Perspectives on Fertility and Family Planning in Egypt

National Population Council

Demographic and Health Surveys
Macro International Inc.

Perspectives on Fertility and Family Planning in Egypt

Results of Further Analysis of the 1992 Egypt Demographic and Health Survey

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The EDHS analysis is part of the worldwide Demographic and Health Surveys (DHS) program, which is designed to collect data on fertility, family planning, and maternal and child health. Additional information about the Egypt analysis project may be obtained from the National Population Council, P.O. Box 1036, Cairo, Egypt (Telephone 3638207; Fax 3639818; and Telex 94086 (USRAH CAIRO). Additional information about the DHS program may be obtained by writing to: DHS, Macro International Inc., 11785 Beltsville Drive, Calverton, MD 20705 (Telephone 301-572-0200 and Fax 301-572-0999).

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ACKNOWLEDGMENTS

The 1992 Egypt Demographic and Health Survey (EDHS) is the most recent in a series of demographic surveys carried out in Egypt. The 1992 EDHS provided detailed information on fertility levels, childbearing intentions and family planning knowledge and use. The papers in this volume use the 1992 EDHS data as well as results from earlier surveys to provide in-depth perspectives on the fertility and family planning situation in Egypt. They represent a significant contribution toward an understanding of the patterns of change in fertility and family planning behavior in Egypt over the past decade and the factors which contributed to those changes.

We would like to express our appreciation to Prof. Dr. Maher Mahran, the Minister of Population and Family Planning, for his commitment to the project. His understanding of the importance of the role of research in guiding population policy in Egypt is reflected in the strong and continuing support that he provided the project.

We also must thank USAID for its commitment to the project. The analyses reported in the papers in this volume were prepared with the technical and financial assistance of the international Demographic and Health Surveys (DHS) program, funded by USAID/Washington. This assistance reflects the DHS program's mandate to promote the utilization of DHS data for policy development and evaluation and to make substantive contributions to knowledge in the areas of fertility and family planning.

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Finally, we would like to acknowledge the efforts of all of the staff involved in the 1992 EDHS and the earlier surveys whose results are cited throughout this volume. Without the diligence and commitment they showed to the collection of high quality data, the analyses would truly not have been possible.

Fatma El-Zanaty
Ann A. Way

PREFACE

The Egyptian family planning program has made substantial progress in supporting the efforts of Egyptian families to meet their reproductive goals. A reason for this success has been the considerable body of population research that has been undertaken over the past several decades. This research has helped the program to monitor the impact of its efforts and has also helped to identify key areas for further intervention. This volume, which includes eight studies reporting on the results of the 1992 Egypt Demographic and Health Survey, provides further valuable perspectives on the fertility and family planning situation in Egypt.

A basic theme in the papers included in this volume is the magnitude of the change that has occurred in fertility and family planning behavior in Egypt since 1980. Examining the trends in family planning, the paper by El-Zanaty documents the profound nature of the changes in contraceptive use patterns that have taken place among all major groups. The importance of these changes in family planning use in explaining the decline in fertility that Egypt is experiencing is highlighted in the paper by Hussein and Shawky. Harbison points to the key role that the Egyptian family planning program has played in the on-going contraceptive transition.

The obvious challenge is how to sustain this progress. In addressing that challenge, the family planning program must address the diversity of fertility attitudes and needs in Egypt. All of the authors of the papers in this volume emphasize the very evident difference in the family planning situation in Upper Egypt, particularly rural Upper Egypt, from the situation in other areas. Levels of contraceptive use are lower in Upper Egypt, and the pace of changes in both family planning and fertility behavior have been slower in Upper Egypt than in other areas. The paper by El-Zanaty, Shawky and Hussein looking at governorate differences in Upper Egypt is a clear reminder of the importance of tailoring initiatives in Upper Egypt to the specific local context. To better serve local areas, the family planning program must increasingly decentralize its resources and expertise.

Upper Egypt with its high unmet need is a region in which the family planning program has already focused increased effort, and further interventions are planned for this region in the future. The results of the research studies presented in this volume point to other areas which must receive greater attention from the program in the future. Of paramount concern is the need to upgrade the quality of the family planning services offered to women. The authors of several papers conclude that the improvement of the quality of family planning services will be central to ensuring further gains in contraceptive use in Egypt. In particular, in looking at issues relating to provider choice, Khalifa notes the importance of the provider's reputation in attracting users. Her paper also documents the fact that both pill and IUD users are not receiving adequate counseling or follow-up from their providers. Her analysis highlighting the large role played by the private sector in the delivery of family planning methods serves as a useful reminder that projects to improve the quality of family planning services must be directed not only at public providers but also at the private medical sector.

The consequences of the lack of counseling and support are evident in the high levels of discontinuation found in El-Tawila's analysis of contraceptive use dynamics in Egypt. El-Tawila concludes that, if Egypt is to sustain the pace of fertility decline, it must reduce the high level of

discontinuation which too often results in unwanted childbearing. Counseling and follow-up are key both to help users avoid discontinuation and to ensure that users who experience problems switch to another method rather than abandoning use.

One of the hallmarks of the Egyptian family planning program is its strong information, education and communication (IEC) program. Further IEC efforts are clearly needed to dispel the fears and concerns that contribute to the high levels of discontinuation among users. In his paper, Zaky also notes that, particularly in rural areas, the IEC campaigns must encourage small family norms. In addition, he observes that the fertility preferences of husbands and wives often differ and that comparatively few couples ever discuss their fertility preferences. Special IEC efforts must be directed at men to increase their awareness of the benefits of small families and to encourage husband-wife communication about childbearing desires.

IEC efforts must also be directed toward encouraging use among young, low parity women, whom several authors identify as an underserved group. Women under age 30 were found by Harbison to have among the highest risk of being in the unmet need category, and El-Tawila's analysis of contraceptive use dynamics suggests that discontinuation levels are higher among women in these categories. Broadening the method mix to include injectables is one step in efforts to address the special needs of this group.

Targeting young, low parity women will help to reduce the numbers of women giving birth when they are "too young." Attention must also be addressed to women giving birth when they are "too old." Childbearing when a woman is "too young" or "too old" has been associated with higher morbidity and mortality for the child and for the mother. Despite the declining fertility in Egypt, Hussein and Shawky show that the proportion of births occurring to women while they are still in their teens or at age 35 and over exceeds 25 percent in rural areas, in Upper Egypt, and among women who have never attended school. Information, education and communication campaigns and service delivery initiatives must be undertaken to further reduce fertility among these special risk groups.

Finally, Selim points to the considerable change that has occurred in basic aspects of the lives of women in Egypt. These changes, particularly the rapid improvements in female education and rises in the age at first marriage, clearly have been key determinants in the changes in fertility behavior that are taking place in Egypt. There must be further efforts to increase women's access to education and employment opportunities. In addition to family planning, other reproductive health services must be upgraded, with particular emphasis on the care that women receive during pregnancy and childbirth.

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Contraceptive Use in Egypt: Trends and Determinants

Fatma H. El-Zanaty

1 INTRODUCTION

The level of contraceptive use is one of the primary determinants of the fertility level in Egypt. Therefore, studying changes in contraceptive behavior over time is essential in order to gain an understanding of the changes that are contributing to the fertility transition in Egypt. It also is of crucial importance for family planning policy to identify the factors that are positively related to changes in the use of contraception.

1.1 Objectives of the Analysis

This paper is designed to provide a broad overview of the trends in contraceptive use in Egypt. The main objective is to describe the important trends in contraceptive behavior in Egypt, with the focus on changes that have occurred in each of the five major regions of the country.

1.2 Setting

Egypt is one of the most densely populated countries on the African continent. The country is large, but the scarcity of arable land and water resources has forced people to live in the narrow strip of fertile land along the Nile River. Administratively, Egypt's population is divided into 26 governorates, which are commonly grouped into three main areas: Urban Governorates, Lower Egypt, and Upper Egypt.[1] The Urban Governorates consist of four governorates—Cairo, Alexandria, Port Said, and Suez—each of which is completely urban. This region represented 19 percent of the total population in 1993 (CAPMAS, 1994). Each of the other governorates includes both urban and rural areas. Lower Egypt consists of nine governorates located in the north in the Nile delta and includes 43 percent of the total population. Eight governorates located in the narrow Nile Valley south of Cairo governorate represent Upper Egypt, which has 36 percent of the population.

1.3 Data Sources

The results presented in this paper are based on four main demographic surveys carried out in Egypt since 1980: the 1980 Egyptian Fertility Survey (EFS-80) (Hallouda et al., 1983), the 1984 Egypt Contraceptive Prevalence Survey (ECPS-84) (Sayed et al., 1985), the 1988 Egypt Demographic and Health Survey (EDHS-88) (Sayed et al., 1989), and the 1992 Egypt Demographic and Health Survey (EDHS-92) (El-Zanaty et al., 1993). All the surveys collected information on fertility and family planning behavior from nationally representative samples of ever-married women of reproductive age. Together the surveys provide a rich database for exploring changes in family planning in Egypt since 1980.

1.4 Previous Studies

A number of previous studies in Egypt have examined trends in contraceptive use. Almost all of them have emphasized the importance of regional patterns. For example, in an early study by El-Deeb and Casterline (1988), data from the 1974/75 Egyptian National Fertility Survey and the

[1] A fourth region, the Frontier Governorates, comprises five governorates, but includes less than 2 percent of the population.

1980 Egypt Fertility Survey were used to look at levels and trends in contraceptive use for different geographic areas in the late 1970s. This study showed that knowledge of contraceptive methods was widespread at the time, reaching 90 percent in 1980. It confirmed the existence of sharp geographic differentials, particularly a wide gap in contraceptive prevalence between Upper Egypt and Lower Egypt. In 1980, the use level in rural Lower Egypt was 20 percent compared with 17 percent in 1974/75. In contrast, for rural Upper Egypt, the prevalence was around 4 percent in both surveys.

In 1993, Sayed et al. published a report on the changes in fertility and family planning in Egypt that had occurred in the last decade. They found significant increases in both knowledge and use of contraception in all areas; however, current use rose faster in rural areas than in urban areas. Further, considering prevalence by region, the level in Lower Egypt was seen to have approached that of the Urban Governorates, whereas the level in Upper Egypt lagged behind that of the other areas.

1.5 Organization of the Paper

This paper will expand upon the understanding of contraceptive change in Egypt gained in these previous studies by looking at trends in current contraceptive use not only by region but also by other key social and demographic variables. The variables for which trends will be examined include: age, number of living children, women's education, and women's work status. The trend analysis for each of these variables is presented at the national level for the Urban Governorates and for urban and rural areas in Lower Egypt and Upper Egypt.

In looking at the trends in contraceptive use, this paper considers issues relating to: (1) the *magnitude* of the change, e.g., how large was the change for a specific group and was the change for that group greater than that undergone in other groups? and (2) *timing* of the change, e.g., was the change greater at one point in time for a particular group. The paper also examines both the magnitude and timing of changes in the mix of methods adopted by users and, specifically, in the patterns of use of the pill and the IUD.

2 TRENDS IN CONTRACEPTIVE USE

2.1 Overall Patterns

The main trends in contraceptive use and method mix for all of Egypt and for the main regions since 1980 are summarized in Table 1. As shown in Figure 1, there has been a steady increase in overall prevalence rate, accompanied by a shift in the method mix toward the IUD. The change in the percentage of women relying on the IUD has been especially noticeable—from only 4 percent at the time of the 1980 EFS to 28 percent in the 1992 EDHS. During the same period, there was a decrease in the percentage of women using the pill (from 17 percent in 1980 to 13 percent in 1992). There was no significant change in the proportion using other methods.

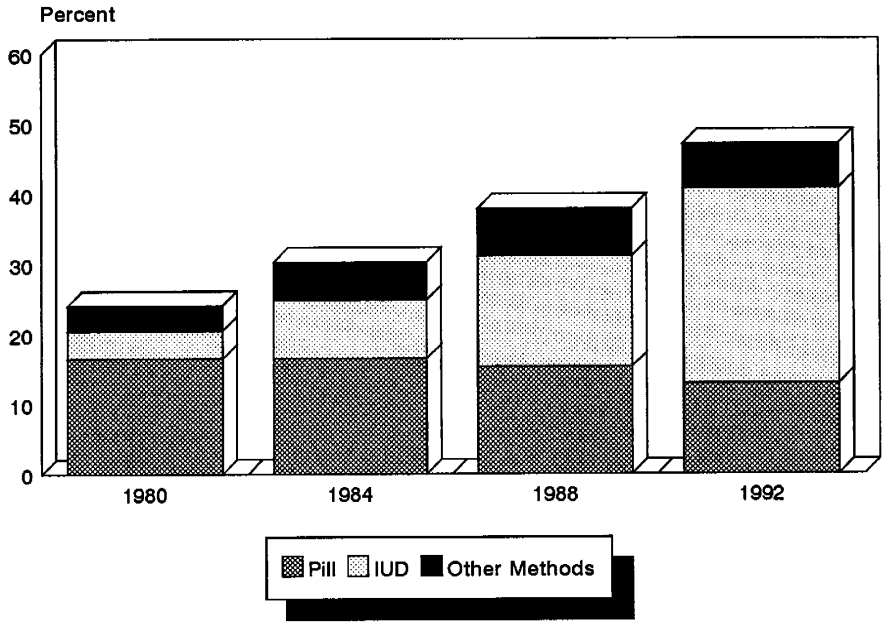
The increase in contraceptive prevalence is evident in all regions, although the rate of increase varies. For example, between 1980 and 1992 prevalence increased by 30 percentage points in rural Lower Egypt and by 20 percentage points in rural Upper Egypt, whereas the overall increase in the Urban Governorates was only 15 percentage points for the same period. The fact that prevalence was much higher in the Urban Governorates in 1980 than in the other areas helps to explain the smaller absolute change.

Table 1 Trends in the percentage of currently married women currently using a contraceptive method, by method and place of residence, Egypt 1980-1992

Place of residence	Pill	IUD	Condom	Other modern method	Any traditional method	Any method	Number of currently married women
Urban Governorates							
1980	25.9	9.0	3.0	2.6	3.1	43.6	2010
1984	20.8	17.4	3.8	4.3	3.3	49.6	1594
1988	16.9	26.8	5.0	3.4	3.9	56.0	1997
1992	12.5	36.8	4.1	2.3	3.5	59.1	2201
Lower Egypt							
1980	18.2	3.2	0.6	0.7	1.1	23.8	3452
1984	19.8	9.0	1.0	2.8	1.6	34.1	3933
1988	19.2	16.2	1.8	1.9	2.1	41.2	3230
1992	15.1	32.6	1.4	2.3	2.2	53.5	3746
Lower Egypt: Urban							
1980	33.9	3.9	1.1	1.5	2.2	42.6	831
1984	29.1	10.5	2.2	3.6	2.4	47.7	1154
1988	24.2	21.2	4.0	2.6	2.4	54.5	952
1992	17.3	36.3	2.4	2.4	1.8	60.3	1120
Lower Egypt: Rural							
1980	13.2	3.0	0.5	0.5	0.8	18.0	2621
1984	15.9	8.3	0.5	2.5	1.3	28.5	2779
1988	17.2	14.1	0.8	1.6	1.9	35.6	2278
1992	14.1	31.0	0.9	2.2	2.3	50.5	2626
Upper Egypt							
1980	6.7	1.1	0.3	0.3	0.4	8.9	2550
1984	10.8	3.7	0.7	1.3	0.8	17.3	3496
1988	10.0	7.9	1.4	1.2	1.6	22.1	2995
1992	10.7	16.4	1.2	1.5	1.7	31.4	3207
Upper Egypt: Urban							
1980	19.2	2.4	1.2	0.5	1.5	24.9	579
1984	21.3	9.5	1.8	2.9	1.4	36.8	1138
1988	16.0	17.6	3.1	2.3	2.6	41.5	1058
1992	13.8	27.6	2.1	1.9	2.7	48.1	960
Upper Egypt: Rural							
1980	3.0	0.8	0.1	0.3	0.2	4.4	1971
1984	5.7	0.9	0.1	0.6	0.6	7.9	2359
1988	6.7	2.7	0.4	0.6	1.1	11.5	1937
1992	9.3	11.6	0.8	1.3	1.2	24.3	2247
Egypt							
1980	16.5	4.0	1.1	1.1	1.4	24.1	8012
1984	16.5	8.4	1.3	2.5	1.6	30.3	9158
1988	15.3	15.8	2.4	2.0	2.4	37.8	8221
1992	12.9	27.9	2.0	2.0	2.3	47.1	9153

The pattern of increase in urban Lower Egypt is very similar to that in the Urban Governorates. On the other hand, prevalence in urban Upper Egypt increased more rapidly than in the two other urban areas, growing by 23 percentage points between 1980 and 1992. Nevertheless, the rate of contraceptive use in urban Upper Egypt in 1992 was only 48 percent, the level observed in urban Lower Egypt and the Urban Governorates in 1984.

Figure 1
Trends in Contraceptive Use by Method
Egypt 1980-1992



The largest absolute increase in prevalence occurred in rural Lower Egypt, where use levels rose from only 18 percent in 1980 to 51 percent in 1992. The most rapid relative increase was in rural Upper Egypt, where the prevalence in 1992 was six times the level in 1980. Change in rural Upper Egypt was especially great between 1988 and 1992, when the prevalence more than doubled from 12 to 24 percent. Despite the recent rapid increase in use levels in rural Upper Egypt, the gap between the prevalence level in this region and in rural Lower Egypt was 26 percentage points in 1992 compared with 14 percentage points in 1980.

Looking at the method mix, the pill was the most popular method in all regions in 1980. The proportion of women using the pill gradually decreased in the Urban Governorates and in urban Lower Egypt throughout the 1980s, while use of the IUD rapidly increased (see Figure 2). By 1992, IUD users in the Urban Governorates outnumbered pill users by nearly three to one and urban women in Lower Egypt were more than twice as likely to be using an IUD as the pill. A similar pattern of rapid expansion of IUD use and decline in pill use was observed in rural Lower Egypt and urban Upper Egypt, although the percentage using the pill in those regions did not begin to decrease until the late 1980s. In rural Upper Egypt, where use of any method was low until recently, both pill and IUD use increased throughout the period 1980 to 1992 (see Figure 3). However, the increase in IUD use was much more rapid in the latter part of this period so that, by 1992, IUD users slightly outnumbered pill users in rural Upper Egypt.

Figure 2
Trends in Contraceptive Use by Method
Urban Egypt 1980-1992

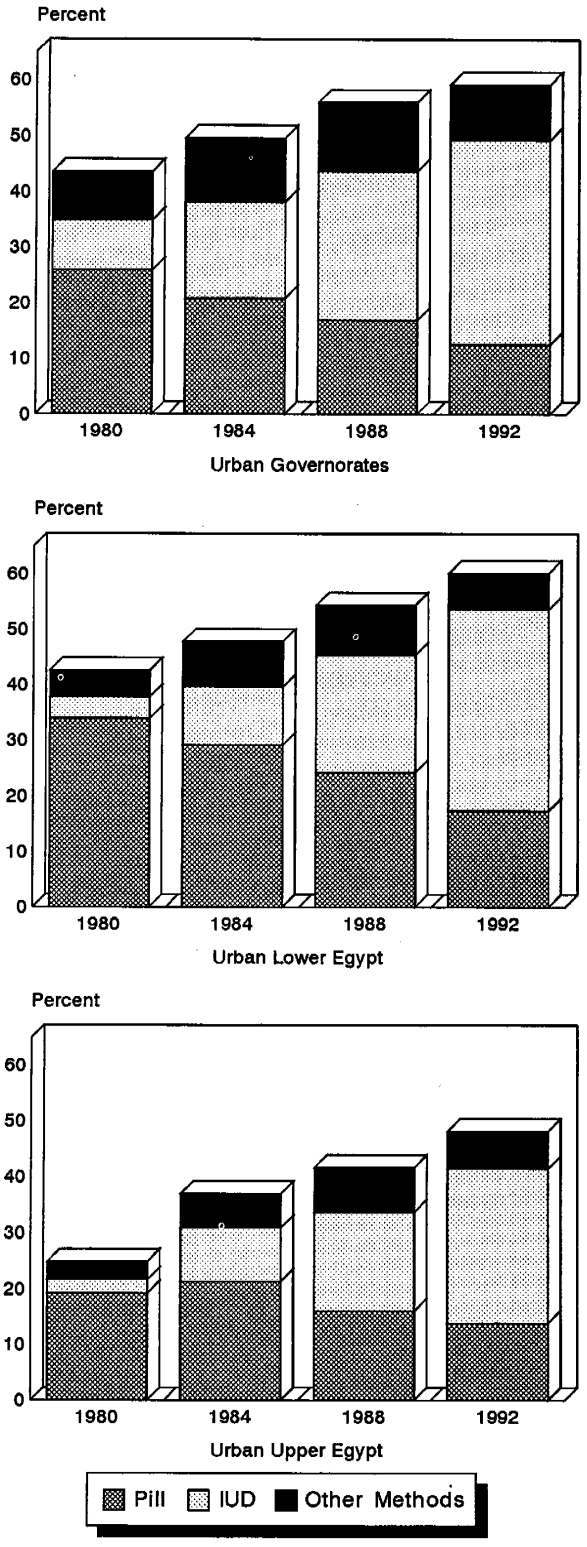
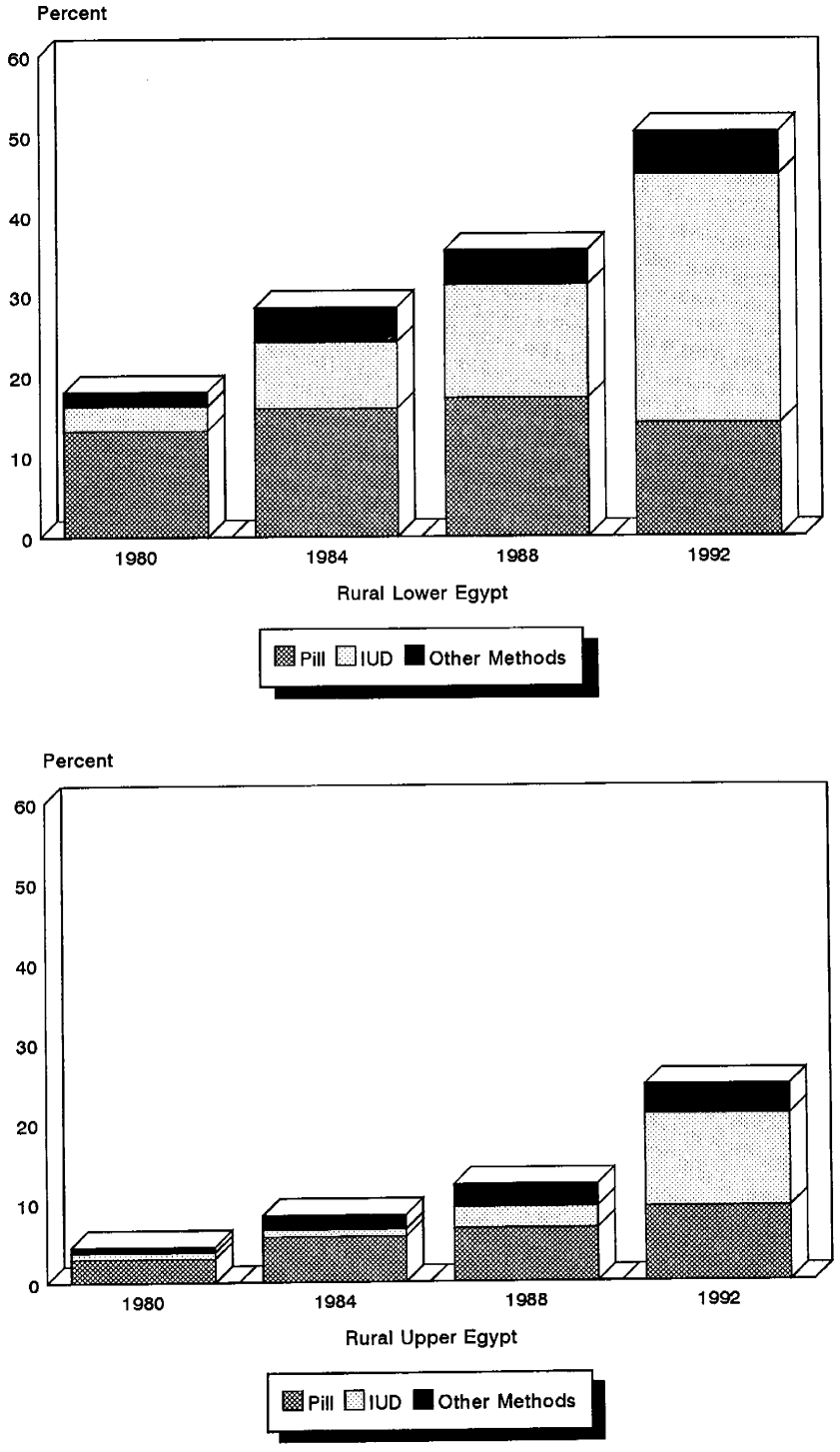


Figure 3
Trends in Contraceptive Use by Method
Rural Egypt 1980-1992



2.2 Trends by Age

Table 2 presents the trends in contraceptive use across age groups for all of Egypt and for the five main regions. The overall pattern of the variation in contraceptive use with age has changed little over time; at all time periods, use levels are lowest among women 15-24, peak among women 25-39 and decline somewhat among older women. Over time, however, there have been steady increases in use among all age groups.

Table 2 Trends in the percentage of currently married women currently using a contraceptive method, by selected age groups, method, and place of residence, Egypt 1980-1992

Place of residence	15-24			25-29			40-49		
	Any method	Pill	IUD	Any method	Pill	IUD	Any method	Pill	IUD
Urban Governorates									
1980	23.3	16.7	4.1	50.0	29.7	11.5	46.0	24.0	6.5
1984	29.6	11.1	14.2	57.2	24.4	22.2	44.7	18.7	10.1
1988	44.1	15.3	22.7	62.3	19.7	31.4	47.5	11.6	18.6
1992	32.4	6.5	23.9	66.0	15.2	43.4	54.3	8.8	27.3
Lower Egypt									
1980	10.8	0.8	0.4	29.5	22.5	4.5	26.8	18.9	3.8
1984	14.9	10.4	2.5	44.3	25.6	13.0	31.7	16.6	6.7
1988	21.6	11.2	8.3	48.9	23.3	19.8	43.2	17.7	15.7
1992	33.3	7.1	24.4	61.1	18.0	38.0	51.1	14.5	25.5
Lower Egypt: Urban									
1980	23.7	21.2	1.0	48.2	38.2	4.8	49.4	37.1	4.7
1984	28.0	21.3	3.9	56.4	34.2	14.2	42.2	23.0	6.6
1988	31.2	17.4	11.6	60.7	27.7	24.3	55.3	20.0	19.9
1992	42.4	8.0	31.9	66.8	19.4	42.9	55.0	17.9	22.7
Lower Egypt: Rural									
1980	7.4	6.9	0.3	23.0	17.1	4.4	20.6	12.8	3.5
1984	11.5	7.5	2.2	56.4	34.2	14.2	42.2	23.0	6.6
1988	19.1	9.6	7.4	43.3	21.2	17.6	37.5	16.5	13.7
1992	30.7	6.8	22.2	58.5	17.3	35.8	49.1	12.8	26.9
Upper Egypt									
1980	13.7	3.1	0.4	11.9	9.2	1.8	9.7	6.2	0.8
1984	7.3	4.9	1.6	22.3	13.3	5.3	18.1	12.1	2.7
1988	10.7	5.0	4.5	27.9	13.4	10.3	21.7	8.0	6.3
1992	16.8	5.3	10.5	36.8	13.3	19.2	34.1	10.0	15.7
Upper Egypt: Urban									
1980	12.6	9.9	2.0	31.8	25.6	3.3	22.8	14.6	0.8
1984	17.4	10.7	4.5	44.1	24.8	12.5	35.0	21.4	6.2
1988	26.0	11.5	13.2	47.4	19.5	21.2	39.2	11.6	12.6
1992	29.5	5.6	23.5	53.0	17.3	30.0	49.3	11.0	24.6
Upper Egypt: Rural									
1980	1.7	1.5	0.0	5.5	3.9	1.3	5.3	3.5	0.8
1984	4.2	3.1	0.7	9.8	6.8	1.1	8.9	7.0	0.8
1988	5.8	2.9	1.7	15.8	9.6	3.5	9.5	5.4	1.9
1992	13.4	5.2	6.9	29.0	11.4	14.1	26.5	9.5	11.3
Egypt									
1980	10.4	8.5	1.1	30.0	20.6	5.6	7.3	16.4	3.6
1984	13.2	8.2	3.3	38.2	20.7	11.7	30.1	15.6	6.1
1988	20.0	9.1	8.6	45.3	19.0	19.6	36.7	12.4	13.2
1992	25.8	6.2	18.1	54.3	15.7	33.2	46.6	11.4	22.9

Changes in the method mix for all age groups over time also have occurred. In the early eighties, women in all age groups were much more likely to rely on the pill than on the IUD. By 1992, women were more likely to rely on the IUD than on the pill in all age groups. However, the pace of the shift to the IUD has varied somewhat by age group and region. For example, pill use has continued to expand in all age groups in rural Upper Egypt, whereas it has generally declined across all age groups in the other regions.

The timing of the declines in pill use also vary by age group and region. In the Urban Governorates, the decline in the proportion using the pill began early in the eighties for women in the two oldest cohorts but was not evident for younger women until later in the period. The Urban Governorates also differs from other regions in the fact that the proportion of women 15-24 adopting the IUD was almost negligible between 1988 and 1992. This leveling off followed a period of rapid expansion in IUD use between 1984 and 1988 in the 15-24 cohort. This pattern differs markedly from the continued increase in IUD use in the older age groups in the Urban Governorates. In the other regions, the increase in IUD use among young women was generally much more rapid between 1988 and 1992 than in the earlier period.

2.3 Trends by the Number of Living Children

Table 3 shows the trends over time in the levels of contraceptive use by the number of living children. The data in Table 3 confirm that there has been no change in the pattern of use among childless women. In Egypt, women begin using family planning only after having their first child; one percent or less of childless women were reported to be currently using contraception in any of the four surveys. Equally interesting is the sharp rise that has occurred over time in the percentage of women with one child who are using family planning; the proportion doubled from 16 percent to 32 percent in 1992. There have also been substantial increases in use in the other family size categories over time.

Considering the regional patterns, there are some differences in the family size categories in which prevalence levels peak. For example, the highest use levels are found among women with three children in the Urban Governorates and urban Lower Egypt, while in urban Upper Egypt and rural Egypt, there is a direct association between the number of living children and use levels.

There has been a transition in all family size categories from the pill, which was the predominant method in 1980, to the IUD. Overall, 22 percent of women with one child are using an IUD, more than three times those using the pill. The marked preference for the IUD is evident among women with at least one child in all areas except rural Upper Egypt. Women in rural Upper Egypt with one child depend equally on the pill (5 percent) and IUD (5 percent), whereas among women with more than one child, the IUD is the most frequently used method. As noted in the other tables, the shift in the method mix from the pill to the IUD began in the early 1980s in urban areas and in the late 1980s in rural Lower Egypt and became apparent in rural Upper Egypt only in 1992.

Table 3 Trends in the percentage of currently married women currently using a contraceptive method, by the number of living children, method, and place of residence, Egypt 1980-1992

Place of residence	No children			1 child			2 children			3 children			4+ children		
	Any method	Pill	IUD	Any method	Pill	IUD	Any method	Pill	IUD	Any method	Pill	IUD	Any method	Pill	IUD
Urban Governorates															
1980	4.4	3.1	0.4	34.5	22.2	6.0	50.4	26.3	11.3	52.4	30.9	10.5	52.3	31.7	10.9
1984	3.3	2.0	0.7	26.6	8.7	12.5	59.7	23.7	21.7	67.4	28.4	24.5	53.6	23.5	17.4
1988	1.3	0.0	1.3	44.5	10.8	24.0	64.1	17.6	32.7	66.9	20.8	31.1	61.4	20.3	27.5
1992	1.3	0.6	0.7	45.7	7.9	33.0	69.4	14.3	45.3	74.0	16.7	47.6	64.2	13.6	35.8
Lower Egypt															
1980	0.5	0.5	0.0	13.5	11.8	0.2	26.8	20.2	4.7	23.8	18.1	3.3	32.6	24.5	4.5
1984	0.5	0.2	0.0	15.4	9.5	3.0	37.6	22.6	7.9	42.2	23.7	13.0	43.4	25.0	11.7
1988	0.7	0.4	0.0	19.8	9.6	7.4	40.2	17.3	16.9	51.6	26.5	18.6	51.9	23.8	20.9
1992	0.0	0.0	0.0	34.7	7.0	25.5	56.1	16.1	36.2	64.1	20.5	36.4	63.1	17.5	37.6
Lower Egypt: Urban															
1980	1.1	1.1	0.0	29.4	25.4	0.0	48.3	39.3	5.5	46.2	36.6	5.5	55.9	43.4	5.0
1984	1.9	1.0	0.0	29.6	16.3	8.9	56.6	36.6	10.2	60.4	37.0	13.2	52.6	31.5	12.1
1988	1.4	1.4	0.0	31.0	14.4	12.3	65.6	22.2	31.2	64.9	32.4	22.9	64.6	29.7	23.7
1992	0.0	0.0	0.0	49.0	9.1	38.6	63.2	19.5	39.7	75.1	24.4	40.1	68.0	18.9	39.7
Lower Egypt: Rural															
1980	0.3	0.3	0.0	7.7	6.8	0.3	17.7	12.2	4.4	15.7	11.4	2.5	26.5	19.5	4.4
1984	0.0	0.0	0.0	10.0	7.0	0.8	26.0	14.0	6.5	32.0	16.3	12.8	40.2	22.7	11.6
1988	0.5	0.0	0.0	14.0	7.1	4.7	27.2	14.9	9.5	43.8	23.0	16.0	47.9	21.9	19.9
1992	0.0	0.0	0.0	27.6	5.9	18.9	52.1	14.1	34.2	58.0	18.3	34.3	61.6	17.0	37.0
Upper Egypt															
1980	0.3	0.3	0.0	5.2	4.3	0.2	7.3	5.9	1.2	9.5	6.5	1.2	14.0	10.4	1.9
1984	0.6	0.2	0.2	7.8	4.1	2.2	19.4	10.9	6.1	23.7	13.3	5.7	22.6	15.3	3.8
1988	0.3	0.0	0.3	12.1	3.1	7.3	25.4	8.8	11.9	25.7	11.0	10.4	27.9	14.4	7.9
1992	0.3	0.3	0.0	18.0	5.5	11.4	31.5	6.7	21.3	37.1	12.6	19.3	39.8	15.0	18.7
Upper Egypt: Urban															
1980	1.6	1.6	0.0	18.0	14.6	1.1	24.5	19.6	4.1	30.4	20.3	2.5	31.3	24.6	2.8
1984	2.3	0.8	0.8	19.7	8.7	7.9	42.9	19.8	16.5	46.4	24.2	12.6	44.0	29.2	8.3
1988	1.1	0.0	1.1	28.0	5.0	20.9	47.0	14.5	23.3	47.9	19.8	20.5	48.5	21.1	16.9
1992	0.0	0.0	0.0	32.9	6.0	24.5	54.9	9.5	38.8	55.9	18.4	32.4	57.9	19.7	28.1
Upper Egypt: Rural															
1980	0.0	0.0	0.0	1.8	1.5	0.0	2.2	1.9	0.3	3.1	2.3	0.8	8.1	5.6	1.6
1984	0.0	0.0	0.0	3.6	2.5	0.3	7.0	6.1	0.6	9.1	6.3	1.3	12.0	8.4	1.5
1988	0.0	0.0	0.0	5.7	2.3	1.8	8.5	4.3	3.0	12.1	5.6	4.2	16.9	10.8	3.1
1992	0.5	0.5	0.0	10.7	5.2	5.0	17.5	5.1	10.8	28.6	9.9	13.4	33.2	13.3	15.3
Egypt															
1980	1.3	1.0	0.1	15.9	11.8	1.7	27.3	17.3	5.5	28.5	18.8	4.9	31.3	21.8	5.1
1984	1.0	0.5	0.2	14.1	7.3	4.1	35.2	18.5	10.0	40.8	20.7	12.7	37.2	21.2	9.6
1988	0.7	0.1	0.4	23.1	7.6	11.4	43.4	14.7	20.5	47.8	19.9	19.6	44.4	19.4	17.1
1992	0.5	0.3	0.2	31.6	6.7	22.4	52.5	12.7	34.3	59.3	17.1	34.8	54.3	15.8	30.0

2.4 Trends by Education

Trends in contraceptive use among women by educational level can be seen in Table 4. In general, use levels rise with increasing educational level. However, this pattern varies somewhat by region. In the Urban Governorates, there were significant differences in the level of current use in 1980 between women with no education (35 percent), women with some primary education (42 percent), women who completed primary but not the secondary level (55 percent), and women who had a secondary or higher education (61 percent). By 1992, significant differences in prevalence

Table 4 Trends in the percentage of currently married women currently using a contraceptive method, by educational level, method, and place of residence, Egypt 1980-1992

Place of residence	No education			Some primary			Primary through secondary			Completed secondary/higher		
	Any method	Pill	IUD	Any method	Pill	IUD	Any method	Pill	IUD	Any method	Pill	IUD
Urban Governorates												
1980	34.8	23.5	6.9	41.8	25.4	9.5	54.5	31.8	10.8	61.2	29.0	11.3
1984	45.0	21.5	14.2	48.7	22.2	18.0	52.2	22.9	17.4	57.3	16.1	23.0
1988	48.3	19.9	20.4	56.0	19.0	26.0	63.9	17.9	29.4	58.1	11.7	31.8
1992	48.8	13.1	26.5	62.9	17.3	37.3	62.7	12.1	38.0	62.7	9.0	43.7
Lower Egypt												
1980	18.1	14.1	2.7	28.4	21.2	3.8	37.9	30.3	3.4	48.0	35.2	5.3
1984	29.3	18.2	7.3	38.0	21.2	10.9	48.5	26.6	11.6	47.5	22.0	13.2
1988	35.3	17.6	13.3	47.5	26.1	16.4	48.4	15.1	23.3	48.1	16.1	22.4
1992	48.3	14.7	28.4	59.5	19.8	33.2	62.2	16.1	39.8	55.8	9.9	39.6
Lower Egypt: Urban												
1980	36.3	30.2	2.9	43.5	34.2	4.7	51.5	42.6	5.9	51.8	38.3	3.5
1984	42.4	30.6	7.1	50.8	30.5	12.0	50.3	26.9	13.8	54.9	25.4	14.3
1988	50.5	28.4	16.5	60.3	36.8	17.6	53.0	13.7	24.7	55.1	15.0	27.4
1992	55.3	19.7	29.9	64.7	22.3	34.2	68.8	15.6	44.5	57.1	12.1	39.7
Lower Egypt: Rural												
1980	14.5	10.9	2.6	22.6	16.2	3.5	26.0	19.5	1.3	41.9	30.2	8.1
1984	25.6	14.8	7.4	33.1	17.6	10.5	45.8	26.0	8.3	33.3	15.4	11.1
1988	31.8	15.2	12.5	42.7	22.0	16.0	44.6	16.2	22.1	36.5	18.0	14.1
1992	46.7	13.6	28.1	57.1	18.6	32.7	56.1	16.7	35.4	54.5	7.7	39.4
Upper Egypt												
1980	4.9	3.3	1.1	13.5	11.8	0.8	25.0	16.7	3.3	44.8	33.3	2.3
1984	11.0	7.5	1.9	23.0	15.1	5.2	38.2	23.7	8.4	46.5	19.8	14.7
1988	14.0	7.6	3.9	24.5	13.0	8.3	39.9	14.3	15.5	51.8	14.7	25.2
1992	23.3	8.9	11.2	38.6	15.2	18.4	35.9	12.2	18.1	53.1	11.1	34.4
Upper Egypt: Urban												
1980	14.6	10.1	2.5	31.8	28.7	1.3	37.1	22.9	5.7	49.3	36.6	2.8
1984	29.4	18.9	6.6	35.0	21.0	9.9	48.8	31.2	10.0	48.7	19.5	16.4
1988	34.5	17.5	11.1	36.0	15.2	16.2	51.7	17.4	23.4	53.9	13.8	27.0
1992	39.5	15.0	19.5	54.6	17.4	30.5	34.2	12.2	16.6	57.1	10.7	37.7
Upper Egypt: Rural												
1980	2.9	1.8	0.8	7.3	6.0	0.6	8.0	8.0	0.0	25.0	18.8	0.0
1984	5.9	4.3	0.5	14.7	11.0	2.0	18.5	9.8	5.4	27.3	22.7	0.0
1988	7.7	4.6	1.7	17.2	11.5	3.2	23.5	10.1	4.6	43.5	18.3	18.1
1992	20.0	7.6	9.5	30.6	14.1	12.5	37.3	12.2	19.3	42.8	12.2	26.0
Egypt												
1980	15.9	11.5	2.8	28.3	19.9	4.6	43.6	28.9	6.8	54.8	31.6	8.2
1984	23.1	13.9	5.7	35.2	19.4	10.5	46.3	24.7	12.2	50.6	19.1	17.1
1988	27.5	13.5	10.0	42.1	19.8	16.2	53.0	16.1	23.9	53.1	13.9	27.0
1992	37.5	12.0	20.7	53.5	17.6	29.4	56.1	13.7	34.0	58.0	9.8	40.0

continued to be observed only between women who had and had not ever attended school. Among women who had attended school, there were only minor differences across education categories in the level of current use.

Both the timing and pace of change within education groups vary by region. For example, the pace of change in current use among women with no education in rural Upper Egypt was very slow until 1988, when a substantial increase occurred. On the other hand, in the Urban Governorates, there has been virtually no change in the use levels found among women with no education in the most recent period.

Differentials and trends in use levels by method also are presented in Table 4 according to educational level. Throughout the time period, a positive association is observed between IUD use and the level of education. With regard to the pill, there was a positive association between use of the pill and the educational level of the women in 1980. By 1992, however, this pattern had changed, and the highest levels of pill use were found among women who attended but did not complete the primary level.

Looking at regional patterns, in 1980 in the Urban Governorates, the method mix was oriented toward the pill for women at all levels of education. By 1988, IUD use had increased to the point that equal proportions of women with no education were using the pill and IUD. Among women with some education in the Urban Governorates, IUD use exceeded pill use, and the gap between the proportion using the IUD and the pill widened as the level of education increased. By 1992, there were further changes in the Urban Governorates. The percentage of women with no education using the IUD was double the percentage using the pill; and, among women who had attended school, the difference in levels of IUD and pill use were even greater, reaching a maximum among highly educated women (9 percent versus 44 percent).

For urban Lower Egypt and urban Upper Egypt, the shift in the method mix toward the IUD was evident by 1988 among women who had a primary or higher education and, by 1992, this shift had extended to all women, even those with no education. Considering rural areas in Lower Egypt and Upper Egypt, the shift to IUD use was evident first among more highly educated groups in the late 1980s. By 1992, it had spread to all educational groups in rural Lower Egypt and to women who had completed the primary level or above in rural Upper Egypt.

2.5 Trends by Work Status

Table 5 shows that women who are working[2] are slightly more likely to practice family planning than those who are not working. With regard to trends in contraceptive use, increases in use have been somewhat faster among women who were not working than those who work. As a result, the gap in prevalence between these two groups has narrowed over time in all regions except rural Lower Egypt, where the differences between the two groups appeared to have been minor at all of the survey dates.

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[2] For all of the surveys, *working* refers to any employment, whether paid in cash or in kind, in which the woman may be involved. However, the wording of the questions on work status vary slightly among the four surveys. As a result, there may be some differences in the way women's work status is classified across surveys. These differences do not substantially affect the comparison of prevalence rates in Table 5.

