics could be analysed for various domains. These domains, which are distinguished in the tabulation of important characteristics, are: Turkey as a whole, urban and rural areas and each of the five regions of the country, namely the Western, Southern, Central, Northern and Eastern regions.

Two types of error – non-sampling and sampling – affect the estimates from a sample survey. Non-sampling errors result from mistakes made in implementing data collection and data processing, such as failure to locate and interview the correct household, misunderstanding of the questions on the part of either the interviewer or the respondent, and data entry errors. Although numerous efforts were made to minimize this type of error during the implementation of the TDHS, non-sampling errors are impossible to avoid and difficult to evaluate statistically. Sampling errors, on the other hand, can be evaluated statistically. Sampling error is usually measured in terms of the *standard error* for a particular statistic. In addition to the standard errors, design effect (DEFT) is also calculated for each estimate, which is defined as the ratio of the standard error used in a given sample design to the standard error that would result if a simple random sample had been used. The DEFT value is found to be 1·3 for the variables' calculated standard errors. (For more and detailed information on the sampling and sampling errors of the 1993 TDHS, see HIPS, 1994.)

In the 1993 TDHS, 8900 households were identified as being occupied, and 8619 households were successfully interviewed. Consequently, the household response rate was calculated as 96·8%. Household response rates varied between 94·9% and 98·6% in study regions. In the interviewed households, 6862 eligible women were identified, of whom 95% were interviewed. Eligibility for the individual interview required that the woman be ever-married, be younger than 50 years of age, and be present in the household on the night before the interview. Of the small number of eligible women not interviewed in the survey, the principal reason for non-response was the failure to find the woman at home after repeated visits to the household. The woman response rates ranged from 93·7% in the Eastern region to 97·6% in the Southern region. Since this study focuses on the determinants of current contraceptive use and current method choice, the sample is limited to 5913 women exposed to the risk of conception: those who were currently married and not pregnant at the time of the survey.

In the first part of the analysis, the dependent variable is contraceptive use at the time of survey. Women under analysis are categorized as current users and current non-users. In the model, women (or their husbands) who were practising contraception at the time of survey are coded 1 and those who were not using any method are coded 0. The second part of the analysis, which examines the odds of choosing a modern method over a traditional method, is limited to the 4032 women who were current users. Contraceptive methods defined as modern include the IUD, the pill, the condom, injection, vaginal methods, female sterilization and male sterilization, while the traditional category is composed of withdrawal, periodic abstinence, vaginal

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douche and other traditional methods. The dependent variable is coded 1 if the woman (or her husband) was using a modern method and 0 if she (or her husband) was using a traditional method at the time of survey.

Both parts of the analysis use the same set of independent variables, consisting of individual level (age, education of women, education of husbands, working status), cultural level (ethnicity and type of marriage ceremony), fertility level (number of living children and sex of children) and contextual level (region and type of settlement) predictors of contraceptive use and method choice. Information on the mother tongue of women and their (last) husbands was collected in the 1993 TDHS. The ethnicity variable used in the study was constructed based on the assumption that mother tongue is a principal 'proxy' for the ethnic group the respondent belongs to. For the purpose of this study, the Kurds are defined as those who speak Kurdish as their mother tongue and the Turks are defined as those who speak Turkish as their mother tongue. All other respondents are categorized as 'Other'. The categories of living children variable are constructed by considering the Parity Progression Ratios (PPR) in Turkey. The proportions of women who have fewer than two children do not show variation as in progression to higher order births. Variations become visible at progression to a second birth, and the gap between women continuing to have a third and higher birth widens significantly (Hersek, 1995). In the 1993 TDHS five regions are distinguished, reflecting, to some extent, differences in socioeconomic development levels and demographic conditions among sections of the country. This regional breakdown is frequently used for sampling and analysis purposes in social surveys in Turkey. The Western region is the most industrialized and socio-economically the most advanced region of the country. The Eastern region, on the other hand, includes the least developed provinces of the country. The urban area in the 1993 TDHS refers to settlements with populations larger than 10,000, regardless of administrative status. The rural area, on the other hand, refers to settlements with populations lower than 10,000, regardless of administrative status.

To examine determinants of contraceptive use, a logistic regression model is used in the study since the dependent variables are dichotomous. For both dependent variables, the model-fitting process involves four stages of estimation. The first model includes only the individual level variables. In the second, the cultural level variables are introduced into the regression equation. The third model incorporates the fertility level variables into the equation. The fourth model includes the contextual level variables in order to estimate the additive effects of the micro-level and macro-level variables simultaneously. In order to check for significant interaction effects among explanatory variables, major interaction terms were constructed and tested, but they were not statistically significant (results not shown). Therefore, Model 4 without interaction terms is the most parsimonious model and provides the best estimation of the effects of the explanatory variables.