Table 5 Trends in the percentage of currently married women currently using a contraceptive method, by work status, method, and place of residence, Egypt 1980-1992

Place of residence	Working			Not working		
	Any method	Pill	IUD	Any method	Pill	IUD
Urban Governorates						
1980	52.5	26.3	10.0	42.1	25.8	8.7
1984	57.4	19.0	20.5	48.1	21.1	16.8
1988	58.9	13.6	30.6	55.3	17.7	25.9
1992	62.6	7.5	45.1	58.3	13.7	34.8
Lower Egypt						
1980	23.9	17.1	3.7	23.9	18.5	3.1
1984	47.2	22.6	13.8	32.9	19.5	8.5
1988	41.9	17.1	18.0	40.9	20.1	15.5
1992	54.9	14.8	32.6	52.9	15.2	32.6
Lower Egypt: Urban						
1980	51.0	38.4	5.3	40.7	32.9	3.5
1984	58.9	30.2	14.4	45.4	28.9	9.7
1988	58.2	16.4	29.4	53.3	26.8	18.5
1992	62.8	17.6	35.9	59.6	17.2	36.5
Lower Egypt: Rural						
1980	17.4	12.0	3.3	18.1	13.6	2.9
1984	31.6	12.5	13.2	28.3	16.1	8.1
1988	38.8	20.6	13.9	35.3	16.8	14.1
1992	52.3	14.0	31.5	49.8	14.2	30.8
Upper Egypt						
1980	11.0	8.7	0.6	8.5	6.4	1.2
1984	41.3	17.4	13.4	15.8	10.3	3.1
1988	38.8	11.5	16.1	19.9	9.8	6.9
1992	40.7	9.2	23.3	29.5	11.0	15.0
Upper Egypt: Urban						
1980	38.5	28.2	2.6	22.8	17.8	2.4
1984	51.7	20.1	18.1	34.6	21.4	8.2
1988	55.4	14.3	25.4	38.5	16.4	15.8
1992	56.8	9.6	35.5	45.4	15.0	25.2
Upper Egypt: Rural						
1980	2.7	2.7	0.0	4.4	3.0	0.9
1984	11.5	9.6	0.0	7.8	5.6	1.0
1988	18.3	8.1	4.6	10.9	6.6	2.5
1992	29.0	8.9	14.4	23.5	9.4	11.1
Egypt						
1980	27.6	17.3	4.5	23.3	16.3	3.9
1984	48.7	20.1	15.7	28.5	16.2	7.7
1988	45.4	15.1	20.6	35.9	15.4	14.5
1992	52.7	11.7	32.8	45.5	13.2	26.6

In general, a shift in the method mix to the IUD is observed among both working and nonworking women. In the Urban Governorates, this trend was evident by 1988 for both working and nonworking women, whereas in urban Lower Egypt and urban Upper Egypt the shift was not evident for nonworking women until 1992. In Lower Egypt, the pill remained the most popular method among both working and nonworking women throughout the period 1980 to 1988; however, by 1992, a shift toward IUD use occurred among both groups. In rural Upper Egypt, a similar pattern is evident; however, the differences in the levels of IUD and pill use among both working and nonworking women are much smaller in rural Lower Egypt than in the other regions.

3 DETERMINANTS OF CONTRACEPTIVE USE

As the trends analysis has shown, there has been a striking change since 1980 in the level of use of contraception in Egypt and in the methods adopted by users as well. Although these changes have taken place in all regions, large differentials between regions still exist. Accordingly, using data from the 1992 EDHS, this paper will explore the determinants of contraceptive use in an effort to understand the factors that may influence future trends in current use for the country as a whole and in the main regions. The investigation of the determinants of contraceptive use will build upon a similar analysis undertaken by El-Deeb and Casterline (1988), based on the 1980 Egypt Fertility Survey. However, the study will consider a number of variables that were not available in the 1980 EFS data. Specifically, the effect of the government information, education and communication (IEC) program, which was in its early stages in 1980, will be examined.

3.1 Conceptual Framework

The El-Deeb and Casterline study was an application of one of the pioneering models of the determinants of contraceptive use developed by Hermalin (1983). According to Hermalin's model, there are two main proximate determinants of use of contraception—motivation to control fertility and the cost of regulation—which operate through a set of socioeconomic and demographic variables to affect use of fertility regulation. At any given point, motivation is regarded as a function of the interaction between the supply of children (number of children surviving) and the demand for children (number of children desired). The cost of regulation includes economic costs (money and time), social costs (the outcome of transgressing social norms favoring childbearing), and health and psychic costs (the consequences of experimenting with something new that may be risky or unpleasant).

Using data from the 1980 Egypt Fertility Survey, El-Deeb and Casterline found that factors influencing both the motivation to control childbearing and the cost of fertility regulation had significant effects on current use both for Egypt as a whole and for the major regions. Not surprisingly, the desire for children, which served as a direct indicator of motivation to control fertility, was the most powerful predictor of use. Other variables which were found to be important determinants of use included the age of the respondent, the number of living children, place of residence, and the level of education of the respondent and her husband. Measures of the cost of children (e.g., desired schooling for daughters), the benefits of children (e.g., financial help expected from children in old age), and the cost of contraceptive use (e.g., time to pill outlet and communication with husband about family size desires) were also important predictors of use.

In their conclusions, El-Deeb and Casterline stressed that regional differentials were a basic aspect of family planning use in Egypt, which could not be explained by regional differentials in demographic or socioeconomic characteristics of couples nor by differential access to contraceptive methods across regions. Instead they speculated that the regional differentials were an outcome of fundamental differences across regions in the value placed on childbearing. El-Deeb and Casterline also emphasized that policy initiatives should focus on the expansion of educational opportunities for women rather than employment opportunities since the former has the potential for a much greater impact on use. They also suggested that the cost of accessing contraception (as represented by the time to a pill outlet) has played a role in inhibiting use among a significant minority of women, particularly in rural areas. Finally, they noted that attention to programs of old-age support were needed since expectation of financial support in old age was an important determinant of use, especially in rural areas.

Using the 1988 EDHS, Yehia (1992) also studied the main factors affecting contraceptive use in Egypt based on the framework presented by Hermalin (1983). She divided the variables that affect contraceptive use according to the framework into four groups, namely, socioeconomic variables, demographic variables, fertility preference variables, and service accessibility variables. The study indicated that place of residence, woman education, woman's desire for more children, woman's work after marriage, and husband's education had a significant impact on contraceptive use.

3.2 Operationalization of the Framework

The set of variables hypothesized as having an effect on the motivation to use contraception and/or the cost of use are listed below. As in the El-deeb and Casterline study, the variables are grouped according to whether their principal effect is on the motivation to use or on the cost of using. Overall, the 1992 EDHS includes a greater number of variables relevant to the motivation to use than were available in the El-Deeb and Casterline or Yehia studies.

3.2.1 Factors Affecting Motivation to Use

(a) *Desire for children:* the most direct measure of the motivation to use.

(b) *Demographic status:* measured by age and number of living children. Older women and women with more children are likely to be more motivated to use contraception than younger, low parity women.

(c) *Reproductive knowledge:* measured by accurate knowledge of ovulatory cycle.

(d) *Costs and benefits of children:* Measures relating to the cost of children included the desire for a university education for the daughter, women's education and employment, economic circumstances of the household as reflected in the husband's

education and occupation, and a measure of the household's standard of living.[3] Measures relating to the benefits of children include expectation of financial support from children, occupation of the husband, and place of residence.

(e) *Family life values:* Measured by an index of a wife's role in family decisionmaking,[4] age, and region of residence.

(f) *Exposure to family planning IEC:* Measured by source from which first heard about family planning, whether heard about family planning on radio or television, whether attended a community meeting about family planning, and whether television influenced effort to get family planning information.

3.2.2 Factors Affecting Cost Of Use

(a) *Economic costs:* Measured by accessibility and time to source and economic circumstances of household.

(b) *Normative and psychic costs:* Measured by a woman's own approval of family planning, the number of modern methods of which she approves, her perception that husband and religion approve of family planning, the role that she sees women playing in decisionmaking, and exposure to IEC messages through various media.

(c) *Social costs:* Measured by spousal communication about fertility and agreement about fertility goals, the influence of friends/relatives on the decision to seek family planning information, and region of residence.

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[3] The household standard of living index (SLI) was created from a set of variables related to housing conditions and ownership of consumer durables. The housing conditions included in the index and their scoring are summarized as follows: one point for each room in the dwelling unit; one point for piped drinking water, modern flush toilet, electricity throughout the dwelling, a special room for cooking and a cement/cement tile floor; and two points if the floor material was wood parquet, ceramic tiles, marble or wall-to-wall carpet. In addition, one point was given for ownership of each of the following items: a radio with cassette recorder; a black and white television; a color television; a video; an electric fan; a gas/electric cooking stove; a water heater; a refrigerator; a washing machine; a bicycle; a private car/motorcycle; transport equipment; residential/commercial building; farm or other land; livestock; and mechanical farm equipment. To create the categorical variable, households scoring between 1 and 10 on the index were grouped into the low standard of living group, households scoring between 11 and 14 were grouped in the medium category and households scoring between 15 and 35 were in the high standard of living group. Each of the categories included about one-third of the households in the EDHS sample.

[4] An index of the wife's role in family decisionmaking was created on the basis of responses to questions about the woman's actual role in decisionmaking or the role that she perceives as appropriate for the wife. One point was added to the index if the respondent said that she had the most influence or equal say with her husband about the decision to have another child, if she was allowed to go out alone or with her children to shop or visit relatives, and if she said that a wife should express her opinion if she disagreed with her husband. In addition, one point was added to the index if the respondent replied that a wife should have the final word or equal say with her husband in each of the following decisions: visits to friends or relatives; the household budget; having another child; children's education; children's marriage plans; use of family planning methods and the wife's employment. Women scoring between 0 and 3 on the index were considered to see wives as having a *weak* role in family decisionmaking; those scoring between 4 and 7 on the index were considered to view wives as having a *moderate* role; and those scoring between 8 and 10 were considered to think wives should have a *strong* role.

3.3 Bivariate Analysis

In view of the large number of variables hypothesized as influencing the motivation or cost of using contraception, the first step in developing the multivariate model was to examine the proportion of women using contraception for each of the variables. As shown in Table 6, many of the variables associated with the motivation to control fertility show a strong relationship to use. For example, an increase in use is associated with an increase in the number of living children. As expected, there is a strong association between use and the desire for more children. Use among women who want children soon is low; it is much more common among women who want a child later; and reaches the highest level among women who want no more children. Age also shows the expected effect, with use levels being highest among women in the middle of the reproductive years. This pattern is due to the fact that younger women have not yet reached their desired family size and are, therefore, less motivated to use, and many women in the oldest age group are no longer exposed to the risk of pregnancy because they are menopausal.

Residence in rural areas is associated with lower levels of family planning use than residence in other areas. This relationship is generally found whether the variable in question relates to the current residence or the place of residence during childhood. Presumably, it reflects the effect on the demand for children of residence in a more traditional, conservative setting in which high value is placed on large families. The cost of children in rural areas is also likely to be less than in urban areas, and the benefits, in terms of the labor that the child may provide or the support provided in old age are greater.

Considering Table 6 further, other variables associated with the cost of children show at least a moderate association with use. For example, there is a positive relationship between a woman's level of education and use. A similar relationship is observed with other socioeconomic measures (i.e., the husband's level of education and the household's standard of living). While both higher education and higher living standards are assumed to be related to an increased ability to support a large family, they also may be associated with a desire to invest more in each individual child, leading to smaller desired family size. It is the latter tendency that presumably underlies the positive association between use and socioeconomic measures. Evidence that the cost of children is related to use is found in the relationship with the level of education desired for sons and daughters; the higher the level of education desired (and, thus, the greater the potential cost), the more likely contraception is used.

Women who are currently working are more likely to use than other women. For working women, the financial and time costs of children may lead to a desire for a smaller family and, thus, to contraceptive use. With regard to the husband's occupation, wives of men employed in agriculture are generally less likely to use than other women. In part, this is assumed to be related to the potentially greater economic contribution of children to families involved in agricultural activities. The relationship between use and the expectation of financial help from children in old age suggests that women may be less motivated to use if there is a perceived need for economic support from children.

Table 6 Percentage of currently married women currently using family planning, by selected background characteristics, urban-rural residence, and region, 1992 Egypt DHS

Background Characteristic	Egypt	Urban	Rural	Urban Gover-norates	Lower Egypt		Upper Egypt	
					Urban	Rural	Urban	Rural
Age								
15-24	25.8	34.4	21.7	32.4	42.4	30.7	29.5	13.4
25-34	52.0	60.9	43.9	64.6	63.7	56.8	48.4	27.7
35-44	57.8	65.9	48.9	66.8	69.7	61.6	59.4	32.5
45-49	34.5	41.4	26.5	41.5	42.4	33.3	39.7	18.5
Number of living children								
0-1	18.7	26.4	11.4	27.3	30.8	16.6	19.8	6.1
2	52.5	64.8	37.2	69.4	63.2	52.1	54.9	17.5
3	59.3	71.3	45.4	74.0	75.1	58.0	55.9	28.6
4	57.9	68.5	48.5	69.0	71.8	61.2	63.7	33.0
5-6	54.3	61.7	49.7	63.3	66.1	64.9	54.7	30.3
7 or more	47.8	53.6	45.6	50.7	59.8	54.9	53.1	37.6
Wife's level of education								
No education	37.5	48.2	33.3	48.8	55.3	46.7	39.5	20.0
Some primary	53.5	61.6	45.4	62.9	64.7	57.1	54.6	30.6
Primary through secondary	56.1	59.8	48.8	62.7	68.8	56.1	34.2	37.3
Completed secondary/higher	58.0	60.1	51.2	62.7	57.1	54.5	57.1	42.8
Wife's work status								
Currently working	52.7	61.2	45.6	62.6	62.8	52.3	56.8	29.0
Not currently working	45.5	55.8	36.4	58.3	59.6	49.8	45.4	23.5
Childhood place of residence								
Metropolitan area/outside Egypt	58.4	59.6	44.2	60.1	60.2	46.4	56.3	42.6
Other urban	54.0	55.2	45.0	59.6	59.5	54.2	44.9	28.6
Village	40.3	54.0	37.9	54.4	63.2	50.5	42.5	23.3
Husband's level of education								
No education	36.8	47.8	32.8	48.8	57.5	46.7	38.3	19.3
Some primary	46.3	57.7	38.0	63.1	58.4	51.6	45.7	21.1
Primary through secondary	50.2	55.1	44.1	55.6	60.9	49.9	44.8	35.3
Completed secondary/higher	58.0	61.7	49.7	63.3	62.4	58.6	57.1	36.8
Husband's occupation								
Professional snd technical	57.0	59.9	51.5	63.2	56.0	60.0	56.8	39.8
Administrative	67.3	67.2	68.8	62.4	77.3	69.5	70.3	65.8
Clerical	59.5	63.3	52.9	61.4	73.5	58.6	54.4	42.0
Sales	46.2	51.8	35.2	53.3	57.4	49.0	42.7	19.8
Services	48.0	54.2	41.0	58.6	56.4	52.1	43.6	28.6
Agricultural	32.9	47.1	31.7	46.9	59.0	45.0	36.9	18.3
Production	54.0	57.8	46.7	59.0	59.9	55.6	50.2	31.9
Other	47.2	53.8	38.1	56.9	60.7	55.0	29.2	18.7
Household standard of living								
Low	35.3	48.4	30.7	50.5	58.2	46.6	37.2	18.4
Medium	48.1	54.9	41.8	56.1	59.2	51.1	46.2	27.1
High	56.8	61.3	48.5	63.1	62.0	55.0	55.5	37.3
Desire for children								
Want another soon	11.8	17.0	8.1	16.8	18.6	13.5	15.8	4.5
Want another later	36.9	50.2	27.0	56.2	53.4	38.2	35.6	17.1
Uncertain	40.3	56.3	30.3	57.1	64.5	54.7	43.7	11.7
Want no more	57.8	66.2	49.7	68.8	68.9	59.5	56.9	35.2
Declared infecund	9.4	12.5	6.5	8.9	19.5	11.5	20.1	0.0

Table 6—*Continued*

Background Characteristic	Egypt	Urban	Rural	Urban Governorates	Lower Egypt		Upper Egypt	
					Urban	Rural	Urban	Rural
Ever discussed desired number of children with husband								
Discussed	52.8	60.5	43.8	63.0	62.5	51.7	51.9	32.2
Did not discuss	42.2	52.9	34.8	54.9	57.4	49.7	44.3	20.0
Husband-wife agreement on desired number of children								
Want same number	51.6	59.8	43.7	62.8	60.8	53.5	52.5	31.0
Husband wants more	41.6	51.3	33.6	52.6	57.8	49.4	41.7	20.2
Husband wants fewer	57.1	66.6	46.7	68.1	70.6	57.4	54.5	27.9
Don't know	27.3	38.4	21.5	40.7	46.9	35.6	25.2	8.0
Knowledge of ovulatory cycle								
Yes	53.5	59.3	41.3	63.2	58.8	56.7	50.2	29.1
No	45.7	56.1	38.1	57.5	60.7	50.0	47.2	23.5
Wife's role in decisionmaking								
Weak	34.5	48.5	29.7	47.8	55.4	44.5	43.3	17.7
Moderate	50.1	57.0	43.8	58.6	61.0	53.6	47.5	28.9
Strong	56.6	60.3	48.9	62.6	61.9	55.2	51.6	38.1
Aspiration for daughter's schooling								
Less than university	39.4	52.1	31.9	49.9	59.6	48.8	51.3	23.3
University	52.0	58.6	44.3	60.4	62.6	52.8	49.1	29.9
More than university	56.4	61.9	46.7	66.4	57.0	49.3	54.7	32.5
Depends on capability	39.0	50.5	33.4	52.1	56.1	47.6	39.7	18.4
Don't know	26.4	36.1	24.5	44.3	25.9	41.2	30.2	19.2
Aspiration for son's schooling								
Less than university	42.4	53.9	34.9	53.9	67.6	45.8	42.8	27.8
University	50.0	57.5	42.3	59.1	62.4	52.9	48.4	28.2
More than university	56.4	64.3	44.0	68.4	59.1	47.9	58.8	31.2
Depends on capability	36.4	49.9	30.2	54.1	50.6	47.5	40.7	16.9
Don't know	28.8	36.5	26.4	34.8	30.1	40.7	45.5	15.4
Expectations of financial help in old age from children								
Expect help	42.1	53.4	35.5	58.8	55.8	50.1	41.3	22.4
Do not expect help	49.7	58.3	40.5	59.2	61.9	50.8	51.4	25.9
Approval of family planning								
Approve	50.7	58.9	42.9	61.2	61.4	52.5	50.7	29.6
Disapprove	11.6	22.3	7.8	29.1	25.8	20.1	11.5	3.9
Don't know	9.5	18.0	6.3	12.2	25.5	16.1	22.4	3.1
Husband's approval of family planning								
Approve	54.2	61.2	46.9	63.1	63.7	55.5	53.7	34.2
Disapprove	26.6	39.1	19.5	36.6	51.3	36.6	30.6	8.9
Don't know	11.8	18.0	9.5	80.0	18.6	19.2	8.5	3.4

Table 6—*Continued*

Background Characteristic	Egypt	Urban	Rural	Urban Governorates	Lower Egypt		Upper Egypt	
					Urban	Rural	Urban	Rural
Time to family planning source								
5 minutes or less	56.1	60.8	45.0	61.9	63.8	54.5	54.1	29.2
6-10 minutes	58.3	62.3	50.9	61.4	70.2	61.4	51.9	29.5
11-15 minutes	52.1	59.1	44.7	66.5	56.3	55.0	51.3	31.1
16-30 minutes	53.8	64.2	47.4	68.8	62.4	53.5	56.1	37.9
31 minutes or more	59.4	74.3	52.6	77.7	77.0	61.1	59.8	39.5
Don't know	10.6	17.5	7.2	17.2	20.2	12.3	16.4	4.9
Religion allows or forbids family planning								
Forbids	49.3	58.7	40.7	61.7	60.2	50.1	49.9	28.0
Allows	46.1	53.7	39.0	52.6	61.5	56.5	46.3	20.2
Don't know	27.7	42.0	20.8	41.9	57.4	42.7	30.1	11.2
First source of family planning information								
Television	49.3	57.4	41.0	59.8	60.2	51.6	47.0	25.6
Relatives/friends	42.3	55.7	34.7	54.1	65.9	47.8	51.1	23.1
Other sources	39.8	55.0	30.1	63.5	50.5	47.5	48.9	20.5
Heard family planning message on radio								
Yes	54.9	58.7	49.6	63.2	59.0	52.6	47.9	38.5
No	44.9	56.3	36.1	57.7	60.9	49.8	48.1	23.0
Heard family planning message on television								
Yes	52.1	58.9	44.1	60.8	60.8	52.7	51.6	30.5
No	32.2	44.7	27.8	46.1	56.5	44.5	35.2	17.0
Attended community meeting about family planning								
Yes	60.5	68.8	45.0	71.6	67.2	55.2	63.2	35.0
No	46.2	55.8	38.1	57.7	59.9	50.4	46.5	23.7
Influenced by relatives/ friends to seek family planning information								
Yes	55.1	63.2	48.2	65.4	63.7	55.6	55.7	35.7
No	40.4	51.9	30.1	53.8	56.8	44.7	43.7	17.6
Influenced by television to seek family planning information								
Yes	53.5	62.0	45.4	64.7	62.5	54.1	55.2	31.7
No	40.0	50.9	31.4	53.1	56.9	45.9	40.0	18.9
Total	47.1	57.0	38.4	59.1	60.3	50.5	48.1	24.3

There is no definite pattern to the variation in use levels with the time to a family planning source. However, use levels vary as expected with measures reflecting possible normative and psychic or social costs of use. For example, use levels are higher when a woman approves or believes her husband approves of family planning than when there is disapproval or uncertainty about the attitude toward use. The stronger the role accorded to wives in family decisionmaking the more likely is use. Husband-wife discussion about fertility preferences and their agreement about the number of children desired also are associated with use. Use levels are higher if the woman and her

husband agree that they want the same number or the husband wants fewer children than the wife than in cases where the husband wants more children than the wife or the wife is unaware of the husband's desires. Indicating that community support is important, women who reported that friends and relatives influenced their effort to obtain family planning information were more likely to use than other women.

Finally, a number of variables measuring exposure to family planning IEC are associated with higher use levels. They include the first source of information on family planning, recent exposure to family planning messages on radio or television, and attendance at community meetings about family planning. Women who reported that television influenced them to seek family planning information are also more likely to be using contraception than other women.

3.4 Multivariate Model

3.4.1 Specification of Variables

From the above discussion, it is clear that there is at least a moderate association between use levels and almost all of the variables hypothesized as influencing the motivation to use contraception. The next stage in the analysis was to develop a logistic regression model in an effort to obtain insight into the relative influence of the various determinants on use. In specifying the multivariate model, a simple regression model was first estimated for each variable in order to determine the strength of the variable's effect on use. Variables shown to be weak predictors of use were omitted from the multivariate model.

Among the factors found to be most strongly associated with use in the simple regression analysis were basic demographic and socioeconomic variables including urban-rural residence, region, the woman's age, the number of living children, the level of education of the woman and her husband, and the household's standard of living. Other variables also found to be comparatively strong predictors of use were the desire for children, agreement between the woman and her husband about the number of children they want, the perception of the wife's role in family decisionmaking, the number of modern family planning methods of which the respondent approves, husband approval of family planning use, exposure to IEC messages about family planning on television, and the role that friends/relatives played in influencing the woman to obtain information about family planning.

All of the variables to be included in the multivariate model were recoded into binary or categorical variables. For example, the respondent's educational level is represented by four binary variables—no education, some primary, primary through secondary and completed secondary and higher. The binary groupings and the reference category for each variable are shown in Table 7.

Table 7 Categorization of variables used in the logistic regression model of the determinants of contraceptive use

Variable	Category
Urban-rural residence	Rural (reference); urban
Region	Upper Egypt (reference); Urban Governorates; Lower Egypt
Age	15-24 (reference), 25-34; 35-44; 45-49
Number of living children	0-1 (reference); 2; 3; 4; 5-6; 7 or more
Respondent's level of education	No education (reference); some primary; primary through secondary; completed secondary/higher
Husband's level of education	No education (reference); some primary; primary through secondary; completed secondary/higher
Household standard of living	Low (reference); medium; high
Desire for children	Infecund/wants soon (reference); wants later; wants no more
Husband-wife agreement on desired number of children	Not sure (reference); want same number; husband wants same; husband wants fewer
Wife's role in family decisionmaking	Low (reference); medium; high
Approval of family planning	Don't know (reference); approve; disapprove
Husband's approval of family planning	Don't know (reference); approve; disapprove
Heard about family planning on television	No (reference); yes
Influenced by friends/relatives to seek information about family planning	No (reference); yes

3.4.2 Determinants of Use

The results of the logistic regression analysis for Egypt as a whole are presented in Table 8 for the country as a whole and urban and rural areas and in Table 9 for major regions. In these tables, the relative odds (the exponentiated coefficients) of using are shown for each variable; this measure indicates the contribution of each variable to predicting contraceptive use after controlling for the other variables.

The results for Egypt as a whole suggest that the variables related to the motivation to use, including the number of living children and the desire for children, are among the more important determinants of use. The strong role played by attitudes toward family planning also is evident. Both the woman's and husband's approval of family planning use substantially increase the odds of using. Both exposure to family planning IEC and evidence of social support for family planning, which help to shape attitudes, appear to have modest but significant effects on use.

Table 8 Relative odds of using family planning methods for Egypt and for urban and rural areas: results of logistic regression analysis

Variable	Egypt	Urban	Rural
Urban-rural residence			
Rural (R)	1.000		
Urban	1.493*		
Region			
Upper Egypt (R)	1.000	1.000	1.000
Urban Governorates	1.810*	1.539*	-
Lower Egypt	2.218*	1.595*	2.628*
Age			
15-24 (R)	1.000	1.000	1.000
25-34	1.323*	1.432*	1.205
35-44	1.320*	1.354**	1.273
45-49	.465*	.466*	.495*
Number of living children			
0-1 (R)	1.000	1.000	1.000
2	3.953*	4.416*	3.989*
3	5.556*	6.646*	5.350*
4	6.479*	7.023*	6.886*
5-6	7.501*	6.885*	8.796*
7 or more	8.031*	6.747*	9.333*
Household standard of living			
Low (R)	1.000	1.000	1.000
Medium	1.221*	1.212	1.244**
High	1.129	1.119	1.123
Wife's level of education			
No education (R)	1.000	1.000	1.000
Some primary	1.423*	1.579*	1.295*
Primary through secondary	1.504*	1.518*	1.621*
Secondary or higher	1.754*	1.841*	1.570*
Husband's level of education			
No education (R)	1.000	1.000	1.000
Some primary	1.139	1.288*	1.041*
Primary through secondary	1.116	1.032	1.255*
Secondary or higher	1.442*	1.371*	1.639*
Wife's role in decisionmaking			
Weak(R)	1.000	1.000	1.000
Moderate	1.394*	1.168	1.559*
Strong	1.347*	1.128	1.470*
Desire for children			
Wants soon/infecund (R)	1.000	1.000	1.000
Wants later	4.520*	6.240*	3.166*
Uncertain	5.081*	5.604*	4.420*
Wants no more	4.087*	4.329*	3.377*

R = Reference group
* $p < .01$
** $p < .05$

Table 8—*Continued*

Variable	Egypt	Urban	Rural
Husband-wife agreement on desired number of children			
Don't know (R)	1.000	1.000	1.000
Want same number	1.434*	1.077*	1.869*
Husband wants more	1.798*	1.473**	2.082*
Husband wants fewer	1.787*	1.656**	1.881*
Approval of family planning			
Don't know (R)	1.000	1.000	1.000
Approve	2.768*	2.616*	3.014*
Disapprove	.992	1.120	.936
Husband's approval of family planning			
Don't know (R)	1.000	1.000	1.000
Approve	3.295*	3.134*	3.510*
Disapprove	1.625*	1.617	1.686*
Heard family planning message on television			
No (R)	1.000	1.000	1.000
Yes	1.289*	1.342*	1.257**
Influenced by friends/ relatives to seek family planning information			
No (R)	1.000	1.000	1.000
Yes	1.349*	1.302*	1.387*

R = Reference group
* $p < .01$
** $p < .05$

As expected, urban-rural residence and region play a significant role in determining use, with the odds of use significantly increased among urban residents and residents of Lower Egypt. Controlling for other variables, the level of education attained by a woman also has a significant effect on use. Further evidence that the status accorded to women influences use is found in the association between the strength of the role a wife is seen as playing in family decisionmaking and use. The relationship between the wife's role and use is significant, although the odds of using do not increase directly with the strength of the wife's role.

Table 8 also presents the results of the model for urban and rural areas separately. In general, the results suggest that the determinants of use are similar in urban and rural areas, with the most marked increase in the odds of use associated with the number of living children, the desire for children, the respondent and husband approval of family planning, and, in rural areas, the region of residence. The most obvious difference between urban and rural areas lies in the lack of significant effects on use of the measure of the wife's role in decisionmaking in urban areas. In contrast, in rural areas, the odds of use are significantly greater among women who perceive that the wife plays a moderate or strong role in decisionmaking.

Table 9 Relative odds of using family planning methods for major regions in Egypt: results of logistic regression analysis

Variable	Urban Governorates	Lower Egypt		Upper Egypt	
		Urban	Rural	Urban	Rural
Age					
15-24 (R)	1.000	1.000	1.000	1.000	1.000
25-34	1.690*	1.332	1.319	1.007	1.031
35-44	1.440	1.214	1.370	1.198	1.106
45-49	.509*	.317*	.442*	.483*	.614
Number of living children					
0-1 (R)	1.000	1.000	1.000	1.000	1.000
2	5.532*	3.661*	5.115*	3.730*	2.217*
3	8.951*	6.077*	6.047*	4.031*	3.964*
4	7.587*	5.972*	8.005*	8.620*	5.055*
5-6	8.568*	5.554*	11.540*	6.462*	5.667*
7 or more	7.212*	6.025*	9.067*	6.825*	8.367*
Household standard of living					
Low (R)	1.000	1.000	1.000	1.000	1.000
Medium	1.154	.995	1.095	1.450	1.547*
High	1.026	.991	1.049	1.321	1.191
Wife's level of education					
No education (R)	1.000	1.000	1.000	1.000	1.000
Some primary	1.604*	1.573*	1.429*	1.566**	1.037
Primary through secondary	1.782*	1.727* *	1.791*	.694	1.201
Secondary or higher	2.010*	1.152	1.622**	2.328*	1.608
Husband's level of education					
No education (R)	1.000	1.000	1.000	1.000	1.000
Some primary	1.639*	.987	1.061	1.118	1.004
Primary through secondary	1.057	1.055	1.009	1.010	1.784*
Secondary or higher	1.343	1.569	1.575**	1.346	1.691**
Wife's role in decisionmaking					
Weak(R)	1.000	1.000	1.000	1.000	1.000
Moderate	1.276	1.266	1.401*	.920	1.949*
Strong	1.243	1.277	1.473*	.775	1.511*
Desire for children					
Wants soon/infecund	1.000	1.000	1.000	1.000	1.000
Wants another later	8.918*	5.934*	3.703*	2.936*	2.969*
Uncertain	5.962*	7.609*	4.868*	3.636**	4.451*
Wants no more	4.993*	4.208*	3.184*	2.966*	3.658*

R = Reference group
* $p < .01$
** $p < .05$

Table 9 controls for both urban-rural residence and region in looking at the determinants of use. In all areas, the number of living children, the desire for children, and the woman's approval of family planning are strongly associated with increased odds of use. Another variable relating to the motivation to use, husband-wife agreement on the desired number of children, is significantly associated with use in both rural Lower Egypt and rural Upper Egypt. Further evidence of the effect of the husband's attitudes on use is found in the association between the husband's approval of family planning and use. Rural Upper Egypt has the strongest association between the husband's level of education and use.

Table 9—*Continued*

Variable	Urban Governorates	Lower Egypt		Upper Egypt	
		Urban	Rural	Urban	Rural
Husband-wife agreement on desired number of children					
Don't know (R)	1.000	1.000	1.000	1.000	1.000
Husband wants more	.927	1.249	1.649*	1.315	2.760*
Husband wants same	1.381	1.601	1.788*	1.482	3.046*
Husband wants fewer	1.606**	1.992* *	1.731*	1.512	2.538*
Approval of family planning					
Don't know (R)	1.000	1.000	1.000	1.000	1.000
Approve	3.613*	2.884	2.724*	2.011	3.535*
Disapprove	2.175	1.516	.897	.420	1.107
Husband's approval of family planning					
Don't know (R)	1.000	1.000	1.000	1.000	1.000
Approve	1.951**	4.767*	3.091*	4.910*	4.623*
Disapprove	.882	2.744* *	1.845**	2.389	1.747
Heard family planning message on television					
No (R)	1.000	1.000	1.000	1.000	1.000
Yes	1.591*	.907	1.119	1.552*	1.437*
Influenced by friends/ relatives to seek family planning information					
No (R)	1.000	1.000	1.000	1.000	1.000
Yes	1.440*	1.144	1.344*	1.281	1.446*

R = Reference group
* $p < .01$
** $p < .05$

The effects of women's level of education are important in all areas, although there is clearly not a strong direct association between rising levels of female education and contraceptive use after controlling for other factors. With regard to another measure of women's status, the strength of the wife's role in family decisionmaking is significantly related to use in rural Lower Egypt and Upper Egypt, but not in the Urban Governorates or urban areas in either Lower Egypt or Upper Egypt.

4 SUMMARY AND CONCLUSIONS

The positive changes that have occurred in family planning use in Egypt since 1980 are documented in this study. Almost half of married women are currently using a contraceptive method compared with only about one-quarter in 1980. As in contraceptive revolutions in other societies, older, high parity women, better-educated women, urban women, and women living in more developed regions were the pioneers in the adoption of family planning methods in Egypt. The

results of the trends analysis show that contraceptive use then spread rapidly to other segments of the population. The trends analysis also documents the major shift in the method mix from the pill to the IUD since 1980.

Maintaining the momentum of change will be a serious challenge for the family program in Egypt. New users must, increasingly, be recruited in rural areas, in Upper Egypt, and among women with little or no education. Motivating these women to adopt family planning and assisting them to sustain use is likely to require significantly greater effort on the part of the family planning program than was needed during the rapid rise in contraceptive prevalence in the 1980s.

The analysis of the determinants of contraceptive use suggest some concrete actions that the family planning program must take if the rapid pace of the increase in use levels observed in Egypt in the 1980s is to continue. The evidence of the importance of the woman's desire for children in predicting use levels points to the need for continuing efforts at demand generation. The role that positive attitudes toward family planning play in use suggest that IEC efforts must continue to emphasize the benefits of family planning and to combat rumors about the harmful effects of family planning use. Such campaigns must target men as well as women. They must also have a regional focus, since the factors influencing use differ across regions. In particular, there is some evidence that the influence of male fertility preferences and male attitudes toward family planning are quite important in rural areas, particularly in Upper Egypt.

Finally, efforts to promote the status of women would have a significant impact on use. In this regard, increasing educational opportunities for women appear to be basic. In addition, in rural areas, campaigns to change attitudes about the role of women in family decisionmaking, particularly with regard to childbearing and family planning use, are important.

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Fertility Levels and Determinants in Egypt

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1 INTRODUCTION

Like many other developing countries, Egypt is in the middle of a transition to lower fertility. This study is intended to improve understanding of this transition by using data from recent fertility surveys, particularly the 1992 Egypt Demographic and Health Survey (EDHS), to look in some depth at the nature and pace of fertility change in Egypt and its determinants. Based on a model plan for the analysis of DHS fertility data (Hammerslough, 1993), the study first addresses the following issues:

- What has been the long-term trend in fertility?
- How has the pace of the family building process changed over time?
- How did fertility rates change over the period immediately prior to survey both for Egypt as a whole and for key subgroups?

Using Bongaarts' proximate determinants model, the study then looks at factors which are influencing fertility change in Egypt. According to the model, the four principal proximate determinants of fertility are: a) the prevalence of marriage; b) the use of contraception; c) the use of induced abortion; and d) the level amount of postpartum infecundibility caused by breastfeeding and postpartum abstinence (Bongaarts, 1978). In this study, the relative importance of each of these determinants in influencing fertility levels in Egypt is assessed first. Then the trend in fertility in the late 1980s and early 1990s is decomposed into parts that reveal the effects of the principal proximate variables.

2 DATA QUALITY

The validity of fertility trend analysis is determined to a large extent by the accuracy of age and date reporting for both women and their children. Therefore, before looking at patterns of fertility change in Egypt, it is important to examine the quality of the age and date information collected in the 1992 EDHS. The following sections review the quality of the data on respondent's age and of the birth and/or age data obtained through the birth history in the EDHS. Since one of the key concerns in the design of the survey was to provide reliable estimates of fertility levels for Egypt as a whole and for key residential subgroups, the exploration of data quality takes into account variations by urban-rural residence and region (Urban Governorates, Lower Egypt and Upper Egypt) as well as the educational level of the respondent.

2.1 Respondent Data

In obtaining age data, respondents in the 1992 EDHS were asked to report both their birth dates (month and year) and their ages in completed years. If the respondent failed to give either her birth date or her age, the interviewer was instructed to probe and to try to estimate the respondent's age in relation to national events, other members of the household, the date of the respondent's first marriage or first birth, or in any other way that was plausible. The latter procedures may lead to measurement error, particularly when the interviewer estimates the respondent's age on the basis of physical appearance, as this assessment may be influenced by both the respondent's as well as interviewer's background.

Table 1 shows the extent to which the women interviewed in the 1992 EDHS gave complete information about their birth dates. A majority of respondents (61 percent) provided both the month and year of birth. Nearly 40 percent provided the year and age, whereas a negligible percentage (0.1 percent) knew only their age. For these groups, the month of birth was imputed and/or the year of birth was calculated (Croft 1991). Table 1 also compares the proportion of women providing complete age and/or birth date information in the 1992 EDHS with that in the 1988 EDHS.[1] This comparison indicates that the percentage reporting a complete date of birth in 1992 EDHS is higher than in 1988 EDHS for all subgroups. Despite the overall improvement, this percentage remains low in rural areas, especially in Upper Egypt and among women with no education.

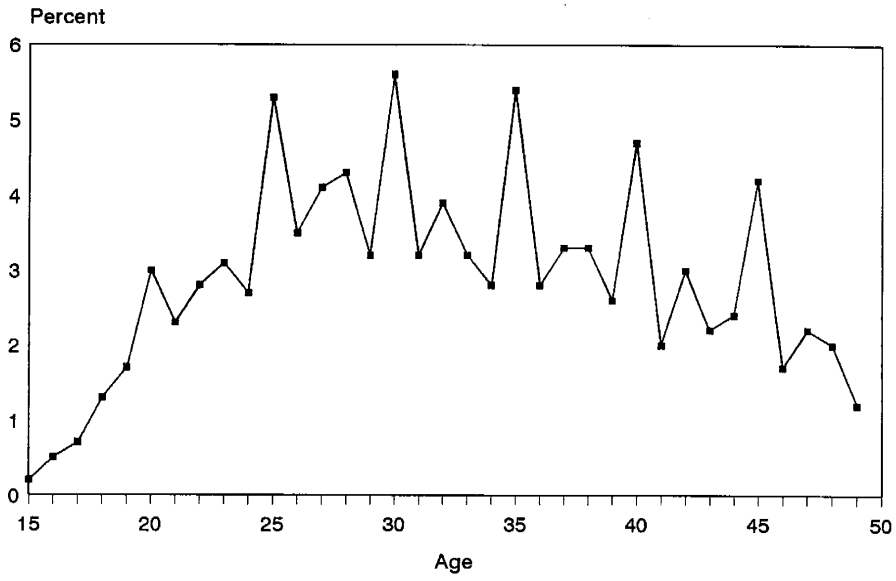
Table 1 Percent distribution of ever-married women 15-49 by the completeness of reporting of age information, 1992 Egypt Demographic and Health Survey, and the percentage of ever-married women 15-49 reporting a complete date of birth (month and year) in the the 1988 Egypt Demographic and Health Survey, according to urban-rural residence, place of residence and level of education

Background Characteristic	Completeness of reporting in the 1992 EDHS				Number of women	1988 EDHS
	Month and year	Age and year (month imputed)	Age only (month and year imputed)	Total		Month and year
Urban-rural residence						
Urban	79.8	20.2	0.0	100.0	4,596	67.3
Rural	44.1	55.8	0.1	100.0	5,268	17.7
Place of residence						
Urban Governorates	86.8	13.2	0.1	100.0	2,357	78.7
Lower Egypt	60.2	39.6	0.2	100.0	4,067	34.8
Urban	78.5	21.5	0.0	100.0	1,210	60.8
Rural	52.5	47.2	0.3	100.0	2,857	24.2
Upper Egypt	43.4	56.6	0.0	100.0	3,440	24.7
Urban	65.2	34.8	0.0	100.0	1,029	51.8
Rural	34.1	65.9	0.0	100.0	2,411	10.0
Educational level						
No education	39.2	60.6	0.2	100.0	4,771	16.8
Some primary	62.2	37.7	0.1	100.0	2,078	41.2
Primary through secondary	84.7	15.3	0.0	100.0	1,093	77.0
Completed secondary/higher	98.8	1.2	0.0	100.0	1,922	98.1
Total	60.7	39.2	0.1	100.0	9,864	41.6

One frequently observed problem with age data is heaping, i.e., the tendency for women who are not certain how old they are to show a preference for certain ages, usually those ending in zero or five. Figure 1, which presents the distribution of respondents in the 1992 EDHS by single year of age, confirms that there is some heaping on selected ages. This tendency toward digit preference is confirmed in Table 2, which shows the distribution of respondents according to the terminal digit of

[1] For more information on the 1992 DHS, see El-Zanaty et al., 1993; for information on the 1988 DHS, see Sayed et al., 1989.

Figure 1
Distribution of Ever-married Women by Single Year of Age



EDHS 1992

their ages. Table 2 also compares a version of the Myers index[2] (an overall measure of digit preference) for the 1992 survey with that observed in the 1988 EDHS. The comparison indicates that, although there is obvious digit preference in the 1992 results, particularly among rural respondents, the extent of digit preference is less in the 1992 survey than in the 1988 EDHS.

In summary, there is some evidence of age heaping for respondents in the 1992 EDHS. However, age heaping is less evident than in earlier surveys and affects only a minority of respondents. Moreover, the grouping of respondents into five-year age categories will further minimize the impact of any age heaping on the analysis of the fertility data from the 1992 EDHS.

[2] Calculated as the sum of the absolute values of the deviation of the percentage in each terminal digit category from 10 (Rutstein and Bicego, 1990).

Table 2 Percent distribution of ever-married women 15-49 by terminal digit of age for the 1992 EDHS, and comparison of the Myers Index for the 1988 and 1992 EDHS surveys, according to urban-rural residence, place of residence and level of education

Background Characteristic	Terminal digit										Myers index	
	0	1	2	3	4	5	6	7	8	9	1988	1992
Urban-rural residence												
Urban	8.1	8.1	10.0	8.7	8.5	12.9	9.6	10.4	10.9	9.3	15.5	11.6
Rural	6.9	6.9	9.4	8.2	7.3	16.8	7.7	10.0	10.8	8.1	34.4	24.8
Place of residence												
Urban Governorates	7.8	7.8	9.3	8.9	8.7	13.0	9.3	9.8	11.4	10.5	10.1	12.5
Lower Egypt	7.5	7.5	10.2	8.4	7.7	13.8	8.1	10.8	11.5	8.5	26.7	19.6
Urban	8.2	8.2	12.4	8.8	8.2	10.7	10.2	11.3	11.1	8.3	20.7	13.0
Rural	7.2	7.2	9.2	8.3	7.5	15.1	7.2	10.5	11.7	8.6	29.3	23.9
Upper Egypt	7.2	7.2	9.4	8.0	7.4	17.7	8.7	9.7	9.8	7.7	33.7	24.2
Urban	8.6	8.6	8.7	8.0	8.5	15.3	9.9	10.7	9.6	7.9	20.7	17.0
Rural	6.7	6.7	9.7	8.0	7.0	18.7	8.2	9.3	9.8	7.6	40.8	27.4
Educational level												
No education	6.2	6.2	9.3	7.9	6.8	18.2	7.3	9.7	11.1	7.7	18.3	30.2
Some primary	7.5	7.5	10.4	8.0	9.1	14.0	9.5	10.1	11.2	8.7	21.0	14.3
Primary through secondary	9.4	9.4	8.3	8.7	6.9	12.1	8.8	11.3	12.0	11.5	16.1	15.5
Completed secondary/higher	9.5	9.5	10.6	10.0	9.8	9.7	10.5	10.8	9.2	9.5	10.7	4.6
Total	7.5	7.5	9.7	8.4	7.9	15.0	8.6	7.9	10.9	8.7	25.5	18.6

2.2 Birth History Data

To obtain information on the timing of fertility events, respondents were asked to give the birth dates (i.e., month and year) and age for each surviving child and a birth date and age at death for each child who had died. Again the accuracy of the reporting of this information varies. Greater error is usually associated with the reporting of more distant events or of dates for children who have died.

Table 3 examines the completeness of reporting of dates of birth for all live births and for births during the period January 1983 to December 1992. The completeness of reporting varies according to the survival status of the child. For nearly 90 percent of all living children, mothers reported both the month and year of birth, while a complete birth date was reported for only around 60 percent of children who had died. The reporting of birth dates was better for recent births, i.e., those occurring during the period January 1983 to December 1992, than for other births, whatever the survival status. The completeness of birth date information varies significantly by residence (see Table 4), with reporting of date information being better for urban than rural births. Birth date reporting increases with the educational level of the mother. Overall, the percentage of live births for which information on date of birth was complete is higher in the 1992 EDHS than 1988 EDHS, indicating that date reporting is improving in Egypt.

Table 3 Percent distribution of all live births and all births during the period January 1983 through December 1992 by completeness of reporting of birth date information, according to survival status of the birth

Completeness of data reporting	All births			All births January 1983 through December 1992		
	Alive	Dead	Total	Alive	Dead	Total
Month and year given	88.7	59.3	84.3	95.1	77.0	93.3
Month and age given, year imputed	0.0	0.0	0.0	0.0	0.0	0.0
Year and age given, month imputed	11.2	0.0	9.5	4.9	0.0	4.4
Year only given, age and month imputed	0.0	40.2	6.1	0.0	22.8	2.2
Month only given, age and year imputed	0.0	0.0	0.0	0.0	0.1	0.0
Month, year and age imputed	0.0	0.5	0.1	0.0	0.1	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of births	32,410	5,801	38,211	16,307	1,778	18,085

Table 4 Percentage of all live births in the 1992 EDHS for which information on the birth date was complete, by survival status of the child, and the percentage of births for which information was complete in the 1988 EDHS, according to urban-rural residence, place of residence and level of education

Background characteristic	1992 EDHS			1988 EDHS
	Living	Dead	Total	
Urban-rural residence				
Urban	94.0	59.8	90.2	78.2
Rural	84.9	59.0	80.3	50.5
Place of residence				
Urban Governorates	96.0	61.1	92.2	89.4
Lower Egypt	90.3	69.7	87.6	64.3
Urban	95.4	71.6	93.4	75.5
Rural	88.4	69.3	85.7	60.6
Upper Egypt	82.8	51.8	76.6	46.7
Urban	88.3	51.2	82.8	62.3
Rural	80.8	51.9	74.5	39.2
Educational level				
No education	84.9	57.3	79.9	52.8
Some primary	89.9	58.9	85.5	66.7
Primary through secondary	94.9	67.6	91.9	82.7
Completed secondary/higher	99.7	90.1	99.3	97.8
Total	88.7	59.3	84.3	62.5

One area of specific concern in estimating fertility levels in all DHS surveys is the extent to which fertility rate estimation may be influenced by the displacement of children's birth dates, usually by interviewers seeking to avoid asking the extensive set of child health questions (Arnold 1990). Since such displacement typically results in a deficit of births in the fifth calendar year before the survey (the boundary for the DHS health section), significant displacement may result in underestimation of the fertility rate for the five-year period before the survey and an overestimation of the rate for the preceding five-year period. In assessing the extent of birth displacement in DHS surveys, Curtis (1995) concludes that, in Egypt, there was a marked decrease in the extent of birth displacement between the 1988 and 1992 DHS surveys.

In summary, the birth history data from the 1992 EDHS is more complete and subject to fewer errors than data from the 1988 EDHS. Although some displacement of births occurred, this will not substantially affect the interpretation of fertility trends derived from these data.

3 FERTILITY LEVELS AND TRENDS

The assessment of fertility trends is one of the most important objectives of the study. In this part of the paper, fertility patterns are examined from two perspectives. First, evidence of long-term changes in fertility is examined, using both period and cohort measures. Then parity progression ratios are presented to provide an understanding of how the family building process has changed over time. Finally, the issue of how recent changes in fertility vary by residence and education is addressed.

3.1 Long-term Trends in Fertility

3.1.1 Changes in Period Rates

Long-term trends in fertility can be explored for up to 15 years preceding the 1992 EDHS by using the birth history information to estimate total fertility rates for successive periods before the survey. Table 5 shows fertility rates for three five-year periods before the survey. The fertility rates are cumulated only up to age 34 because of the progressive truncation of data for older women as the time before the survey increases.

The analysis indicates that fertility rates for women age 15-34 fell by 1.3 births during the 15-year period for which information is presented in Table 5. The pace of the decline has accelerated over time. As a result, fertility changes are heavily concentrated in the most recent periods. Fertility in rural areas has remained consistently high, relative to fertility in urban

Table 5 Trends in fertility rates during the 15-year period preceding the survey, 1992 EDHS

Background characteristic	1992 EDHS		
	0-4	5-9	10-14
Total			
15-19	69	112	124
20-24	224	258	287
25-29	231	271	292
30-34	170	208	245
35-39	102	134	[164]
40-44	45	[49]	-
45-49	[5]	-	-
TFR 15-34	3.5	4.2	4.7
Urban			
15-19	31	72	80
20-24	163	195	239
25-29	194	239	260
30-34	139	182	202
35-39	79	95	[124]
40-44	30	[32]	-
45-49	[2]	-	-
TFR 15-34	2.6	3.4	3.9
Rural			
15-19	100	150	167
20-24	282	321	336
25-29	268	305	327
30-34	202	237	290
35-39	126	176	[212]
40-44	61	[69]	-
45-49	[9]	-	-
TFR 15-34	4.3	5.1	5.6

Note: Age-specific rates are per 1,000 women. Estimates enclosed in brackets are truncated.

areas, although both urban and rural rates declined during the period. Overall, fertility among women 15-34 in urban areas fell by one-third, from 3.9 births during the period 10-14 years before the survey, to 2.6 births in the five-year period immediately before the survey. Among rural women 15-34, fertility declined by 24 percent, from 5.6 births to 4.3 births during the same period.

3.1.2 Changes in Cohort Rates

Changes in fertility rates over time are examined in Table 6 for cohorts of women born during the period 1948-1977. Unlike period fertility rates, which measure the level of childbearing at a given time period for all age groups in a population, cohort fertility measures allow an examination of changes over time in the fertility behavior of a given birth cohort.

Table 6 Trends in fertility rates by birth cohort, 1948-1977, 1992 EDHS

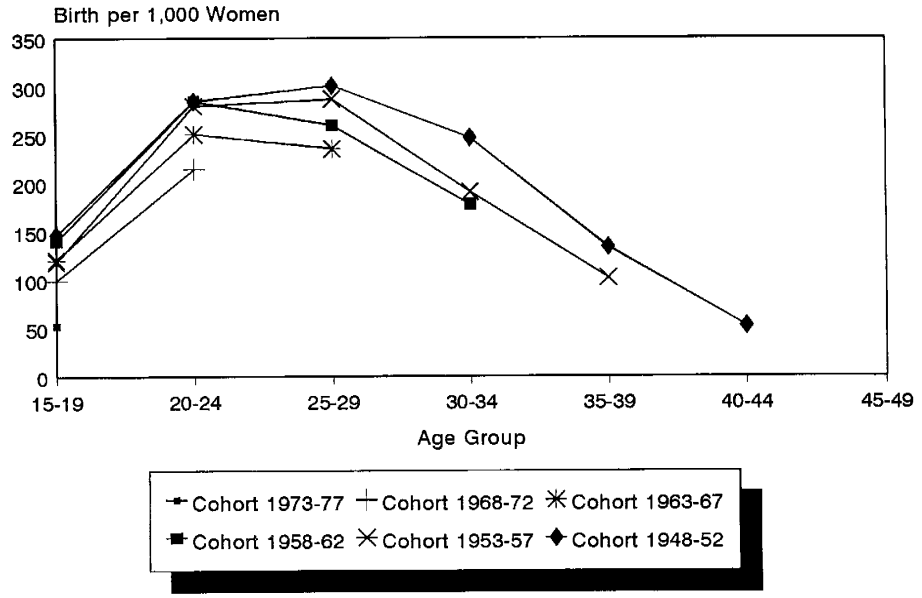
Mother's age at birth	1973-1977	1968-1972	1963-1967	1958-1962	1953-1957	1948-1952
15-19	53	100	121	141	119	147
20-24	-	215	251	285	280	285
25-29	-	-	236	260	287	301
30-34	-	-	-	178	191	247
35-39	-	-	-	-	102	134
40-44	-	-	-	-	-	52
45-49	-	-	-	-	-	-

A general trend toward lower fertility is the principal finding that can be drawn from the examination of changes in cohort fertility. For each successive cohort, fertility is generally lower at any given age (see Figure 2). The substantial reduction in fertility at ages 15-19 observed for the youngest cohorts (those born between 1968 and 1972 and between 1963 and 1967) is a result of an increasing trend toward later marriage which delayed the start of childbearing and, hence, reduced fertility levels for these women.

The overlap of the three oldest cohorts at ages 20-24 suggests that there was little change in fertility among women in this age group until the cohort born between 1963 and 1967 reached their twenties. The declines observed at ages 20-24 for the latter cohort, as well as the cohort born between 1968 and 1972, are likely a result of an increased tendency for many women to delay marriage into their twenties.

Figure 2 also shows steady decreases in fertility in the late twenties and early thirties for all cohorts. This suggests that successive cohorts are practicing fertility control earlier. The changes are particularly notable for the cohort born between 1953 and 1957. The women in this cohort would have reached their peak childbearing ages in the 1980s when rates of family planning use were increasing rapidly in Egypt.

Figure 2
Age-Specific Fertility Rates
by Cohort



EDHS 1992

3.2 Parity Progression

An analysis of parity progression contributes to the understanding of fertility change over time by looking at how many women move successively from one stage to the next in the family building process, i.e., from marriage to first birth, from first birth to the second birth, and so on. Calculated using life table methods, the proportion of women achieving the next higher birth order within five years (60 months) of the previous one (i.e., the *quintum*)[3] provides a reasonable measure of the extent to which women at one parity will go on to have another birth.

Table 7 presents the values of the quintum or the proportion having a birth within five years of the previous event, which are also shown graphically in Figure 3. An examination of trends in quintums for successive periods before the survey indicates that there has been a steady decline over time in the proportion having the next birth, with the decline becoming evident as long as 20 years before the survey. However, the slowing in the transition to the next birth is most noticeable in the period 0-5 years preceding the survey.

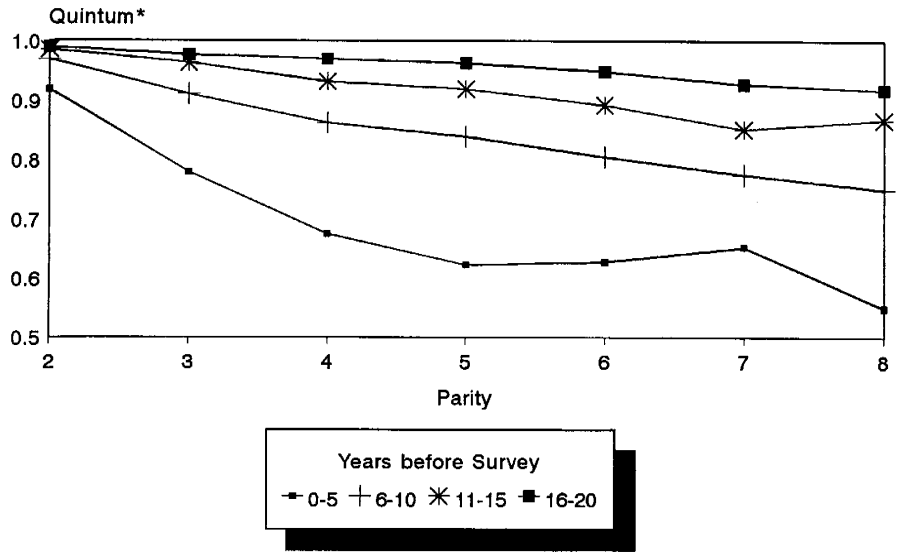
[3] For purposes of this study, quintums are calculated for the periods 0-5, 6-10, 11-15 and 16-20 years before the survey.

The decrease in the quintums in the period 0-5 years before the survey are quite large, especially in the proportion of women having a third birth within five years of the second (.92 to .78). The dramatic fall in the quintums at third and higher birth orders in the period 0-5 years before the survey is evidence of more conservative childbearing behavior as family size increases. The presentation of these quintums by birth order in Figure 3 clearly illustrates the relationship between parity and the timing of the adoption of fertility control, with high parity women being the first to change. For example, the transition to parity 5 has been falling steadily in the last 20 years; however, the change has been more rapid in the period 0-5 years before the survey. Among high parity women, the recent fall in quintums has been especially notable.

Table 7 Proportion of women at parity *i* who have given birth within five years of a previous birth (quintum), by successive 5-year periods before the survey, 1992 EDHS

	Number of years before survey			
Parity	0-5	6-10	11-15	16-20
2	.92	.97	.99	.99
3	.78	.91	.96	.98
4	.67	.86	.93	.97
5	.62	.84	.92	.96
6	.63	.80	.89	.95
7	.65	.77	.85	.93
8	.55	.75	.87	.92

Figure 3
Parity Progression Ratios for Specific Periods Prior to the Survey



*Proportion moving from one parity to the next within five years

EDHS 1992

Table 8 shows the values of the quintum in the period 0-5 years before the survey for both urban and rural areas. The extremely low levels of fertility in urban areas are being achieved through the adoption of fertility control by women at fairly low parities. Overall, fairly high proportions of urban women ultimately have the second or third birth, but then only about 50 percent go on to each higher order. Reflecting the historically high levels of fertility in rural Egypt, the changes in the rural quintums are more gradual, with the greatest declines in transitions at parity 6 or higher.

Table 8 Proportion of women at parity *i* who have given birth within five years of a previous birth (quintum), by urban-rural residence, 1992 EDHS

Parity	Urban	Rural	Total
2	.90	.93	.92
3	.64	.89	.78
4	.47	.82	.67
5	.40	.77	.62
6	.51	.69	.63
7	.54	.70	.65
8	.48	.57	.55

3.3 Recent Trends in Fertility by Residence and Education

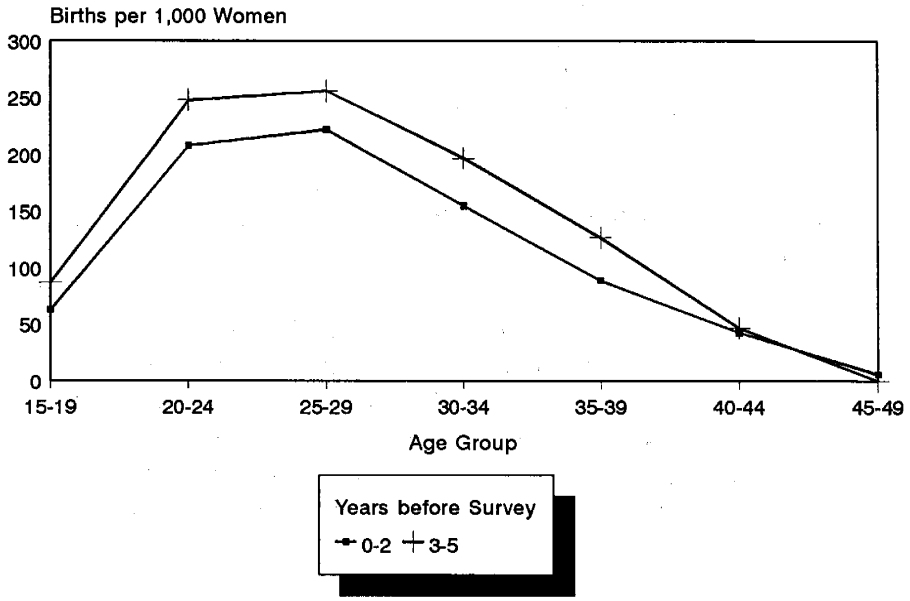
In this section, the levels and trends of fertility are examined in relation to the socioeconomic characteristics of the population. The common pattern of fertility differences is for fertility levels to be high when socioeconomic levels are low. Thus, developing countries have high birth rates compared with developed countries and, within countries, less-privileged groups (poor or uneducated) have higher birth rates than more-privileged groups that are affluent and well-educated. Although this is the general pattern, fertility patterns vary depending on the characteristics of the society.

An analysis of period changes in fertility documents the substantial decline in fertility that has been occurring in Egypt (see Table 9). The total fertility rate has fallen from 4.8 births in the period 3-5 years before the survey to 3.9 births in the period 0-2 years before the survey. The decline took place in all but the oldest age group, where fertility remained low and stable (see Figure 4). As discussed later in this paper, decreases in fertility rates in the youngest cohorts are largely due to trends in the age at marriage, which has been rising rapidly in Egypt, while changes in the older cohorts largely reflect greater use of contraception.

Table 9 Age-specific fertility rates and total fertility rates for two 3-year periods preceding the survey, by urban-rural residence, 1992 EDHS

	Urban		Rural		Total	
Mother's age	0-2 years	3-5 years	0-2 years	3-5 years	0-2 years	3-5 years
15-19	28	43	89	129	63	87
20-24	145	188	269	305	208	248
25-29	188	220	256	292	222	256
30-34	130	162	180	235	155	197
35-39	64	101	117	155	89	127
40-44	27	32	61	65	43	47
45-49	2	0	10	0	6	0
TFR 15-49	2.9	3.7	4.9	5.9	3.9	4.8
TFR 15-44	2.8	3.5	4.5	5.3	3.6	4.4

Figure 4
Trends in Age-specific Fertility in Egypt



EDHS 1992

Although a trend toward gradual concentration of childbearing in the 25-34 age group is continuing in Egypt, fertility rates among teenagers and women age 35 and over remain comparatively high. Fertility levels at these ages are of particular concern because pregnancy-related morbidity and mortality have been shown to be greater for mothers and children when the mother gives birth in her early teens or when she is age 35 and over (Haaga, 1989; Zimicki, 1989). Additionally, a woman who marries and begins childbearing in her teens often cannot take advantage of opportunities for education that would improve her life and the lives of her children. Overall, at current levels of fertility, one-quarter of lifetime births occur to women while they are in their teens or after age 35.

3.3.1 Trends by Urban-Rural Residence

Fertility has been declining in both rural and urban areas in Egypt (see Table 9). Because the pace of decline in recent years has been somewhat faster in rural areas than in urban areas, the differential in the fertility levels between women living in urban and rural areas in Egypt is gradually narrowing. Nevertheless, rural residence continues to be associated with substantially higher fertility. During the period 4-7 years before the survey, there was a difference of 2.2 births between the total fertility rates for urban and rural areas. By the period 0-3 years before the survey, the gap had narrowed slightly to 2.0 births, with rural women having 4.9 births compared with 2.9 births for urban women.

Considering differences in age-specific fertility, rural rates are higher than urban rates in all age groups, with especially large differences in rates observed for teens and women age 35 and over. The likelihood of giving birth when a woman is in a "high-risk" age group is greater in rural than urban areas. Overall, at current fertility levels, 28 percent of the lifetime births to rural women will take place when the mother is in the high-risk age groups, compared with only 20 percent of urban births.

3.3.2 Trends by Region

With regard to regional differentials, the recent declines in fertility were particularly noticeable in the Urban Governorates—where rates fell from 3.5 births during the period 4-7 years before the survey to 2.7 births in the period 0-3 years before the survey—and in urban Lower Egypt, where fertility dropped from 3.7 births to 2.8 during this period (see Table 10). In urban Upper Egypt, the decline was slower although still substantial, with the rate falling from 4.3 births in the period 4-7 years before the survey to 3.6 births in the period 0-3 years before the survey.

Table 10 Age-specific and total fertility rates for two 3-year periods preceding the survey, by place of residence, 1992 EDHS

	Urban Governorates		Total		Urban		Rural		Total		Urban		Rural	
Mother's age	0-2 years	3-5 years	0-2 years	3-5 years	0-2 years	3-5 years	0-2 years	3-5 years	0-2 years	3-5 years	0-2 years	3-5 years	0-2 years	3-5 years
15-19	24	36	54	82	23	36	64	103	98	132	42	66	122	165
20-24	121	178	222	254	164	190	247	281	258	295	179	207	295	339
25-29	188	204	215	257	171	236	235	268	259	297	205	241	287	322
30-34	121	146	133	182	123	156	137	195	208	260	160	207	231	287
35-39	56	102	77	124	60	101	85	135	135	154	89	99	161	183
40-44	26	34	37	40	19	23	45	48	66	69	37	38	82	86
45-49	2	0	5	0	0	0	7	0	11	0	3	0	15	0
TFR 15-49	2.7	3.5	3.7	4.7	2.8	3.7	4.1	5.2	5.2	6.0	3.6	4.3	5.9	6.9
TFR 15-44	2.6	3.3	3.4	4.3	2.7	3.5	3.8	4.6	4.7	5.5	3.4	4.0	6.0	6.9

In all three urban areas, the age-specific fertility rates peak in the 25-29 age group, an indicator of the effect of the rising age at marriage. As a result of somewhat higher fertility rates in the 15-19 and 35-44 age groups, the likelihood that a woman will give birth when she is in a high-risk age group is slightly greater in the urban Upper Egypt than in the Urban Governorates and urban Lower Egypt. At current fertility levels, almost one in four births to women in urban Upper Egypt will take place when a woman is in the high-risk age groups, while fewer than one in five births in the Urban Governorates or urban Lower Egypt will be to women in these age groups.

Recent trends in rural fertility show variation by region. In both Lower Egypt and Upper Egypt, rural fertility declined, but the pace of change has been slower among rural women in Upper Egypt than in Lower Egypt. As a result, the gap in fertility between rural areas in Lower Egypt and Upper Egypt has widened slightly. Overall, the total fertility rate for the period 0-3 years before the survey was 6 births in rural Upper Egypt, nearly 2 births more than the rate for rural Lower Egypt (4.1 births).

Comparing trends in age-specific rates for rural women in the two regions, fertility continues to peak in the 20-24 age group in both regions. The rates for this age group are converging with those of the 25-29 age group, indicating that rural women, like their urban counterparts, are delaying marriage. Despite the significant declines in fertility, the proportion of lifetime births occurring among rural women in "high-risk" age groups remains high. For women in rural Lower Egypt, at current fertility levels, 25 percent of lifetime births will take place when a woman is in her teens or age 35 and over. In rural Upper Egypt, this figure exceeds 30 percent.

3.3.3 Trends by Education

There are substantial differences in fertility by level of education. During the period 0-3 years before the survey, the total fertility rate varied from a low of 2.9 births among women who had completed secondary school or higher to 5.0 births among women with no education (see Table 11). The pace of change in fertility between the periods 4-7 years and 0-3 years before the survey also differed by educational group, with the relative rate of change least for women with no education and those with secondary or higher education. In all education groups, fertility rates peak among women age 20-24, except for women with secondary or higher education, whose fertility is highest in the 25-29 age group. The likelihood of a women giving birth when she is in a "high-risk" age group decreases directly with increasing education. At current fertility levels, the proportion of lifetime births that will take place when a woman is "too young" or "too old" ranges from only 15 percent among women with a secondary education to 30 percent among women with no education.

Table 11 Age-specific and total fertility rates for two 4-year periods preceding the survey, by educational level, 1992 EDHS

	No education		Some primary		Primary through secondary		Secondary complete/higher	
Mother's age	0-3 years	4-7 years	0-3 years	4-7 years	0-3 years	4-7 years	0-3 years	4-7 years
15-19	135	172	78	150	33	73	17	7
20-24	281	317	238	280	212	246	128	143
25-29	245	286	217	245	164	211	210	229
30-34	173	220	142	180	104	168	154	181
35-39	109	138	82	137	49	101	70	87
40-44	54	59	36	48	41	20	5	13
45-49	8	0	3	0	3	0	0	0
TFR 15-49	5.0	6.0	4.0	5.2	3.0	4.1	2.9	3.3
TFR 15-44	4.4	5.1	3.6	4.4	2.9	3.7	2.8	3.3

4 PROXIMATE DETERMINANTS OF FERTILITY

As the previous sections of this paper document, fertility in Egypt has been declining steadily. This section contributes to an understanding of those trends by looking at changes over time in the contribution of various proximate determinants to fertility change. As noted earlier, the analysis will rely on the model developed by John Bongaarts (Bongaarts, 1978 and 1980; and Bongaarts and Potter 1983). In the Bongaarts model, differences in four principal proximate determinants are considered to account for most variation in fertility: marriage, contraception, postpartum infecundibility, and induced abortion.

This analysis considers the effects of the proximate determinants for the national population and for each of the major regions in Egypt. The extent to which each of the principal determinants was responsible for changes over time in fertility is also explored by decomposing the trend in the total fertility rate between 1988 and 1992, according to the effects of the main proximate determinants. This permits the quantification of the contribution made by each proximate determinate to the given change in fertility.

4.1 Analytic Details

The Bongaarts model assumes that fertility is lower than its maximum value in any population as a result of delayed marriage, the use of contraception, postpartum infecundibility due to breastfeeding or abstinence, and abortion. The fertility-inhibiting effects of the these factors are represented in the model by four indexes C_m, C_c, C_i, C_a, which take values between 0 and 1. The lower the value of an index, the greater the fertility-inhibiting effect of the component to which that index refers.

The following equation, which summarizes the basic structure of the Bongaarts model, relates the total fertility rate (TFR) to the proximate determinants:

$$TFR = C_m \times C_c \times C_a \times C_i \times TF$$

where:

C_m is the index of marriage,
C_c is the index of contraception[4]
C_i is the index of postpartum infecundibility,
C_a is the index of abortion, and
TF is the total fecundity rate, which is assumed to be 15.3, in the absence of the fertility-inhibiting effects of contraception, induced abortion, breastfeeding and postpartum abstinence.

The EDHS provides the measures needed for directly examining the effects of three of the four principal determinants. Only abortion, which is generally assumed to be less important in determining fertility levels in Egypt and other Islamic countries, cannot be estimated using EDHS results.

The contribution of each of the principal proximate determinants to fertility change in a society is further estimated by the following equations in which a change between two points in time in the total fertility rate for a population is related to the changes in the various proximate determinants. In the first equation, the ratio of the total fertility rate at Year 2 to the total fertility rate at Year 1 is expressed as:

$$\frac{TFR2}{TFR1} = \frac{C_{m2}}{C_{m1}} \times \frac{C_{c2}}{C_{c1}} \times \frac{C_{a2}}{C_{a1}} \times \frac{C_{i2}}{C_{i1}} \times \frac{TF2}{TF1}$$

[4] The average use-effectiveness of contraception that was used in estimating the index of contraceptive was derived from data collected in the 1992 EDHS.

The above equation is then rearranged as:

$$P_f = P_m + P_c + P_a + P_i + P_r + I$$

where:

P_f = $TFR2/TFR1 - 1$
= proportional change in TFR between Year 1 and Year 2

P_m = $C_m2/C_m1 - 1$
= proportional change in TFR due to a change in the index of marriage

P_c = $C_c2/C_c1 - 1$
= proportional change in TFR due to a change in the index of contraception

P_a = $C_a2/C_a1 - 1$
= proportional change in TFR due to a change in the index of induced abortion

P_i = $C_i2/C_i1 - 1$
= proportional change in TFR due to a change in the index of postpartum infecundibility

P_r = $TF2/TF1 - 1$
= proportional change in TFR due to a changes in the remaining proximate variables—natural fecundibility, spontaneous intrauterine mortality, and permanent sterility

I = an interaction factor.

Thus, a proportional change in the TFR between any two points in time is equal to the sum of the proportional fertility changes due to the different proximate determinants plus an interaction term. Again, data are available from the 1988 and 1992 EDHS surveys to estimate the effects of changes in all of the principal proximate determinants except abortion.

4.2 Differentials in Proximate Determinants

Table 12 looks at trends in the principal proximate determinants of fertility for which information was obtained in the 1988 and 1992 DHS surveys in Egypt, i.e., in marriage, contraceptive use and postpartum infecundibility. The table shows that there were only slight changes in the proportion married for most residential subgroups between 1988 and 1992. However, there were large increases in the median age at first marriage are evident in Table 11, particularly in Upper Egypt. The greatest increase in age at first marriage was among urban women in Upper Egypt, from 18.8 years in 1988 to 20.5 years in 1992.

Table 12 Marriage, contraceptive use, and postpartum insusceptibility, by place of residence, Egypt 1988 and 1992

Place of residence	Marriage: Proportion married, women 15-49		Marriage: Median age at first marriage, women 25-49		Contraceptive use: Percentage currently using any method, married women 15-49		Postpartum insusceptibility: Mean duration in months[1]	
	1988	1992	1988	1992	1988	1992	1988	1992
Urban Governorates	58.8	63.7	21.1	21.1	56.0	59.1	6.0	6.3
Lower Egypt	65.9	63.8	18.4	19.1	41.2	53.3	8.7	7.3
Urban	64.8	62.7	20.5	20.8	54.5	60.3	6.2	5.9
Rural	66.3	64.2	17.6	18.5	36.6	50.5	9.6	7.8
Upper Egypt	69.0	69.6	17.1	17.9	22.1	31.4	10.4	9.0
Urban	63.8	62.0	18.8	20.5	41.5	48.1	8.1	7.1
Rural	72.2	73.4	16.4	17.2	11.5	24.3	11.4	9.6
Total	65.1	65.3	18.5	19.2	37.8	47.1	8.9	7.9

[1] Calculated using the prevalence-incidence method in which the prevalence of postpartum insusceptibility (the total number of women who were insusceptible) is divided by the incidence (the average number of births per month over the 36-month period).

For all residential subgroups, a larger proportion of currently married women were using a contraceptive method in 1992 than in 1988. Striking changes in current use are observed in both urban and rural Lower Egypt. Significant change also occurred in Upper Egypt between 1988 and 1992, with the use rate rising from 12 percent to 24 percent in rural areas, while it increased from 42 to 48 percent in urban areas.

The differences in the mean duration of insusceptibility (resulting from women being either amenorrheic or abstaining) reflect the differences in the length of breastfeeding and postpartum abstinence. At both points in time, rural women were insusceptible to the risk of pregnancy for much longer periods than urban women. With respect to trends, rural Upper Egypt exhibited the most change between 1988 and 1992. The median duration of insusceptibility in rural Upper Egypt declined from 11.4 months in 1988 to 9.6 months in 1992, a decrease of almost two months.

4.3 Effects of the Proximate Determinants on Fertility

Table 13 presents the indices of marriage, contraceptive use, and postpartum infecundibility and the TFR and TF implied by the Bongaarts model for 1988 and 1992. In interpreting the findings, it should be remembered that the higher the value of an index, the lower the percentage reduction in the TFR due to that index. In general, the reduction in fertility is principally due to use of contraception and to postponement of marriage, with the reduction due to postpartum infecundibility being less important. In both 1988 and 1992, the effect of contraceptive use was somewhat greater than the the effect of delays in marrying.[5] Regarding regional patterns, the effects of delay in marriage and of contraceptive use are relatively small in rural Upper Egypt compared with other regions. Postpartum infecundibility as a factor in fertility decline is of much less importance than contraceptive use or delay of marriage in most areas. Its effect is greatest in rural upper Egypt.

[5] In another study (Adlakha et al., 1991) that compares the 1988 EDHS data with data from the 1980 Egypt Fertility Survey, the inhibiting effect of contraception on fertility was generally found to be less important than the inhibiting effect of marriage.

Table 13 Proximate determinants and fertility rates, by place of residence, Egypt 1988 and 1992

Proximate determinants/ fertility rates	Urban Governorates	Lower Egypt		Upper Egypt		Total
		Urban	Rural	Urban	Rural	
Proximate determinants						
Cm: index of marriage delay						
1992	.500	.508	.627	.595	.759	.612
1988	.477	.593	.681	.608	.748	.629
Cc: index of contraceptive use						
1992	.382	.367	.469	.499	.748	.507
1988	.416	.432	.628	.569	.881	.606
Ci: index of postpartum insusceptibility						
1992	.806	.820	.760	.781	.712	.758
1988	.816	.810	.712	.752	.669	.730
Fertility rates						
Actual TFR						
1992	2.69	2.80	4.10	3.58	5.97	3.93
1988	3.12	3.93	5.96	4.29	6.34	4.54
Implied TFR						
1992	2.34	2.34	3.42	3.55	6.18	3.60
1988	2.48	3.17	4.66	4.98	6.75	4.26
Implied TF						
1992	17.6	18.3	18.3	15.4	14.4	16.7
1988	19.3	18.9	16.3	16.5	14.8	16.3

The decomposition of the change in the fertility rate between 1988 and 1992 is presented in Table 14 by place of residence. In the first column, fertility change for all of Egypt is decomposed into the component due to each of the determinants. In the second column, the decomposition results are standardized to add to 100 percent and, in the final column, the absolute change in the TFR (.48 births per women between 1988 and 1992) is decomposed into the contributions made by various proximate variables. In effect, the last column of Table 13 provides an estimate of the extent to which the TFR would have changed between 1988 and 1992 if the relevant proximate determinant had changed, and all other factors had remained the same. The results indicate that the decline in the total fertility rate would have been greater by almost one child, in response to changes in contraceptive use and marriage, if all other proximate determinants had remained constant.

The decomposition analysis presented in Table 14 suggests that changes in contraceptive use was generally the principal factor in fertility change.[6] The regions vary somewhat in the extent to which changes in contraceptive use inhibited fertility, with the largest effect observed for rural areas in Lower Egypt. Although generally less significant than changes in contraceptive use, changes toward late marriage contribute to the fertility decline in all regions, except the Urban Governorates, where the age at marriage was already quite high at the time of the 1988 survey. In most regions, changes in the duration of postpartum insusceptibility, which are largely due to a decline in breastfeeding, have had the effect of promoting rather than inhibiting fertility, and have partially offset the fertility inhibiting effects of contraceptive use.

[6] A previous study carried out by Osheba (1992) concluded that, in rural and urban Lower Egypt, the increase in contraceptive use was the dominated driving force for the decline in the total fertility rate between 1980 and 1988, whereas, in the Urban Governorates and urban Upper Egypt, changes in the marriage pattern dominated. In rural Upper Egypt, the largest contribution to the fertility change during that period was due to the decline in lactational infecundibility.

Table 14 Decomposition of the change in total fertility in Egypt from 1988 to 1992, by place of residence and factors responsible for fertility change

Place of residence/ Factors responsible for fertility change	Percentage change in TFR	Distribution of percentage change	Absolute change in TFR
Egypt			
Proportion married	-2.7	-20.1	-.12
Contraceptive use	-16.3	-121.6	-.74
Postpartum insusceptibility	+3.8	+28.5	+.17
Other determinants	+2.4	+18.0	+.11
Interaction	-0.6	-4.8	-.03
Total	-13.4	100.0	-.61
Urban Governorates			
Proportion married	+4.8	+35.0	+.15
Contraceptive use	-8.7	-62.8	-.27
Postpartum insusceptibility	-1.2	-8.9	-.04
Other determinants	-8.8	-64.1	-.28
Interaction	+0.1	+0.8	+.00
Total	-13.8	100.0	-.43
Lower Egypt: Urban			
Proportion married	-14.3	-49.9	-.56
Contraceptive use	-15.0	-52.3	-.59
Postpartum insusceptibility	+1.2	+4.3	+.05
Other determinants	-3.3	-11.5	-.13
Interaction	+2.7	+9.3	+.11
Total	-28.8	100.0	-1.13
Lower Egypt: Rural			
Proportion married	-7.9	-51.8	-.32
Contraceptive use	-25.3	-165.2	-1.01
Postpartum insusceptibility	+6.7	+44.0	+.27
Other determinants	+12.6	+100.3	+.61
Interaction	-3.5	-27.3	-.17
Total	-15.3	100.0	-.76
Upper Egypt: Urban			
Proportion married	-2.1	-12.9	-.06
Contraceptive use	-12.3	-74.3	-.32
Postpartum insusceptibility	+3.9	+23.3	+.10
Other determinants	-6.4	-38.5	-.17
Interaction	+4.1	+2.5	+.01
Total	-16.6	100.0	-.71
Upper Egypt: Rural			
Proportion married	+1.5	+25.2	+.28
Contraceptive use	-15.1	-258.7	-2.92
Postpartum insusceptibility	+6.4	+110.1	+1.24
Other determinants	+2.7	+46.2	+.52
Interaction	-1.3	-22.9	-.26
Total	-16.6	100.0	-.37

5 CONCLUSIONS

Fertility has achieved noticeable decline in Egypt over the past 20 years. As is the case in most high fertility societies, older, higher parity women appear to have led the way in the transition to lower fertility. The decline in fertility is evident in all regions as well as all educational levels, with the lowest fertility observed in urban areas and among women with higher education. The marked success of the Egyptian family planning program is reflected in the role contraceptive use has played in recent fertility decline. Contraception use was the most important determinant of the fertility reduction that occurred between 1988 and 1992.

The existence of large regional differentials in fertility points to the continuing need for region-specific policies to promote future fertility change. In view of the strength of the relationship between fertility and education, greater efforts are warranted to ensure the success of governmental policy in education development. The fertility promoting effect of recent decreases in the duration of of postpartum insusceptibility is clear, suggesting that greater attention needs to be paid to encouraging breastfeeding, particularly in urban areas.

Finally, it is important to continue to stress the importance of reducing fertility levels among teenage women and women age 35 and over. Births to women in both these age groups pose significant health risks for mothers and children. Moreover, births to women under age 20 limit their opportunities for education, which is a cost to society as well as a loss to the women and their families.

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Profile of Men's and Women's Fertility Preferences in Egypt

Hassan H.M. Zaky

1 INTRODUCTION

Traditionally, fertility surveys and analysis have mainly been based only on the attitudes and behaviors of female respondents. According to Mott and Mott (1985), this has been done primarily because of the assumption that mothers, who are the actual child-bearers, are more aware of the present and future fertility behavior, attitudes and desires of the family than are fathers. However, during the past decade, there has been a growing concern with the role of the husband in fertility decisions and behavior. This increased awareness of the male role has resulted in efforts to collect data on fertility desires and behavior from married couples, not just from the wife alone. Various studies reflect this new awareness (Williams and Thomson, 1985; Mott and Mott, 1985; Mason and Taj, 1987; Thomson et al., 1990).

Despite increased interest in couples' desires and behavior, research on fertility and family planning decisionmaking in Egypt from a couple's perspective, especially at the national level, is very rare. In 1980, in-depth data on both husband's and wife's attitudes were collected in the Egyptian Fertility Survey (1980 EFS) (Hallouda et al., 1983). These data were employed in several studies to compare the attitudes and behavior of husbands and wives towards fertility and family planning (Hallouda et al., 1983; Cochrane et al., 1988). A survey of husbands was carried out as part of the 1988 Egypt Demographic and Health Survey (1988 EDHS) (Sayed et al., 1989). Although this survey provided a detailed look at male attitudes, couple analyses could not be performed because the male data could not be linked to the women's survey results (Sayed et al., 1992). The second round of the Egypt Demographic and Health Survey in 1992 (1992 EDHS) (El-Zanaty et al., 1993) was designed to collect data from a subsample of the husbands of the women eligible for interview in the survey, allowing for the first comprehensive look at couples since the 1980 EFS.

Among various topics available for comparison between husbands and wives in the 1992 EDHS, the issue of fertility preferences has been selected for this study. Two of the reasons for focusing on preference data are the high correlation of preferences with achieved fertility and the fact that almost all population policies affecting fertility influence fertility desires (Pritchett, 1994).

Research on fertility has always highlighted the close relationship between fertility desires and actual fertility (Becker, 1960; Bulatao and Lee, 1983; De Tray, 1973). Within what can be termed the supply and demand approach to fertility analysis, for example, a couple is seen as having some idea of the number(s) of children they desire, i.e., their demand for children. This demand coupled with the supply of children resulting from fertility regulation (if any) determines the achieved fertility of the couple. Recently, in a multi-country study, Pritchett (1994) has shown that high fertility is explained almost completely by a widespread desire for children. Actual fertility increases almost one-for-one with desired fertility, and differences in actual fertility among countries are almost accounted for by differences in desired fertility.

Clearly, focusing on desires rather than achieved fertility is valid. However, in any couple there are two decisionmakers, namely the husband and the wife, whose desires may or may not agree. There are two approaches in the literature regarding agreement in spousal desires. The economic approach generally assumes that spouses share the same preferences and have, moreover, both good communication about their desires and perfect control over their childbearing (Becker, 1960; De Tray, 1973). Other empirical studies suggest that, in fact, spouses' desires frequently are different (Eberstadt, 1981; Mason and Taj, 1987; Mott and Mott, 1985).

The main objective of this study is to use data from the 1992 EDHS to examine fertility preferences within the Egyptian family and to test whether husband and wife have different preferences. The comparison of spousal preferences involves an examination of both the consistency of desires of husbands and wives and of the determinants of the desires of each spouse. The main findings of the study are presented in four parts:

- A description of the data used for the analysis;
- A review of the fertility preferences and family size desires of both spouses, looking specifically at the hypothesis that spouses have the same desires;
- Identification of the determinants of the desired family size of each spouse;
- Discussion of the principal policy implications of the study.

2 DATA

A total of 2,406 couples were interviewed in the 1992 EDHS.[1] However, this study is limited to those couples in which each spouse has been married only once to rule out the effect of past marriages on the fertility desires of the current union, which accounts for a total of 2,006 couples.

Somewhat less than half (46 percent) of the couples included in this study reside in urban areas. The average age for the wife is 32 years versus 39 years for the husband. There is a two-year difference in education between spouses, with the husband having completed an average of 7 years and the wife 4.8 years of schooling. When asked to estimate the monthly spending of households in circumstances similar to their own, couples report an expenditure of 275 Egyptian pounds per month. The typical couple has been married for 13 years, on average, and has had four births. Almost one in every two couples has had at least one of their children die. Seventy-one percent of the couples have used contraception at some time.

The fertility preference data for the study come from several questions that were asked both husbands and wives. The first question, which concerns the ideal number of children, is the main focus of this study. It was worded as follows: "If you could go back to the time that you did not have any children and could chose exactly the number of children to have in your whole life, how many would that be?" Not all of the respondents were able to give a numeric answer to this hypothetical question. Among the couples interviewed, wives tended to be more definite about their ideal family size than husbands; 82 percent of the wives gave a specific number of children in response to the question compared with only 74 percent of the husbands.

The second question was to determine whether or not the wife (husband) had ever discussed the number of children she (he) wanted to have. Wives are somewhat more likely to report communication about family size desires than husbands. From the wife's perspective, 48 percent of

[1] Couple data are drawn from a subsample of one-third of all of the households interviewed in the 1992 EDHS. In these households, both men and women who met the eligibility criteria were interviewed. Eligible women included all ever-married women 15-49 years present in the household on the night before the interview. All husbands of eligible currently married women in the households were eligible for the husband survey.

all Egyptian couples have discussed their family size desires. Husbands are slightly more conservative in their reporting of fertility discussion, with only 41 percent saying they had talked about desired family size with their wives.

The third question deals with who had the main influence on the decision to have another child—the wife, the husband, or the two equally. More than half of wives (55 percent) say that decisionmaking is shared, one-third indicate that the husband had the main influence and only 7 percent report they were the primary decisionmaker. Husbands were somewhat less likely than their wives to see decisionmaking as shared and slightly more likely to see themselves as having the main influence on childbearing decisions.

The final question explored in the study concerned whether the respondent wanted to have another child. Among wives, 30 percent said that they wanted another child or were undecided. Among husbands, the majority also wanted no more children; however, a somewhat higher percentage (40 percent) of husbands than wives were unsure or wanted another child.

3 FERTILITY PREFERENCES AND DECISIONMAKING

Two topics are examined in this section: the extent of agreement of Egyptian couples with respect to their fertility preferences and roles in family size decisions and how the level of spousal agreement (or disagreement) varies with selected background characteristics of both the husband and the wife. Responses concerning the ideal number of children are discussed first, followed by an examination of spousal communication about their fertility decisions. The information about the role of the husband and wife in fertility decisions and spousal agreement with respect to the desire for additional children are reviewed next.

3.1 Ideal Number of Children

Most of the information gathered through fertility surveys suggests that women desire considerably smaller families than their husbands (Eberstadt, 1981). However, other research (Cain et al., 1979) suggests there is a greater demand for children among women than men in settings in which women are relatively powerless.

According to the 1992 EDHS results, Egyptian men desire on average more children than women do. Among all husbands interviewed in the survey, their mean ideal family size of 3.3 compared with only 2.8 children among all currently married women interviewed in the survey. Interestingly, more than one-quarter of the husbands interviewed in the survey reported a non-numeric answer compared to less than one-fifth of the wives (El-Zanaty et al., 1993).

The couple subsample from the 1992 EDHS is used in Table 1 to compare the responses of husbands and their wives with regard to the ideal number of children by selected background characteristics. According to the results, the spouses have the same response in fewer than half the couples, i.e., 32 percent report the same number of desired children and 9 percent give a non-numeric response.

Table 1 Percent distribution of couples according to consistency of reporting the ideal number of children, by selected background characteristics, Egypt 1992

Background characteristic	Numeric response			Non-numeric response			Total	Number of couples
	Same	Husband > Wife	Wife > Husband	Both	Husband	Wife		
Residence								
Rural	24.7	17.4	12.8	13.5	20.0	11.6	100.0	1,075
Urban	41.1	23.2	11.9	4.8	13.6	5.5	100.0	931
School attendance of wife								
No school	23.2	17.8	13.3	14.1	19.1	12.6	100.0	925
Attended school	40.1	22.1	11.6	5.5	15.3	5.5	100.0	1,081
School attendance of husband								
No school	20.1	15.1	11.7	15.9	23.0	14.2	100.0	520
Attended school	36.6	21.9	12.6	7.2	14.9	6.8	100.0	1,486
Wife's current employment status								
No	31.3	20.1	12.6	9.8	16.9	9.2	100.0	1,548
Yes	35.5	20.3	11.5	8.2	17.4	7.0	100.0	458
Husband's occupation								
Technical/professional/ admininstrative	44.2	21.7	13.3	3.2	12.5	5.0	100.0	357
Other	29.7	19.8	12.2	10.8	18.8	9.5	100.0	1,649
Total	32.3	20.1	12.4	9.4	17.0	8.7	100.0	2,006

Both types of agreement are a function of the background characteristics of the spouses. More than one-third of urban spouses (41 percent) agree on the desired number of children compared with only 25 percent in rural areas. The probability is higher that both husband and wife would agree on the same desired number of children among educated wives and husbands than among uneducated spouses. There is little difference in agreement by the wife's current employment status. However, couples in which husbands work in technical, professional and administrative jobs have more than a 10 percentage point higher likelihood of agreement than couples in which the husband works in other jobs.

For the second type of agreement, there is a greater likelihood that both spouses will give non-numeric responses among rural couples, couples in which the husband and/or wife is uneducated, and couples in which the husband is not in a technical/professional/administrative occupation.