Results

Descriptive analysis

Table 1 presents the percentages of married, non-pregnant women using a contraceptive and the percentages of contraceptive users relying on a modern method

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according to the explanatory variables used in the regression analysis. The association between age of women and contraceptive use seems to be an 'inverted U': contraceptive use increases with age until it reaches a peak of 81·3% at the ages of 30–34, remains high at the ages of 35–39 and then declines.

With regard to modern methods, an apparent decrease is observed after the ages of 25–29. The percentage of women using a method and percentage of contraceptive users relying on a modern method tend to increase with the educational level of women and their husbands. Women in the agricultural sector are less likely to use contraception and to use a modern method.

Interestingly, Kurdish couples, who have the lowest proportion of contraceptive use, have the highest proportion of modern contraceptive use. Couples who only had a civil marriage ceremony are more likely to practise contraception, and to use a modern method.

Couples with three children have the highest proportion of contraceptive use and modern method use. Women with at least one son are most likely to practise contraception; those with at least one son and one daughter are most likely to use a modern method.

Couples living in the West have the highest proportion of contraceptive use while couples living in the East have the highest proportion of modern contraceptive use. Urban couples are more likely than rural couples to practise contraception and to use a modern method.

Multivariate analysis

Tables 2 and 3 present the result of the logistic regression analyses of predictors of contraceptive use and modern method use. All models contribute significantly to explaining patterns of contraceptive use.

Determinants of contraceptive use

The first model in Table 2 shows that age of women is a strong and significant predictor of contraceptive use when only individual level variables are entered into the equation. In comparison with women aged over 40, women younger than 20 are 70% less likely to practise contraception. The odds of method use peak among women aged 30–34 and 35–39, who are significantly more likely to use a method than those in the reference group. This finding may reflect a decreasing need for contraceptive use among the oldest group of women.

Education is usually expected to change a person's attitude and as a consequence their behaviour. In the context of family planning, it has been hypothesized and generally observed empirically that higher education increases the likelihood of contraceptive use. Model 1 also shows that education has a highly significant effect, with the likelihood of contraceptive use increasing with the woman's and husband's educational level. The relative odds of method use are 54% lower among illiterate women than they are among women with secondary and higher education. The same pattern occurs among the husbands.

The second model in Table 2 reveals that the effects of age of women and educational level of women and husbands persist after the cultural variables are added

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Table 1. Percentage of currently married, non-pregnant women using a method and percentage of contraceptive users relying on a modern method by selected explanatory variables, TDHS 1993

Characteristics	Method users		Modern method users	
	%	*n*	%	*n*
Women's age				
15–19	33·6	79	38·0	30
20–24	63·0	544	54·0	294
25–29	74·9	831	60·8	505
30–34	81·3	984	59·9	590
35–39	78·7	821	53·0	436
40+	53·2	773	45·7	355
Women's education				
No education	56·0	1097	50·0	548
Primary	73·5	2179	53·1	1159
Secondary+	77·7	675	68·0	459
Husband's education				
No education	46·6	292	51·0	149
Primary	68·7	2411	52·0	1255
Secondary+	74·8	1329	60·6	806
Working status				
Out of labour force	68·0	2577	56·3	1453
Agriculture	66·2	854	43·8	374
Non-agriculture	72·3	831	63·6	383
Ethnicity				
Turk–Turk	71·5	3487	54·4	1901
Kurd–Kurd	37·8	189	59·3	112
Turk–Kurd or Kurd–Turk	67·2	41	64·3	27
Other	66·7	315	54·4	170
Type of marriage ceremony				
Civil	72·1	124	69·6	87
Religious	32·2	119	42·9	51
Both	70·6	3782	54·6	2067
Number of living children				
0–1	49·0	638	53·1	339
2	81·1	1227	58·0	712
3	80·0	902	54·2	489
4+	64·2	1265	52·5	664
Sex of living children				
No child	12·2	53	32·1	17
Male only	74·4	899	55·4	498
Female only	72·2	648	53·6	347
Both sexes	72·1	2432	55·7	1355
Region				
West	76·0	1304	52·2	682
South	68·0	798	58·4	467
Central	67·9	908	58·5	532
North	68·3	637	46·6	297
East	51·1	385	60·3	232
Type of residence				
Urban	71·4	2679	59·0	1584
Rural	62·7	1353	46·2	626
Total	68·2	4032	54·7	2210

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into the regression equation. The odds of contraceptive use are 60% lower among Kurdish couples and 42% lower among mixed couples than they are in Turkish couples. This implies that a Kurdish wife or a Kurdish husband decreases the probability of contraceptive use.

Having only had a religious marriage ceremony decreases the probability of contraceptive use; the odds of contraceptive use for women who only had a religious ceremony are 65% lower than those for women who had both religious and civil ceremonies. There is no difference in the level of contraceptive use between women who had a civil ceremony only and women who had both religious and civil ceremonies.

The third model shows that women younger than 20 are more likely to practise contraception than women aged over 40 after the fertility level variables are introduced into the equation. The difference in contraceptive use between women with a primary education and those with a secondary or higher education is no longer insignificant, although the difference between illiterate women and women with the highest educational level remains highly significant. It is worth noting that the contribution of women's education in explaining variation in use of contraception is much higher than husband's education.

In relation with the number of living children, the third model shows that the probability of contraceptive use increases with the number of living children. Couples with two or more children are much more likely to practise contraception than those with fewer than two children. The third model yields particularly interesting results on the effect of the sex of living children on the use of contraceptives. It indicates that in comparison with couples who have at least one son and one daughter, couples with daughters only are 12% less likely to practise family planning. The difference in contraceptive use between women with both sexes of children and those with sons only is statistically insignificant without controlling contextual level variables. As one would expect, childless couples are much less likely to practise contraception.

The fourth model in Table 2 shows the pattern of contraceptive use once region and type of settlement are added to the equation. The effects of individual, cultural and fertility level variables on contraceptive use still continue after controlling the contextual level variables. Urban women are 28% more likely to practise contraception than are their rural counterparts. In addition, the odds of contraceptive use are 94% higher among couples living in the West than among those living in the East. Couples living in the South, Centre and North are also 33% to 39% more likely to practise contraception than those living in the East.

Determinants of method choice

Table 3 presents logistic regression results on predictors of method choice, which in the context of Turkey is mainly between modern methods and withdrawal (Goldberg & Toros, 1994; Turan, Bulut & Nalbant, 1997). After cultural, fertility and contextual factors are controlled, age and education of women still have a significant effect on the choice between modern and traditional methods. Women in the intermediate age groups and women with secondary or higher education are more

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Table 2. Results of stepwise logistic regression showing odds ratios for characteristics predicting contraceptive use

Characteristics	Individual level analysis	Cultural variables added	Fertility variables added	Contextual variables added
Women's age				
15–19	0·3020*	0·4516*	2·6452*	3·1040*
20–24	1·0168	1·3754*	3·7772*	4·3087*
25–29	1·8860*	2·3184*	3·3501*	3·8218*
30–34	2·9647*	3·4806*	3·9982*	4·2558*
35–39	2·8822*	3·1531*	3·4908*	3·6197*
40+	1·0000	1·0000	1·0000	1·0000
Women's education				
No education	0·4587*	0·6277*	0·4192*	0·4729*
Primary	0·9060	0·9448	0·7045**	0·7480**
Secondary+	1·0000	1·0000	1·0000	1·0000
Husband's education				
No education	0·5118*	0·5941*	0·5647*	0·5693*
Primary	0·9071	0·9084	0·8473	0·8451
Secondary+	1·0000	1·0000	1·0000	1·0000
Working status				
Out of labour force	(+)	(+)	(+)	(+)
Agriculture	(+)	(+)	(+)	(+)
Non-agriculture	(+)	(+)	(+)	(+)
Ethnicity				
Turk–Turk	na	1·0000	1·0000	1·0000
Kurd–Kurd	na	0·3986*	0·3016*	0·3458*
Turk–Kurd or Kurd–Turk	na	0·5824**	0·7814**	0·7785**
Other	na	0·8216	0·8044	0·8947
Type of marriage ceremony				
Civil	na	0·9713	1·1151	1·0839
Religious	na	0·3539*	0·3646*	0·4089*
Both	na	1·0000	1·0000	1·0000
Number of living children				
0–1	na	na	1·0000	1·0000
2	na	na	2·6149*	2·6392*
3	na	na	2·7284*	2·8857*
4+	na	na	2·8734*	3·2731*
Sex of living children				
No child	na	na	0·0685*	0·0656*
Male only	na	na	1·0429	1·0173
Female only	na	na	0·8767**	0·8731**
Both sexes	na	na	1·0000	1·0000

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Table 2. Continued.