According to the Table 1 results, when each spouse gives a different numeric response, the probability of a husband preferring more children than his wife is greater than the probability that a wife would desire more children than her spouse. This result holds after adjusting for background characteristics of the spouses. Similarly, for cases where one spouse gives a numeric response while the other responds non-numerically, husbands are more inclined to give non-numeric responses than wives.

3.2 Communication between Spouses about Desired Number of Children

From a family perspective, one of the first steps in a rational fertility decisionmaking process presumably involves communication between spouses. If this premise is correct, it might be fruitful to examine the husband's and wife's responses to questions on whether they have discussed how many children to have.

Table 2 indicates that two-thirds of Egyptian couples agree in reporting communication about the number of children they both desire; in 29 percent of the cases, both spouses reported there was communication, while 40 percent agree that there was not. There is little variation in the *overall* level of agreement (including both couples who agreed there was discussion and couples who agreed that there had been no discussion), except that agreement is somewhat less prevalent among couples in which the husband or wife has attended school. There are, however, significant discrepancies in the proportions agreeing that there had been discussion by residence, education of wife and husband, current employment of the wife, and husband's occupation. Urban couples are more likely to agree that they have discussed the desired number of children than rural residents. In addition, couples in which wives and/or husbands have some education are two times more likely to agree that they have discussed the number of children than those with no education. Similar results are also found for the work variables.

Table 2 Percent distribution of couples according to consistency of reporting their communication about fertility preferences, by selected background characteristics, Egypt 1992

Background characteristic	Agreement			Disagreement				Number of couples
	Total	Both yes	Both no	Total	Wife yes; Husband no	Husband yes; Wife no	Total	
Residence								
Rural	68.5	21.5	47.0	31.5	20.1	11.4	100.0	1,075
Urban	69.4	36.7	32.7	30.6	17.8	12.7	100.0	931
School attendance of wife								
No school	72.1	17.1	55.0	27.9	16.9	11.0	100.0	925
Attended school	66.1	38.3	27.8	33.9	20.9	12.9	100.0	1,081
School attendance of husband								
No school	75.8	13.8	62.1	24.2	15.4	8.7	100.0	520
Attended school	66.5	33.7	32.7	33.5	20.3	13.2	100.0	1,486
Wife's current employment status								
No	68.4	26.4	42.0	31.6	19.5	12.0	100.0	1,548
Yes	70.5	35.9	34.7	29.5	17.6	11.9	100.0	458
Husband's occupation								
Technical/professional/ administrative	68.0	48.8	19.3	32.0	18.7	13.3	100.0	357
Other	69.1	24.2	44.9	30.9	19.1	11.7	100.0	1,649
Total	68.9	28.6	40.3	31.1	19.0	12.0	100.0	2,006

As Table 2 shows, almost one-third of couples were inconsistent in reporting communication. Among these couples, the probability that the husband reports no discussion while the wife asserts there was communication is at least 40 percent higher than the probability that the husband will say there was discussion and the wife responds negatively. This result holds regardless of the background characteristics. Clearly, this comparison casts doubt on the often made assumption of perfect spousal communication; moreover, it suggests that wives are more likely to believe that communication has occurred (or perhaps more willing to acknowledge that discussions about fertility preferences took place) than are husbands.

3.3 Main Influence on Decision to Have Another Child

Continuing the issue of communication between spouses about the desired number of children, this part deals with the consistency of the responses of husbands and wives on the subject of who has the main influence to have another child. In general, more than half the couples (55 percent) agree on the person who has the main influence on the decision to have another child, as indicated in Table 3. Consistency in reporting appears to be more prevalent among couples in urban areas, among couples where husbands or wives are educated than among other couples, and among couples where the husband is employed in a technical, professional or administrative occupation.

Table 3 Percent distribution of couples according to consistency of reporting who has the main influence to have another child, by selected background characteristics, Egypt 1992

Background characteristic	Agreement				Disagreement							Number of couples
		Both say:				Wife says wife; Husband says husband	Wife says husband; Husband says wife	Wife says both; Husband other	Husband says both; Wife other	Other		
	Total	Both	Husband	Wife	Total						Total	
Residence												
Rural	51.3	29.5	21.4	0.5	48.7	2.3	2.0	19.9	18.6	5.8	100.0	1,075
Urban	58.8	44.3	13.9	0.6	41.2	3.6	0.8	20.9	13.4	2.5	100.0	931
School attendance of wife												
No school	50.9	26.9	23.3	0.7	49.1	3.1	1.9	21.4	17.6	5.0	100.0	925
Attended school	58.2	44.4	13.3	0.4	41.8	2.8	1.1	19.4	15.0	3.6	100.0	1,081
School attendance of husband												
No school	49.6	24.4	24.7	0.6	50.4	3.7	2.3	23.1	16.1	5.2	100.0	520
Attended school	56.6	40.5	15.5	0.5	43.4	2.6	1.2	19.4	16.3	3.9	100.0	1,486
Wife's current employment status												
No	53.9	34.5	18.8	0.5	46.1	3.3	1.6	21.1	16.0	4.1	100.0	1,548
Yes	57.8	42.5	14.7	0.6	42.2	1.7	0.9	17.9	16.9	4.9	100.0	458
Husband's occupation												
Technical/professional/ administrative	66.4	54.2	11.8	0.4	33.6	0.7	1.3	16.0	12.8	2.9	100.0	357
Other	52.3	32.5	19.2	0.6	47.7	3.4	1.5	21.3	17.0	4.5	100.0	1,649
Total	54.8	36.4	17.9	0.5	45.2	2.9	1.5	20.3	16.2	4.2	100.0	2,006

Among couples whose responses to this question were in agreement, the majority reported that they had equal influence on childbearing decisions. This result is especially evident among urban couples, couples in which the wife has some education, and among couples where the husband works in a technical, professional and administrative occupation; roughly two-fifths or more of spouses in these situations agree that both are influential. Table 3 also shows that, among the cases when both spouses agree on one influential partner, the selected partner is almost always the husband, especially among rural couples and among couples with a husband or wife with no education, with a non-working wife, or with husbands in jobs that are not highly skilled. For example, among couples with a wife with no education, 23 percent agree that the husband has the main influence on childbearing decisions compared with less than 1 percent who agree that the wife has the main influence.

3.4 Desire for More Children

Regarding the desire for more children, there is agreement between spouses in at least three-quarters of the cases. This result holds for all background characteristics, as shown in Table 4. For example, when comparing by residence, agreement is seen to be somewhat higher in urban than in rural areas (81 percent and 76 percent, respectively). Looking more closely at the results in Table 4, 54 percent of all couples agree that they want no more children or are undecided. In urban areas, this percentage rises to 58 percent, compared with only 51 percent in rural areas.

Table 4 Percent distribution of couples according to consistency of reporting the desire for more children by selected background characteristics, Egypt 1992

Background characteristic	Agreement			Disagreement					
	Total	Both do not want/ Undecided	Both want	Total	Wife wants; Husband does not/ Undecided	Husband wants; Wife does not/ Undecided	Other	Total	Number of couples
Residence									
Rural	75.8	51.1	24.8	24.2	5.6	11.7	6.8	100.0	1,075
Urban	80.8	58.2	22.6	19.2	3.0	9.6	6.6	100.0	931
School attendance of wife									
No school	76.5	56.7	19.9	23.5	5.2	11.8	6.4	100.0	925
Attended school	79.5	52.4	27.1	20.5	3.7	9.8	7.0	100.0	1,081
School attendance of husband									
No school	76.7	61.0	15.7	23.3	5.3	9.2	8.8	100.0	520
Attended school	77.7	52.0	26.6	21.3	4.1	11.3	6.1	100.0	1,486
Wife's current employment status									
No	78.3	53.8	24.5	21.7	4.3	10.9	6.5	100.0	1,548
Yes	77.7	56.3	21.4	22.3	4.6	10.2	7.5	100.0	458
Husband's occupation									
Technical/professional/ administrative	81.0	50.0	31.0	19.0	4.3	10.0	4.7	100.0	357
Other	77.5	55.3	22.2	22.5	4.4	10.9	7.2	100.0	1,649
Total	78.1	54.4	23.8	21.9	4.4	10.7	6.7	100.0	2,006

In view of the earlier finding that husbands on average want more children than wives (see Section 3.1), it is not surprising that among couples who disagree, more often it is the husband who desires another child. Overall, among these couples, the probability that husbands desire more children when their wives want no more or are undecided is two to three times the probability that wives want more children when husbands do not or are undecided.

4 DESIRED FAMILY SIZE: WIVES AND HUSBANDS

4.1 Background

During the last two decades, a significant portion of the economic approach to fertility analysis has been directed towards applying microeconomic theories to population issues, in particular studying the determinants of desired family size. A key feature of this line of thought is that families produce family commodities, i.e., "child services." These commodities are produced by household technology which utilizes as inputs both priced market and nonmarket goods. Children are thus viewed as home-produced assets from whom parents consume a flow of services (De Tray, 1973). This application of the so-called Household Production Theory assumes the same preferences for all family members and also assumes that couples have full control over their fertility behavior, as mentioned earlier.

Although it has some merits, this theory has been criticized by a number of demographers including Blake (1968) and Namboodiri (1972). They argue that children are not consumer durable goods since the consumer, "the parent," does not have the flexibility available to the consumer of other goods to optimize his equilibrium position by a dynamic reshuffling of his consumption. Essentially, this means that parents are powerless if the marginal utility reached from an additional child is less than the one that could have been obtained from spending on something else.

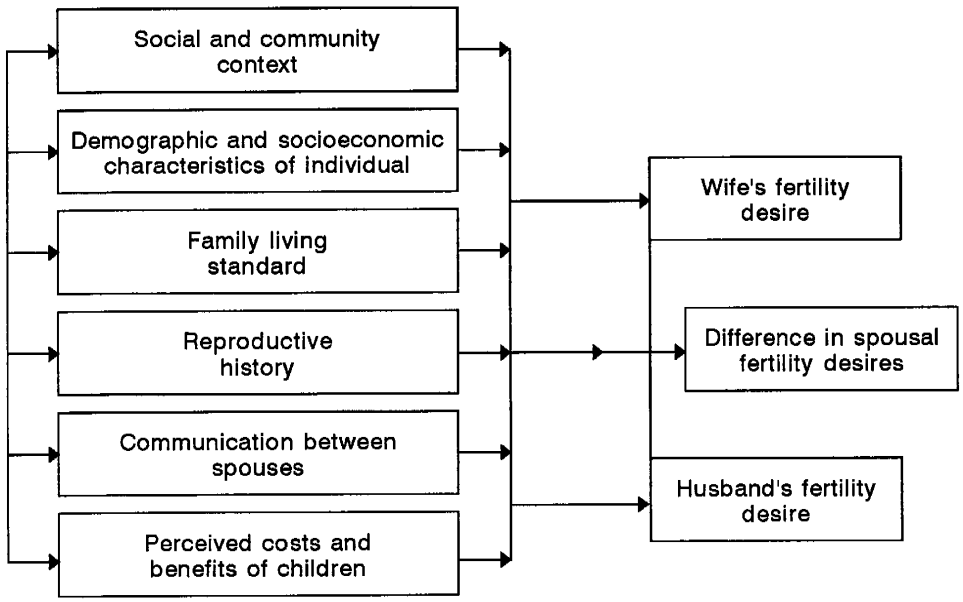
It may further be argued that the assumption that parents are in full control is valid only for countries that have completed their demographic transition where intrafamily decisions are simultaneously related. However, for a country such as Egypt, which has not yet reached the threshold of a sustainable fertility level, it has been shown in Zaky (1991) and Zaky et al. (1993) that a simpler approach allowing some exogeneity in the model is more appropriate. The assumption that family members have the same fertility preferences also is not confirmed in Egypt. As found earlier in this study, husbands and wives do not agree on their desired family size in at least 50 percent of the cases when both spouses reported numeric responses. Moreover, even communication between spouses about fertility preferences is not at all universal.

The objective of this section is to take one aspect of the family size decisionmaking process, namely the fertility desires of each spouse, and study its determinants. Obviously, the decisionmaking process includes a set of decisions that together affect fertility; these incorporate both desires and behavior, contraception, female employment, and child health. As mentioned above, a simple approach that allows externalities or exogeneity among these family decisions is more appropriate for the case of Egypt. Accordingly, the model tested here only focuses on the determinants of fertility desires in the family and tests the hypothesis that these determinants differ between husbands and wives. The validity of the assumption of interaction between the desires of both spouses also is examined.

4.2 Model Specification

Our model of desired family size is a lifetime model that adjusts for household characteristics and community milieu. The theoretical framework for this model is presented in Figure 1. This framework allows each spouse to have his/her own fertility desire. The desire of each spouse is hypothesized to be influenced by six sets of factors: the social and community context, individual-level demographic and socioeconomic characteristics, the family's economic standard, the couple's reproductive history, communication between spouses and, finally, the perceived costs and benefits of children.

Figure 1
A Theoretical Framework for the Determinants of Fertility Desire of Each Spouse



The first set of determinants includes the social and community context in which the desires are shaped. In theory, as in Bulatao and Lee's framework (1983), this set incorporates price structure, government policies, level of societal development, and norms as well as economic and environment conditions. Because of data limitations, this analysis uses place of residence as proxy for social and community context. Higher desired numbers of children and relatively more non-numeric responses are expected to be found among rural couples than among urban couples.

The individual demographic and socioeconomic characteristics include age, number of years married, education and occupation. Older spouses and spouses who have been married longer would be expected to be more inclined to report specific desires. Further, educated spouses are more likely to report lower fertility desires than noneducated ones. Compared with nonworking women, those who work are more likely to specify a relatively smaller desired number of children. Similarly, husbands employed in technical, professional and administrative jobs are presumed to want smaller families than husbands in other jobs.

The family's economic standard is evaluated using indicators that proxy income and the economic standard of the family. Asset ownership is among the determinants in this set of factors. Fortunately, the 1992 EDHS included a question for which the husband could report his perception of the typical monthly expenditure of a family in circumstances similar to that of his own. This variable is used as a proxy for the actual monthly expenditure of the family.

The couple's reproductive history includes the variables representing childbearing experiences, namely children ever born, the use of contraception, and child deaths. This group of factors is assumed to have a significant effect on the demand for children. Spouses with a greater number of children ever born are expected to desire more children, reflecting a rationalization of the numbers already born. Controlling for the number of children ever born, those who use contraception are likely to desire fewer children than the nonusers, and those who have experienced the greatest child mortality are likely to desire more children or not to have a specific response. The latter relationship also reflects the fact that child mortality is more concentrated in rural areas and among less educated couples; these variables are to be positively related both to fertility desires and to the ability to specify a numeric preference.

The communication variables cover both the wife's and husband's reports of having communication with the other spouse regarding the desired number of children. It is expected that spouses who have had such discussions would have a definite idea of their desired number of children and that their desired number would be relatively smaller than that of spouses who have not discussed the matter.

The final set of factors covers the spouses' anticipation of future financial assistance from their children in their old age as well as the expected education for daughters and sons. A parent who anticipates future financial assistance is expected to desire more children than other parents, while more education for children is hypothesized to be associated with a lower demand for children.

The model is estimated first for all couples who answered the question on fertility desires regardless of whether the response was numeric or non-numeric. Then it is estimated for those who gave a numeric response. The variables included in the analysis are defined below followed by a discussion of the estimation results.

Outcome variables

Wife's specific desire:	Dummy variable with the value 1 if the wife gave a numeric answer indicating she has a specific idea of the number of children she desires and 0 otherwise.

Husband's specific desire:	Dummy variable with the value 1 if the husband gave a numeric answer indicating he has a specific idea of the number of children he desires and 0 otherwise.
Wife's desired number:	Desired number of children of the wife.
Husband's desired number:	Desired number of children of the husband.

Social and community context

Urban-rural residence:	Dummy variable with a value 1 if the family resides in an urban area and 0 otherwise.

Individual demographic and socioeconomic characteristics

Wife's age:	Wife's age in completed years.
Husband's age:	Husband's age in completed years.
Age difference:	Absolute difference in husband and wife's ages.
Years married:	Number of years married.
Wife's years of schooling:	Education of wife in completed years.
Husband's years of schooling:	Education of husband in completed years.
Education difference:	Absolute difference in years of education of husband and wife.
Wife worked before marriage:	Dummy variable with the value 1 if the wife was employed before marriage and 0 otherwise.
Wife currently working:	Dummy variable with the value 1 if the wife is currently employed and 0 otherwise.
Husband's occupation:	Dummy variable with the value 1 if the husband works in technical/professional or administrative jobs and 0 otherwise.

Family economic standard

Assets:	Number of assets the household owns.
Estimated family expenditures:[2]	Estimated average monthly family expenditure.

[2] The variable is considered here as an approximation for the average monthly expenditure since the question in the survey has been phrased in a way to get information on the expenditure of a family in a situation similar to that of the respondent and not his own family.

Reproductive history

Children ever born:	Total number of live births.
Child deaths:	Total number of child deaths.
Ever use of contraception:	Dummy variable with the value 1 if the couple ever used any family planning method and 0 otherwise.

Communication between spouses

Wife discuss:	Dummy variable with the value 1 if the wife reports that she discussed their desired family size with her husband and 0 otherwise.
Husband discuss:	Dummy variable with the value 1 if the husband reports that he discussed their desired family size with his wife and 0 otherwise.

Perceived costs and benefits of children

Wife's expectation of support:	Dummy variable with the value 1 if the wife expects any financial assistance from her children at old age.
Wife's aspirations for daughter:	Wife's expectation for the education of daughters, in years.
Wife's aspirations for son:	Wife's expectation for the education of sons, in years.
Husband's aspirations for daughter:	Husband's expectation for the education of daughters, in years.
Husband's aspirations for son:	Husband's expectation for the education of sons, in years.

4.3 Determinants of Reporting of Specific (Numeric) Fertility Desires

In developing countries, a significant proportion of respondents, whether husbands or wives, respond non-numerically for example, by saying that it is "up to God," to the question of desired number of children. In the couple subsample from the 1992 EDHS, 18 percent of the wives and 26 percent of the husbands gave such answers. These couples usually reside in rural areas and are less educated. The exclusion of these couples from the analysis could bias the results.

In order to avoid this potential bias, the analysis in this study begins by examining the determinants of whether or not the wife/husband has reported a specific number for the desired family size. The wife's model first includes the wife's characteristics, namely age, employment (before marriage and current) and education, economic standard variables, residence and the reproductive history factors. The husband's characteristics and the variable representing spousal communication are added in the second model. Similarly, the husband's model starts with the

husband's characteristics and the wife's characteristics are then added. The results[3] of these model specifications are presented in Table 5.

Table 5 Least-squares parameter estimates for the wife's and husband's models of numerical versus non-numerical expression of fertility desires

	Wife		Husband	
Variable	Model 1	Model 2	Model 1	Model 2
Constant	0.822[c]	0.760[c]	0.770[c]	0.717[c]
Wife's age	-0.002	-0.002		
Wife worked before marriage	0.046[b]	0.044[b]		0.031
Wife currently working	-0.017	-0.012		-0.038
Wife's years of schooling	0.004[a]	-0.000		-0.001
Assets	0.004	0.002	-0.000	-0.000
Estimated family expenditure	-0.000	-0.000	0.000[b]	0.000[b]
Urban-rural residence	0.069[c]	0.071[c]	0.055[c]	0.050[b]
Children ever born	-0.028[c]	-0.025[c]	-0.032[c]	-0.029[c]
Child deaths	-0.002	-0.003	0.030[b]	0.027[b]
Ever use of contraception	0.133[c]	0.118[c]	0.130[c]	0.123[c]
Years married	0.000	0.000	-0.003	-0.003
Husband's age			-0.002	-0.001
Husband's occupation		-0.022	0.021	0.021
Husband's years of schooling		0.005[c]	0.005[b]	0.004[a]
Age difference		0.000		0.000
Wife discuss		0.098[c]		
Husband discuss				0.112[c]
Adjusted R^2	0.110	0.126	0.113	0.113
Model's P value	0.000	0.000	0.000	0.000
Number of couples	2,006	2,006	2,006	2,006

[a] 0.05 < P value < = 0.10
[b] 0.01 < P value < = 0.05
[c] P value < = 0.01

For the wife's model, the results indicate that wives who were involved in an economic activity before marriage and wives who are educated are more likely to report a specific desire than other women. Urban residents are more inclined to know their desired number of children than their rural counterparts. Wives with more children ever born are more likely not to report their desires, while ever users of contraception are more likely to know their desires. Adding husband's characteristics and the spousal communication variable to the model reveals the importance of husband's education and communication between spouses. Wives married to educated husbands have a greater probability of expressing specific desires. It is worth mentioning that in the second model, when husband's education is introduced, wife's education is no longer important.[4] It is clear that spousal discussion regarding fertility desires is crucial in identifying whether the wife reports a specific desire or not.

The husband's Model 1, like the wife's, shows that both place of residence and number of children ever born are significant. Unlike the wife's model, husbands coming from families that spend more are more likely to report their desires than others. Controlling for children ever born, husbands with more child deaths also are more likely to report a specific fertility demand. Among personal characteristics, the husband's education stands out as a major determinant for desire identification.

[3] The same specification was also estimated using the logistic regression but the findings did not differ from that of the least squares. This result mainly is due to the fact that both least squares and logistic regression give relatively similar results when the event under examination is not rare (Pindyck and Rubinfeld, 1981).

[4] To rule out the effect of collinearity between the education variables, an alternative model using wife's education as a binary variable (educated and noneducated) was run. Similar results were obtained. Thus, the analysis presented in the study employs wife's years of education.

The wife's effect is shown in Model 2. The wife's personal characteristics do not have a significant effect in the husband's model. Ever use of contraception and spousal communication about fertility desires clearly affects the husband's reporting of his desire. Husbands of couples where at least one of the spouses has ever used contraceptives are more inclined to report their fertility desires than never users. Also, the higher the probability of spousal discussion, the greater the likelihood for a husband to report his desires.

Table 6 Two-stage parameter estimates for the wife's and husband's models of numerical versus non-numerical expression of fertility desires

	Wife		Husband	
Variable	Model 1	Model 2	Model 1	Model 2
Constant	0.386[c]	0.474[c]	0.200	0.326[b]
Wife's age	-0.003	-0.002		
Wife worked before marriage	0.026	0.031		0.009
Wife currently working	0.008	0.003		-0.031
Wife's years of schooling	0.002	0.000		-0.002
Assets	0.003	0.002	-0.002	-0.002
Estimated family expenditure	-0.000[b]	-0.000[a]	0.000[c]	0.000[c]
Urban-rural residence	0.040[b]	0.051[c]	0.006	0.016
Children ever born	-0.008	-0.012	-0.013	-0.016[a]
Child deaths	-0.020[b]	-0.015	0.030[b]	0.028[b]
Ever use of contraception	0.050[a]	0.067[b]	0.037	0.061[a]
Years married	0.004	0.003	-0.003	-0.003
Husband's age			-0.001	-0.000
Husband's occupation		-0.032	0.000	0.034
Husband's years of schooling		0.003	0.000	0.002[a]
Age difference		0.000		-0.001
Wife discuss		0.087[c]		
Husband discuss				0.099[c]
Wife's specific desire			0.713[c]	0.484[b]
Husband's specific desire	0.620[c]	0.399[c]		
Adjusted R^2	0.118	0.128	0.106	0.114
Model's P value	0.000	0.000	0.000	0.000
Number of couples	2,006	2,006	2,006	2,006

[a] 0.05 < P value < = 0.10
[b] 0.01 < P value < = 0.05
[c] P value < = 0.01

One of the objectives in the study is to test the hypothesis that when one spouse has an opinion about the number of children desired the other partner would have an opinion also. To study this interaction and the dynamics between spouses regarding their desires, a new model must be specified that allows for such interaction. This new specification uses the notion of systems of simultaneous equations. Accordingly, it allows the desires of both spouses to influence, or not, the other's desires. Table 6 presents the results from a two-stage least-squares procedure[5] used to estimate this system. This new specification clearly highlights the importance of the interaction between the two spouses. In both equations shown in Table 6, if one spouse in a typical couple has a definite opinion of his/her desire, the other will have one also. The results suggest that the mutual agreement in providing these opinions is channelled through spousal communication, which is significant in this specification.

4.4 Determinants of Desired Family Size

The initial part of this analysis focused on the question, "What factors determine whether a wife/husband has definite fertility desires?" Attention is now turned toward the question, "What factors influence the actual number of children desired?" The determinants of desired family size are identified through a lifetime model in which each spouse's fertility preference is adjusted for the characteristics that, as described in the preceding section, are expected to affect fertility desires.

[5] See Pindyck and Rubinfeld (1981) for more details about the two-stage least-squares procedure.

The least-squares regression results for each spouse are reported in Table 7. As in the previous analysis, the wife's model starts with her characteristics (Model 1), and then adds her husband's characteristics to it (Model 2), and vice versa for the husband's model. It is seen that the personal characteristics of one spouse do not significantly affect the other's desires with the exception of occupation of husband and employment of wife before marriage. Wives married to husbands in technical, professional and administrative occupations seem to desire more children than others, a surprising result. On the other hand, husbands married to wives who had employment experience before marriage desire fewer children than other husbands.

Table 7 Least-squares parameter estimates for the wife's and husband's models for desired number of children

Variable	Wife		Husband	
	Model 1	Model 2	Model 1	Model 2
Constant	2.633[c]	2.855[c]	2.349[c]	2.322[c]
Wife's age	-0.011	-0.017[a]		
Wife worked before marriage	-0.061	-0.064		-0.241[a]
Wife currently working	-0.068	-0.071		-0.106
Wife's years of schooling	-0.003	-0.006		-0.003
Assets	0.032[c]	0.033[c]	0.025	0.027
Estimated family expenditure	0.000	0.000	0.000	0.000
Urban-rural residence	-0.242[c]	-0.231[c]	-0.272[b]	-0.287[b]
Children ever born	0.223[c]	0.219[c]	0.310[c]	0.303[c]
Child deaths	-0.149[c]	-0.146[c]	-0.122	-0.119
Ever use of contraception	-0.411[c]	-0.400[c]	-0.797[c]	-0.776[c]
Years married	0.002	0.065	-0.013	-0.021
Husband's age			0.012	0.019
Husband's occupation		0.207[b]	0.016	0.039
Husband's years of schooling		-0.001	0.002	0.006
Age difference		-0.008		-0.007
Wife discuss		-0.067		
Husband discuss				-0.089
Adjusted R^2	0.144	0.146	0.098	0.099
Model's P value	0.000	0.000	0.000	0.000
Number of couples	1,648	1,648	1,479	1,479

[a] 0.05 < P value < = 0.10
[b] 0.01 < P value < = 0.05
[c] P value < = 0.01

In both model specifications for wives, a higher economic standard, as measured by ownership of assets, is associated with a desire for a greater number of children. This finding agrees with the effect of husband's occupation mentioned above. The lower the number of child deaths, the greater the likelihood of the wife reporting a higher desired number of children. Neither asset ownership nor the number of child deaths has a significant effect on either of the husband's models although both are negatively related to the husband's desired number of children. The results of both the wife's and the husband's models agree in the significant influence of residence, children ever born, and use of contraception. Marked residential differentials are observed, with higher desires for rural couples. Couples with more children ever born desire more children; those who have used contraceptives desire fewer children compared with never users.

There are significant residential differences in both the wife's and husband's models. Accordingly, there is an adjustment for residence in Table 8. For the wife, the results of the adjusted Model 2 indicate that the husband has a greater influence on the wife's desired number of children in urban areas than in rural areas. Urban wives married to husbands in technical, professional or administrative occupations are more likely to desire more children. Communication between spouses in urban areas has a significant influence in determining the desired number of children, and is associated with lower fertility desires in both areas. Asset ownership and the number of children ever born are associated with a higher desired number of children among wives. On the other hand, both the number of child deaths and ever use of contraception appear to reduce the wife's desired number(s).

Table 8 Least-squares parameter estimates for the wife's and husband's models for desired number of children, by residence

Variable	Wife		Husband	
	Rural	Urban	Rural	Urban
Constant	2.576[c]	3.047[c]	2.528[c]	1.873
Wife's age	-0.008	-0.029[b]		
Wife worked before marriage	-0.049	-0.094	-0.345	-0.107
Wife currently working	-0.135	-0.008	-0.224	0.047
Wife's years of schooling	-0.014	-0.002	-0.006	-0.005
Assets	0.030[a]	0.034[a]	0.030	0.042
Estimated family expenditures	0.000	0.000	0.000	0.000
Urban-rural residence				
Children ever born	0.207[c]	0.244[c]	0.361[c]	0.248[c]
Child deaths	-0.103[b]	-0.249[c]	-0.174	-0.044
Ever use of contraception	-0.297[c]	-0.536[c]	-0.825[c]	-0.722[c]
Years married	0.000	0.013	-0.028	-0.017
Husband's age			0.019	0.018
Husband's occupation	0.122	0.233[b]	-0.234	0.194
Husband's years of schooling	-0.004	0.005	0.027	-0.019
Age difference	0.009	0.025	-0.014	0.009
Wife discuss	0.000	-0.149[a]		
Husband discuss			-0.385[b]	0.194
Adjusted R^2	0.124	0.124	0.093	0.087
Model's P value	0.000	0.000	0.000	0.000
Number of couples	811	837	722	756

[a] 0.05 < P value < = 0.10
[b] 0.01 < P value < = 0.05
[c] P value < = 0.01

Unlike the wife's models, spousal communication on desires as reported in the husband's models is more important in rural areas. The wife's personal characteristics have no significant effect on the reproductive attitudes of the husband. However, children ever born and the ever use of contraception are important in husbands' desired family size. More children ever born and never use of contraceptives are positively associated with desired family size.

An alternative specification for the determinants of the desired family sizes of both spouses is tested in Table 9. This new specification allows the effect of wife's and husband's expectations for their children's education to influence their fertility preferences. This expectation has long been highlighted in the literature as an important determinant and a deterrent for fertility preferences within the context of the quality versus quantity of children approach (Becker, 1960) or within the domain of supply and demand for children approach as in Bulatao and Lee (1983). This new specification also explores the effect on expressed desires of whether or not the wife expects her children to financially assist her in old age.

The sample used for this new specification includes only those spouses who have definite expectations for their children's education. The analysis is conducted by residence to test for any residential differences. Expectations for children's education show no significant effect in the wife's model. However, the results for husbands strongly suggest that the higher the expected education for

Table 9 Least-squares parameter estimates for the wife's and husband's models for desired number of children, including aspirations for their children, by residence

Variable	Wife			Husband		
	Total	Rural	Urban	Total	Rural	Urban
Constant	2.696[c]	2.097[c]	3.133[c]	1.621[c]	1.971[a]	1.387
Wife's age	-0.011	0.004	-0.031[a]			
Wife worked before marriage	-0.090	-0.119	-0.080	-0.372[b]	-0.317	-0.357[a]
Wife currently working	-0.052	-0.116	0.016	0.023	-0.198	0.195
Wife's years of schooling	0.004	-0.005	0.008	0.005	0.009	-0.002
Assets	0.038	0.033	0.036	-0.014	-0.023	0.025
Estimated family expenditure	0.000	0.000	0.000	0.000	-0.000	0.000
Urban-rural residence	-0.275[c]			-0.222		
Children ever born	0.216[c]	0.193[c]	0.241[c]	0.303[c]	0.337[c]	0.284[c]
Child deaths	-0.116[b]	-0.063	-0.209[b]	-0.116	-0.272[a]	0.084
Ever use of contraception	-0.291[c]	-0.203	-0.430[c]	-0.820[c]	-0.957[c]	-0.578[c]
Years married	-0.002	-0.012	0.012	-0.008	-0.002	-0.022
Husband's age				0.020	0.013	0.031
Husband's occupation	0.174	0.056	0.218	0.059	-0.278	0.275
Husband's years of schooling	-0.003	-0.005	0.002	0.000	0.019	-0.011
Age difference	-0.011	0.012	-0.032[c]	-0.012	-0.019	-0.011
Wife discuss	-0.074	-0.141	-0.028			
Husband discuss				-0.014	-0.343	0.185
Wife's expectation of support	0.151[a]	0.176	0.173			
Wife's aspirations for daughter	-0.002	-0.009	0.023			
Wife's aspirations for son	-0.003	0.013	-0.037			
Husband's aspirations for son				-0.119[c]	-0.125[c]	-0.107[c]
Husband's aspirations for daughter				0.167[c]	0.195[c]	0.107[b]
Adjusted R^2	0.127	0.131	0.071	0.157	0.118	0.185
Model's P value	0.000	0.000	0.000	0.000	0.000	0.000
Number of couples	940	417	523	842	368	473

[a] 0.05 < P value < = 0.10
[b] 0.01 < P value < = 0.05
[c] P value < = 0.01

daughters, the lower the husband's desires. Expectations for the son's education have the opposite effect; the higher the expectations for the son's education, the greater the husband's desired number of children. Although, as mentioned earlier, spousal communication may be present and effective in shaping each spouse's opinion, this communication does not add significantly to the understanding of each spouse's desired number of children in this model.

Surprisingly, in the wife models, the mother's expectation regarding financial assistance from children in old age shows only moderate evidence of importance for Egypt as a whole. This variable also seems to have captured the positive and significant effect of asset ownership in other models.

Finally, like the earlier model specifications that allow interaction between wife's and husband's awareness of their desires, Table 10 presents a model that allows the desired number of children of one partner to affect the other's desires. This new model is a simultaneous equation system that is estimated using the two-stage least-squares technique. A surprising finding is observed. For a typical Egyptian couple, the desire of the wife insofar as number of children appears to have some effect on the husband's desires, but her preference is not significantly influenced by his desire. This result again confirms the insignificant effect of spousal communication on the desired number of children.

Table 10 Two-stage parameter estimates for the wife's and husband's models for desired number of children

Variable	Wife	Husband
Constant	4.311[a]	-3.256
Wife's age	0.007	
Wife worked before marriage	-0.309	-0.014
Wife currently working	-0.158	0.209
Wife's years of schooling	-0.004	0.013
Assets	0.068[a]	-0.570
Estimated family expenditures	0.000	0.000
Urban-rural residence	-0.309	0.149
Children ever born	0.465	-0.153
Child deaths	-0.227	0.005
Ever use of contraception	-1.008	0.250
Years married	-0.023	-0.019
Husband's age		0.037[a]
Husband's occupation	0.263[b]	-0.332
Husband's years of schooling	-0.002	0.000
Age difference	0.004	0.010
Wife discuss	-0.103	
Husband discuss		0.018
Wife's desired number		2.038[a]
Husband's desired number	-0.799	
Adjusted R^2	0.135	0.092
Model's P value	0.000	0.000
Number of couples	1,309	1,309

[a] 0.05 < P value < = 0.10
[b] 0.01 < P value < = 0.05
[c] P value < = 0.01

4.5 Determinants of the Difference in Fertility Desires between Spouses

The analysis thus far has mainly focused on the fertility preferences of each spouse separately. However, as noted earlier, the fertility desire of each spouse is not independently shaped by the other partner's desire. Accordingly, a new outcome measure, the absolute difference in fertility desires, is introduced in this section. The results of this model specification are shown in Table 11.

The model specification is tested for all Egypt and by urban-rural residence. The results again show strong evidence of residential differentials and highlight the importance of spousal communication, especially for all Egypt and in rural areas. A greater degree of communication induces couples to be more aware of their desires, and such discussion appears to close the gap between their fertility preferences. The latter results may be affected by the use of the wife's rather than the husband's report to represent spousal communication. As noted earlier, the wives are somewhat more likely to report spousal communication. However, the differences are not large and it was necessary to chose one variable to avoid problems of correlation between the communication variables.

More children ever born universally increases the gap in fertility preferences. Similarly, ever use of contraception narrows the gap. A similar result is observed for child deaths, controlling for children ever born, especially in Egypt as a whole and in rural areas. The greater the difference in age between spouses, the greater the likelihood of a gap in their fertility preferences, especially in all Egypt and in urban areas. Surprisingly, the difference in education between spouses has no significant effect on the gap in fertility desires.

Table 11 Parameter estimates of the model for the absolute difference between the desired numbers of children of both husband and wife, by residence

Variable	Total	Rural	Urban
Constant	0.686[c]	0.905[c]	0.430
Wife worked before marriage	0.099	-0.053	0.293[a]
Wife currently working	-0.108	-0.006	-0.110
Assets	0.029	0.033	0.033
Estimated family expenditures	0.000	0.000	0.000
Urban-rural residence	-0.023		
Children ever born	0.176[c]	0.115[b]	0.212[c]
Child deaths	-0.171[c]	-0.261[c]	0.110
Ever use of contraception	-0.592[c]	-0.573[c]	-0.717[c]
Years married	0.003	0.013	-0.004
Husband's occupation	-0.020	-0.008	-0.051
Age difference	0.020[a]	0.000	0.036[b]
Education difference	-0.018	-0.006	-0.024
Wife discuss	-0.269[c]	-0.363[c]	-0.203
Adjusted R^2	0.055	0.037	0.081
Model's P value	0.000	0.000	0.000
Number of couples	1,319	603	716

[a] 0.05 < P value <=0.10
[b] 0.01 < P value <=0.05
[c] P value <=0.01

5 CONCLUSIONS AND POLICY IMPLICATIONS

In this study, the fertility preferences of husbands and wives were observed, primarily to determine the issue of how far apart these preferences are. The consistency of reporting these preferences was examined first and it was found that there are differences in fertility preferences between husbands and wives. Agreement between spouses on the desired number of children is relatively low, with uneducated and rural spouses being the most likely to have differences. In general, husbands desire more children than their wives. There also is some evidence that wives are more definite in their fertility preferences than husbands; among couples where only one spouse reported a non-numeric response, the husband is less likely to specify his desire than the wife.

The study found that the likelihood that spouses do not discuss the desired number of children is higher than the probability that a discussion occurs. Only 1 in 4 couples agree that they discuss their desires. Discussion is more prevalent among educated and/or urban couples. Among inconsistent spouses, husbands are less likely to report discussion than wives.

Regarding the main influence to have another child, both spouses are more likely to report that the decision is shared rather than made by one or the other alone. However, the husband generally is reported as more influential by both husbands and wives in the majority of those cases where one spouse is considered to have main influence.

Agreement on the desire for more children was more common than was agreement on the other fertility preference measures discussed here. It is evident that couples are more likely to agree

on the immediate desire for additional children than on the number of children that they desire. Even in the absence of spousal communication, this finding would be expected since the probability that spouses would agree on their desires for an additional child, a binary option, clearly is larger than that of agreeing on the desired number of children, which offers multiple options.

The determinants of fertility desires also were analyzed, starting with the factors that shape whether each spouse has, or does not have, a specific view towards fertility desires. All models agree that those spouses who have more children ever born are more likely not to have a specific preference. On the other hand, those who ever used contraception and who communicate about family-size desires with the other spouse have a higher probability of having a numeric desire than others. Also, it is evident that interaction and communication between the two spouses are crucial in shaping each spouse's desire. Both husbands and wives are affected by each other's views.

Individual characteristics of one spouse are sometimes related to the desire of the other spouse, as shown in the analyses that looked at the determinants of the desired number of children for each spouse separately. For example, husband's employment in a technical/professional/administrative occupation is positively related to the number of children that the wife has; in turn, if a wife worked before marriage, her husband is likely to have a lower desired number of children. The model for the wife indicates that the younger she is, the more likely she is to desire more children. For each spouse, higher desired numbers of children are positively associated with the number of children ever born and negatively associated with the use of contraception. The desired number of children decreases as the number of child deaths increases, when controlling for the number of children ever born.

Place of residence is one of the most important determinants of fertility desires. Rural spouses are more inclined to desire more children than others. Modernization influences as embodied in education or the current employment of women do not show strong direct effects. However, it can be argued that their indirect effects are shown through other determinants, such as the use of contraception, children ever born and place of residence.

Communication between spouses has some effect on fertility desires and this effect differs by residence. Spousal communication and interaction seem to be more important at the level of the reporting of preferences, as well as in narrowing the gap between desires, and less important at the level of identifying each other's concrete desires.

A mother's expectation of financial assistance from her children shows some importance at the national level in determining fertility desires. Women who expect future assistance desire more children. With respect to the effect of educational aspirations for children, husbands who have high expectations for their sons' education desire more children than other husbands. On the other hand, husbands who have high expectations for their daughters' education are likely to want fewer children.

Regarding the determinants of the difference between the spouses' fertility desires, the larger the age difference between spouses or the greater the number of children ever born, the higher the probability that they will not agree on the desired number of children. Child deaths, ever use of contraception, and spousal communication are negatively associated with the difference in fertility desires.

Overall, one can conclude from the results of this study that the preferences of husbands and wives are different in Egypt. One spouse's desires may not be used to approximate the desires of the other. Thus, husband's preferences should continue to be collected from them personally rather than being satisfied with getting husband's preferences as reported by the wife or concentrating only on female attitudes and behavior.

Family planning campaigns directed to encourage spousal communication are a must, since communication on preferences is not at all universal. In addition, communication programs should emphasize the importance of a concrete desired number of children for a couple, not simply a vague idea. Family planning campaigns must target the husbands of women who want no more children but are not using family planning since the desire of the husband for more children (or his ambivalence about stopping) might be the reason that the couple has more children.

Efforts should be made to decrease fertility desires and, thus, fertility by encouraging female education and employment, especially in rural areas. It also is important to continue efforts to broaden the base of couples served by the family planning; as fertility desires fall, it is crucial that the means of controlling childbearing be broadly available to couples trying to achieve their desired family size.

Finally, because the analysis has shown the importance of the future benefits of children with respect to the mother's desires, the current pension and social security schemes should be revised accordingly.

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Unmet Need for Family Planning:

Challenges for the Future

Sarah Harbison

1 INTRODUCTION

1.1 Objectives of the Paper

Egypt is in the middle of a rapid fertility transition: the crude birth rate dropped from 38 in 1980 to 29 in 1992 (Central Agency for Public Mobilization and Statistics, 1992) and according to data from the 1992 Egypt Demographic and Health Survey (1992 EDHS) (El-Zanaty et al., 1993) the total fertility rate is 3.9, down from 5.3 in 1980. Since 1980, the contraceptive prevalence rate (CPR) among married women has increased from 24 percent to 47 percent. Median age at first marriage, another important influence on fertility, rose from 16.9 in 1984 to 19.2 in 1992 (for women who were 25 to 49 years at the time of the 1992 EDHS).

These dramatic demographic changes have been facilitated by an increased emphasis on family planning programs, particularly over the past four years. A number of program inputs or factors are likely to have contributed to the increase in actual contraceptive use by those desiring to space or limit their fertility. These include:

- Widespread accessibility of family planning services: 96 percent of women live within 5 kilometers of a family planning source;
- Widespread acceptability of family planning: In 1992 over 90 percent of nonsterilized married women approved of family planning;
- Widespread affordability of family planning services: In the 1992 DHS, less than one percent of the women who were not using family planning cited cost as the reason, and many women reported that they would be willing to pay more for services than they currently were paying; and
- A highly intensive and effective mass media campaign which has resulted in almost universal knowledge of family planning: over 99 percent of currently married women know at least one modern method of contraception, and approximately 93 percent know a modern method and its source (El-Zanaty et al., 1993).

Despite the program and demographic accomplishments indicated above, important challenges for strengthening family planning services and increasing the prevalence and quality of family planning use in Egypt remain. The need for further improvements is highlighted by the fact that one in five currently married Egyptian women has substantial "unmet need" for family planning. As defined by Westoff and Ochoa (1991a), unmet need is "the percentage of married, fecund women not using contraception, but wanting to space or limit their next birth, as well as those who are pregnant or amenorrheic and whose last birth was unwanted or mistimed."[1] Unmet need added to "met need" (or contraceptive use) provides a measure of total demand for contraception.

[1] It should be noted that there is a debate concerning measurement of unmet need. Bongaarts (1991) has suggested that estimates derived using this definition are too high by perhaps 5 percentage points. This paper addresses the issue of program planning. Thus, it is considered appropriate to adopt the more inclusive definition used by Westoff and Ochoa for program planning purposes.

The objective of this paper is to develop a framework for the contraceptive transition, i.e., the aggregate shifts in the balance of met and unmet need and in the level of total contraceptive demand that occur as family planning programs develop. This framework is based on a review of global patterns of unmet need as shown in other recent DHS data. Patterns of unmet need for contraception in Egypt will be analyzed at two points in time (1988 and 1992) in the context of the contraceptive transition framework. The developments in the family planning program in Egypt during the period 1988 to 1992 will then be related to the measured changes in met and unmet need and to the emerging contraceptive transition at the national and regional levels.

The pattern of changes at the aggregate level that comprise the contraceptive transition results from a whole series of behavioral changes on the part of individuals. Attitudinal, informational, educational, communication, regional, and socioeconomic variables can all have an impact on individual behavior. A multivariate regression model is used to assess the relative importance of the variables on the probability of a woman having unmet need in Egypt. Implications for further improvement in the provision of family planning services, future increases in contraceptive prevalence, and future fertility reduction are then discussed.