Characteristics	Individual level analysis	Cultural variables added	Fertility variables added	Contextual variables added
Region				
West	na	na	na	1·9361*
South	na	na	na	1·3584**
Central	na	na	na	1·3263**
North	na	na	na	1·3903**
East	na	na	na	1·0000
Type of residence				
Urban	na	na	na	1·2836*
Rural	na	na	na	1·0000
Constant	0·5258*	0·7447*	0·7886*	1·3563*
−2log likelihood	4315·6	4294·2	4163·1	3855·7
χ^2	412·9*	322·8*	151·4**	116·5**
df	9	14	20	25

Differences are significant at: *$p<0·01$; **$p<0·05$; otherwise differences are not significant. na = not applicable. (+) = not in equation.

likely to choose a modern method than those aged over 40 and with a primary or lower education.

Women who work in the non-traditional sector are expected to be more exposed to modernizing influences, including the family planning programme. They are also expected to have a higher educational level. Analogous to the argument regarding the effect of education on method choice, it is expected that those who work in the non-agricultural sector will be more likely use modern contraception than those who work in the agricultural sector and those who are out of the labour force. All models in Table 3 correspond to these expectations. In Model 4, in comparison with women who work in the non-traditional sector, women who work in the traditional sector are 27% less likely to choose a modern method and women who are out of the labour force are 19% less likely to select a modern method.

As seen in the last three models, couples who only had a civil marriage ceremony have a greater tendency to choose a modern method than couples who had both civil and religious marriage ceremonies. The difference in modern method choice between women who only had a religious marriage ceremony and those who had both types of ceremony is no longer insignificant after controlling all variables in the equation; couples who only had a religious ceremony are less likely to select a modern method than those who had both types of ceremony.

After the fertility level variables are incorporated into the equation, only the third model implies that the relative odds of selecting a modern method increases as the number of living children increases. Although couples with daughters only continue to be less likely to choose a modern method than those with children of both sexes,

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Table 3. Results of stepwise logistic regression showing odds ratios for characteristics predicting modern method use

Characteristics	Individual level analysis	Cultural variables added	Fertility variables added	Contextual variables added
Women's age				
15–19	0·6731	0·6791	1·2292**	0·8866
20–24	1·3092**	1·3451*	1·9309*	1·5661*
25–29	1·6966*	1·7375*	2·0219*	1·8525*
30–34	1·6436*	1·6639*	1·7574*	1·6883*
35–39	1·3062*	1·3249*	1·3462*	1·3423*
40+	1·0000	1·0000	1·0000	1·0000
Women's education				
No education	0·6198*	0·6483*	0·5216*	0·5917*
Primary	0·6189*	0·6365*	0·5524*	0·6065*
Secondary+	1·0000	1·0000	1·0000	1·0000
Husband's education				
No education	(+)	(+)	(+)	(+)
Primary	(+)	(+)	(+)	(+)
Secondary+	(+)	(+)	(+)	(+)
Working status				
Out of labour force	0·8572	0·8629	0·8133**	0·8110**
Agriculture	0·5461*	0·5469*	0·5078*	0·6340*
Non-agriculture	1·0000	1·0000	1·0000	1·0000
Ethnicity				
Turk–Turk	na	(+)	(+)	(+)
Kurd–Kurd	na	(+)	(+)	(+)
Turk–Kurd or Kurd–Turk	na	(+)	(+)	(+)
Other	na	(+)	(+)	(+)
Type of marriage ceremony				
Civil	na	1·7407*	1·9192*	2·0139*
Religious	na	0·7288	0·7324**	0·7137**
Both	na	1·0000	1·0000	1·0000
Number of living children				
0–1	na	na	1·0000	(+)
2	na	na	1·3722*	(+)
3	na	na	1·4371*	(+)
4+	na	na	1·6807*	(+)
Sex of living children				
No child	na	na	0·2789*	0·2353*
Male only	na	na	0·8033**	0·8211
Female only	na	na	0·7829*	0·7956*
Both sexes	na	na	1·0000	1·0000

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Table 3. Continued

Characteristics	Individual level analysis	Cultural variables added	Fertility variables added	Contextual variables added
Region				
West	na	na	na	0·6757*
South	na	na	na	0·9291
Central	na	na	na	0·9511
North	na	na	na	0·6331*
East	na	na	na	1·0000
Type of residence				
Urban	na	na	na	1·3223*
Rural	na	na	na	1·0000
Constant	0·1313**	0·1962**	0·2013**	0·8940**
−2log likelihood	2712·6	2461·2	2249·1	2045·5
χ^2	65·2**	88·1**	109·2*	201·8*
df	9	11	17	19

Differences are significant at: *$p<0·01$; **$p<0·05$; otherwise differences are not significant. na = not applicable. (+) = not in equation.

the difference between couples with sons only and those having children of both sexes is no longer significant in Model 4; the odds of choosing a modern method are 20% lower among couples with daughters only. This preference for a traditional method appears to be related to the desire for a son.