2 UNMET NEED AND THE CONTRACEPTIVE TRANSITION

2.1 Global Levels of Unmet Need

Westoff and Ochoa (1991b) have summarized data on total demand for family planning and its two components, met and unmet need, from the first round of the DHS surveys (DHS-I). The data provide a useful context for discussion of the Egyptian situation. As the data show, contraceptive prevalence (or met need) varies widely around the world. The lowest levels of prevalence are found in sub-Saharan Africa, with Liberia, Burundi, Mali and Uganda all having prevalence levels well below ten percent. On the other end of the continuum, a number of countries in Asia (Thailand, Sri Lanka) and Latin America (Brazil, Columbia) have CPRs of over 60 percent. Most of the Latin American countries are above 40 percent; most of the sub-Saharan countries are below 30 percent. Among the North African countries, Egypt, Morocco, and Tunisia all have CPRs in the 40's (as of the most recent survey).

Although the CPR is a useful benchmark of program achievement, another useful measure is total demand for contraception, which includes all women who want to control their fertility whether or not they are currently using a method. Excluding sub-Saharan Africa, total demand globally ranges from 60 to 80 percent of married women, with many of the Latin American and Asian countries in the high 70s. In sub-Saharan Africa, the levels are generally lower, and there is more variability, with total demand ranging from 32 percent in Uganda to 65 percent in Kenya.

Unmet need is, of course, the difference between the above two measures: total demand minus met need or CPR. Unmet need is very low in Asia[2] (11 to 16 percent), is in the 20s in most of North Africa and Latin America, and varies widely in sub-Saharan Africa, ranging from 20 to 40 percent. The question that arises is, "Is there any common pattern, any generalized "transition" in met need, unmet need, and total demand, through which these countries are going?"

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[2] Except for the Philippines, where according to the 1993 National Demographic Survey (NSO and MI, 1994), unmet need is approximately 26 percent.

2.2 Trends over Time in Program Development: The Contraceptive Transition

Although the broad outlines of the demographic transition are clear, with high levels of fertility and mortality preceding a drop in mortality, followed by a lag and then a drop in fertility, the pattern of the contraceptive transition is less clear. Contraceptive use (met need) grows steadily during the contraceptive transition, but the relationship of unmet need to total demand is less obvious. Westoff and Ochoa (1991a:580) have pointed out that "since both the demand for and supply of family planning have been increasing so rapidly in many countries, it is not obvious whether unmet need should be expected to increase or decline... the answer depends on the stage of fertility transition that the country has reached." In advanced transition countries, total demand is relatively high, and unmet need has declined markedly, usually to 20 percent or below. In countries that have entered the fertility transition relatively recently, such as Kenya, it is likely that total demand will have outpaced supply, as a result of the fact that information about contraception and the desire to limit family size have increased faster than service delivery. In early transition countries unmet need would be expected to be a larger portion of the total demand. Expected changes in met need, unmet need, and total demand as family planning programs develop and progress through the contraceptive transition are summarized in Table 1.

Table 1 Stages in the contraceptive transition

Stage of contraceptive transition	Total demand	Met need (CPR)	Unmet need	Percentage of demand satisfied
Pretransition	Low	Low	Low	Low
Early transition	Moderate	Low	High	Low
Mid-transition	High	Moderate	Moderate	Moderate
Late transition	High	High	Low	High

If the suggested framework is valid, it should be applicable to subnational groups or regions as well as to national populations. Indeed, it helps to explain the reasons for variability among regional and socioeconomic groups in the contraceptive transition. Rural, uneducated women are relatively disadvantaged with regard to fertility control. Although their total demand usually is lower, more of their need for family planning is unmet. Such disadvantaged groups (which may be defined on the basis of educational or socioeconomic status, as well as regional characteristics) tend to enter the contraceptive transition later and move through it more slowly. They typically have less access to the information, services, and resources of various kinds that would help them surmount any programmatic or other barriers. At the early stages of development of a family planning program, there are likely to be substantial personal and societal psychosocial "costs" or barriers to the use of family planning. Disadvantaged groups are the least well equipped to overcome those barriers.

As a program develops, information and services become more available, and it becomes "easier" to use contraception, which particularly benefits those with fewer resources. Freedman and Freedman (1989, p. 9) have pointed out that "socioeconomic differentials in contraceptive use weaken in the presence of strong family planning programs." Consistent with this point, Khalifa (1994) reports that in Egypt the impact of having no education on the likelihood of contraceptive use

is diminishing. As family planning programs develop, it is likely that both regional as well as socioeconomic subgroup differentials will diminish.

Two categories of information are required to address the issue of program strength and the contraceptive transition. Indicators of program strength include such things as number of methods provided, volume of services, effectiveness of Information, Education, and Communication (IEC) messages, accessibility, quality, and number of service points. Indicators of the overall stage of the contraceptive transition are changes in the patterns of contraceptive need and of contraceptive use.

Within the framework proposed in Table 1, several types of changes over time are expected to result from a strong program effort: (1) total demand should maintain its level or rise slightly while unmet demand decreases and the percentage of demand satisfied rises; (2) a strong program effort implemented nationally should lead to a reduction in regional (as well as socioeconomic) differentials in unmet need as improved services reduce the differential constraints to usage; (3) larger increases in total demand in the previously underserved regions should occur, as well as proportionately greater reductions in unmet need; and (4) in most well-developed programs, increases in both the total demand for spacing (as opposed to limiting) and in the met demand (contraceptive use) for spacing will be observed. Considering individual characteristics, those characteristics that typically decrease the ability of the woman to implement her fertility preferences (less education, lower socioeconomic status, rural residence, family pressures) should have less impact in the context of a strong program. Put another way, strong program effort helps an individual to overcome her own situation-specific obstacles to the use of contraception.

The question then arises, "To what extent can it be said that there has been a strong program effort in Egypt, nationally and regionally, on the basis of (1) program inputs and (2) the expected changes in overall demand for contraception, contraceptive use, and unmet need proposed above?" This question is addressed in Section 3.

3 THE CONTRACEPTIVE TRANSITION IN EGYPT

3.1 Aggregate Trends and Regional Variation in Met and Unmet Need

A review of changes in met and unmet need between 1988 and 1992 in various regions of Egypt provides some striking contrasts. First, total demand, which includes contraceptive use (met need) as well as unmet need for limiting and spacing, is virtually identical in 1988 (68.5 percent) and 1992 (69.0 percent). Second, when regional subgroups are considered, in no case is there a major difference in total demand between 1988 and 1992. However, there is some evidence for a modest increase in total demand in the rural areas. In rural Lower Egypt, total demand was 68 percent in 1988 and 72 percent in 1992; in rural Upper Egypt total demand was 53 percent in 1988 and 57 percent in 1992. In contrast, total demand in the urban areas of Upper and Lower Egypt, as well as the Urban Governorates, either remained the same (Urban Upper Egypt at approximately 70) or declined slightly; total demand in the Urban Governorates went from 79 percent in 1988 to 74 percent in 1992 and in urban Lower Egypt, it went from 80 percent in 1988 to 76 percent in 1992. Third, the most striking contrast with respect to total demand is the relatively low levels in rural Upper Egypt, approximately 15 points below the levels for all Egypt.

The levels of met need (or contraceptive prevalence) for the different regions of Egypt are familiar to many. Rural Upper Egypt is far lower than any other region, with a CPR of 12 in 1988

rising to 24 in 1992. Although these levels clearly indicate a need for stronger programmatic efforts, it is encouraging to note that the rate more than doubled in the period under consideration. This increase in prevalence (or met need) accounts for the fact that total unmet need declined from 40 percent to approximately 30 percent. Unmet need for spacing declined from approximately 18 percent to 11; unmet need for limiting declined from 22 percent to 19.

At the other end of the continuum, the CPR in urban Lower Egypt increased from approximately 55 to 60 percent of married women from 1988 to 1992. Total unmet need declined from 23 percent to 15, unmet need for spacing declined from 9 percent to 4 and unmet need for limiting declined from 14 percent to 11. An almost identical pattern can be observed in the Urban Governorates.

These findings can be related to the contraceptive transition framework. Perhaps the most important finding, in programmatic terms, highlighted by Table 2, is the picture of Upper Egypt as a whole, including the urban as well as the rural areas. With prevalence standing at only 31 in 1992, but total demand at 60, Upper Egypt falls into the "early transition" stage. It is clear that this area of the country requires intensive efforts to increase demand for and improve the supply of acceptable and accessible family planning services. In contrast, urban Lower Egypt and the Urban Governorates seem to fall into the late transition stage, with total demand in the mid-70s, prevalence approximately 60 percent, and unmet need 13 to 14 percent.

Table 2 Percentage of currently married women with unmet need for family planning, met need for family planning, and the total demand for family planning services, by place of residence, Egypt 1988 amd 1992

	Urban Governorates		Lower Egypt						Upper Egypt						Total	
			Rural		Urban		Total		Rural		Urban		Total			
	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992	1988	1992
Contraceptive prevalence	56.0	59.1	35.6	50.5	54.5	60.3	41.2	53.5	11.5	24.3	41.5	48.1	22.1	31.4	37.8	47.1
Total unmet need	20.9	13.4	30.7	19.0	22.9	14.6	28.4	17.7	40.0	30.5	26.0	20.3	35.1	27.5	29.1	20.1
Unmet need to limit	14.1	9.3	20.8	12.4	14.2	10.7	18.8	11.9	22.1	19.2	15.6	14.2	19.8	17.7	18.1	13.3
Unmet need to space	6.8	4.1	9.9	6.6	8.7	3.9	9.6	5.8	18.0	11.4	10.4	6.2	15.3	9.8	11.1	6.8
Total demand	78.9	74.3	68.3	71.8	79.8	75.9	71.7	73.1	52.4	56.6	69.6	69.7	58.4	60.5	68.5	69.0
Percentage of demand satisfied	0.71	0.80	0.52	0.70	0.68	0.79	0.57	0.73	0.22	0.43	0.60	0.69	0.38	0.52	0.55	0.68

3.2 Variations in Demand by Educational Group

Much has been written about the relationship between education and fertility (Cochrane, 1979). In general, as education rises, fertility declines. However, Cochrane has documented an inverted U-shaped curve in a number of developing countries: women with minimal levels of education have somewhat more children than women with no education, which perhaps indicates that education is a proxy for socioeconomic status and that there is a positive income effect on fertility among the lowest educational groups.

Considerably less has been written about variations in contraceptive use by educational group. The data from the 1992 DHS indicate that women with less education have a lower total demand for contraception. Part of this difference can be accounted for by the fact that there are differences in ideal fertility by educational level. When women of all ages are considered, there is a clear negative relationship between ideal number of children and level of education. Women with no education consider 3.1 to be the ideal family size; women who have completed secondary school consider 2.5 ideal. However, it is important to note that in the youngest age group (15-19), this relationship seems to have disappeared, with women of all educational levels reporting that they consider 2.5 to be the ideal number of children.

Several explanations of the relationships between education and contraception are possible. As indicated by the difference in ideal family size, less educated women are less ready to use contraception. In addition, they face more constraints to usage, and have fewer resources to deal with those constraints. Data on total demand, met need, and unmet need for four educational groups for 1988 and 1992 are shown in Table 3.

Table 3 Percentage of currently married women with unmet need for family planning, met need for family planning, and the total demand for family planning services, by level of education, Egypt 1988 and 1992

	Education							
	None		Some primary		Primary through secondary		Completed secondary	
	1988	1992	1988	1992	1988	1992	1988	1992
Contraceptive prevalence	27.4	37.5	42.2	53.5	52.1	56.1	53.0	58.0
Total unmet need	34.1	24.6	29.0	18.7	21.8	18.3	18.1	12.0
Unmet need to limit	22.0	17.2	19.0	13.4	14.4	11.3	7.4	4.9
Unmet need to space	12.1	7.3	9.9	5.2	7.4	7.0	11.5	7.1
Total demand	62.9	63.8	72.8	74.4	75.5	76.1	74.9	71.6
Percentage of demand satisfied	45.8	61.5	60.2	74.9	71.1	75.9	74.7	83.3

There is very little difference in total demand between 1988 and 1992 for any of the educational subgroups. There is a very modest decline in total demand in the most educated group, from 75 percent to 72 percent, but it should be remembered that the numbers in this category are small. In 1992, total demand among the least educated is approximately 10 percentage points lower than in the other educational groups.

In looking at met need (contraceptive use), the pattern is quite different. In 1992, the significant contrast is between women with no education, and women in all other educational groups. Whereas women with no education had a CPR of 38 percent in 1992, women in all other age groups had CPRs in the mid to high 50s. When the change in CPR between 1988 and 1992 is examined, a different pattern emerges. Whereas women with no education or with some primary education gained about 10 percentage points in prevalence, women with primary through secondary or completed secondary education gained four to five points. The obvious explanation is that the more educated women started from a much higher level in 1988. The lessening gap between the most and

the least educated during the period 1988 to 1992 is consistent with the strong programming effort undertaken during that period.

Relating these changes to the framework proposed in Table 1, it appears that women in the most educated group could now be considered "late transition," the middle two groups could be considered "mid-transition," and the least educated "early transition." Having said that, however, it is important to note the striking gains in prevalence in the least educated group, and also the lessening differential between this group and the other three.

4 CONTRACEPTIVE DECISIONMAKING AND UNMET NEED

4.1 Contraceptive Decisionmaking Model—Need, Demand, and Use: A Multi-step Process

Coale (1973) has argued that there are three necessary conditions for a demographic transition, and these apply as well to the contraceptive transition: (1) couples must be able to conceptualize and accept logically and emotionally their own ability to control their fertility; (2) they must perceive that it is in their own self-interest to limit births; and (3) they must have reasonable access to an acceptable and reliable means of controlling fertility. These conditions mean the couples are "ready, willing and able" to reduce their fertility and effect a contraceptive as well as a demographic transition.[3] Whereas these three conditions may be weakly met or not met at all in less developed countries, modern industrial societies usually possess all three. In rapidly developing countries there may be significant differences in the extent to which these conditions are met in various subnational groupings, whether geographic or socioeconomic.

It is entirely possible that an individual (or a couple) might be ready to delay or limit their childbearing, but be unwilling or unable to use the available fertility control measures. If "readiness" is taken to be the desire to limit or space the next birth, then it is the willingness and ability to use available contraception that is at the heart of the issue of unmet need. In early transition countries (or regions), the desire to limit family size may precede the willingness or ability to use the available family planning services. Thus, unmet need is both an IEC or motivation issue and a supply issue.

The previous tables in which regional and educational variations in patterns of unmet need were examined indicate that there have been overall gains in meeting the needs of Egyptian couples for fertility control, but that within the overall gain, there is substantial variation among subgroups. However, the underlying issue still needs to be addressed; that is, "What is the nature of the decision-making process that leads individual women (couples) to be more or less successful in meeting their fertility control needs?"

There may be a wide range of cultural, sociofamilial, economic or programmatic factors that make it difficult for an individual to implement her decision to contracept. These factors, including the time, financial, and cultural costs of using contraception, will influence the decision to attempt to use family planning. Thus, the decision to initiate contraception is "partly a function of the particular

[3] Freedman and Freedman (1989) provide a similar description of the process, stating that demand for fertility control has two components: "the desire to limit the number of births or to space them widely, and the readiness to use fertility control measures for either purpose."

mix of means available to the decisionmaker and a subjective evaluation of costs... These costs may be high at the outset of the transition, but they erode more rapidly than method-specific costs." (Robinson and Cleland, 1992:118).

If the individual decides to attempt to use family planning, the question then becomes choice of method, and method-specific costs become relevant. Such factors as financial costs of various methods, different sources, method-specific side effects, and personal preferences become more important. In this regard, it is clear that certain methods will have much higher psycho-social costs than others, and this will influence their adoption.

Finally, once a method has been adopted, the user's experience with that method (and the perceived costs) will determine whether the user continues or discontinues use. The information and counselling that the user received at the time of initiation of use will very likely influence subsequent continuation or discontinuation. Similarly, the other methods available will play an important role in whether the dissatisfied user becomes a "switcher" or a "discontinuer."

Unmet need may arise as the result of factors at any one of these decision points. It may result from imprecise or weak fertility control goals on the part of the individual or couple, from high generalized "costs" of attempting regulation (Robinson and Cleland, 1992), from a limited method mix or high method-specific costs, or from limited or inaccurate information. Unmet need may also arise from discontinuation of method use.

This decisionmaking process can be related to the stages of the contraceptive transition (Table 1). It seems likely that the point at which unmet need emerges shifts as the contraceptive transition progresses. In the pretransition and early transition stages, the precision and intensity of fertility reduction goals, as well as the general costs of undertaking regulation, are likely to be the major factors leading to unmet need; later on in the transition, method-specific costs, availability, and information become more important. For programming purposes, it is important to identify the factors in this framework that are contributing to unmet need.

4.2 Individual Characteristics and Unmet Need in Egypt

In order to assess the impact of various socioeconomic and demographic characteristics on the risk of having unmet need, a multivariate logit analysis was carried out. The analysis included all women in the 1992 EDHS who were in need of contraception, that is, who stated that they wished to space their next child (more than two years) or that they wished to limit their fertility. The dependent variable was dichotomous, defined as having either met or unmet need. The basic question asked was, "How are women who meet their need for contraception different from those who do not?" Or, put another way, "What characteristics (when other factors are held constant) significantly increase the risk of a woman having unmet need?"

The independent variables included in the analysis, their categorization, and their expected influence on the risk of having unmet need are summarized in Table 4. All independent variables are categorical, as was the dependent variable (having met vs unmet need). The results of the logistic regression analysis are presented in Table 5, and the most significant variables are discussed below.

Table 4 Categorization and expected impact of variables included in multivariate logit analysis of the risk of unmet need among currently married women, Egypt DHS 1992

Variable	Categorization	Expected impact
Ideal fertility	0-2, 3, 4, 5 or more	Not clear
Number of living children	0, 1, 2, 3, 4, 5 or more	Women with more children would be more strongly motivated to meet their contraceptive needs; additionally, it would be more culturally acceptable for them to do so.
Husband's education	None, primary, secondary, higher	Education will reduce the risk of unmet need.
Region of residence	Urban Governorates, urban Lower Egypt, rural Lower Egypt, urban Upper Egypt, rural Upper Egypt	Residence in more traditional, rural areas will increase the risk of having unmet need.
Number of prenatal visits	0, 1-3, more than 4	A greater amount of contact with the medical system will reduce the likelihood of unmet need.
Exposure to media messages	Radio, TV, radio and TV, none	Exposure to media messages reduces the risk of unmet need.
Match between husband's and wife's ideal fertility	Same, wife desires more, wife desires fewer	A match between the fertility goals of the husband and the wife will reduce the likelihood of unmet need.
Wife's education	None, primary, secondary, higher	More-educated women are at less risk of unmet need.
Number of family planning methods known	0, 1-2, 3 or more	Women who know more methods are less likely to have unmet need.
Age (grouped)	15-29, 30-39, 40-49	Not clear
Husband approves of family planning	Yes, no, don't know	If the husband approves of family planning, the wife is less likely to have unmet need.
Wife approves of family planning	Yes, no, don't know	If the wife approves of family planning, she is less likely to have unmet need.
Type of family planning need	Limit, space	If the wife wants to limit her fertility, she is less likely to have unmet need.
Ever discussed children with spouse	Yes, no	Women who have discussed family size with their husbands are less likely to have unmet need.
Labor force participation	Working for cash, not working for cash	Women who are working for cash are less likely to have unmet need.
Previous contraceptive failure	Yes, no	Women who have had a previous contraceptive failure are more likely to have unmet need.

Table 5 Coefficients of the logistic regression of the probability of having an unmet need for contraception

Constant	B	SE
Previous contraceptive failure		
Had failure	6.507	2.4964**
Number of family planning methods known		
1-2 methods	2.9059	.3446**
3 or more methods	.0723	.0899
Type of family planning need		
Limit	-.6046	.1019**
Woman's education		
Primary	.8007	.2266**
Secondary	.4338	.2239
Higher	.1912	.2031
Husband's education		
Primary	.3303	.1677*
Secondary	.2303	.1638
Higher	-.0043	.1512
Labor force participation		
Working for cash	-.0328	.1033
Region		
Urban Lower Egypt	-.9807	.1046**
Rural Lower Egypt	-1.0307	.1198**
Urban Upper Egypt	-.8720	.0889**
Rural Upper Egypt	-.5605	.1180**
Age of woman		
15-29	.4102	.1096**
30-39	.1191	.0905
Number of living children		
1 child	3.0823	.5585**
2 children	.3335	.1593*
3 children	.0769	.1193
4 children	-.0642	.1037
5 or more children	-.0504	.0984
Approval of family planning use		
Approve	-.4487	.2514
Disapprove	.2296	.3160
Ever discussed desired children with husband		
Had discussion	-.0721	.0703
Husband's approval of family planning use		
Approve	-1.1440	.1643**
Disapprove	-.4083	.1830*
Husband and wife's desired family size		
Want same number of children	.1285	.0906
Wife desires more children	.0176	.1087
Husband desires more children	.4445	.1075
Exposure to family planning messages		
Radio only		
TV only	.1045	.2874
Radio and TV	-.1804	.0778*
	-.1019	.0915
Number of prenatal visits		
1-3 visits	.1579	.0859
4 or more visits	.2155	.1036*

* $p < 0.05$
** $p < 0.01$

Region, the most significant variable. In the analysis, rural Upper Egypt was defined as the reference category to which all the other regions are compared with respect to their impact on the risk of having unmet need. Women in rural Upper Egypt are most likely to have unmet need, women in rural Lower Egypt and urban Upper Egypt are intermediate, and women in the Urban Governorates and in urban Lower Egypt are least likely to have unmet vs met need. Interpreting these differences requires additional in-depth analysis (see Khalifa, 1993) but it is useful to note that the regional impact has been estimated while controlling for the effects of a range of socioeconomic, demographic, and attitudinal variables that are included in the model. However, neither supply-side factors (measures of accessibility or acceptability of family planning services) nor a good measure of traditionalism are included in the model, although it is likely that they may contribute to the regional differences observed.

Level of education of the woman and her husband. Education of the woman has a highly significant impact on the risk of having unmet need: the higher the level of education, the lower is the risk of having unmet need. Husband's education has a significant, but not as strong an impact on the risk of unmet need as the wife's education. These results suggest that education is not acting as a proxy for economic status; if it were, we would expect that the impact of husband's education would be stronger than wife's education.

Number of living children. This variable has a highly significant impact on risk of unmet need, but most of the significance derives from one category, that is, women with no children. Women in this category are at the highest risk of having unmet need. In this regard it is important to remember that only those women who want to space or limit are included in this analysis. Relatively few women who have no children want to space or limit; however, those who do want to are extremely likely to have unmet need. This is not surprising at all in the light of the strong cultural prescription to "prove fertility" as soon after marriage as possible.

Age has a significant impact on risk of unmet need. With respect to the reference category (40-49), women in the youngest age group (15-29) are the most likely to fall into the unmet need category. Middle-aged women have intermediate risk. The importance of young, low-parity women as a focus for future program efforts cannot be overstated.

Type of need and depth of knowledge. Two variables that specifically relate to family planning have significant impacts on risk. Women with a need to limit are much less likely to fall into the unmet category than women with a need for spacing. Women with knowledge of only one or two methods are much more likely to have unmet need than women who know three or more methods. This finding constitutes a challenge to IEC activities as well as to service delivery systems to increase the number of methods that are widely known and available.

Approval of family planning and husband's approval of family planning. Both have a significant impact on the risk of having unmet need. As expected, women who approve of family planning are at the lowest risk of having unmet need. Similarly, women whose husbands approve of family planning are at the lowest risk of having unmet need. However, it is interesting to note that a woman who does not know whether or not her husband approves of family planning is more likely to have unmet need that a woman who knows that her husband disapproves. This finding suggests that spousal communication, even if there is disagreement, reduces the risk of unmet need. Finally, it is not surprising that women whose spouses desire the same number of children they do are at the lowest risk of unmet need.

5 PROGRAM FACTORS AFFECTING UNMET NEED

Over the past decade and particularly over the past four years, the U.S. Agency for International Development (USAID) has worked with the Government of Egypt, with nongovernmental organizations (NGOs) and with the private commercial sector to expand the availability and quality of contraceptive information, supplies, and services, with a special focus on Upper Egypt. In addition to providing contraceptive supplies, extensive training has been provided to family planning program managers and service providers to improve the quality of the services offered. The IEC Project at the State Information Service (SIS/IEC) has increased levels of knowledge and positive attitudes towards family planning. The National Population Council has strengthened its program planning and policy development process. All of these initiatives have

contributed to a stronger family planning program and to the increases in prevalence previously discussed. In the following section, two of the most successful projects are discussed, their impact on the changing patterns of met and unmet need are assessed, and their contribution to the contraceptive transition are considered.

5.1 Service Delivery

Between 1988 and 1992, the Ministry of Health (MOH), under the Systems Development Project (SDP), renovated, equipped, and supplied family planning clinics in 21 governorates; provided training in the delivery of clinical family planning service to 6,000 doctors and 7,000 nurses; developed and implemented management systems for planning, monitoring, and supervision; trained MOH staff at the central governorate, district, and service provider levels; and developed a motivated and skilled cadre of family planning service providers. From 1988 to 1991 the MOH/SDP provided family planning services to over 500,000 clients a year and served over 600,000 clients in 1992 alone (Cobb et al., 1993).

Between 1988 and 1992, contraceptive prevalence rose nationally from 38 to 47 percent. In rural Upper Egypt prevalence doubled during this period, from 12 to 24 percent. Although many factors contributed to this increase, the intensive efforts of the MOH played an important role, particularly in rural Upper Egypt, in making clinical family planning services available. The contribution of the MOH/SDP to this achievement can be seen in the change in source of method between 1988 and 1992 (see Table 6).

Table 6 Percent distribution of current users of modern family planning methods by source, Egypt 1988 and 1992

	All methods		Pill		IUD	
Source	1988	1992	1988	1992	1988	1992
Public sector	23.1	35.0	8.2	11.6	42.6	46.9
Private voluntary organizations	0.5	6.7	0.3	1.0	1.3	9.7
Other private	20.3	28.2	0.3	0.7	54.3	43.0
Pharmacy	53.4	28.3	87.1	83.6	NA	NA
Other/Not sure	2.6	1.8	4.0	3.0	1.7	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of users	2,914	4,098	1,258	1,181	1,295	2,555

Source: El-Zanaty et al., 1993, p. 81
NA = Not applicable

Perhaps the major impact of the project was in making IUDs available at minimal cost to all women. Prior to this development, women with limited resources usually obtained free pills from the MOH or bought them very inexpensively at the pharmacies. However, problems with proper usage (and hence low effectiveness and discontinuation) have been widely documented for Egypt (Stycos et al., 1988; Hubacher and Potter, 1991). The effect of this very limited contraceptive choice, combined with dissatisfaction and discontinuation of pill use, is reflected in the level of unmet need (40 percent) in 1988 in rural Upper Egypt.

Although these women were ready to limit their fertility, they were unwilling and/or unable to use the method(s) available. The dramatic expansion of the availability of IUDs during the period 1988 to 1992 reduced some of the barriers to usage, allowing substantial numbers of women to meet their unmet need. In 1988, 3 percent of married women of reproductive age in rural Upper Egypt were using the IUD. In 1992, 12 percent were. Similar gains in IUD use occurred nationwide, but these gains are particularly important in the lowest prevalence, most difficult to serve areas. In rural Upper Egypt, the public sector MOH clinics provided services to approximately half of all IUD users. In Upper Egypt, virtually all of the increase in total prevalence between 1988 and 1992 came from increases in IUD use.

5.2 Information, Education, and Communication Activities

In the final evaluation of the USAID-supported IEC subproject at the State Information Service (Bennour et al., 1993) the successful activities between 1989 and 1993 were highlighted. In the project, mass media of various types and interpersonal communication approaches promoted contraceptive use by providing information on different contraceptive methods and on the advantages, proper use, and side effects of contraceptives. The messages explicitly addressed misinformation and rumors. Some of the messages made the general point that family planning is a good thing; many provided method-specific information. Because television is viewed by virtually everyone in Egypt, the soap opera, "As the Nile Flows On," and shorter series, such as "Ask the Doctor," had extremely large audience exposure. A great many television and radio messages were developed and aired by the project and these have had an important impact on the level of knowledge about specific family planning methods and their use. The important changes that occurred between 1988 and 1992 (Sayed et al., 1989; El-Zanaty et al., 1993) are highlighted in Table 7. While general knowledge of any modern method of family planning was already very high in 1988 (98 percent) and remained high in 1992 (99 percent), marked changes were found in knowledge of specific modern methods. For example, in 1988 approximately 61 percent of the respondents knew about injectables; in 1992, the comparable figure was 81 percent. Similarly, in 1988 about 53 percent of the respondents knew about female sterilization; in 1992, 70 percent knew about this method. Knowledge about condoms also increased substantially.

Table 7 Percentage of ever-married women who know specific family planning methods, Egypt 1988 and 1992

Family planning method	1988	1992
Any method	98.0	99.5
Any modern method	97.8	99.4
Pill	97.4	99.3
IUD	93.3	98.7
Injectables	60.5	81.1
Vaginal methods	39.6	36.8
Condom	43.3	53.7
Female sterilization	53.5	70.0
Male sterilization	9.6	12.5
Any traditional method	67.3	77.0
Safe period	22.1	31.2
Withdrawal	13.4	27.6
Prolonged breastfeeding	64.8	71.8
Other traditional methods	4.6	2.4

In addition to the mass media approach, the IEC project supported a network of Local Information Centers throughout the governorates, by means of which organized community-based activities involving local leaders and utilizing a range of interpersonal approaches to family planning promotion were organized. A large number of community discussions were held throughout the country. Separate meetings were held for men and for women and participants were encouraged to ask questions about any issues relating to family planning, including specific family planning methods. IEC project staff report that questions concerning condoms and withdrawal were frequently raised in the meetings with males and that women frequently raised questions about safe

period and sterilization. The increase in knowledge about these methods from 1988 to 1992 was striking.

A major recommendation of the evaluation was the importance of doing "formative research in the early design stages to define message content, settings, etc." Although important contributions of past IEC activities were identified, the evaluators emphasized the importance of earlier and more detailed research to accurately target certain segments of the population with messages appropriate to their needs. A consideration of unmet need, and of the stage in the contraceptive decisionmaking process at which it develops, can be useful for message design in the future.

6 POLICY AND PROGRAM DISCUSSION

Approximately 20 percent of married women of reproductive age in Egypt have an unmet need for contraception. This is a significant number or "target audience" for information and for services. But it is important also to emphasize that unmet need is not a fixed state: people move in and out of this state frequently and in a wide variety of ways. A major goal of this analysis has been to highlight those characteristics that put a woman at an increased risk of having unmet need, that is, wanting to limit or space her next birth, but not using contraception. Thus, it is appropriate to focus improved information and service strategies on all women with certain characteristics, whether they currently have unmet need or not, since a woman who does not have unmet need one day may very well have it the next. A discussion of important client and program characteristics associated with risk of unmet need follows.

Young, low-parity women. The finding that young women of low parity are at relatively high risk of having unmet need has very important implications for program improvement. In the past, media messages were not designed with these women in mind since it was thought they would not be interested until they had several children. Similarly, their special needs as far as service availability or acceptability had not been considered. Since there is a long-standing cultural tradition that young women produce a child very soon after marrying, the challenge of addressing unmet need in this group is an extremely sensitive issue. Additional research on the attitudes of women in this group, their reasons for nonuse, and the constraints on their contraceptive choices is necessary.

Women in rural Upper Egypt. Cleland and Wilson (1987) have argued that in many populations in the developing world undergoing contraceptive and demographic change, couples may differ not so much in their fertility preferences as in their willingness and/or ability to use available methods of contraception effectively to achieve those fertility preferences. This scenario does not appear to be the case in Egypt. Couples in Upper Egypt, specifically in rural Upper Egypt, differ dramatically from the rest of Egypt in their fertility preferences as well as their ability to achieve those preferences. The mean ideal number of children reported by women in rural Upper Egypt in 1992 was 3.5; for Egypt as a whole it was 2.9.

The level of total unmet need (limiting and spacing) for rural Upper Egypt is 31 percent of the married women of reproductive age; for Egypt as a whole it is 20 percent. These findings clearly indicate that an intensive program effort in rural Upper Egypt that addresses both demand and supply issues is a priority. In this regard, the point of Phillips et al. (1988:322) regarding the role of family planning programs in situations of "weak demand" is relevant: "... the role of the service program must not be relegated to the status of a residual category behind the dominant role of demand. Rather it requires that programs be credited with a causal role for mobilizing and shaping demand for family limitation to a degree rarely acknowledged in demographic thought."

In the pre- or early contraceptive transition stages, when demand may be relatively low and also "fragile," the strength and supportiveness of the program are crucial. Services must not only be there, but they must be there in a way that will facilitate use by those with weak demand; they must minimize obstacles to use. The policy recommendation here is that such special program efforts are important in areas of Egypt where both fertility preferences and unmet need remain above that of the rest of the country. Evidence that such program efforts can have a significant impact comes from the Menya Initiative,[4] in which an intensive decentralized IEC effort, in collaboration with MOH service delivery outlets, yielded dramatic results. By the end of the 18-month project, prevalence had increased seven percentage points, from 23 to 30 percent.

Importance of improved method mix. For the program as a whole, perhaps the most important issue is method mix. With pills and IUDs accounting for approximately 87 percent of contraceptive use in Egypt in 1992, the program could be described as a two-method program. It should be emphasized that these are two excellent methods, which taken together provide appropriate contraception for women who wish to space or limit. However, it seems clear that more unmet need could be filled (more effectively) if a wider range of methods were available. It is encouraging to note that injectable contraception has been approved for use in Egypt, as has Norplant. It is reasonable to expect that these two effective methods will have an important impact on the program by providing additional choices to women for whom the oral contraceptive or the IUD was neither acceptable nor effective. Additionally, an important new initiative relates to the high-risk perinatal model for surgical contraception, whereby women for whom an additional pregnancy would constitute a serious health risk are counselled about surgical contraception. Although this initiative may have relatively minor impact on total fertility rates because it is limited to high-parity women, it makes available an additional option for women in the greatest need of effective contraception.

Behavioral research on willingness and ability to use contraception. Although we have good quantitative data on the characteristics of women with unmet need, there still is a need for more in-depth information on reasons for nonuse, on women's concerns about the safety of contraceptive methods, particularly hormonal methods, and on perceived sociocultural and programmatic barriers to contraceptive usage. This research should focus on those women identified by this analysis as being at greatest risk of having unmet need, that is, less educated women, women in rural Upper Egypt, and young women of low parity.

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[4] An intensive program was developed in the Menya Governorate, whose CPR of 23 percent was one of the lowest in the country. At the outset, reasons were identified that contributed to Menya's low prevalence rate: there were poor coordination and collaboration among the various family planning agencies; religious views on family planning were misrepresented; contraceptive methods were surrounded by rumors and misinformation; and the quality of the services needed to be improved. Then, over 18 months, an information, education and communication campaign was launched and resources already present in the community were mobilized. Training was delivered to religious and community leaders and to service providers to improve the quality of service and their image. Counselling was emphasized and the number of community meetings that focused on family planning was greatly increased in towns and villages throughout Menya. Over the 18 months, contraceptive prevalence rose from 23 to 30 percent.

Assuring a good initial experience with family planning. Finally, it is crucial to ensure a positive initial experience with the service provider and with family planning. Because of the fluidity of the unmet need category, more analytic and programmatic attention needs to be paid to the reason that women discontinue use, thereby moving into the unmet need category. Such factors as unanticipated side effects, inefficient use, and the incorrect perception that they are protected by breastfeeding need to be addressed through mass media, through interpersonal media approaches, and through improved counselling by the service provider.

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Family Planning in Upper Egypt

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1 INTRODUCTION

Many studies have documented the marked differences between Upper Egypt and Lower Egypt in fertility attitudes and behavior and family planning use (Osheba and Sayed, 1991; Osheba, 1990; Easterlin et al., 1988 and Kelley et al., 1982). A comparison of contraceptive use rates from the 1992 Egypt Demographic and Health Survey (EDHS) (El-Zanaty et al., 1993) with the rates from the 1988 EDHS (Sayed et al., 1989) show that, despite the recent striking increase in family planning practice in Upper Egypt, the gap between Upper Egypt and Lower Egypt remains quite large (31 percent versus 54 percent, respectively). Moreover, during the period 1988 to 1992, the total fertility rate declined only modestly in Upper Egypt, from 5.4 to 5.2 births, whereas fertility in Lower Egypt fell from 4.4 to 3.7 births.

The contrast between Upper Egypt and Lower Egypt is even more dramatic when Giza governorate, of which a large proportion is included in Metropolitan Cairo, is excluded from the calculation of the contraceptive use and fertility rates for Upper Egypt. With Giza excluded, contraceptive prevalence is only 26 percent and the total fertility rate is nearly 5.6 births.

Although change has been occurring slowly in Upper Egypt, there is evidence of considerable awareness of family planning methods; virtually all married women know about at least one contraceptive method and also are informed about a source where they can obtain a method. Moreover, there is considerable potential demand for family planning. More than one-quarter of married women in Upper Egypt are exposed to the risk of a pregnancy that they do not want or would like to postpone a pregnancy, and are not using family planning. The level of unmet need in Upper Egypt is substantially higher than in the other regions.

The fertility and family planning situations in Upper Egypt are considered in this study in order to gain some insight into the reasons for the lag in the fertility transition in the region. A principal focus will be variations in key indicators among the eight governorates in Upper Egypt. Earlier studies of family planning at the governorate level indicate substantial differentials among Upper Egypt governorates in awareness of contraceptive methods, knowledge of a source, approval of use, as well in the level of experience in the use of family planning and in the method mix among users (El-Zanaty, 1990, Sayed and Attia, 1987 and Sayed et al., 1984). This study will provide a more in-depth appreciation of how the differentials in these key indicators among the individual governorates are continuing to shape the overall profile of the region. It benefits from the fact that both the 1988 EDHS and the 1992 EDHS were designed to provide estimates for selected family planning indicators at governorate level, thus, allowing for an examination of trends in these indicators between the two surveys for individual governorates.

The current levels of knowledge, ever use, and current use of family planning, and recent changes in these variables in Upper Egypt are examined first in this paper. Information on attitudes toward family planning use and the extent of exposure to family planning communication are considered, as are data on fertility preferences and the unmet need for family planning. Finally, a number of conclusions and recommendations arising from the study findings are presented.

2 FAMILY PLANNING IN UPPER EGYPT

This section examines the variation in the use of family planning by governorate in Upper Egypt. In addition, it considers other crucial elements in the process of deciding to use family

planning that vary across governorates in Upper Egypt. These factors include knowledge about family planning methods, attitudes toward family planning use, and exposure to family planning communication.

2.1 Ever Use and Current Use of Family Planning

Overall, in 1992, two-thirds of currently married women in Egypt had used family planning at some time. In contrast, only half of married women in Upper Egypt had ever used a contraceptive method. Moreover, as the differentials in ever use presented in Table 1 indicate, there are striking variations by governorate in Upper Egypt in women's experience with family planning use. As expected, the highest level of ever use is observed in Giza (71 percent), followed by Aswan (57 percent) and Fayoum (54 percent). The lowest level of ever use is observed in Souhag (37 percent). Among the other governorates in Upper Egypt (Beni Suef, Qena, Assuit, and Menya), the level of ever use ranges from 41 and 45 percent.

Table 1 Percentage of currently married women who have ever used any method of family planning and who have ever used the pill and the IUD, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Ever Used			Number of women
	Any method	Pill	IUD	
Upper Egypt	50.3	36.1	25.6	3,207
Giza	70.9	47.0	51.1	413
Beni Suef	45.3	29.2	27.7	408
Fayoum	54.2	40.9	30.5	384
Menya	40.7	31.5	13.6	425
Assuit	41.1	25.8	20.9	326
Souhag	37.4	27.3	12.7	465
Qena	44.1	36.4	11.2	429
Aswan	57.4	49.3	16.6	458
Lower Egypt	73.4	50.1	46.4	3,746
All Egypt[1]	66.9	45.2	41.7	9,153

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

As is the case in the country as a whole, women in Upper Egypt who have ever used a method mainly have experience with either the pill or IUD. However, unlike the situation in other regions where the IUD is the predominant method, women in Upper Egypt are more likely to have used the pill (36 percent) than the IUD (26 percent). Only in Giza governorate does the proportion ever using the IUD exceed the proportion ever using the pill. Women in Qena and Souhag are the least likely to have had experience using the IUD.

The level of current use of family planning is one of the indicators most frequently used to assess the success of family planning program activities. Overall, in Egypt, 47 percent of currently married women were currently using family planning in 1992. The current use rate in Upper Egypt was only 31 percent, much lower than in the country as a whole. However, this rate was a significant increase over the level of 22 percent reported in the 1988 EDHS.

Table 2 shows the trend in current use at the governorate level in Upper Egypt. According to the 1992 EDHS results, current use is highest in Giza (50 percent). Among the other governorates, current use exceeds 30 percent only in Fayoum and Aswan (33 percent and 32 percent, respectively). It is lowest in Menya (22 percent) and Souhag (20 percent).

Current use is seen to have increased between 1988 and 1992 in all Upper Egypt governorates. The absolute increase in current use was greatest in Assuit (almost 16 percentage points) and least in Souhag (only around 4 percentage points). Considering relative increases, the

Table 2 Percentage of currently married women who are currently using any method of family planning and who are currently using the pill and IUD, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1988 and 1992

Region and governorate	Current users: 1992			Current users: 1988		
	Any method	Pill	IUD	Any method	Pill	IUD
Upper Egypt	31.4	10.7	16.4	22.1	10.0	7.9
Giza	49.9	9.9	33.4	45.7	14.5	22.1
Beni Suef	29.2	8.8	16.9	15.3	9.2	4.4
Fayoum	33.3	10.9	20.1	20.2	9.7	4.5
Menya	21.9	12.0	8.2	16.6	10.3	4.3
Assuit	28.2	8.0	13.8	12.7	4.8	5.0
Souhag	19.8	7.7	6.9	16.2	7.6	4.9
Qena	24.7	14.0	7.9	12.2	10.2	0.7
Aswan	31.9	17.5	9.0	18.6	11.4	2.9
Lower Egypt	53.5	15.1	32.6	41.2	19.2	16.2
All Egypt[1]	47.1	12.9	27.9	37.8	15.3	15.8

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

change in use rates was again greatest in Assuit, followed by Qena, and least in Giza. The latter finding was expected since the prevalence level in Giza was already quite high at the time of the 1988 survey.

Looking at the change in method mix by governorate, the greatest increases occurred in the use of the IUD. In 1988, the IUD was the predominant method only in Giza. By 1992, the IUD had replaced the pill as the predominant method in Beni Suef, Fayoum and Assuit. The importance of the rapid rise in IUD use is perhaps even more evident in governorates where the increase in overall prevalence was comparatively slow. For example, in Souhag, where the overall increase in use was least, almost all of the change that occurred between 1988 and 1992 was due to adoption of the IUD.

2.2 Sources for Family Planning Methods

Table 3 shows the distribution of current users by the source of family planning method. Overall, 71 percent of current users in Upper Egypt rely on private sector providers[1] for their methods. This percentage varies by governorate, ranging from 55 percent in Beni Suef to 87 percent in Aswan.

[1] The principal public sector sources are hospitals, health units or other facilities operated by the Ministry of Health. The public sector category also includes facilities operated by the Health Insurance Organization (HIO), the Curative Care Organization (CCO) and other governmental agencies. The primary private sector sources are private doctors or clinics and pharmacies. In addition, the private sector category includes clinics operated by private voluntary organizations, principally the Egypt Family Planning Association and the Clinic Services Improvement project, and by mosques or churches. The category also includes other sources such as friends or relatives.

Table 3 Percentage of current users obtaining their contraceptive method from public and private sources, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and Governorate	Any modern method		Pill		IUD	
	Private	Public	Private	Public	Private	Public
Upper Egypt	71.3	28.5	85.4	14.2	61.5	38.5
Giza	70.1	29.9	92.7	7.3	60.9	39.1
Beni Suef	54.6	44.5	80.6	19.4	44.9	55.1
Fayoum	57.0	43.0	69.0	31.0	49.4	50.6
Menya	73.6	26.4	72.5	27.5	77.1	22.9
Assuit	74.1	25.9	96.2	3.8	64.4	35.6
Souhag	78.8	20.0	83.3	13.9	71.9	28.1
Qena	83.8	16.2	93.3	6.7	67.6	32.4
Aswan	87.1	12.1	91.3	7.5	78.0	22.0
Lower Egypt	63.0	36.7	87.0	12.8	51.7	48.2
All Egypt[1]	64.6	35.0	88.2	11.6	53.0	46.9

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

To some extent, the variation in the source distribution by governorate reflects differences in the method mix among users. For example, the comparatively high degree of reliance on private sector sources in Qena and Aswan is largely due to the predominance of the pill in the method mix among users from these governorates since most pill users in Egypt obtain the method at pharmacies. Looking at sources for specific methods, however, there are noticeable differences by governorate in the pattern of reliance on public and private sources, particularly for the IUD. In Table 3, the percentage of current IUD users reporting that they obtain the IUD from the private sector in each governorate can be compared with the same percentage for the country as a whole. In general, the comparison suggests that IUD users are significantly more dependent on private sector providers in most of the governorates in Upper Egypt than in the country as a whole. Only in Beni Suef and Fayoum is the level of reliance on private sector providers similar to that for Egypt as a whole.

2.3 Knowledge of Family Planning

Sufficient knowledge about family planning methods and places from which one can obtain a method are crucial elements in the decision whether to use a method and which method to use. Table 4 shows that knowledge of contraceptive methods is widespread in all governorates in Upper Egypt. The percentage of currently married women knowing at least one method is 99 percent or higher in all governorates, except Menya, where 97 percent of married women know about family planning.

Although knowledge of any family planning method is almost universal in Upper Egypt, there are significant variations in the depth of knowledge by governorate as reflected by differences in the mean numbers of modern and traditional methods known. For instance, the difference in the mean number of modern methods known is almost two methods between Giza, where the mean is highest (5.6 methods) and Menya, where the mean is lowest (3.2 methods). In addition, the difference in the mean number of traditional methods known is almost one method between Giza, where the mean is highest (1.5 methods), and Beni Suef, where the mean is lowest (0.4 methods).

Awareness of a place where family planning methods are available is another necessary condition for use. Table 4 shows that there are significant differences in source knowledge by governorate. At least 9 in 10 married women in Giza (97 percent), Aswan (93 percent) and Fayoum (90 percent) are aware of a place where they can obtain family planning services. However, among the other governorates in Upper Egypt, the percentage is significantly lower, ranging from only 69 percent in Menya to 82 percent in Assuit.

Table 4 Percentage of currently married women who know any method of family planning and a source for a modern method of family planning and the mean number of modern methods and traditional methods known, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Knowledge of family planning			
	Knows any method	Knows source	Mean number of methods known	
			Modern	Traditional
Upper Egypt	99.0	83.4	4.5	1.0
Giza	99.5	97.3	5.6	1.5
Beni Suef	99.5	73.8	3.5	0.4
Fayoum	99.5	90.9	4.4	0.8
Menya	96.9	68.5	3.2	0.5
Assuit	99.1	81.6	5.2	1.3
Souhag	99.6	79.6	4.6	1.1
Qena	98.8	80.7	4.1	0.9
Aswan	99.8	93.5	4.8	1.4
Lower Egypt	100.0	97.6	5.1	1.4
All Egypt[1]	99.6	92.9	5.0	1.4

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

2.4 Attitudes toward Family Planning Use

Attitudes and norms about family planning that characterize the community help to influence individual decisions to use family planning. The extent of approval of family planning among married women and their perceptions concerning their husband's attitude are examined in this section. Also considered are attitudes about the use of specific family planning methods, including the pill, IUD, female sterilization and condom.

2.4.1 Approval of Family Planning

Table 5 shows both the extent to which married women approve of the use of family planning by couples and their perceptions regarding their husband's approval. The level of approval of family planning use in Upper Egypt is lower than other regions; less than two-thirds of married women say that both they and their husbands approve of family planning compared with more than three-quarters of married women in the country as a whole. Disapproval of family planning is twice as likely to be attributed to the husband as to the wife; 9 percent of married women say that they do not approve of family planning, whereas 18 percent report that their husband disapproves.

In Upper Egypt, there is considerable variation by governorate in the degree of approval of family planning use. Three in four couples or more approve of the use of family planning in both Giza and Beni Suef, but only about half of the couples approve of using family planning in Souhag and Qena. In all of the governorates, women are more likely to report that their husband disapproves than to say that they themselves are not in favor of family planning. The proportion of married women disapproving of family planning ranges from only 2 percent in Giza to 14 percent in Souhag. Souhag also has the highest level of husband disapproval; 27 percent of married women in Souhag say that their husbands disapprove of family planning.

Table 5 Percent distribution of currently married women by their attitude toward family planning, and their perception of their husband's attitude, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Woman approves			Woman disapproves			Other	Total
	Both approve	Husband dis-approves	Husband unsure/ Missing	Husband approves	Husband unsure/ Missing	Both dis-approve		
Upper Egypt	65.8	11.8	6.6	1.5	1.6	5.8	6.8	100.0
Giza	79.0	11.7	3.4	0.2	0.2	1.7	3.7	100.0
Beni Suef	74.2	3.3	10.3	0.6	1.8	2.3	8.3	100.0
Fayoum	67.9	11.1	6.1	0.5	2.4	8.8	3.2	100.0
Menya	62.3	7.3	2.7	2.9	2.2	8.5	14.1	100.0
Assuit	62.4	13.5	8.8	0.6	2.8	6.3	5.6	100.0
Souhag	52.4	17.0	9.6	2.0	2.0	10.0	7.2	100.0
Qena	56.1	16.3	9.2	3.1	1.9	6.4	7.1	100.0
Aswan	68.4	12.7	9.4	2.4	0.7	3.9	2.4	100.0
Lower Egypt	79.9	10.0	5.2	0.9	0.3	1.3	2.4	100.0
All Egypt[1]	76.3	9.9	5.1	1.2	0.7	3.0	3.9	100.0

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

2.4.2 Method-specific Approval

Misconceptions concerning methods may keep couples from adopting family planning even when they desire to control their fertility and accept the idea of contraception. The 1992 EDHS collected information about whether women agree or disagree with the use of specific family planning methods. These data can be used to measure the extent to which there are attitudinal barriers to the use of specific methods.

Differentials in the level of approval by method are presented by governorate in Table 6. As expected, the highest disapproval levels are for female sterilization. However, significant proportions of women also disapprove of the pill, IUD or condom. Disapproval levels for the pill were highest in Fayoum (33 percent) and lowest in Aswan (10 percent). The proportion disapproving of the IUD ranges from 9 percent in Giza to 32 percent in Souhag. In the case of the condom, Giza and Fayoum have the highest disapproval rates, and Menya the lowest rate.

2.5 Family Planning Communication

The Egyptian family planning program includes a broad range of activities designed to educate and inform the population about family planning. In particular, information and motivation messages are broadcast daily, especially on television. The EDHS results can be used to examine the coverage in Upper Egypt of the Information, Education, and Communication (IE&C) program and to identify the most influential channels for communicating family planning information.

Table 6 Percent distribution of currently married women by the approval of use of specific methods of family planning, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Pill			IUD			Female sterilization			Condom		
	Ap-prove	Disap-prove	Unsure/ Don't know method	Ap-prove	Disap-prove	Unsure/ Don't know method	Ap-prove	Disap-prove	Unsure/ Don't know method	Ap-prove	Disap-prove	Unsure/ Don't know method
Upper Egypt	72.5	20.6	6.9	70.9	20.3	8.8	13.7	40.0	46.3	16.3	18.1	65.6
Giza	74.3	22.5	3.1	87.2	9.2	3.6	24.5	57.1	18.4	31.0	26.9	42.1
Beni Suef	79.4	14.2	6.4	83.6	9.6	6.9	5.6	27.5	66.9	13.0	9.6	77.5
Fayoum	64.6	32.6	2.9	67.4	29.4	3.1	9.4	60.7	29.9	7.0	27.1	65.9
Menya	69.6	17.6	12.7	61.4	19.8	18.8	3.3	16.7	80.0	6.4	8.2	85.4
Assuit	65.6	26.4	8.0	67.2	24.2	8.6	19.0	53.1	27.9	16.0	26.1	58.0
Souhag	68.2	23.9	8.0	58.7	31.8	9.5	15.5	40.6	43.9	11.2	17.0	71.8
Qena	78.3	13.8	7.9	64.3	25.4	10.3	10.5	23.5	66.0	14.0	10.3	75.8
Aswan	85.6	9.8	4.6	68.8	24.7	6.6	10.5	39.5	50.0	22.7	16.2	61.1
Lower Egypt	80.2	16.5	3.3	84.5	11.8	3.7	20.1	52.5	27.4	22.2	27.3	50.4
All Egypt[1]	76.9	17.9	5.2	78.7	15.2	6.1	16.8	49.1	34.1	21.6	25.9	52.5

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

2.5.1 Exposure to Family Planning Broadcasts

The 1992 EDHS collected information both on the access of women to radio and television (Table 7) and their actual exposure to family planning broadcasts (Table 8). Although access to television is widespread (e.g., two-thirds of women watch TV daily), it is less extensive in Upper Egypt than in Lower Egypt. Moreover, the coverage of broadcast media varies significantly by governorate. Women in Aswan are 60 percent more likely than those in Fayoum to watch television daily. Governorate-level differences also are observed with respect to radio coverage; for example, 64 percent of the women in Aswan listen to the radio daily compared with 40 percent of the women in Menya.

Table 7 Percentage of currently married women who watch television or listen to the radio daily, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Watch television daily	Listen to radio daily
Upper Egypt	71.8	52.0
Giza	85.2	62.2
Beni Suef	65.2	46.3
Fayoum	53.6	51.8
Menya	54.4	39.5
Assuit	65.3	44.8
Souhag	73.8	51.0
Qena	81.1	55.5
Aswan	91.5	64.2
Lower Egypt	86.7	71.1
All Egypt[1]	83.0	67.1

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

The results presented in Table 8 indicate that, overall in Upper Egypt, roughly two-thirds of married women report recent exposure to family planning message. Although high, the level in Upper Egypt is below that in Lower Egypt, where around 80 percent of married women had seen or heard a recent family planning broadcast. The likelihood of exposure also varies considerably by governorate in Upper Egypt. In Beni Suef, Menya and Assuit, half or more of married women said they had not heard a radio message nor seen a television message about family planning during the previous month. Giza and Aswan had the highest percentages exposed to family planning broadcasts.

Table 8 Percent distribution of currently married women by exposure to family planning broadcasts on the radio or television, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Neither	Radio only	Television only	Both	Missing	Total
Upper Egypt	37.6	0.9	49.1	12.3	0.2	100.0
Giza	19.9	1.7	52.8	25.4	0.2	100.0
Beni Suef	52.5	0.5	42.4	4.7	--	100.0
Fayoum	44.5	2.6	47.1	5.7	--	100.0
Menya	54.8	0.2	38.6	5.9	0.5	100.0
Assuit	50.0	0.6	39.6	9.8	--	100.0
Souhag	38.7	0.9	52.0	8.2	0.2	100.0
Qena	30.1	0.2	58.3	11.2	0.2	100.0
Aswan	18.6	0.0	67.9	13.5	--	100.0
Lower Egypt	20.5	1.2	53.0	25.3	0.0	100.0
All Egypt[1]	24.1	1.0	54.1	20.7	0.1	100.0

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

In all of the governorates, women were more likely to say that they had seen a television message than listened to a radio message. Giza had the highest percentage of women reporting exposure to family planning messages through both types of media; around one-quarter of married women in Giza reported that they had received messages from both radio and television, compared with only about 5 percent in Beni Suef, Fayoum, and Menya.

2.5.2 First Source of Family Planning Information

The role of television in informing the population in Upper Egypt about family planning is evident in the responses of women to a question about the source where they first heard about family planning. Table 9 shows that over half of women in all governorates said that television was the source from which they first heard about family planning. Aswan and Qena had the highest proportions citing television and Beni Suef the lowest. Table 9 also indicates that friends or relatives are the first source of information for a fifth or more of women in all the governorates, except Qena and Aswan. More than two-fifths of the women in Beni Suef said that relatives/friends had first informed them about family planning.

2.5.3 Sources Influencing Women to Seek Family Planning Information

Television not only is the most frequent source of information about family planning for women in Upper Egypt, but it is the source they are most likely to report as having influenced their decision to seek additional information about family planning (see Table 10). Among married women in Upper Egypt, 45 percent cited television as influencing them to obtain family planning information and around one-third cited friends or relatives. In contrast, health workers or family planning personnel were seen as influencing the decision to find out more about family planning by only around 10 percent of women.

Table 9 Percent distribution of currently married women by the first source of family planning information, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Television	Friends/ relatives	Other	Total
Upper Egypt	61.6	26.6	11.7	100.0
Giza	64.2	25.7	10.2	100.0
Beni Suef	51.0	42.2	6.9	100.0
Fayoum	61.7	28.1	10.2	100.0
Menya	56.9	26.8	16.2	100.0
Assuit	53.4	29.1	17.5	100.0
Souhag	58.5	27.3	14.2	100.0
Qena	73.0	18.4	8.6	100.0
Aswan	78.6	17.0	4.4	100.0
Lower Egypt	74.8	19.1	6.1	100.0
All Egypt[1]	71.3	20.9	7.8	100.0

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

Table 10 Percentage of currently married women who indicated various sources influenced them to seek family planning information, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Television	Friends/ relatives	Public doctor	Private doctor	Raiyda/ FP worker
Upper Egypt	45.2	36.7	6.3	9.7	10.7
Giza	40.0	31.0	3.1	8.5	3.1
Beni Suef	45.8	45.3	2.7	2.9	10.3
Fayoum	39.8	51.3	5.2	4.9	2.1
Menya	40.2	40.0	6.4	6.8	13.4
Assuit	49.4	31.6	12.6	12.9	18.4
Souhag	43.0	27.5	5.2	12.3	15.7
Qena	55.9	38.5	10.0	15.2	15.2
Aswan	64.6	45.6	8.7	16.8	10.7
Lower Egypt	58.3	52.9	12.6	14.8	10.7
All Egypt[1]	52.3	45.5	12.0	14.4	10.4

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

Looking at the results by governorate, television had the strongest role in Aswan, where around two-thirds of married women said that television had influenced them. Fayoum was the only governorate in which friends/relatives were cited more frequently than television as influencing efforts to obtain family planning information.

3 FERTILITY PREFERENCES AND UNMET NEED FOR FAMILY PLANNING IN UPPER EGYPT

Data on fertility preferences are useful in providing some indication of future fertility and, at the same time, giving an idea of the current need for family planning. Several measures of fertility preferences obtained in the 1992 EDHS, including the desire to have another child as well as the ideal number of children, are discussed in this section. Also discussed is the unmet need for family planning, an indicator that takes into account not only fertility preferences but a woman's exposure to the risk of pregnancy and current contraceptive practice.

3.1 Fertility Preferences

In both the 1988 and 1992 EDHS, all currently married women were asked if they would like to have another child or if they would prefer not to have any more children. Those women who wanted another child were asked about when they would prefer to have their next child. The responses to the questions about fertility preferences can be used to identify two groups of women potentially in need of family planning services: (1) those who want to wait at least two years before having another child, and (2) those who express a desire for no more children. Table 11 shows the percentages of women in Upper Egypt in these two categories for both the 1988 and the 1992 surveys.

Table 11 Percentage of currently married women who want to delay the next birth for two or more years or who want no more children, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1988 and 1992

Region and governorate	Want later		Want no more	
	1992	1988	1992	1988
Upper Egypt	18.8	13.5	59.6	49.0
Giza	16.5	12.4	69.7	56.8
Beni Suef	16.2	15.9	63.5	47.8
Fayoum	17.7	18.4	61.7	49.8
Menya	19.1	11.8	55.5	43.6
Assuit	23.6	16.4	53.4	47.7
Souhag	20.9	9.2	54.4	49.5
Qena	18.2	13.2	54.1	42.4
Aswan	21.2	16.7	58.1	55.2
Lower Egypt	14.8	10.3	70.9	67.5
All Egypt[1]	15.9	11.9	66.8	60.5

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

Overall, 60 percent of married women in Upper Egypt want no more children. In addition, around 20 percent want to delay the next birth at least two years, i.e., they potentially are in need of family planning to space a desired birth. Both the percentages expressing a desire to limit and to space increased between 1988 and 1992.

There is clear variation in the proportions interested in spacing or limiting births among governorates in Upper Egypt. Giza has the highest proportion of potential limiters; the percentage of women who want no more children is 70 percent in Giza and an additional 17 percent want another child only after two years or more. Among the other governorates, the proportion desiring no more children ranges from 53 percent in Assuit to 64 percent in Beni Suef. Assuit has the highest proportion of potential spacers, followed by Aswan and Souhag.

Another measure of fertility preferences is the number of children a woman considers to be ideal. Not all women are able (or willing) to express a preference for a specific number of children. Overall, 29 percent of women in Upper Egypt report that they believe the number of children they should have is "up to the Lord." Table 12 shows that, among women giving a specific preference, nearly two-thirds want three or fewer children. This proportion varies by governorate. Roughly two-

Table 12 Percent distribution of ever-married women who expressed a desire for a specific number of children by the ideal number of children, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1988 and 1992

Region and governorate	≤ 3 children		> 3 children		Number of women	
	1992	1988	1992	1988	1992	1988
Upper Egypt	65.5	64.6	34.5	35.4	2,459	2,527
Giza	74.8	77.6	25.2	22.4	695	576
Beni Suef	64.4	66.9	35.6	33.1	162	251
Fayoum	70.8	65.3	29.2	34.1	209	222
Menya	66.1	56.9	33.9	43.1	311	464
Assuit	67.8	63.0	32.2	37.0	261	276
Souhag	58.7	60.5	41.3	39.5	343	266
Qena	54.1	57.3	45.9	42.7	355	225
Aswan	52.9	50.0	45.9	50.0	111	190
Lower Egypt	81.3	82.8	18.7	17.2	3,420	2,927
All Egypt[1]	77.0	77.6	23.0	22.4	8,010	7,387

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

thirds of women in five governorates (Giza, Beni Suef, Fayoum, Menya and Assuit) considered three children or less as ideal in 1992, whereas in the other three governorates (Souhag, Qena and Aswan), only around one in two women were in this category.

3.2 Unmet Need For Family Planning

As previously mentioned, the 1992 EDHS results indicated that, for Egypt as a whole, around 20 percent of all married women wanted to space or limit the next birth but were not using family planning. For Upper Egypt, the proportion considered to have an unmet need is 28 percent, which is significantly higher than the national figure. The substantial level of unmet need for family planning in Upper Egypt confirms the potential for a further increase in contraceptive use in the region.

The need for family planning by governorate in Upper Egypt is outlined in Table 13. The level of *unmet need for family planning* is shown in columns 1-3; *met need for family planning,* which includes women who are currently using contraception, is shown in columns 4-6. The *total demand for family planning,* i.e., the sum of the unmet and met need is shown in columns 7-9. The *percentage of the total demand satisfied* is shown in the last column.

According to Table 13, both unmet need and total demand vary by governorate. The level of unmet need is highest in Menya, Assuit, Souhag and Qena (around 30 percent of women are in need of family planning). It is lowest in Giza, where contraceptive use is already quite high. In fact, the proportion of total demand satisfied is highest in Giza (72 percent) and lowest in Souhag (40 percent). There is substantial unsatisfied demand in all of the governorates, even in Beni Suef, Fayoum and Aswan, where contraceptive use has increased significantly since 1988.

Table 13 Percentage of currently married women with an unmet need for family planning, met need for family planning, and the total demand for family planning services, for Upper Egypt (by governorate), Lower Egypt, and all Egypt, 1992

Region and governorate	Unmet need for family planning			Met need for family planning (currently using)			Total demand for family planning			Percentage of demand satisfied	Number of women
	To space	To limit	Total	To space	To limit	Total	To space	To limit	Total		
Upper Egypt	9.8	17.7	27.5	5.5	25.9	31.4	15.8	44.7	60.5	54.6	3,207
Giza	5.6	14.8	20.3	8.0	41.9	49.9	13.6	57.9	71.4	71.5	413
Beni Suef	7.1	17.6	24.8	3.9	25.2	29.2	11.8	43.4	55.1	55.1	408
Fayoum	7.8	17.4	25.3	5.5	27.9	33.3	13.5	48.2	61.7	59.1	384
Menya	11.3	17.9	29.2	4.5	17.4	21.9	16.7	36.0	52.7	44.6	425
Assuit	15.3	19.0	34.4	5.8	22.4	28.2	22.1	41.7	63.8	46.2	326
Souhag	12.7	19.1	31.8	2.4	17.4	19.8	15.3	37.4	52.7	39.6	465
Qena	12.1	19.6	31.7	4.9	19.8	24.7	17.7	41.0	58.7	46.0	429
Aswan	6.6	19.2	25.8	9.8	22.1	31.9	17.9	42.6	60.5	57.4	458
Lower Egypt	5.8	11.9	17.7	8.4	45.1	53.5	14.5	58.5	73.1	75.8	3,746
All Egypt[1]	6.8	13.3	20.1	7.8	39.3	47.1	15.1	53.8	69.0	70.9	9,153

[1] Includes Upper and Lower Egypt and the Urban Governorates (not shown).

Table 13 also shows that, in all governorates in Upper Egypt, women are using family planning methods mainly to limit their births. Addressing the unmet need for spacing births as well as serving limiters will be important if overall prevalence levels are to rise. The family planning program must also encourage women to space wanted births. This is especially true in Giza, Beni Suef, Fayoum and Aswan, where the unmet need for spacing is fairly low.

4 CONCLUSIONS AND RECOMMENDATIONS

In summary, contraceptive use has increased markedly in Upper Egypt although the region's fertility rate has remained largely unchanged. Family planning knowledge is virtually universal in all of the governorates; however, there is a need to broaden both knowledge of specific methods and, particularly, of sources for family planning services in a number of governorates in Upper Egypt. When considering the patterns of use, the method mix among users in Upper Egypt differs from that observed in other regions; the pill is the most common method used in all governorates in Upper Egypt with the exception of Giza, while the IUD is the principal method for Egypt as a whole. Further research is needed to understand the reasons for the comparatively low levels of use of the IUD in Upper Egypt.

Users in Upper Egypt are also somewhat more likely to obtain services from private providers than other Egyptian users. The dominance of the private sector in providing IUD services in Upper Egypt raises a number of issues with regard to the delivery of family planning services in the region. Clearly, the reasons for the apparent underutilization of public sector providers should be examined. More generally, the strong role played by the private sector must be taken into account in efforts to expand family planning service provision in Upper Egypt. Programs must focus on providing the training needed to ensure an adequate number of private providers able to deliver family planning services. Private providers must also develop the counseling skills needed to motivate nonusers to adopt family planning.

There is a strong basis for expansion in the number of users. Approval is high among all women, with the possible exceptions of Souhag and Qena. Family planning broadcasts already reach and influence large numbers of women. As in Egypt as a whole, television is an especially important means of communicating family planning information in the governorates. However, it is important to note that women in Menya, Assuit, Souhag and Beni Suef are less liking to watch television than other women in Upper Egypt.

Although women in Upper Egypt tend to want more children than women in other areas in Egypt, the adoption of smaller family size norms is becoming evident. The unmet need for family planning is higher in Upper Egypt than in other areas (28 percent). Among Upper Egypt governorates, unmet need is nearly 30 percent or higher in Menya, Assuit, Souhag and Qena.

Finally, the results of this study indicate there is a need to continue special efforts to meet the needs of potential family planning users in Upper Egypt. The reasons for the higher than average reliance on private providers should be explored in special studies. Campaigns to educate women about the family planning sources available in their communities are needed. Biases against specific methods must be understood and addressed. The husband's support for family planning must be sought in Upper Egypt, particularly in Souhag and Qena.

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Contraceptive Use Dynamics in Egypt

Sahar El-Tawila

1 INTRODUCTION

In countries where fertility levels are high and few couples use fertility-regulating measures, increases in contraceptive adoption are likely to have greater impact on fertility than either extending the duration of use or improving contraceptive efficacy among the small group of users. Also, in populations where abortion is available and widely used, consequences of unintended pregnancies are completely alleviated, and fertility levels are unaffected. On the other hand, in societies where target fertility is low, acceptance of contraception is high and induced abortion is not available or is underutilized because of its negative emotional consequences, reducing failure rates and ensuring continuity of use lead to substantial declines in fertility (Bongaarts and Rodriguez, 1991).

In Egypt, the total fertility rate has declined from a high level of 5.3 births per woman of reproductive age in 1979-80 to a moderate level of 3.9 in 1990-92. During this 12-year period, contraceptive prevalence among married women increased rapidly from a low level of 24 percent in 1980 to 47 percent in 1992. The majority of current users (87 percent) rely on either the pill or the IUD. However, this level of current use does not reflect current demand for family planning. A substantial proportion (20 percent) of currently married women are not using family planning even though they do not want to have another child or they want to delay having the next child. The mean ideal family size reported by ever-married women of reproductive age is 2.9 children, one child less than the actual current total fertility rate (El-Zanaty et al., 1993).

In order to sustain the rapidly declining fertility levels, the family planning program strategies in Egypt must be revised to meet new challenges. These include: 1) the high level of unmet need for contraceptive use; 2) prevailing misconceptions and ambivalent (or negative) attitudes about the concept of family planning of the residual, more resilient group of couples; and 3) the necessity of reducing discontinuation among users in order to maintain the accelerated pace of change in the prevalence of contraceptive use. This third objective, which requires a comprehensive understanding of the underlying reasons for discontinuation, is the focus of this paper.

From a policy perspective, an analysis of the dynamics of contraceptive use, i.e., of the overall levels and differentials in contraceptive discontinuation, highlights groups at higher risk of discontinuation. Why users discontinue use of a method is a policy-relevant question since policies required to address the issues of availability, accessibility or dissatisfaction with a particular method are quite distinct from policies required to address failure while using a method. In addition, health concerns and women's misunderstandings about certain methods affect their motivation to initiate as well as maintain use of these methods. A strong family planning program should result in more effective use of contraceptives due to increased motivation and information about proper use (Kost, 1993).

In monitoring and evaluating family planning programs, what users do after discontinuation of a method is equally as important as the reason for the discontinuation. Switching to a less effective method or cessation of use implies exposure to a higher risk of unintended pregnancy, whereas switching to a more effective method with which the user is more satisfied ultimately leads to steady and consistent use (Kost, 1993; Curtis and Hammerslough, 1993).

There have been very few studies of contraceptive use dynamics and differentials in Egypt. Entwisle and Sayed (1991) focused on failure associated with use of the pill and the IUD. They based their estimates on data collected in the second Egyptian Contraceptive Prevalence Survey

(ECPS) implemented in 1984 (Sayed et al., 1985). Contraceptive prevalence levels were low in Egypt in 1984 (29 percent), with the pill and the IUD together accounting for almost 80 percent of all contraceptive use. Entwisle and Sayed obtained estimates of one-year failure rates for both the pill and the IUD from associated single-decrement life tables in which failure was defined in terms of contraceptive discontinuation due to unintended pregnancy. The failure rate for the pill was 14 percent. The authors suggested that this high rate was the result of unsystematic use of the method or of misreporting births conceived after discontinuation of use as contraceptive failures, or both. Although the estimated failure rate for the IUD (4 percent) was more within the expected range, it was higher than the rate estimated in clinical trials (1-2.5 percent) (Badraoui et al., 1982; Ragab and Sammour, 1969; Sivin et al., 1987). In describing their findings, the authors expressed concern about response heaping and its consequences for life-table analysis.

In a comparative study involving 15 developing countries, Moreno (1993) estimated first-year contraceptive failure rates in Egypt from associated single-decrement life tables according to type of method, place of residence and educational attainment using data from the 1988 Egypt Demographic and Health Survey (1988 EDHS). Relative risks of contraceptive failure were estimated using a hazard model with a piece-wise exponential survival distribution. After controlling for method used, women's age and planning status, the differentials in failure rates by place of residence and educational attainment were found to be insignificant. The estimated first-year contraceptive failure rates in Egypt in 1988 were 7 percent for the pill, 2 percent for the IUD and 38 percent for periodic abstinence (Moreno and Goldman, 1991). These estimates are lower than the comparable estimates from the data of the 1984 ECPS.

This study has three objectives:

- Estimate discontinuation levels within five years for four methods—pill, IUD, condom, and periodic abstinence—using data from the second round of the Egypt Demographic and Health Survey (1992 EDHS).

- Identify groups at higher risk of discontinuation within short intervals (two years) using multivariate hazard-model techniques. Multivariate analysis will also be used to compare discontinuation due to unintended pregnancy among the users of the four methods and to examine levels and patterns of failure rates among users of traditional and modern contraceptives. Finally, discontinuation because of side effects and health concerns among users of the pill and the IUD only will be investigated.

- Examine the behavior of couples who cease to use a particular method of contraceptive because of side effects and health concerns. The behavior of these couples in the two months following discontinuation, i.e., whether they switch to another method or abandon use altogether, will be examined because of its great relevance to family planning policy.

2 DATA AND METHODS

2.1 Source of Contraceptive History Data

The 1992 EDHS was a nationally representative probability sample in which 10,760 households in 21 governorates were successfully contacted and 9,864 ever-married women 15-49

years old were interviewed. Data collection started in October 1992 and concluded in February 1993. Month-by-month information on contraceptive use and reasons for discontinuation between January 1987 and the date of interview were collected.

Population-based survey data of this type offer several advantages over information collected from clinical trials or user studies. These include "the ability to calculate failure rates for both traditional and modern methods, the ability to produce failure rates according to the demographic characteristics of the respondents, a national sample that is not characterized by the selection biases frequently associated with the other types of samples, and data that are not affected by loss to follow-up" (Moreno, 1993).

Contraceptive history data collected in Egypt in previous national fertility surveys were either incomplete or subject to high reporting errors. The 1980 Egyptian Fertility Survey (EFS) included questions about the total duration of use (of all methods) since the last live birth and also between the last two live births. For the 1984 ECPS, data were collected on the beginning and ending dates of all segments of use during the five years preceding the survey. In the 1988 EDHS, an attempt was made to improve reporting of dates and reduce memory lapses by linking the beginning and ending dates of use to births that took place in the reference period. However, data were collected only on the last segment of use between every two successive live births during the five years preceding the survey. The calendar approach used in the 1992 EDHS is another step forward in efforts to improve the quality of this type of event-history data. This approach is more comprehensive since it collects information on all segments of use during the reference period.

In a recent analysis (Moreno et al., 1990), first-phase Demographic and Health Survey core questionnaires were compared with experimental questionnaires fielded in Peru and in the Dominican Republic. The authors indicate that using a monthly calendar for the collection of contraceptive information leads to more complete and more accurate reporting and, subsequently, to more reliable estimates of contraceptive discontinuation. The requirement of filling out the monthly calendar with codes describing reproductive status at each month (pregnancy, birth termination, contraceptive use or nonuse) translates into an exhaustive account on all segments of use. It improves respondents' recall of events by linking them to data in the other columns of the calendar, e.g., work outside the house, breastfeeding, geographic mobility. It also provides interviewers with a means for internal consistency checks since periods of use or nonuse should never overlap with periods of pregnancy.

Data from the 1992 EDHS were used in this analysis, which covers a 60-month period starting the third month before the interview. Episodes of use during the month of interview and the two months preceding have been excluded to avoid the bias introduced by unrecognized pregnancies in the first trimester. The unit of analysis is a segment of use of a particular contraceptive method defined as a period of time during which a woman's contraceptive use status does not change.

In the 1992 EDHS, women who were using contraceptives in January 1987 were asked about the date they had started that period of use. These women are included in the analysis only if that specific segment of use extended into the previously defined 60-month observation period. Ignoring these segments totally would lead to increased sampling error in estimated discontinuation rates for long durations. On the other hand, the segments must be incorporated carefully since we are only interested in that portion that coincides with the observation period and not in the total duration starting at initiation of the segment. Hence, each of these segments enters the analysis at its duration

at the start of the 60-month observation period (and not at duration zero). Including these segments in the analysis without these considerations would result in a substantial downward bias in discontinuation rates estimated for short durations and a corresponding upward bias in the estimated median duration of use.

The observation period includes 8,935 segments of use contributed by 5,640 ever-married women of reproductive age. Ten segments, contributed by five women, are excluded either because the starting date of the segment prior to January 1987 is missing or because they belong to women who were visiting the household at the time of the survey but usually live outside of Egypt under different social and structural circumstances. Of the remaining women, 63 percent contributed one segment each to the data, 27 percent contributed two segments, 7 percent contributed three segments and the rest (about 3 percent) gave more than three segments.

2.2 Profile of Segments of Use

Table 1 shows the unweighted distribution of segments by the method used and the reason for discontinuation. Use-failure, which combines both the theoretical efficacy of the method and human error while using it, and side effects seem to be particularly important causes of contraceptive discontinuation. These two reasons can be viewed as outputs that reflect the impact of a number of variables: fecundity, tolerance of side effects, commitment to steady use, and fertility-related security, in addition to lack of knowledge concerning proper use of the method and lack of efficient medical consultation.

Table 1 Unweighted distribution of segments of contraceptive use by method used and reason for discontinuation

Reason for discontinuation	Pill	IUD	Condom	Periodic abstinence	Other methods	All methods
Censored	1,162	2,290	162	75	339	4,028
Failure	578	136	61	55	131	961
To become pregnant	439	399	47	24	57	966
Side effects/ Health concerns	1,045	744	49	3	104	1,945
Husband away	224	63	22	6	19	334
Other	184	170	111	24	202	691
Total	3,632	3,802	452	187	852	8,925

Continuation of use is expected to be related to the demographic and socioeconomic characteristics of the user. For example, tolerance of side effects as well as level of commitment to contraception generally are expected to increase with age. Commitment to continuation of use is related to both reproductive intentions and fertility-related security; in Egypt, as in many other countries, the latter is believed to be strongly correlated with the number of living sons. Place of residence in Egypt is related to a large degree to the differentials in the availability and quality of

family planning services and, thus, is used to represent these factors in this analysis. Knowledge about contraceptives that extends beyond mere information about existence and availability of methods to how these contraceptives function in practice and proper usage of them to ensure their theoretical efficacy is crucial for continuation of use. Radio and television, exposure to printed materials and, hence, literacy status and formal education attainment are certainly important to the acquisition of this knowledge.

Table 2 presents the weighted distribution of segments (8,925) by the method used and by the characteristics of the women contributing the segments. The majority of the segments (84 percent) are almost equally divided between the pill and the IUD. The main barrier method, condom, contributes 5 percent of the segments of use and periodic abstinence contriubtes 2 percent.

Two-thirds of the segments belong to women over 30 years of age at the time of the survey. Over half of the segments were contributed by women in urban areas, just under one-third belong to women in rural Lower Egypt and only 14 percent belong to women in rural Upper Egypt. Women in over two-thirds of the segments had at least one living son when they started to use contraceptives, and women in two-fifths of the segments were limiters, i.e., wanted no more children, at the time they first began to contracept. Just over two-thirds of the segments belong to women who are not exposed to printed material or who listen to radio programs for less than two hours daily while a similar proportion of segments belong to women who watch television for at least two hours daily. Almost 40 percent of the segments belong to women with no education, 35 percent belong to women with some but less than secondary education and 25 percent belong to women with at least a secondary certificate. Only one-fifth of the segments are reported by women who have correct knowledge about the ovulatory cycle.

All the characteristics displayed in Table 2 relate to the respondent's status at the time of the interview except method used, reproductive intention and number of living sons. The latter two variables refer to the time when the respondent started

Table 2 Weighted distribution of segments of use by background characteristics of the women contributing the segment(s)

Background characteristic	Number	Percent
Method used		
Pill	3,532	39.6
IUD	3,969	44.5
Condom	424	4.7
Periodic abstinence	175	2.0
Other methods	825	9.2
Age		
<30	2,988	33.5
>=30	5,937	66.5
Place of residence		
Urban	4,967	55.7
Rural		
Lower Egypt	2,720	30.5
Upper Egypt	1,238	13.9
Living sons at first use		
0	2,501	28.0
1	3,688	41.3
2	1,636	18.3
3+	1,100	12.3
Reproductive intention at first use		
Wanted later or not sure	5,251	58.8
Did not want at any time	3,674	41.2
Reads a newspaper at least once a week		
Yes	2,824	31.6
No	6,101	68.4
Listens to the radio		
Less than two hours daily	6,171	69.1
At least two hours daily	2,754	30.9
Watches television		
Less than two hours daily	3,677	41.2
At least two hours daily	5,248	58.8
Level of education		
No education	3,481	39.0
Some schooling (< 6 years)	2,031	22.8
At least primary but less than secondary	1,141	12.8
Completed secondary/higher	2,272	25.4
Correct knowledge about ovulatory cycle		
No	7,009	78.5
Yes	1,916	21.5
Total	8,925	100.0

contracepting for the first time. With respect to living sons, information on the number of living sons at interview also is available. However, incorporating this variable could distort the analysis because of the reverse causality mechanism implicit in the relationship between the number of living sons (and also the number of children ever born) and discontinuation of use.

2.3 Profile of Users

Although choice of method is not the focus of this study, investigation of the social and demographic structure of users of different methods provides the context necessary for a clear understanding of patterns of discontinuation of use. Table 3 displays the odds ratios from four independent logistic regressions where the response in each model corresponds to the probability of using a specific contraceptive in a particular segment of use versus using any other method, by the different attributes of the women.

This exploratory analysis of the characteristics of women contributing segments by method used reveals that pills are very popular among users in rural Upper Egypt, followed by users in urban areas, and less popular in rural Lower Egypt. Women with higher education and older women are less likely to use the pill in a particular segment of use. Also, women with lower exposure to the mass media and those with fewer living sons at first use are more likely to use the pill in a segment than other women.

The results suggest that the pill is more likely to be used by the least educated, the least informed, and those in rural Upper Egypt with the lowest access to family planning services. In contrast, IUD segments are more common among more educated women who are exposed to the mass media. The method seems to be particularly popular among women in rural Lower Egypt as well as urban areas and among women with at least three living sons when they first started to use contraceptives.

Condom segments are more likely among older women, those living in urban areas, and those who watch television. The method is more likely to be used by women who expressed a desire to have more children at the time they started to use contraceptives than by those who were interested in limiting childbearing. It is utilized more by those with no living sons at first use.

Finally, periodic abstinence is used by a fairly homogeneous group, those educated, older women who have correct knowledge about the ovulatory cycle. The method is particularly popular among women with no living sons at first use.

The differentials in the social and demographic structure of users of different methods as well as the characteristics of the methods themselves undoubtedly are reflected in the variations in discontinuation rates by method. The high discontinuation rates of the pill may be anticipated in view of the demographic and socioeconomic characteristics of users, i.e., young and less educated, which help to undermine the high theoretical impact of using this modern method. In turn, the older and more educated groups relying on condom and periodic abstinence can be expected to utilize the full potential of the two methods.

The characteristics of the methods themselves also are important in understanding discontinuation. For example, both the condom and periodic abstinence are difficult and/or inconvenient to use. On the other hand, using the IUD requires no effort but does involve an intervention to stop using once it is inserted.

Table 3 Odds-ratio of using pill, IUD, condom, and periodic abstinence in a segment of contraceptive use, by background characteristics of the user

Background characteristic	Pill	IUD	Condom	Periodic abstinence
Age				
(Ref. Categ.: <30 years)				
>=30	.85***	.98	1.38***	1.18***
Place of residence				
(Ref. Categ.: urban)				
Rural Lower Egypt	.98***	1.07***	.65***	.43***
Rural Upper Egypt	1.55***	.59***	.56***	.96
Living sons at first use				
(Ref. Categ.: no living sons)				
1	1.20***	1.03***	.77***	.64***
2	1.18***	1.20***	.60***	.15***
3+	.97*	1.52***	.66***	.65***
Reproductive intention at first use				
(Ref. Categ.: wants more children)				
Does not want at any time	.95***	.99	1.42***	1.48***
Reads a newspaper at least once a week				
(Ref. Categ.: yes)				
No	1.28***	1.04	.52***	.58***
Listens to the radio				
(Ref. Categ.: < two hours daily)				
At least two hours daily	.94***	1.20***	.77***	.56***
Watches television				
(Ref. Categ.: < two hours daily)				
At least two hours daily	.96***	1.13***	1.23***	.86***
Level of education				
(Ref. Categ.: no schooling)				
Less than 6 years	.96***	1.13***	1.38***	1.26**
6-11 years	.76***	1.41***	.99	7.31***
12+	.52***	2.05***	1.18***	5.95***
Correct knowledge about the ovulatory cycle				
(Ref. Categ: no)				
Yes	.89***	.75***	1.89***	3.10***

* .01< P <= .05
** .001< P <= .01
*** P <=. 001

2.4 Statistical Methods

This analysis is mainly concerned with studying duration of use classified by the method used, reason for discontinuation and social and demographic characteristics of users in the sample. In calculating the duration of use, it is recognized that about 45 percent of the segments of use in the observation period are censored, in the sense that the method is still in use at the end of the 60-month observation period. Dropping these segments from the analysis would bias the results. Life tables are the most appropriate technique to analyze data of this type since they provide a tool to study the transition from initiation to cessation of use while keeping all observations in the analysis. Every segment contributes some information regardless of its censoring status. For censored segments, the duration of use is known to have extended at least a certain number of months, whereas for uncensored segments, their exact duration is known as well as the reason for discontinuation.

Discontinuation rates within five years for all methods and separately for the pill, IUD, condom and periodic abstinence are examined first in this analysis. Following this first step, associated single-decrement life tables are used to estimate the risk of early discontinuation due to a specific reason among pill and IUD users. These life tables assume that a specific reason is the only risk operating. They measure the gross rate of discontinuation that would be expected if that specific reason was the only one in effect. The associated single-decrement life table can be constructed by treating all discontinuations for reasons other than the one we are interested in as censored observations.

To introduce the different attributes of women into the analysis, a hazard model with a piece-wise exponential survival distribution is used (McCullagh and Nelder, 1983). This analysis is confined to the first 25 months of use only. In the model, the period of observation (25 months since the start of the segment) can be partitioned into a number of intervals (T_j, T_{j+1}). The baseline hazard of discontinuation, H_j, is assumed constant within each interval but can vary across intervals. The number of events (discontinuations) with covariate vector X_i within the j^{th} interval, Y_{ij}, can be treated as realizations of a Poisson distribution with parameter:

$$Y_{ij} = H_{ij} \times t_{ij} \quad \text{-> (1)}$$

where

M_{ij} = the expected number of events (discontinuations) with covariate vector X_i in the j^{th} interval;
t_{ij} = person-months of use (exposure) in the j^{th} interval by users with covariate vector X_i ;
H_{ij} = the hazard rate of discontinuation in the interval (T_j, T_{j+1}) for a subject with characteristics X_i .

Using a proportional hazard model,

$$H_{ij} = H_j * \exp(X_i' B) \quad \text{-> (2)}$$

where

B is a vector of parameters associated with the covariates in the model;
H_j is the baseline hazard rate of discontinuation in the interval (T_j, T_{j+1}).

Substituting this expression into equation 1 and considering the log of the expected number of events results in:

$$\log M_{ij} = \log t_{ij} + \log H_j + X_i'B.$$

Hence, the model can be fitted as a log-linear model via maximum likelihood estimation using the standard software for log-linear models. In this analysis, the models were fitted using STATA. The assumption of proportionality is verified by investigating all interactions between intervals of use and other covariates in the model.

3 CONTRACEPTIVE DISCONTINUATION

Table 4 displays the overall discontinuation rates within one year, two years, three years, four years, and five years of the start of use and the median duration of use for all methods combined as well as separately for each of the four methods of interest. Twenty-nine percent of all users stop use of their method within one year, half of them stop within two years, and three-quarters stop before the end of the fifth year. The median duration of method-use among all users is two years.

Table 4 Selected life table discontinuation rates and the median duration of use, by method

Period	Pill	IUD	Condom	Periodic abstinence	All methods[1]
One year	42.4	12.6	46.9	39.7	29.0
Two years	63.7	29.3	63.1	59.2	49.3
Three years	74.9	44.8	69.4	73.2	62.2
Four years	81.4	56.5	72.4	79.9	70.3
Five years	85.8	63.2	76.6	81.8	75.5
Median duration in months	15	40	14	18	24

[1] Includes other modern and traditional methods not presented in the table.

Looking at discontinuation patterns for specific methods, pill discontinuation starts at high levels during the first year. The pattern of discontinuation of the condom and periodic abstinence is similar to that of the pill, with the rate of discontinuation also starting off very high. However, for those who maintain use of these two methods through the first year, the risk reduces dramatically thereafter. The median duration of use among pill or condom users is about 15 months and that for periodic abstinence is 18 months.

The pattern of discontinuation of the IUD is clearly different. Whereas the first year is crucial in continuation of use for pill users, the second and third years are very important for IUD users. One-third of women using the IUD stop during those two years. The median duration of IUD use slightly exceeds three years, which is shorter than anticipated for this long-term contraceptive.

Table 5 displays the weighted percent distribution of discontinued segments by the method used and the reason for discontinuation. Overall, four of every ten segments that are discontinued end because of side effects and health concerns. Two additional segments end in an unintended pregnancy while using. As expected, the reasons for discontinuation vary by the method used. The percentage of discontinued pill segments that were interrupted due to contraceptive failure (about one-quarter) is similar to that for condom segments. Likewise, the percentage of discontinuations due to infrequent sex or husband going away is also similar in the case of pill and condom. Side effects and health concerns are the main reason for discontinuation in the case of both the pill and IUD, accounting for just under half of the discontinued segments of these two methods. The category "other reasons" mainly includes the desire for a more effective method and inconvenience of the method and represents the most frequently cited reason for discontinuing condom use. In contrast, failure while using the method is the main reason for discontinuing use of periodic abstinence.

Table 5 Weighted distribution of discontinued segments by reason for discontinuation

Method	Failure	Wants to become pregnant	Side effects/ Health concerns	Husband away	Other reasons	Total
Pill	23.5	16.7	42.8	9.1	7.9	100.0
IUD	9.0	26.6	48.3	4.3	11.8	100.0
Condom	19.7	16.6	18.4	8.1	37.2	100.0
Periodic abstinence	49.5	24.7	2.2	4.5	19.1	100.0
All methods[1]	19.5	19.4	39.8	6.9	14.4	100.0

[1] Includes other modern and traditional methods not presented in the table.