Interestingly, in comparison with women who live in the East, women living in the West are 32% less likely to select a modern method and women living in the North are 37% less likely to practise a modern method. This result may reflect the emphasis the family planning programme has placed on the IUD, especially in the East. The pattern of method choice of women living in the South, Centre and East appears to be similar. Type of settlement, however, is a highly effective predictor of method choice; the odds of choosing a modern method are 32% higher among urban couples than among rural couples.

Conclusion and discussion

This study examines the use of contraception and method choice among exposed women and the effects of various variables, classified as individual, cultural, fertility and contextual, on the patterns of contraceptive use in Turkey. The findings of the study demonstrate that the educational attainment of both spouses is a major factor. Once all individual, cultural, fertility and contextual variables are accounted for, a woman's education is a stronger predictor of method use and method choice than that of her husband. Increasing the educational levels of women may therefore be the most

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effective means of advancing family planning acceptance and increasing the demand for contraceptive services in Turkey.

The high level of contraceptive use among women in the intermediate age groups found in the study has also been observed in many other countries with relatively young family planning programmes (Shah & Palmore, 1979; Soeradji & Hatmadji, 1982; Bulatao & Ward, 1989; Njogu, 1991). Women's modern method use decreases with age after 30. This is perhaps a reflection of the resistance of older and more traditional woman to an innovation such as family planning.

Although the working status of women has no effect on contraceptive use, it has a significant effect on method choice. Women who work in the non-agricultural sector show higher modern method use than those who work in the agricultural sector and those who are not in the labour force. This result seems to be related to the exposure of women who work in the non-agricultural sector to modernizing influences, including the family planning programme.

The findings of the study also show an apparent relationship between the ethnicity of couples and contraceptive use. In comparison with Turkish couples, Kurdish or mixed couples are much less likely to use contraception. Hence a non-Turkish partner decreases the probability of practising contraception in Turkey. Women who had only a religious marriage ceremony are less likely to practise family planning than those who had both religious and civil ceremonies. The same pattern is also true for the choice of modern contraceptives.

The association between the number of living children and contraceptive use is shown to be positive; the more children a women has, the more likely she is to use contraception. The increasing level of contraceptive use and choice of modern method with number of living children seems to originate from the preference of couples for a smaller family.

Contraceptive use and modern method use depend, to a large extent, on the sex of a couple's living children. Couples who have daughters only are much less likely to use contraception, and even if they do, they are more likely to choose a traditional method. Like other studies on sex preference in Turkey (Unalan, 1993), Nepal (Tuladar, 1985), Sierra Leone (Campbell, 1993), Kerala/India (Asari, 1994) and Karachi/Pakistan (Lasee & McCormick, 1996), these results indicate that couples desire at least one son and one daughter, and that they prefer a son to a daughter, even when differences between regions and residence are accounted for.

As in many other developing countries in the world, family planning activities in Turkey have been extensively influenced and controlled by the government. Results of the multivariate analysis demonstrate that modern contraceptive methods are more likely to be practised in the East than in the other regions. The centre-directed family planning programme's emphasis on the IUD over the last several decades largely explains this finding. The increase in use of modern contraceptive methods from 6·5% in 1978 to 26·3% in 1993 (HIPS, 1980, 1994) clearly reflects the centre-directed family planning programmes in the East.

Given the important contribution of unmet need to the observed fertility in Turkey more efforts should be directed towards increasing the availability and accessibility of family planning services. Even though Turkey has achieved an important success in reaching low fertility levels towards the end of the 20th century, there are still a

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considerable number of women who either use traditional methods or do not use any method at all for limiting or spacing their childbearing. Therefore, the future efforts of programme management should be directed towards switching women or couples from traditional to modern method use, as well as encouraging the effective use of modern methods. Family planning programmes should provide the means for couples to achieve their fertility desires. Research findings have reassuringly shown that women in Turkey desire small families, and have a strong desire to limit their childbearing once they have two or three children. Recent attempts to measure the possible reduction in TFR using the unmet-need concept have estimated a potential 16–26% reduction in fertility in Turkey as a result of satisfying unmet need (Westoff & Bankole, 1995; Unalan, 1997). The policy implication arising from this study is clear: high-quality family planning services that offer a wide range of contraceptive choices and counselling to all women should be made available in all regions of Turkey.

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