Figures 1 and 2 display the cumulative failure rates and cumulative rates of discontinuation for health-related reasons, respectively, for the pill and the IUD. These rates are calculated from corresponding, associated single-decrement life tables by reason for discontinuation. The estimated effectiveness of the pill displayed in Table 6 is about 92 percent. If use failure were the only reason for discontinuation, 11 percent of pill users would experience an unintended pregnancy within the first year, and 22 percent of users would fail within two years. Gross failure with the IUD during the first year of use is only one-sixth the estimated level for the pill. In the second year, the IUD failure rate amounts to 3 percent. On the other hand, if health concerns were the only reason for discontinuation, 23 percent of pill users and 8 percent of IUD users would quit during the first year and 35 percent of pill users and 16 percent of IUD users would stop within two years.

Figure 1
Cumulative Gross Failure Rates for Pill and IUD

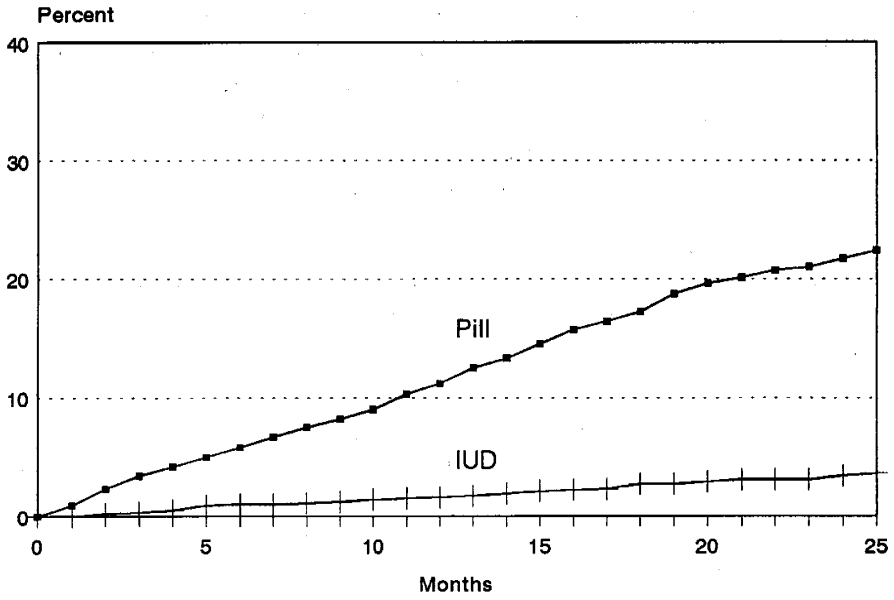
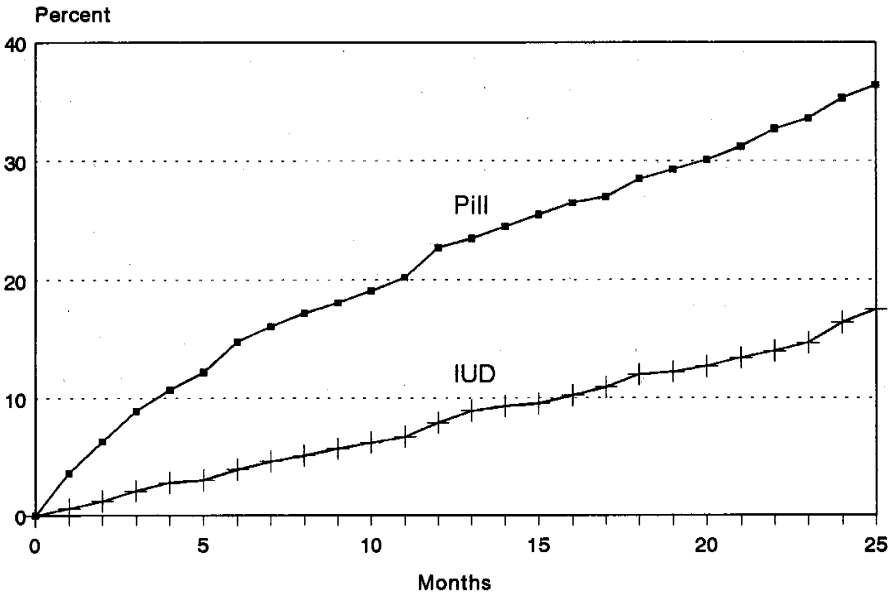


Figure 2
Cumulative Gross Rates of Discontinuation Because of Health-related Reasons for Pill and IUD



The one-year failure rate of the pill presented in Table 6 (11 percent) is consistent with the corresponding rate reported in the 1984 ECPS (14 percent). The two surveys relied on reports on beginning and ending dates of all segments of contraceptive use during the preceding five years. However, use of the calendar in the 1992 EDHS improved the accuracy of reported dates by reducing the extent of heaping around multiples of six months. The discrepancy between the results of those two surveys on the one hand and comparable results from the 1988 EDHS, in which the one-year failure rate for the pill from an associated single-decrement life table was estimated as 7 percent, indicates that reliance on reports concerning only the last segment of use between successive live births leads to substantial underestimation of failure rates especially for the pill. The minor decline in failure rates during the eight-year period between the 1984 ECPS and the 1992 EDHS suggests that awareness of proper use and the quality of medical consultation provided for users have not greatly improved.

Table 6 Selected gross reason-specific discontinuation rates and estimated first-year effectiveness for the pill and the IUD

Reason-specific discontinuation rate (%)	Pill	IUD
Monthly failure rate during first year	0.99	0.13
One-year failure rate	11.2	1.6
Two-year failure rate	21.7	3.3
First-year effectiveness[1]	92.1	-
One-year discontinuation rate for health-related reasons	22.7	7.9
Two-year discontinuation rate for health-related reasons	35.3	16.4

[1] Effectiveness is the monthly reduction in the probability of conception among users of a specific method. It is calculated by using the formula: $f = c\ (100 - e)$ where f is the estimated monthly failure rate of the method and c, the monthly probability of conception in the absence of contraception, is assumed to be equal to .125 (Bongaarts and Rodriguez, 1991).

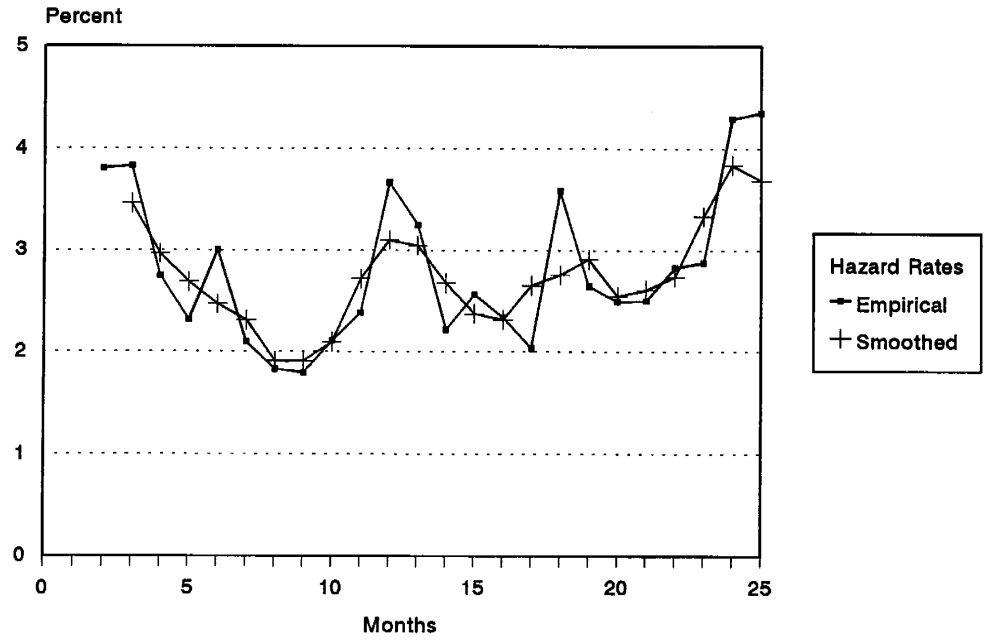
4 MULTIVARIATE ANALYSIS

In this section, the determinants of contraceptive discontinuation within two years are investigated. Overall discontinuation is examined first and then two separate analyses are carried out for the two most important reasons for discontinuation in Egypt: failure while using and health-related concerns.

4.1 Determinants of Contraceptive Discontinuation

Figure 3 presents the empirical and smoothed hazard rate for discontinuation, by duration in months, during the first 25 months of use. The heaping at six months vanishes after using a three-month moving average to smooth the hazard curve. However, heaping on subsequent durations is apparent and seems to reflect a tendency towards increased discontinuation, particularly at the end of the first year. To overcome the bias in reported durations of use revealed by the heaping around multiples of six months and in order to ensure a sufficient number of cases at different durations, the following intervals of use have been designated: 1-3 months, 4-7 months, 8-10 months, 11-13 months, 14-16 months, 17-19 months, 20-22 months, and 23-25 months.

Figure 3
Empirical and Smoothed Hazard Rates of Discontinuation



Model 1 in Table 7 displays relative risks estimated from a multivariate hazard model for overall discontinuation rates. The discontinuation rates for specific methods differ by duration. Discontinuation rates for the pill start at high levels in the first three months of use, decline gradually and rise again around the end of the first year. Differences between relative risks in the interval 14-22 months are all insignificant. Although discontinuation rates for the pill rise slightly by the end of the second year, they remain well below the level of discontinuation in the first three months of use. Discontinuation rates for periodic abstinence are not significantly different from those for the pill. In the case of the IUD, discontinuation risk remains almost constant at extremely low levels throughout the first year. The risk increases slowly during the second year and accelerates towards the beginning of the third year, but remains below that of other methods. Condom users have the highest discontinuation rates in the first three months, probably due to inconvenience with the method. For those who maintain use during the initial period, discontinuation rates decline sharply during the rest of the first year of use, increase around the start of the second year, decline again in the interval 14-22 months, and then rise slowly by the beginning of the third year. After the first three months of use, the risk of discontinuation is fairly similar to that for the pill.

Table 7 Estimated relative risks from multivariate hazard models of discontinuation failure, and discontinuation for health-related reasons

Covariate	Relative risk		
	Model 1: Discon-tinuation	Model 2: Failure	Model 3: Health reasons
Duration			
(Ref. Categ.: 1-3 months)			
4-7	0.68***	0.88	0.67***
8-10	0.49***	0.84	0.41***
11-13	0.77**	1.11	0.64***
14-16		1.16	
17-19	{0.65***}	1.15	{0.49***}
20-22		0.89	
23-25	0.73**	1.01	0.79
Method used			
(Ref. Categ.: pill)			
IUD	0.17***	0.15***	0.24***
Condom	1.60***	0.90	
Periodic abstinence	0.88	2.08***	
Interaction			
(Ref. Categ.: duration*method)			
IUD 4-7	1.53**		1.38
IUD 8-10	2.14***		2.08**
IUD 11-13	2.17***		2.28***
IUD 14-22	2.39***		1.99***
IUD 22-25	4.45***		3.21***
Condom 4-7	0.57**		
Condom 8-10	0.46**		
Condom 11-13	0.70		
Condom 14-22	0.47***		
Condom 23-25	0.58		
Per. abs. 4-7	1.32		
Per. abs. 8-10	0.67		
Per. abs. 11-3	0.93		
Per. abs. 14-22	0.91		
Per. abs. 23-25	0.72		
Age			
(Ref. Categ.: <30 years)			
>=30 years old	0.66***	0.75***	0.71***
Place of residence			
(Ref. Categ.: urban)			
Rural Lower Egypt	1.14**	1.26*	1.14
Rural Upper Egypt	1.36***	1.11	1.55***

Table 7—*Continued*

Covariate	Relative risk		
	Model 1 discon-tinuation	Model 2 failure	Model 3 health reasons
Living sons			
(Ref. Categ.: no living sons)			
1	0.88**		
2	0.71***		{0.82**}
3+	0.72***		
Reproductive intention			
(Ref. Categ.: wants more)			
Does not want any more children	0.91*		
Level of education			
(Ref. Categ.: no education)			
1-5 years	0.97		
6-11 years	0.98		
At least 12 years of education	1.16**		
Watches television			
(Ref. Categ.: <2 hours)			
Watches TV at least two hours daily	0.91*	0.83*	0.87*
Changed community during observation period			
(Ref. Categ.: no)			
Yes	1.33***		1.26*

* .01 < P <= .05
** .001 < P <= .01
*** P <= .001

Considering characteristics of the users, older women, women who had at least one living son when they started using, and women who had no intention to bear more children at that time appear more committed to their method of contraception than younger women, women with no living sons and those who are spacing births. Exposure to television programs reduces overall discontinuation after controlling for method used and the demographic attributes of the woman.

Variations in both the availability and quality of family planning services are likely reflected in the significant differentials in discontinuation rates by place of residence. Discontinuation rates in rural Lower Egypt are 14 percent higher than in urban areas; for rural Upper Egypt, the increase is about 36 percent. The small group of women in the sample who have experienced a change in their community of residence during the observation period (612 women) had 33 percent higher discontinuation rates than their counterparts with no such experience. Women with at least secondary certificates have higher chances of discontinuation than less educated women.

4.2 Determinants of Contraceptive Failure

As noted earlier, one-fifth of all discontinued segments of use are classified as contraceptive failures. Investigation of differentials in failure rates by method used and by the social and demographic characteristics of women in the sample requires construction of associated single-decrement life tables with failure as the only reason for discontinuation; cessation of use for any other reason is considered a censored case.

Model 2 in Table 7 presents relative risks of failure while using a method. Failure rates remain almost constant throughout the first two years of use. Failure rates of the IUD are very low, particularly in contrast to those for periodic abstinence. Pill and condom users experience similar risks of failure after controlling for the socioeconomic attributes of the users. Unlike the IUD, both methods are user-dependent and are highly susceptible to human error. The interaction between duration of use and method used is insignificant.

Among all social and demographic attributes, only age of woman and place of residence have a significant impact on failure rates. Older women are less likely to fail while using a method, probably because of declining fecundity or greater motivation to avoid unwanted pregnancies. Residential differentials may point to the impact of motivation on failure rates. In view of the greater social and structural constraints on contraceptive use in rural Upper Egypt than in other areas, the users in this region are assumed to be the most motivated among all users. This motivation seems to compensate for the absence or low quality of services available in this region compared with urban areas and accounts for the comparatively lower risk of failure for users in this region than in rural Lower Egypt. The quality of services provided in rural Lower Egypt, particularly with respect to proper use of methods, comes into question in view of the higher failure rates in this region.

Exposure to TV programs has a significant negative impact on failure rates, while educational attainment has no impact. Differentials in misreporting unintended pregnancies by educational attainment may be one underlying reason for this unexpected finding. Reproductive intentions, the number of living sons at first use, and changing the community of residence are insignificant determinants of failure while using a method.

4.3 Determinants of Discontinuation for Health-Related Reasons

Side effects and health concerns combined are the major reason for contraceptive discontinuation in Egypt. In order to examine the underlying factors contributing to this phenomenon, an associated single-decrement life table is utilized whereby these health-related reasons are treated as the only reason for discontinuation (cessation of use for any other reason is considered a censored case). This analysis is confined to only two methods, the pill and the IUD. Almost half of all discontinuations of these two methods are for health-related reasons.

Model 3 in Table 7 presents relative risks of discontinuation because of side effects and health concerns. This pattern of discontinuation is very similar to the overall pattern of discontinuation, especially with regard to the constant hazard during the second year. Among pill users, the hazard starts high in the first few months, declines afterwards and rises slightly again near the end of the second year. Among users of the IUD, the hazard is very low in the first year, increases slightly at the end of it, declines again and then doubles towards the end of the second year. Older women and those having at least one living son at the time of first use are more tolerant of side

effects than younger women and those with no living sons. Also, women in urban areas and in rural Lower Egypt, who have relatively better access to medical consultation in regard to these concerns, are less likely to discontinue using their method. Women in rural Upper Egypt are 55 percent more likely to cease using their method due to health concerns than urban women at all durations. Controlling for quality of family planning services and access to medical consultation represented by the three regions, educational attainment becomes insignificant in explaining differentials in regard to tolerance of side effects. Exposure to television programs has a negative impact on this type of discontinuation, whereas changing community of residence increases the hazard by 26 percent.

4.4 Behavior Following Discontinuation for Health-Related Reasons

Because side effects and health concerns contribute significantly to contraceptive discontinuation, it is crucial to study the post-cessation behavior of those who stopped because of these factors. The behavior of women in the first month after they stopped contracepting can be examined in Table 8. Pregnancies and terminations reported in this first month (6 percent) probably include some misidentified cases of contraception failure. Only one-third of the women stopping because of health concerns switched to another modern method (e.g., switching from an IUD to the pill and vice versa), a small proportion (6 percent) switched to a less effective method, while the majority (56 percent) did not use anything at all. Of the latter group, only one-tenth started using a modern method in the second month after cessation, about one-quarter (23 percent) were already pregnant, while two-thirds (66 percent) were still exposed to the risk of becoming pregnant (abandoned use) (data not shown).

Table 8 Distribution of segments of pill and IUD use discontinued due to side effects and health concerns, by contraceptive status in the first month after discontinuation

Behavior in the first month after cessation	Pill		IUD		Both	
	Number	Percent	Number	Percent	Number	Percent
Pregnant	76	7.4	36	4.7	112	6.3
Pregnancy terminated	2		1		3	
No method	575	55.9	418	55.0	993	55.5
Another modern method	320	31.1	235	30.9	555	31.0
Less effective method	51	4.9	52	6.8	102	5.7
Sterilization	6		18	2.4	24	1.3
Total	1,030	100.0	760	100.0	1,790	100.0

5 CONCLUSION

The total fertility rate estimated from data collected in the 1992 DHS survey in Egypt exceeds the reported desired family size by one child. It also exceeds the total fertility rate calculated after exclusion of reported unwanted pregnancies by all women (users and nonusers) by the same amount. Contraceptive users who experience use failure and those who abandon use for any reason other than to become pregnant are one reason for the disparity between desired and actual fertility.

The Egyptian family planning programs have been very successful in overcoming the barrier of illiteracy and promoting adoption of contraceptives among the uneducated. Over 85 percent of users rely on modern contraceptives with high theoretical efficacy. Television has been a powerful means in this respect. Exposure to TV messages and programs in general has increased awareness of couples with regard to the existence and availability of contraceptives. However, their proper use and the importance of medical examination, follow-up and consultation have not been stressed enough. As a result, discontinuation rates are high among all pill and IUD users in all regions and follow-up policies are becoming increasingly relevant.

Twenty-nine percent of all users discontinue using their contraceptive method within one year and cessation of use reaches 50 percent by the end of the second year. The desire to become pregnant was the reason for discontinuation in less than one-fifth of discontinued segments. This is consistent with the fact that limiting, rather than spacing, births is the main motive for contraceptive use among couples in Egypt. However, the strong interest in limiting would be expected to result in much longer durations of use than are observed. Unintended pregnancies and health-related reasons were cited in nearly 60 percent of discontinued cases.

Pill users account for 28 percent of all current users in Egypt. Despite this significant contribution to the contraceptive prevalence, their impact on fertility levels is limited by high discontinuation rates. The median duration of pill use is only 15 months. That is, almost half of the women who initiate pill use stop using within one year. Use-failure rates are quite high among pill users in Egypt. If failure were the only reason for discontinuation, then one in every nine pill users would experience an unintended pregnancy within the first year of use. Differentials in fecundity, motivation for use, and quality of available consultation seem to be strong factors underlying failure levels. Pill users in urban areas and in rural Lower Egypt are younger and consequently are less motivated to use than IUD users. Pills also require more skill to be used effectively. Improving the quality of medical consultation becomes imperative in this respect. On the other hand, if health concerns were the only reason for discontinuation, almost one in every four pill users would cease using during the first year because of such concerns. A social barrier, i.e., the desire to have sons, hinders family planning policies from realizing their objectives. Women who have fewer sons seem to be less tolerant and less committed to contraception.

Users of the IUD account for 57 percent of all users and IUD prevalence has more than trebled in Egypt during the period 1984 to 1992. This is a major success for the Egyptian family planning program. However, the estimated median duration for IUD segments (40 months) is quite low in view of the favorable social and demographic attributes of IUD users in Egypt and the long-term potential of the contraceptive they are using. According to this analysis, the contraceptive potential of the IUD is not fully realized in Egypt. One-third of IUD users stop within two years, one-third stop within the next three years, and only one-third continue beyond the fifth year. Unintended pregnancy is not an issue when the method used is the IUD, while side effects can be a serious problem.

Studying the switching behavior of women who stop using the pill or the IUD reveals the negative impact of health-related reasons for discontinuation on future fertility levels. Only one-third of women who discontinued for these reasons switched directly to another modern method, while half of them abandoned use altogether in the following two months after cessation. The similarities in the behavior of both pill and IUD users after cessation is counter-intuitive. Pill users in Egypt rely mostly on direct access to the contraceptive they use and the consultation they get in pharmacies, if

any. Hence, initiation as well as cessation of use is handled almost completely without proper medical supervision. On the other hand, IUD insertion or extraction necessarily implies contact with professional medical personnel in a health facility. Advice on switching to another method would be expected whenever the reason for stopping is not a desire to become pregnant.

The 1992 EDHS results emphasize the conclusions and recommendations from previous case studies in rural Lower Egypt (Younis et al., 1993). Family planning programs in Egypt should focus more on provision of better quality services than on the mere recruitment of new acceptors regardless of their health. Proper screening of new acceptors should be strongly emphasized and the screening procedures monitored. Training medical personnel in low-cost physical examination techniques to efficiently diagnose cases contraindicated for the pill and the IUD is imperative in order not to aggravate present conditions and jeopardize the reputation of the program. In the case of the IUD, stressing proper use of aseptic techniques for insertion and routine follow-up would lower the risks of reproductive tract infections that can have serious health and fertility consequences to an affected woman (Zurayk et al., 1994).

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Choice of

Family Planning Service Provider

in Egypt

Mona Khalifa

1 INTRODUCTION

In the future, better management and increased efficiency in the use of resources will be necessary to cope with the increased demand generated by the family planning program effort in Egypt. One of the key features of the Egyptian family planning experience is reflected in the high level of participation of the private sector in the delivery of family planning services. The proportion of current users of modern contraception obtaining methods from private providers reached 65 percent in 1992. Private sources include for-profit providers such as private doctors/clinics and commercial pharmacies as well as a range of other providers such as nonprofit organizations, mosque and church health units, and other nongovernmental sources.

As the Egyptian program seeks to achieve higher prevalence rates, to reduce discontinuation and failure rates, and to deal with the problem of unmet need for family planning, it must build on the successful experience of this diverse group of family planning service providers. The various delivery systems have different efficiencies and costs (Moreland, 1992), and each provider attracts users with different characteristics and needs. An understanding of the processes by which a user chooses her provider is clearly important as the Egyptian family planning program seeks to expand its services.

From the user's perspective, the choice of a specific provider follows an assessment of the accessibility, cost and, particularly, quality of services offered by the many family planning sources. This choice is based on standards that the user develops through experience or formulates from information received from other women regarding *their* experiences. Perceptions of providers are dependent on the user's individual demographic and socioeconomic background as well as the characteristics of the society in which the user is situated, which includes the immediate family, the community and the country.

These perceptions and evaluations combine into unitary judgments that affect provider choice (Bulatao, 1989). An important aspect of provider choice is a woman's concern about receiving the best available services that she can afford, especially because contraception is strongly related to reproductive health. Thus, the action of approaching a specific provider is the result of a process of selection among alternative possibilities, each of which differs somewhat with respect to key dimensions of access, cost, and quality. This decision is determined by internal as well as external factors and results from the interaction between the individual and environmental constraints imposed by the surrounding culture. As the woman faces the need to repeat the behavior, habit becomes yet another determining factor. Such determining factors not only influence the woman's decisions about the provider from which she will obtain family planning services, but they also influence and perhaps modify her demand for children (Robinson and Cleland, 1992).

In summary, the choice of a family planning service provider reflects the efforts of women to identify high quality providers who, according to the community's definition, make appropriate efforts to help individual users to achieve their own reproductive intentions. To understand provider choice, it is necessary to look at the characteristics of both the users making the choices and the providers, particularly the quality of services, as they are perceived by users. Data from the 1992 Egypt Demographic and Health Survey (1992 EDHS) (El-Zanaty et al., 1993) are used in this paper to examine these key aspects of provider choice in Egypt.

1.1 Trends in Reliance on Public and Private Sources

In Egypt, the high level of participation of the private sector (physicians, pharmacies, and private voluntary organizations) in the delivery of family planning services has been documented in several recent demographic surveys. As seen in Table 1, results of the 1984 Egyptian Contraceptive Prevalence Survey showed that 74 percent of users of modern family planning methods[1] obtained their supplies from "private," i.e., nongovernmental, sources (Sayed et al., 1985), principally pharmacies (52 percent) and private doctors (18 percent).

The widespread participation of the private sector in family planning service delivery was confirmed by the results of the 1988 Egyptian Demographic and Health Survey (1988 EDHS) (Sayed et al., 1989). Overall, the proportion of current users of modern methods obtaining contraceptives from private sources reached 77 percent, the proportion of current users relying on the pharmacy increased slightly to 53 percent, and those depending on private physicians grew to 20 percent (Sayed et al., 1989).

Table 1 Percent distribution of current users of modern family planning methods by source, according to method, Egypt 1984-1992

Method and source	ECPS 1984	EDHS 1988	EDHS 1992
All modern methods			
Public sector	26.1	23.1	35.0
Private sector	73.9	76.9	65.0
Private voluntary organization	1.3	0.5	6.7
Other private medical	17.8	20.3	28.2
Pharmacy	51.6	53.4	28.3
Other/Not sure	2.5	2.6	1.8
Total	100.0	100.0	100.0
Pill			
Public sector	-	8.2	11.6
Private sector	-	91.8	86.1
Private voluntary organization	-	0.3	1.0
Other private medical	-	0.3	0.7
Pharmacy	-	87.1	83.6
Other/Not sure	-	4.0	2.7
Total	-	100.0	100.0
IUD			
Public sector	-	42.6	46.9
Private sector	-	57.4	52.8
Private voluntary organization	-	1.3	9.7
Other private medical	-	54.3	43.1
Pharmacy	-	NA	NA
Other/Not sure	-	1.7	0.2
Total	-	100.0	100.0

NA = Not applicable
Source: 1984 ECPS, Sayed et al., 1985, Table 12.1
1988 EDHS, Sayed et al., 1989, and
1992 EDHS, El-Zanaty et al., 1993, Table 5.10

Recently, data from the second round of the EDHS in 1992 showed that the proportion of current users of modern family planning methods relying on private sources had declined from 74 to 65 percent. This decline is mainly due to an almost 50 percent decrease in the use of pharmacies, from 53 percent in 1988 to 28 percent in 1992. At the same time, the proportion of current users relying on private physicians continued to increase, reaching 28 percent of current users (El-Zanaty et al., 1993). Also, a significant change was observed in the contribution of private voluntary organizations, which served 7 percent of users in 1992, an increase from less than 1 percent in 1988.

To some extent, the change in the market share of various providers is associated with changes in the method mix in favor of the IUD. In 1988, users were as likely to use the pill as the IUD, but, in 1992, about three in five users used the IUD and only one in four used the pill (El-

[1] Modern family planning methods include the pill, injectables, Norplant, condom, diaphragm/jelly/foam, IUD, female sterilization, and male sterilization.

Zanaty et al., 1993). In part, the changes might also be due to improvements in the data collection procedures in the 1992 EDHS, in which more detailed source information was obtained than was available from earlier surveys.

1.2 Factors Influencing Provider Choice

A number of aspects of a family planning source are of importance to potential clients when making their choice of a provider. In discussing the availability of contraception, for example, Mauldin and Lapham identify six components, three of which are related to proximity to sources. The fourth component refers to the range of services offered at each outlet. The fifth is concerned with the cost of specific services and the last component deals with the quality of services, e.g., waiting time, training and competence of staff, privacy and courtesy, and hours of operation (Mauldin and Lapham, 1987).

In the research on the availability of contraception in Egypt a number of these key aspects of provider choice has been examined. For example, the Egypt Service Availability Survey, which was conducted in 1989, measured the accessibility of family planning and health in rural Egypt (Sayed, 1991). In this study, accessibility was defined in terms of "proximity" and was measured by the distance and travel time between the client's residence and the source of contraceptive supplies. According to the study, two of three married rural women had a source of family planning in the village in which they live, and 96 percent lived within five kilometers of a source. However, there were marked regional differences in the availability of family planning services. Among the more significant of these differences was the fact that married rural women in Lower Egypt were more than four times as likely as those in Upper Egypt to have a source *in* their village where they could have an IUD inserted.

The relationship between accessibility and increased contraceptive use is not always direct. The level of use among women who report easy access to services may be lower than that for others who find it more difficult to reach a source. It has been suggested that high motivation among women to use family planning, regardless of the traveling time, encourages them to seek the needed services (Abdalla, 1993).

Women may also be willing to use a more distant source if it reduces other nonmaterial costs of adopting contraception. An example of this strategy was documented in a recent study that found that the majority of users in Upper Egypt preferred to travel more than 30 kilometers to obtain family planning services from a general hospital or a private doctor because of the perceived poor quality of nearer facilities (Sayed et al., 1993). In another study, women who knew about but had never visited government clinics or clinincs run by private voluntary organizations (PVOs) in their area were asked about reasons for not going to those outlets. Their responses indicated that perceptions of the poor quality level of the services offered there, including expectation of long waiting times, bad treatment, and lack of methods, kept women from using these clinics (Nawar and Mahmoud, 1992). Finally, women may go outside of their communities for family planning services if they are determined to use a method but uncertain of their husband's (or in-laws) approval; the increased distance is offset by the need for privacy which arises from this challenge to the social institutions and values (Sayed et. al., 1993).

1.3 Research Objectives and Data

The objective of this study is to obtain additional insights into the factors influencing a woman's choice of family planning service provider in Egypt. The study employs data on family planning sources obtained in the 1992 EDHS from currently married women who were currently using the pill or an IUD. Overall, 87 percent of married women using modern contraception in Egypt use one of these two methods. The study deals separately with pill users and IUD users because they differ markedly with respect to the providers from which they obtain services. For purposes of the analysis, each of these two user groups are further subdivided into those relying on public (government) sources and those obtaining services from private sector sources. For each user group, the study presents a profile of the users obtaining services from each type of provider. Of key interest is the extent to which the choice of a particular type of provider (i.e., public or private sector) varies according to the demographic and socioeconomic characteristics of the user. The study also investigates how each group of users views their providers on three important dimensions—accessibility, costs and quality.

2 PROVIDER CHOICE AMONG PILL USERS

2.1 Characteristics of 'Private' and 'Public' Users

Overall, 13 percent of currently married women in Egypt are using the pill (El-Zanaty et al., 1993). This section provides a profile of pill users according to the source where they obtained their method. In Table 2, women who were currently using the pill at the time of the 1992 EDHS are grouped into two categories. The first and smallest group includes 137 users (12 percent of all pill users) who report a public sector facility (i.e., a government hospital or health unit) as their provider. The second group consists of 1,044 users (88 percent of all pill users) who were clients of private or nongovernmental providers (i.e., pharmacies, private hospitals and clinics, private doctors, private voluntary organizations (PVO), and health units in mosques and churches). It also includes a small group of users (3 percent) who obtain their supplies through other private vendors and sources such as friends and relatives.

Table 2 Percent distribution of current pill users by the provider from which the pills were obtained, according to urban-rural residence and place of residence, Egypt 1992

Type of provider	Urban	Rural	Urban gover-norates	Lower Egypt			Upper Egypt			Total
				Total	Urban	Rural	Total	Urban	Rural	
Public sector	6.3	17.1	5.6	12.8	4.5	17.2	14.2	10.1	16.8	11.6
Private sector	93.7	82.9	94.4	87.2	95.5	82.8	85.8	89.9	83.2	88.4
Pharmacy	90.2	76.8	91.2	82.0	91.1	77.3	80.2	87.0	75.9	83.6
Private medical	1.6	2.0	1.7	0.5	0.8	0.4	3.9	2.7	4.7	1.8
Other private vendor	0.4	1.1	0.0	0.8	1.1	0.7	1.1	0.0	1.7	0.7
Other/Not sure	1.5	3.2	1.4	3.8	2.5	4.4	0.6	0.2	0.9	2.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of pill users	601	581	274	565	194	371	342	132	210	1,181

Clearly, the majority of users obtain pills from the private sector; however, reliance on public sector sources for pill supplies is about three times as common in rural areas as in urban areas (17 percent and 6 percent, respectively). Utilization of public sector sources is at its lowest level in urban Lower Egypt (5 percent) and the Urban Governorates (6 percent) and at its highest level in rural areas (17 percent).

The main private suppliers of the pill are pharmacies, where pills may be obtained without prescription. Again, the percentage of pharmacy users is highest in the Urban Governorates and urban Lower Egypt (91 percent, respectively) and lowest in rural Upper Egypt (76 percent). Other private medical sources—mainly PVOs and mosque or church health units—make their greatest contribution in rural Upper Egypt (5 percent).

Table 3 Percent distribution of current pill users by the type of provider, according to selected background characteristics, Egypt 1992

Background characteristic	Type of provider		Total	Number of pill users
	Public	Private		
Age				
15-29	12.0	88.0	100.0	368
30-39	11.1	88.9	100.0	570
40-49	12.1	87.9	100.0	243
Woman's level of education				
No education	12.2	87.8	100.0	522
Some primary	11.4	88.6	100.0	338
Primary through secondary	8.9	91.1	100.0	138
Completed secondary/higher	12.1	87.9	100.0	184
Husband's level of education				
No education	15.6	84.4	100.0	360
Some primary	9.1	90.9	100.0	304
Primary through secondary	7.8	92.2	100.0	196
Completed secondary/higher	11.7	88.3	100.0	320
Household standard of living				
Low	13.0	87.0	100.0	335
Medium	10.2	89.8	100.0	438
High	11.9	88.1	100.0	409
Media exposure				
Low	13.8	86.2	100.0	253
Medium	12.3	87.7	100.0	586
High	8.6	91.4	100.0	342
All Egypt	11.6	88.4	100.0	1,181

Table 3 presents the proportion of users obtaining the pill from each type of source according to basic demographic and socioeconomic characteristics. There is virtually no variation in provider type with the age of the user. Users in households classified as having a "medium" standard of living[2] are somewhat more likely to deal with private sources than women in the "low" or "high" living standard categories. Similarly, users of private sector sources are somewhat more likely to be found among those women who themselves or their husbands have achieved a "medium" educational level (i.e., who have completed primary, but not secondary school).

[2] The standard of living index (SLI) is constructed from information obtained on housing and household possessions. For a discussion of the standard of living index see footnote 3 page 17 in this volume.

2.2 Factors Influencing Provider Choice

As discussed earlier, accessibility, cost, and quality of services are viewed as key determinants of the choice of a family planning service provider. The 1992 EDHS obtained information from pill users that provides perspectives on both the actual accessibility, cost, and quality of services, as well as how users view each of these in terms of the services they receive from their family planning providers. This section includes a summary of this information.

2.2.1 Accessibility

One measure of the accessibility of sources serving pill users is obtained from a review of the information collected in the EDHS on the time required to travel to the source and whether the user views that travel as easy or difficult. As seen from Table 4, the median time to reach a private source is 10.7 minutes, and 73 percent of clients of private sector sources report travel times to their source of 15 minutes or less. Public sources are somewhat less accessible; the median time to a public sector source is 15.6 minutes, and only 59 percent of users obtaining supplies from a public sector source live within 15 minutes of the public source. Despite the somewhat greater distances, pill users relying on public sector providers are slightly more likely than users relying on private providers to consider their source to be easy to reach; however, for both types of providers, over 90 percent perceived their source as being readily accessible.

Table 4 Percent distribution of current pill users by perceived ease of access to source and travel time to source, according to type of provider, Egypt 1992

Accessibility indicator	Type of provider		
	Public	Private	Total
Ease of access to source			
Easy	96.2	93.8	94.1
Difficult	3.8	2.9	3.0
Not stated/Not applicable	0.0	3.2	2.9
Travel time to source			
5 minutes or less	12.7	32.0	29.7
6-10 minutes	20.3	24.9	24.4
11-15 minutes	26.4	16.4	17.6
16-30 minutes	30.7	14.2	16.1
31-60 minutes	6.8	4.3	4.6
61+ minutes	1.8	1.4	1.4
DK/Not applicable	1.2	6.7	6.1
Total	100.0	100.0	100.0
Median time	15.6	10.6	10.7
Number of users	137	1,045	1,181

As shown in Table 5, easy access to the family planning source is the main reason pill users give for choosing the current source. Among users choosing private sources, 80 percent report that the primary reason for their choice was the source's accessibility. About 10 percent of private users cite previous experience with the source or reputation as reasons for choosing the provider.

A similar pattern is observed for users obtaining pill supplies from public sector sources. For 63 percent of clients of public sources, easy access is the main reason for their choice. Again, the proportions citing other reasons for choosing a public sector provider are much less, with cost being the next lowest factor (30 percent).

Table 5 Percentage of current pill users reporting specific reasons for deciding to use their current source, by type of provider, Egypt 1992

Reason for choosing current source	Type of provider		Total
	Public	Private	
Advice from government doctor/nurse	3.7	1.2	1.5
Advice from private doctor/nurse	4.1	1.7	2.0
Advice from friends/relatives	14.4	5.9	6.9
Reputation of source	16.2	10.0	10.8
Previous experience	10.5	10.2	10.2
Easy access to source	62.5	80.2	78.2
Cost of services	28.5	2.8	5.8
Other	2.4	2.8	2.7
Don't know/Missing	1.1	2.3	2.2
Number of pill users	137	1,045	1,181

2.2.2 Cost

Cost is another important dimension of provider choice. In the EDHS, current pill users were asked several questions relating to the cost of family planning services. For example, those who consulted a medical provider before beginning to use the pill were asked about the costs that were incurred for this consultation. All pill users were asked about how much they had paid for a cycle of pills. In addition to these questions on actual costs, pill users were asked about their willingness to pay specific amounts for the pill.

Cost of Medical Consultation. Overall, only 2 in 5 pill users reported that they saw a medical provider for a consultation at the time they began their current segment of pill use. As Table 6 shows, urban pill users had a medical consultation more often than rural users (46 percent and 35 percent, respectively). By place of residence, the proportion consulting a medical provider varied from 30 percent in rural Lower Egypt to 48 percent in urban Upper Egypt. There is little variation in the proportion consulting a medical provider according to the user's age. However, it varies directly with the standard of living index and with the level of education of both the user and her husband. This suggests that there is a relationship between the user's socioeconomic status and the likelihood that she will see a medical provider before adopting the pill.

With regard to the type of provider consulted, the results presented in Table 7 indicate that users who depend on the private sector for pill supplies also tend to rely on private doctors for consultation. More than two-thirds of the women who seek consultation prior to purchase of pills from a private source (mainly pharmacies) approach a private doctor. A minor but significant role is played by mosque/church health units and facilities of private voluntary organizations. Public health facilities are responsible for about a fifth of the medical consultations of users who obtain pills from the private sector.

Table 6 Percent distribution of current pill users who consulted a medical provider prior to adopting the method, according to selected background characteristics, Egypt 1992

Background characteristic	Consulted	No consul-tation	Total	Number of pill users
Urban-rural residence				
Urban	46.1	53.9	100.0	601
Rural	34.8	65.2	100.0	581
Place of residence				
Urban Governorates	46.7	53.3	100.0	274
Lower Egypt	35.0	65.0	100.0	565
Urban	44.1	55.9	100.0	194
Rural	30.2	69.8	100.0	371
Upper Egypt	44.7	55.3	100.0	342
Urban	47.7	52.3	100.0	132
Rural	42.8	57.2	100.0	210
Age				
15-29	39.9	60.1	100.0	368
30-39	42.3	57.7	100.0	570
40-49	37.2	62.8	100.0	243
Woman's level of education				
No education	31.3	68.7	100.0	522
Some primary	37.9	62.1	100.0	338
Primary through secondary	51.7	48.3	100.0	138
Completed secondary/higher	63.1	36.9	100.0	184
Husband's level of education				
No education	31.3	68.7	100.0	360
Some primary	32.6	67.4	100.0	304
Primary through secondary	44.0	56.0	100.0	196
Completed secondary/higher	56.1	43.9	100.0	320
Household standard of living				
Low	30.0	70.0	100.0	335
Medium	41.2	58.8	100.0	438
High	48.5	51.5	100.0	409
All Egypt	40.5	59.5	100.0	1,181

Table 7 Percent distribution of all pill users who consulted a medical provider by the type of provider consulted, according to current source, Egypt 1992

Type of provider	Public sector	Private sector	Total
Public sector	70.3	21.6	27.4
Private sector	29.7	78.4	72.5
Private doctor/clinic	29.7	69.8	65.0
Private voluntary organization	0.0	3.7	3.2
Mosque/Church clinic	0.0	4.2	3.7
Other/Not sure	0.0	0.7	0.6
Total	100.0	100.0	100.0
Number of pill users	57	421	479

Table 8 shows that users reported that 14 percent of all consultations are offered free of charge (30 percent of those with public providers and 8 percent among private providers), and that nearly 60 percent of consultations with public sector providers cost 2 pounds or less. In contrast, more than one-fifth of consultations with private sector providers cost more than 5 pounds. The median cost of a consultation was 1.4 pounds at a public provider and 5 pounds at a private provider.

Cost of Pills. The EDHS also obtained information about the amounts users paid for each pill cycle. Table 9 shows that the majority of pill users pay less than 50 piastres for a packet of pills. However, prices differ according to the source of supply. Public health facilities offer pills at a price that is about a third of that at private sources. Whereas the median price of pills supplied through the public facilities is 11 piastres, it is 36 piastres when obtained from private providers.

Table 8 Percent distribution of current pill users who consulted a medical provider before use by cost of consultation, according to type of provider consulted, Egypt 1992

Cost of consultation	Type of medical provider consulted: Public sector	Private sector	Total
Free	29.3	7.7	13.6
< 2 pounds	58.2	12.4	25.0
3-5 pounds	7.5	44.6	34.4
6-10 pounds	1.1	23.7	17.5
11-20 pounds	0.8	3.6	2.9
21+ pounds	0.6	2.0	1.6
Don't know/Missing	2.4	5.9	5.0
Total	100.0	100.0	100.0
Mean	1.8	5.0	4.6
Median	1.4	5.0	4.0
Number of pill users	131	347	479

Table 9 Percent distribution of current pill users by actual cost of cycle of pills, according to type of provider, Egypt 1992

Cost of cycle	Type of provider: Public sector	Private sector	Total
Free	2.6	0.0	0.3
50 piastres or less	91.4	80.2	81.5
51-100 piastres	1.1	5.1	4.6
More than 100 piastres	0.7	10.5	9.4
Don't know/Missing	4.2	4.2	4.2
Total	100.0	100.0	100.0
Median (in piastres)	10.9	35.9	35.8
Number of pill users	137	1,044	1,181

Note: 100 piastres = 1 pound

Because the Egyptian family planning program aims at sustainability, cost recovery is an issue that needs consideration (El-Zanaty et al., 1993). To determine whether the program could charge higher prices for pills, pill users were asked whether they would be willing to pay specific amounts for each pill cycle. This information, which is summarized in Table 10, can be used to estimate the median acceptable price for pills, that is, the average amount users would be willing to pay for a cycle of pills. The median acceptable price for a pill packet for pill users who depend on the private sector for their contraceptive supplies is 2.4 pounds, which is almost 45 percent more than the median price women who rely on the public services are willing to pay (1.6 pounds).

Table 10 Percentage of current pill users indicating willingness to pay various amounts for a cycle of pills and the median acceptable price for a cycle by type of provider, Egypt 1992

Amount	Type of provider: Public sector	Type of provider: Private sector	Total
0.5 pounds	91.5	96.0	95.5
1 pound	64.9	80.5	78.7
2 pounds	41.1	55.9	54.2
3 pounds	32.6	39.8	39.0
4 pounds	27.2	32.8	32.1
5 pounds	25.2	29.9	29.4
More than 5 pounds	18.9	22.3	21.9
Median acceptable price (in pounds)	1.6	2.4	2.3
Number of pill users	137	1,045	1,181

A comparison of the actual cost that users pay for purchasing pills with the amount they report that they are willing to pay indicates that the majority of users are willing to pay more than the actual price paid, whether they are clients of the public or private sector. Table 11 provides a summary of this relationship which shows that, on average, less than 10 percent of pill users (in both sectors) currently are paying prices that they consider to be the maximum acceptable price.

Table 11 Percent distribution of current pill users by willingness to pay more than the current price for a pill packet, according to the type of provider, Egypt 1992

Willingness to pay more	Public sector	Private sector	Total
Willing	87.5	88.7	88.6
Not willing	8.2	7.1	7.2
Don't know/Missing	4.2	4.2	4.2
Total	100.0	100.0	100.0
Number of pill users	137	1,044	1,181

These results generally indicate that most pill users are not concerned about the cost of their method and that the majority are willing to pay substantially higher prices for their method. However, there is some evidence that material cost is a more significant factor in determining the choice of provider for public sector users than for private sector users. According to the data in Table 5, 29 percent of users obtaining the pill from public sector sources mention the cost of services as a determinant in their choice of provider compared with only 3 percent of private sector clients.

There also are significant differentials in the amount a user is willing to pay for the pill according to the standard of living of the household in which the user resides, indicating that attitudes toward costs are influenced by a user's socioeconomic status. For example, Table 12 shows that the proportion of users willing to pay 5 pounds almost doubles as the household's standard of living increases from low to high. The median acceptable price is highest among users in the highest standard of living category, 2.9 pounds, compared with 1.7 pounds among users in the lowest standard of living group.

Table 12 Price indicators for current pill users by standard of living index, according to type of provider, Egypt 1992

Price indicator	Low	Medium	High	Total
Actual cost				
Percent getting free	0.4	0.2	0.5	0.3
Percent paying 50 piastres or less	86.7	81.7	76.9	81.5
Median price (in piastres)	35.6	35.8	35.9	35.8
Willingness to pay				
Percent willing to pay more	87.4	86.8	91.5	88.6
Percent willing to pay 1 pound	70.1	79.1	85.5	78.7
Percent willing to pay 5 pounds	20.6	26.2	39.9	29.4
Median acceptable price (pounds)	1.7	2.3	2.9	2.3
Number of pill users	335	438	409	1,181

In conclusion, for the majority of pill users, the cost of using the pill is limited to the amount they pay for the pill packets; less than half of all users report paying for a medical consultation prior to the adoption of the pill during the current segment of use. Almost all pill users, regardless of whether they obtain supplies from a public or private source, express willingness to pay more for their pills than their current price. However, the cost of services is a determinant of the choice of provider for a substantial proportion of users of public sector providers. More significantly, the average price that a pill user is willing to pay for a packet of pills varies directly with the user's standard of living.

2.2.3 Quality of Services

Another important determinant of provider choice is the quality of services. Questions were included in the EDHS about pill users' experience in obtaining services at pharmacies and from medical providers who may have been consulted at the time the user began the most recent segment of use. Although not comprehensive, the responses to these questions offer some insights into the actual quality of the services that pill users receive from their providers.

The quality of the services provided by the pharmacies is especially important since pharmacies are the main pill providers in Egypt. In exploring this issue, responses on the nature of the information that the pill user received from the pharmacy staff are examined. In the survey, questions on these issues were addressed to both current and past users of the pill about the pharmacy from which they last obtained pill supplies. To overcome problems of memory lapse concerning the woman's experience at the pharmacy, only the information obtained from current users is employed in this analysis. Moreover, it is important to note that the information is limited to users who obtain the pills by themselves from the pharmacy since they are considered more able to report from their own experiences than if they received their supplies through other members of the family.

Among pill users who rely on the pharmacy for their current source of supplies, only 68 percent obtain the pills themselves. The remaining users rely on others, mainly their husbands, to get their supplies. Unfortunately, no data are available to explain why husbands or other persons assume such a responsibility. Some insight can be gained, however, by comparing the variation in the person obtaining the pill supplies at the pharmacy with the background characteristics of users.

Table 13 shows that 76 percent of urban pill users obtain their supplies themselves, compared with 58 percent of rural users. Considering place of residence, the highest level is observed in the Urban Governorates and in urban Lower Egypt and the lowest proportion is observed in rural Upper Egypt, where close to two-thirds of the pill supplies purchased at pharmacies are obtained by persons other than the woman herself, mainly her husband. Users under 30 are somewhat more likely than older users to obtain pills themselves. Looking at both education and standard of living, users in the high and low categories are somewhat less likely than those at intermediate levels to obtain the pills themselves.

Table 13 Percent distribution of current pill users supplied by pharmacies by person obtaining method from pharmacy, according to selected background characteristics, Egypt 1992

Background characteristic	Self	Other	Total	Number of pill users
Residence				
Urban	75.7	24.3	100.0	542
Rural	58.0	42.0	100.0	446
Place of residence				
Urban Governorates	80.0	20.0	100.0	250
Lower Egypt	71.3	28.7	100.0	463
Urban	75.6	24.4	100.0	177
Rural	68.6	31.4	100.0	286
Upper Egypt	50.6	49.4	100.0	274
Urban	66.7	33.3	100.0	115
Rural	38.9	61.1	100.0	159
Age				
15-29	62.9	37.1	100.0	306
30-39	70.2	29.8	100.0	475
40-49	69.2	30.8	100.0	207
Woman's level of education				
No education	65.4	34.6	100.0	433
Some primary	70.6	29.4	100.0	280
Primary through secondary	65.6	34.4	100.0	121
Completed secondary/higher	70.8	29.2	100.0	154
Husband's level of education				
No education	63.5	36.5	100.0	291
Some primary	71.5	28.5	100.0	258
Primary through secondary	73.1	26.9	100.0	170
Completed secondary/higher	65.2	34.8	100.0	267
Household standard of living				
Low	69.8	30.2	100.0	276
Medium	70.5	29.5	100.0	372
High	63.1	36.9	100.0	340
All Egypt	67.7	32.3	100.0	988

To collect information about the quality of services at pharmacies, pill users who themselves visited a pharmacy to obtain their method were asked a number of questions about the information they received at the pharmacy, including whether they were told about how to use the pill, whether possible side effects were explained, and whether they were told about other methods. Table 14 shows that at pharmacies only 9 percent of users were shown how to take the pills, 4 percent received information about side effects, and only 2 percent were told about other family planning methods.

Table 14 Percentage of current pill users obtaining the method from a pharmacy themselves, by type of information received, Egypt 1992

Information received	Total
Shown how to use pill	8.9
Side effects described	4.0
Told about other methods	2.2
Number of pill users	669

The limited information supplied by pharmacy staff may reflect the fact that many pill users have used the pill before and therefore do not seek such information from the pharmacy staff. Also, the limited amount of family planning information offered at the pharmacy could reflect the pharmacist's assumption that clients have consulted a medical provider before visiting the pharmacy to obtain supplies. However, in many cases, the assumption that pill users seeking supplies have prior experience with the method or have seen a medical provider prior to seeking supplies from the pharmacist is wrong. Only 58 percent of current pill users who obtain their supplies from pharmacies have used pills before (data not shown) and, as noted earlier, only 40 percent consulted a medical provider prior to adopting the method.

The EDHS results also suggest that there may be problems with the quality of services provided to many of the pill users who do have a medical consultation prior to use. Users were questioned about various aspects of the consultation they received from the medical providers. The results are summarized in Table 15 according to the type of provider consulted. Overall, 17 percent reported a long waiting time, a percentage that was higher for private consultations than for public consultations. Almost all reported having a physical examination (54 percent by a male doctor and 41 percent by a female doctor). Users have a somewhat greater likelihood of not receiving a physical examination when they attend a public clinic for consultation before using the pill than when they go to a private clinic. They also have a higher probability of being examined by a female doctor at public clinics than at private clinics. Only about one-third of users returned to the private medical provider for follow up. A similar proportion of those who consulted a public medical provider returned for a follow-up (38 percent).

Table 15 Percentage of current pill users who consulted a medical provider before beginning the current segment of use, by selected service delivery indicators and type of provider, Egypt 1992

Service delivery indicator	Public sector	Private sector	Total
Waiting time too long			
Yes	12.7	17.3	16.7
No/Other	87.3	82.7	83.3
Had physical examination			
By male doctor	44.0	54.8	53.5
By female doctor	40.9	41.3	41.3
Not examined/Other	15.1	3.9	5.2
Shown how to use method			
Yes	86.4	92.3	91.6
No/Other	13.6	7.7	8.4
Side effects described			
Yes	55.9	58.7	58.4
No/Other	44.1	41.3	41.6
Told about other methods			
Yes	41.9	51.8	50.6
No/Other	58.1	49.2	49.4
Returned for follow-up			
Yes	37.8	35.2	35.5
No	62.2	64.8	64.5
Number of pill users	57	421	479

With regard to the information they received from medical providers about the pill, 92 percent were told how to use the pill and 58 percent were told about side effects of using the pill. Half of the users were told about other methods of family planning. The data show that the public medical providers are somewhat less likely than private providers to talk about how to use the pill or tell users about possible side effects. However, the greatest difference between public and private providers is in the likelihood that they will talk about other methods; only 42 percent of public providers told users who consulted them about other methods, compared with 52 percent of private providers.

In summary, many pill users in Egypt do not appear to be receiving adequate information and counseling. Pill users who do not obtain their pill supplies themselves (about 32 percent of current users) do not receive any information from the pharmacist. Among those who do visit the pharmacy, fewer than 10 percent receive any information from the pharmacist about how to use the pill, side effects, or other methods. Users who have a medical consultation receive more information, particularly about how to use the pill. However, 60 percent of pill users do not seek medical counseling before they begin using the pill, depending instead on the inadequate information given by pharmacists, relatives, friends, and the media.

3 PROVIDER CHOICE AMONG IUD USERS

3.1 Characteristics of Private and Public Users

IUD users constitute the largest segment of those currently using contraception in Egypt; overall, 28 percent of currently married women 15-49 are using an IUD (El-Zanaty et al., 1993). This section provides a profile of IUD users according to the type of source from which they obtain their method. As Table 16 shows, among IUD users, 47 percent have the IUD inserted at a public source. The remaining users (53 percent) report having the IUD inserted at a private health facility. The majority of the users of private sector sources went to private doctors or clinics for the IUD; however, a fairly large share of this service is provided by clinics operated by private voluntary organizations (10 percent) and mosque or church health units (4 percent).

Table 16 Percent distribution of current IUD users by the provider from which the IUD was obtained, according to urban-rural residence and place of residence, Egypt 1992

Type of provider	Urban	Rural	Urban gover-norates	Lower Egypt			Upper Egypt			Total
				Total	Urban	Rural	Total	Urban	Rural	
Public sector	44.0	50.9	50.5	48.2	40.3	52.1	38.5	30.0	47.2	46.9
Private sector	56.0	49.1	49.5	51.8	59.7	47.9	61.5	70.0	52.8	53.1
Private voluntary organization	9.1	10.7	4.8	10.4	12.2	9.4	16.1	17.4	14.7	9.8
Mosque/Church clinic	6.1	1.2	7.5	1.4	3.5	0.3	5.0	6.2	3.8	4.1
Other private medical	40.5	36.9	37.2	39.8	43.6	37.8	39.9	45.7	33.9	39.0
Other private/Not sure	0.2	0.3	0.0	0.3	0.4	0.3	0.5	0.7	0.4	0.3
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Number of IUD users	1,481	1,074	809	1,221	407	814	525	265	260	2,555

The distribution of IUD users by provider type varies according to their residence. Urban IUD users are slightly more likely to use private sector providers than those living in rural areas. There also are some regional variations. In the Urban Governorates, users are almost equally divided between public and private sources. In other urban areas, IUD users are much more likely to have chosen a private sector provider, with a comparatively large contribution from private voluntary organizations (PVOs). This is especially the case in urban Upper Egypt, where the proportion of users choosing the private sector is more than double that choosing the public sector, and the percentage relying on PVOs reaches the highest level in Egypt (17 percent).

In rural areas, users are more evenly divided between the two types of sources. IUD users in rural Lower Egypt are slightly more likely to choose public than private sector sources, while the opposite occurs in rural Upper Egypt. Users in the latter area are also similar to their urban counterparts in the comparatively high proportion obtaining services from PVOs.

The variation in provider type according to demographic and socioeconomic characteristics of IUD users can be seen in Table 17. There is no strong association between the user's age and the choice of family planning provider. Users with a secondary or higher education are much more likely to use private sector sources than users with less education. The proportion relying on private sources increases as the standard of living index increases. This suggests that provider choice among IUD users is a function of socioeconomic status, with individuals with higher socioeconomic status—and, thus, presumably more income—more likely to rely on private than public providers.

Table 17 Percent distribution of current IUD users by the type of provider, according to selected background characteristics, Egypt 1992

Background characteristic	Public sector	Private sector					Number of IUD users
		Total	Private voluntary organi-zation	Mosque/ Church clinic	Other private medical	Total	
Age							
15-29	48.8	51.2	11.8	4.0	34.9	100.0	888
30-39	45.9	54.1	9.6	3.5	40.7	100.0	1,178
40-49	45.9	54.1	6.4	5.4	42.2	100.0	489
Woman's level of education							
No education	54.7	45.3	9.7	3.1	32.3	100.0	903
Some primary	53.2	46.8	8.7	3.1	34.3	100.0	562
Primary through secondary	45.4	54.6	8.7	5.3	40.6	100.0	343
Completed secondary/higher	33.4	66.6	11.2	5.4	49.9	100.0	747
Husband's level of education							
No education	54.2	45.8	7.5	3.4	34.8	100.0	587
Some primary	52.8	47.2	9.7	4.7	32.5	100.0	555
Primary through secondary	53.0	47.0	9.7	3.5	33.2	100.0	463
Completed secondary/higher	36.0	64.0	11.2	4.3	48.2	100.0	950
Household standard of living							
Low	59.0	41.0	10.9	1.6	28.3	100.0	583
Medium	50.9	49.1	9.9	4.4	34.6	100.0	781
High	38.4	61.6	9.1	5.1	47.1	100.0	1,192
All Egypt	46.9	53.1	9.8	4.1	39.0	100.0	2,555

The variation in the choice of provider according to residence and socioeconomic level as reflected in the standard of living index can be seen in Table 18. The choice of a private family planning provider increases with the standard of living in all regions. The differences between the three socioeconomic levels are moderate in the Urban Governorates and in Lower Egypt; however, changes in the standard of living in Upper Egypt, in both urban and rural areas, are associated with marked differences in the preference for a public family planning provider. In urban Upper Egypt, 51 percent of women in the lowest standard of living group choose the public sector, while only about one-fifth of those in the highest standard of living group make this choice. The same observation applies to the rural women in Upper Egypt. As mentioned before, women in Upper Egypt are characterized by a strong preference for using PVO services. This preference seems to be positively associated with standard of living; about one in five IUD users in the high standard of living group in rural Upper Egypt had their IUD inserted at a PVO clinic. In other areas, the choice of a PVO clinic seems to be inversely associated with the standard of living of the user.

Table 18 Percent distribution of current IUD users by the type of provider, according to place of residence and household standard of living, Egypt 1992

Residence and household standard of living	Public	Private sector					Number of IUD users
		Total	Private voluntary organi-zations	Mosque/ Church unit	Other private medical	Total	
Urban Governorates	50.5	49.5	4.8	7.5	37.2	100.0	809
Low	68.5	31.5	9.6	5.2	16.7	100.0	89
Medium	61.7	38.3	4.7	7.6	25.9	100.0	214
High	42.6	57.4	4.0	7.8	45.6	100.0	507
Lower Egypt: Urban	40.3	59.7	12.2	3.5	43.6	100.0	407
Low	58.1	41.9	13.8	0.0	28.1	100.0	60
Medium	46.4	53.6	12.9	4.9	35.9	100.0	149
High	30.3	69.7	11.3	3.5	54.2	100.0	198
Lower Egypt: Rural	52.1	47.9	9.4	0.3	37.8	100.0	814
Low	54.9	45.1	10.1	0.5	34.4	100.0	268
Medium	53.9	46.1	8.8	0.0	36.9	100.0	272
High	47.6	52.4	9.4	0.5	42.1	100.0	274
Upper Egypt: Urban	30.0	70.0	17.4	6.2	45.7	100.0	265
Low	50.7	49.3	19.1	3.5	26.7	100.0	48
Medium	32.1	67.9	16.5	11.5	39.9	100.0	81
High	21.4	78.6	17.4	3.9	55.9	100.0	136
Upper Egypt: Rural	47.2	52.8	14.7	3.8	33.9	100.0	260
Low	64.7	35.3	9.1	1.6	23.8	100.0	118
Medium	37.0	63.0	16.9	1.6	44.5	100.0	64
High	28.7	71.3	21.7	9.1	40.4	100.0	77
All Egypt	46.9	53.1	9.8	4.1	39.0	100.0	2,555

3.2 Factors Influencing Provider Choice

As was the case with the pill users, the 1992 EDHS also obtained information from IUD users on three key factors influencing provider choice: the accessibility of the source, the cost of the IUD, and the quality of the services that the source provided as perceived by the client. In this section, IUD users are classified into public users, those who obtained the IUD from a government health facility, and private users, those who got their method from nongovernmental providers.

Table 19 Percent distribution of current IUD users by perceived ease of access to source and travel time to source, according to type of provider, Egypt 1992

Accessibility indicator	Type of provider		
	Public	Private	Total
Ease of access to source			
Easy	91.7	92.6	92.2
Difficult	8.2	7.2	7.7
Not stated/Not applicable	0.1	0.2	0.1
Travel time to source			
5 minutes or less	7.8	10.2	9.1
6-10 minutes	15.6	16.9	16.3
11-15 minutes	21.3	18.4	19.8
16-30 minutes	30.6	32.4	31.5
31-60 minutes	16.2	15.0	15.6
61+ minutes	8.3	6.4	7.3
Don't know/Not applicable	0.2	0.7	0.5
Total	100.0	100.0	100.0
Median	20.4	20.3	20.4
Number of IUD users	1,199	1,356	2,555

3.2.1 Accessibility

The accessibility of IUD sources in Egypt does not vary according to the type of source. Table 19 shows that about 45 percent of IUD current users live within 15 minutes of the source where the insertion was performed, regardless of the type of provider. The user's own assessment of the ease of access to the source of IUD insertion, which is presented in Table 19, shows no difference between the two groups of users; more than 9 in 10 users, whether they relied on a public or private source, consider it easy to get to their source.

Despite the similarities in travel time, there were differences between users of public and private sources in the percentage reporting that the accessibility of their source was a reason for its choice. Table 20 shows that ease of access was the most frequently cited reason for choosing the current source, when the chosen source was a public sector facility; 45 percent of IUD users who obtained their method from a public source reported that easy access was the main reason for choosing the public source for IUD insertion. In contrast, ease of access was less important to clients of private sources; it was cited by only 30 percent of users of private sources as a reason for the choice of their source.

Table 20 Percentage of current IUD users reporting various reasons for deciding to use current source by type of provider, Egypt 1992

Reasons for choosing current source	Public sector	Private sector				
		Total	Private voluntary organi-zation	Mosque/ Church clinic	Other private medical	Total
Advice from government doctor/nurse	4.8	1.7	5.7	0.0	0.9	3.2
Advice from private doctor/nurse	1.5	4.6	1.8	4.2	5.4	3.1
Advice from friends/relatives	26.5	26.9	31.3	21.7	26.0	26.7
Reputation of source	36.2	53.5	53.4	55.0	53.6	45.4
Previous experience	14.0	33.2	13.3	24.5	39.1	24.2
Easy access to source	44.6	30.1	34.0	42.5	27.8	36.9
Reasonable cost	24.2	6.0	17.4	8.5	2.8	14.5
Other reason	1.0	0.8	1.9	0.2	0.6	0.9
Don't know/Missing	0.2	0.2	0.5	0.2	0.1	0.2
Number of IUD users	1,199	1,355	250	104	996	2,554

3.2.2 Cost

Data on IUD costs were obtained by asking all women who were currently using an IUD about how much they paid the provider who inserted their IUD. In addition, those users who obtained the device from a provider other than the one where the insertion took place were asked about the cost of purchasing the IUD. Overall, 8 percent of IUD users got the IUD from another source; for the majority, this source was a pharmacy (94 percent).[3] Table 21 shows that this proportion was highest in urban Upper Egypt (12 percent) and lowest in rural Upper Egypt (6 percent). Users going to a public sector source to have the IUD inserted were least likely to have gotten the method elsewhere, while those who had the IUD inserted at a mosque/church clinic were most likely to have obtained it elsewhere. Users in the highest standard of living group were much more likely than other users to have obtained the IUD from a different source.

Table 21 Percentage of current IUD users who obtained the IUD from a source different from the place of insertion, by selected background characteristics, Egypt 1992

Background characteristic	Total	Number of IUD users
Urban-rural residence		
Urban	8.4	1,481
Rural	7.0	1,074
Place of residence		
Urban Governorates	6.4	809
Lower Egypt	8.1	1,221
Urban	9.8	407
Rural	7.3	814
Upper Egypt	9.3	525
Urban	12.1	265
Rural	6.3	260
Source		
Public sector	4.9	1,199
Private sector	10.4	1,356
Private voluntary organization	1.6	250
Mosque/Church clinic	19.4	104
Other private medical	11.5	996
Standard of living index		
Low	5.0	583
Medium	6.5	781
High	10.0	1,192
All Egypt	7.8	2,555

The EDHS collected information from IUD users about the price they paid when they obtained their method and the amount they report being willing to pay for an IUD. These data, which include the price of purchasing the IUD if it was obtained from another source prior to its insertion, are summarized in Table 22.[4] The median cost of IUD insertion in a public facility is 3.5 compared with 15.7 pounds at the nongovernmental outlets. In the latter sector, the cost of insertion ranges from 9.2 pounds at facilities operated by private voluntary organizations to 20.5 pounds at private doctors/clinics.

Table 23 provides information on the amounts that users indicate that they are willing to pay. Overall, more than half of IUD users say that they would be willing to pay at least 25 pounds for the method. For users of both the public and private sector, the median acceptable price for the IUD is considerably greater than the actual median price. For example, although the median cost of insertion in the public sector is 3.5 pounds, the median maximum acceptable price reported by users of public sector outlets is 11.0 pounds. The median acceptable price among users of private sector providers is 28.2 pounds, almost double the actual cost for these users.

[3] The remaining sources of purchase for women in this category included public sector facilities (3 percent), mosque/church clinics (2 percent), and other (2 percent).

[4] With regard to the price paid for IUDs obtained at other sources, 60 percent of the women paid 5 pounds or less or received it free. Most of the users were willing to pay prices that were higher than the actual cost. The median maximum acceptable price for purchasing an IUD was 17 pounds, four times the median price that the users actually paid (4 pounds).

Table 22 Percent distribution of current IUD users by actual cost of IUD, according to type of provider, Egypt 1992

Cost of IUD[1]	Public	Private sector				Total
		Total	Private voluntary organi-zation	Mosque/ Church clinic	Other private medical	
Free	3.9	3.3	1.8	0.0	4.0	3.6
Less than 3 pounds	31.4	3.5	16.4	1.8	0.3	16.6
3-5 pounds	43.3	8.8	21.4	14.5	5.0	25.0
6-10 pounds	12.7	14.7	17.7	39.9	11.3	13.8
11-15 pounds	5.2	20.3	33.9	28.0	16.2	13.2
16-20 pounds	1.0	13.5	5.2	11.7	15.9	7.7
21-30 pounds	0.8	14.1	1.8	1.6	18.4	7.9
31-50 pounds	0.4	10.6	0.9	0.0	14.3	5.8
> 50 pounds	0.1	7.1	0.5	1.2	9.4	3.8
Don't know/Missing	1.3	4.0	0.3	1.2	5.2	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Median	3.5	15.7	9.2	10.5	20.5	7.5
Number of IUD users	1,199	1,356	250	104	996	2,555

[1] Includes amount paid to provider inserting the IUD, as well as the amount spent to purchase the IUD if the user obtained the IUD from another source.

Table 23 Percentage of current IUD users indicating willingness to pay various amounts for an IUD and median acceptable price, by type of provider, Egypt 1992

Amount	Public	Private sector				Total
		Total	Private voluntary organi-zation	Mosque/ Church clinic	Other private medical	
5 pounds or less	100.0	100.0	100.0	100.0	100.0	100.0
6-10 pounds	67.9	94.3	84.2	93.1	97.0	81.9
11-25 pounds	33.8	71.3	50.8	62.7	77.5	53.7
26-30 pounds	15.6	39.5	19.4	31.5	45.6	28.2
31-50 pounds	15.2	39.0	19.4	30.1	45.2	27.9
51-100 pounds	8.4	20.8	9.8	16.5	24.1	15.0
101-150 pounds	5.9	13.0	6.8	9.7	15.0	9.7
151-200 pounds	5.1	11.8	5.9	7.1	13.9	8.7
More than 200 pounds	4.4	9.0	4.4	5.9	10.5	6.8
Median acceptable price	11.0	28.2	25.0	26.0	29.2	25.3
Number of IUD users	1,199	1,356	250	103	996	2,555

These figures suggest that many IUD users are willing to pay more than the amount they actually paid for the method. Table 24 shows that more than 80 percent of the women who had an IUD inserted at public centers are willing to pay more than their actual cost. Although a higher proportion of clients of the private sector report that they are paying their maximum price, around two-thirds are willing to pay more than the cost they actually paid for the IUD.

Table 24 Percent distribution of current IUD users by willingness to pay more than current price for an IUD according to the type of provider, Egypt 1992

Willingness to pay more	Public sector	Private sector				
		Total	Private voluntary organi-zation	Mosque/ Church clinic	Other private medical	Total
Willing	81.5	65.4	76.0	74.4	62.0	72.9
Not willing	17.2	30.6	23.8	24.4	32.9	24.3
Don't know/Missing	1.3	4.0	0.3	1.2	5.2	2.7
Total	100.0	100.0	100.0	100.0	100.0	100.0
Number of IUD users	1,199	1,356	250	104	996	2,555

Although these results indicate a willingness to pay more for IUD services, information presented earlier in Table 20 suggests that the cost of the insertion is frequently cited by the public sector clients as a reason for choosing the current source. Nearly a quarter of the users obtaining the IUD at a public health facility said that a reason for choosing the public sector facility was the reasonable cost of services at the facility. Among private sector clients, only 6 percent mentioned cost as a factor.

Table 25 shows that there are major differences between socioeconomic groups both in the actual amount paid for the IUD and in the amounts users are willing to pay. Users in the highest standard of living group pay substantially more for an IUD than other users; their median actual cost of the IUD was 10.4 pounds compared with 6.1 pounds among users in the moderate group and 5.4 pounds among those in the lowest group. The majority of users in all socioeconomic groups express a willingness to pay more; however, the amounts they say they would pay vary considerably. For example, while two-thirds of IUD users in the highest group would be willing to pay at least 25 pounds to obtain an IUD, only about one-half of users in the moderate groups and one-third of users in the lowest group would be willing to pay this amount. Overall, the median maximum acceptable price for an IUD is around 11 pounds for both the lowest and moderate groups, compared with nearly 28 pounds for the highest group.

Table 25 Price indicators for current IUD users by standard of living index, according to type of provider, Egypt 1992

Price indicator	Low	Medium	High	Total
Actual cost				
Percent getting free	3.8	3.4	3.5	3.6
Percent paying 5 pounds or more	51.0	45.1	34.6	41.6
Median actual price	5.4	6.1	10.4	7.5
Willingness to pay				
Percent willing to pay more	68.1	72.5	75.6	72.9
Percent willing to pay at least 25 pounds	36.2	45.9	62.7	51.5
Percent willing to pay at least 50 pounds	12.4	21.5	37.0	26.6
Median acceptable price	11.3	11.9	27.6	25.3
Number of IUD users	583	781	1,192	2,555

3.2.3 Quality of Services

To some extent, the user's perception of the quality of services at the source where an IUD was obtained is reflected in the answers to questions about factors influencing the choice of the place where they obtained their method. In addition, IUD users were asked a number of questions about their experience with the provider who inserted the IUD, which provide some insights into the actual quality of services at these sources.

One indicator of the importance IUD users place on the quality of services provided by a source is the proportion who say that they chose a specific source because of "advice given by friends/relatives" or because of the "reputation of the source as a good provider." Both responses reflect an appreciation on the part of the woman, or her friends and relatives, of the quality of services at the source, and were frequently cited by current IUD users (see Table 20). More than one-quarter of users of both public and private sources said that they chose their source based on the "advice of friends/relatives."

There was a significant difference in the proportions giving "reputation of the source" as a reason for choosing a provider. Among public sector users, 36 percent cite the source's reputation as a reason for choosing the current source, compared with 54 percent among private sector users. Overall, the results in Table 20 suggest that IUD users who chose public facilities are primarily interested in easy access to the source, followed by the quality of services (as reflected in their concern with the reputation of the source and advice from friends), and the cost of services. Users of private sources differ greatly in their motives. They place greater value on the quality of the services provided, whether implied by their concern with the reputation of the source, their own previous experience with the source, or the advice of friends and relatives.

Table 26 Percentage of current IUD users who consulted a medical provider before beginning the current segment of use, by selected service delivery indicators and type of provider, Egypt 1992

Service delivery indicator	Public sector	Private sector	Total
Waiting time too long			
Yes	19.3	17.6	18.4
No/Other	80.7	82.4	81.6
Had physical examination			
By male doctor	27.3	43.9	36.1
By female doctor	71.4	55.7	63.1
Not examined/Other	1.3	0.4	0.8
Shown how to use method			
Yes	87.8	89.4	88.6
No/Other	12.2	10.6	11.4
Side effects described			
Yes	59.5	70.5	65.6
No/Other	40.5	29.5	34.4
Told about other methods			
Yes	45.2	57.1	51.5
No/Other	54.8	43.9	49.5
Returned for follow-up			
Yes	37.8	35.2	35.5
No	62.2	64.8	64.5
Number of IUD users	57	421	479

Some insight into the quality of the services that IUD users are actually receiving is found in their responses to questions about the services they received at sources. Data on service delivery indicators according to provider type are summarized in Table 26. Less than 20 percent of IUD users experienced long waiting times at either public or private sources. Also, the differences between providers in the proportions performing a physical examination before insertion and showing the user how to check that the IUD is in place are insignificant. Users obtaining services from a private provider are less likely to see a female physician than public sector users. Further, users of private sector facilities are more likely to be told

about other contraceptive methods and about side effects than users of the public sector. There also is a greater probability that users going to a private provider will return to the source for follow up.

4 DISCUSSION

The Egyptian family planning program clearly is strengthened by the strong roles played by both public and private providers. To date, however, there has been little investigation of the process of decisionmaking that leads users to chose one type of provider rather than the other. In this study basic aspects of provider choice in Egypt were explored, thereby providing a profile of the demographic and socioeconomic characteristics of the users choosing each type of provider and a way to determine how accessibility, cost, and quality of services vary according to the provider.

It was assumed that women involved in choosing a family planning provider weigh the cost and benefits of various providers when making their choice. A number of dimensions of the providers themselves are seen as influencing the user's choice, specifically, accessibility, cost, and quality of services. The study findings suggest that pill and IUD users are largely satisfied with their access to providers. Moreover, the majority do not appear to find the cost of services a barrier, with many expressing a willingness to pay more for their method than the current price. However, some caution needs to be used in interpreting this willingness to pay more than the actual cost. It is possible that these women are considering the material cost of the method in the abstract, i.e., with all psychological, cultural, normative, and economic obstacles removed. Further study is needed to understand the role that cost considerations play both in the initial decision to use a method and in the choice of a provider. Increasing the cost of methods to users of either public and private sector providers without such research could result in plateauing or a decrease in overall levels of contraceptive use in Egypt.

The study findings regarding the quality of family planning services are cause for more concern. Most pill users and many IUD users are not receiving adequate information about their method, and the majority who consult a medical provider when they begin using the method do not return for follow-up. Both public and private providers need to improve the counseling given to their clients.

This has been an exploratory study. Additional research that needs to be carried out includes: an in-depth analysis of the relationship between the type of family planning provider and the user's characteristics and attitudes, and an analysis of the role that the cost of services plays in determining the total demand for family planning, the choice of method, and the choice of provider.

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A Profile of the Lives of Egyptian Women

Amani I. Selim

1 INTRODUCTION

Throughout the world, women constitute the majority of the poor, underemployed and socially and economically disadvantaged. Although there is recognition that virtually no society provides women with equal status with men, there is some disagreement about what accounts for the suppression of opportunities for women. The same disagreement is present when policymakers and planners discuss how best to improve women's status. However, all would agree that equal access to education and employment opportunities are central to efforts to raise the status of women. The importance of access to reproductive health care also has been increasingly acknowledged as a basic right for women. In turn, at the recent United Nations Conferences on Population and Development in Cairo and on Women in Beijing, improvements in women's education, living standards, and health have been recognized as fundamental to economic and social development (Population Reference Bureau, 1995; United Nations, 1994).

Egyptian women share many of the characteristics and face similar barriers to improving their lives as women in other countries. However, studies based on empirical research which would document the situation of Egyptian women are still largely lacking. Broadly, the purpose of this paper is to help fill this gap by providing socioeconomic, demographic, and reproductive health profiles of the Egyptian woman. In effect, the paper offers a "snap shot" of the situation of Egyptian women in the early 1990s. In addition, it explores the substantial changes that have occurred in women's lives in Egypt since 1980. Finally, it addresses the challenges if women's lives are to improve further.

The paper is based on data from a series of fertility surveys carried out in Egypt, including the 1980 Egypt Fertility Survey and the 1988 and 1992 Egypt Demographic and Health Surveys (1988 EDHS and 1992 EDHS). It explores a number of topics pertaining to women's status, life patterns and attitudes. The first section presents basic socioeconomic characteristics of Egyptian women, focusing principally on education and employment patterns. The second section summarizes the demographic situation of Egyptian women, looking at patterns of marriage and childbearing. The third section of the paper explores a number of basic indicators of the reproductive health status of Egyptian women.

The final section of the paper describes the policy and programmatic issues that face health and family planning programs (as well as other social programs, e.g., education) in attempting to address women's needs. The challenges for the immediate future are reviewed, and the implications of the findings for developing population policies and programs that will ensure continued and accelerated improvements in women's lives are considered.

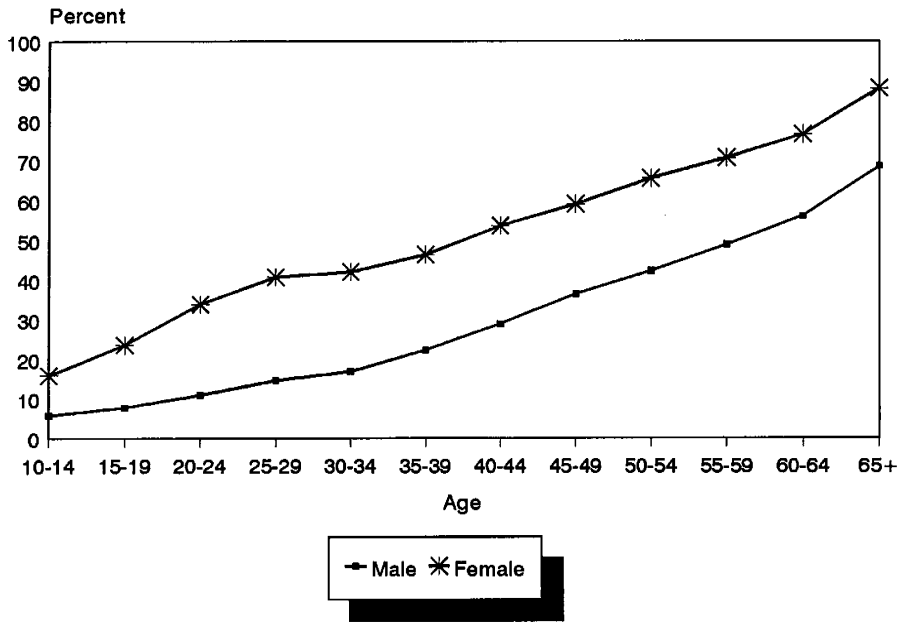
2 SOCIOECONOMIC PROFILE OF EGYPTIAN WOMEN

2.1 Educational Attainment

The process of modernization and improving the status of women are often intimately linked. As a society modernizes, a higher value is placed on education to meet both societal and personal needs. Female education not only provides the basis for women's emancipation, but has been directly linked with social goals of reducing fertility (Martin, 1995; Subbarao and Raney, 1992) and improving the health and survival of women and their children (Population Action International, 1993).

In Egypt, there have been significant gains over time in education for the entire population. These improvements are illustrated by the dramatic fall across successive age cohorts in the proportion of the population reported in the 1992 EDHS as having never attended school (see Figure 1). Both sexes show a rapidly increasing proportion with at least some education, although females continued to lag behind males.

Figure 1
Percentage with No Education by Sex and Age
Egypt, 1992



Information on current school enrollment indicates that the education gap between females and males in Egypt is narrowing, although females remain at some disadvantage, particularly at the secondary and post-secondary levels. Table 1 shows that around seven in ten female children age 6-15 are enrolled in school compared with eight in ten male children. Enrollment after age 15 drops faster for girls than boys, leading to a widening of the gap in enrollment rates between boys (50 percent) and girls (37 percent).

Looking more closely at the data in Table 1, it is clear that the female-male gap in education is increasingly a rural phenomenon. Sex differentials in current school enrollment rates have virtually disappeared for urban children. However, there remain substantial differences in female-male enrollment in rural Egypt, particularly in rural Upper Egypt.

Table 1 Percentage of the de facto household population age five and over having no education and percentage of the de facto household population age 6-15 and age 16-20 currently attending school, by urban-rural residence, place of residence, and sex, Egypt 1992

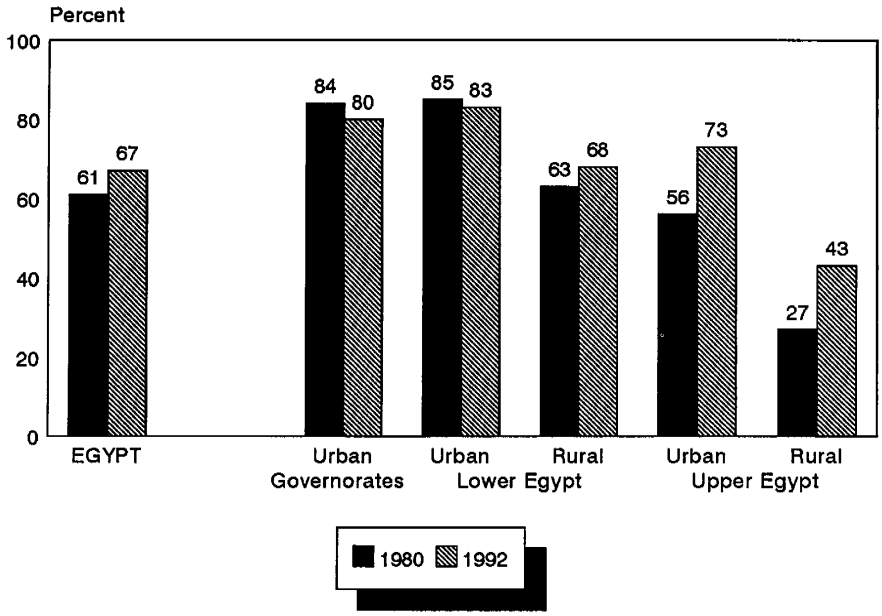
Education indicator	Total	Urban	Rural	Urban Gover-norates	Lower Egypt			Upper Egypt		
					Total	Urban	Rural	Total	Urban	Rural
No education										
Female	40.7	26.0	53.7	23.9	40.2	26.3	46.0	52.7	30.0	63.3
Male	22.5	15.0	29.4	13.6	22.9	14.7	26.5	28.6	18.5	33.2
Current school enrollment										
Children 6-15										
Female	73.6	88.2	62.5	88.7	78.0	90.6	73.6	59.3	84.6	48.6
Male	83.5	88.1	80.0	88.6	84.7	90.6	82.6	79.2	84.6	77.0
Young Adults 16-20										
Female	36.7	53.4	23.3	53.7	36.2	54.9	29.9	26.7	51.5	13.9
Male	50.4	58.3	43.8	60.4	47.5	58.7	42.7	47.4	52.5	45.3

The low level of educational attainment of women living in rural Upper Egypt is striking. For example, while over half of all females age five and over in rural Lower Egypt have attended school, only about one-third of females in rural Upper Egypt have gone to school. Current enrollment rates for girls are also low; only about half of females age 6-15 in rural Upper Egypt are enrolled in school compared with 77 percent of males. Moreover, only about half of the females initially enrolled in school continue beyond basic education; overall, only 14 percent of females 16-20 in rural Upper Egypt attend school compared with 45 percent of males.

Many mothers in rural Upper Egypt would like higher education for their daughters (see Figure 2). Two-fifths of ever-married women interviewed in the 1992 EDHS indicated that they would like their daughters to have at least some university education. This is substantially higher than the levels among respondents in the 1980 Egypt Fertility Survey (EFS),[1] where only around one-quarter said that they would like their daughters to attend the university. Despite the marked shift in educational aspirations for daughters, mothers in rural Upper Egypt continue to be much less likely to aspire to higher education for their daughters than mothers in rural Lower Egypt, where around two-thirds of women wanted a university education for their daughters.

[1] The wording of the questions on educational aspirations were very similar although not identical in the two surveys; in the EFS (Hallouda et al., 1983), the reference was to the level of education that the woman wanted a daughter to attain, while in the EDHS (El-Zanaty et al., 1993), the question asked about the *highest* level of school that a woman would like for her daughter. The differences are not likely to have a significant effect on the comparison of the results.

Figure 2
Trends in Aspiration for University Education for Daughters, Among Ever-Married Women by Residence Egypt, 1980-1992



Poverty or economic deprivation is a primary factor in limiting educational opportunities for females. Females in households classified as having a low standard of living[2] are almost three times as likely to have never gone to school as females living in households with a high living standard (see Table 2). The pattern of increasing female educational attainment as living standards rise is evident in both urban and rural areas. Within each living standard category, substantial differences in educational attainment between males and females can be found; however, these gender differentials tend to narrow as the living standard rises.

[2] For a definition of the index used to classify households according to the standard of living, see footnote 3, page 17 in this volume.

Table 2 Percentage of the de facto household population age five and over having no eduation and percentage of the de facto household population age 6-15 and age 16-20 currently attending school, by urban-rural residence, standard of living, and sex, Egypt 1992

Education indicator	Urban			Rural			Total		
	Low	Medium	High	Low	Medium	High	Low	Medium	High
No education									
Female	47.6	28.4	16.2	65.5	49.0	36.1	60.2	39.1	23.2
Male	27.3	15.9	9.3	37.2	27.0	17.6	34.4	21.7	12.2
Current school enrollment									
Children 6-15									
Female	76.0	86.4	95.0	49.0	70.4	81.1	55.8	77.5	89.8
Male	74.3	89.0	94.4	71.9	84.8	91.3	72.5	86.6	93.3
Young Adults 16-20									
Female	25.0	48.4	67.3	15.2	24.8	34.0	17.8	35.5	53.9
Male	37.1	52.8	71.4	39.2	42.1	55.6	38.6	46.9	65.6

2.2 Employment

Female employment is frequently associated with improvements in women's status. However, the substantial contributions women make through household labor or work in the informal sector are often not adequately reflected in the results of data collection on women's work (United Nations, 1995). In obtaining data on women's work, the 1992 EDHS used a broadly worded question[3] designed to capture a range of women's work experience, from paid employment to informal unpaid family work. Nevertheless, it is likely that the DHS results somewhat underestimate the work of Egyptian women.

The DHS data indicate that only about one-fifth of women are currently employed, and only one-quarter worked before marriage (see Table 3). As expected, much of female employment in rural areas is concentrated in the agricultural sector. In urban areas, more than half of working women report that they are employed in professional or technical and administrative occupations.

Although the reported levels of female employment remain low, women's attitudes toward female employment have changed substantially in Egypt. In 1980, the EFS found that less than half of ever-married women 15-49 approved of a woman working outside the home (data not shown), while in 1992, nearly three-quarters said that they agreed with a woman working away from home (see Table 3). Approval of women working outside the home is only somewhat lower among rural than urban women. There is evidence, however, that Egyptian men are less comfortable with the idea of women working; only around half of a subsample of husbands of married women interviewed in the 1992 EDHS approved of women working outside the home (El-Zanaty et al., 1993).

[3] Before asking the DHS questions on work, the interviewer defined "work" for the respondent as follows: "Now I would like to ask you some questions about working. As you know, some women take up jobs for which they are paid in cash or kind. Others sell things, have a small business or work on the family farm or in the family business."

Table 3 Percentge of ever-married women age 15-49 by work status, attitude toward women working outside home, urban-rural residence, and place of residence, and percent distribution of ever-married women age 15-49 who are currently working by occupation category, according to urban-rural residence and place of residence, Egypt 1992

Employment indicator	Total	Urban	Rural	Urban Gover-norates	Lower Egypt			Upper Egypt		
					Total	Urban	Rural	Total	Urban	Rural
Work status										
Worked before marriage	25.1	24.7	25.4	24.8	28.3	23.1	30.5	21.4	26.4	19.3
Currently working	22.1	21.2	22.9	19.8	27.8	22.3	30.1	17.0	23.2	14.3
Attitude toward women working outside home										
Woman should not work	23.9	23.0	24.8	26.3	18.1	16.8	18.7	29.2	22.5	32.1
Woman may work	73.2	74.8	71.8	72.5	78.6	80.2	77.9	67.2	73.5	64.5
Occupation										
Technical/professional	23.7	39.7	10.7	38.9	17.6	39.9	10.6	23.2	40.8	11.1
Administrative	6.8	13.0	1.8	13.4	4.8	13.6	2.0	5.4	11.3	1.3
Clerical	8.7	14.8	3.8	18.9	5.1	8.5	4.0	7.7	14.2	3.2
Agricultural	35.8	2.3	62.9	0.5	50.1	4.5	64.4	36.2	3.2	59.1
Other	25.0	30.3	20.8	28.3	22.4	33.5	18.9	27.5	30.5	25.4
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

3 DEMOGRAPHIC PROFILE OF EGYPTIAN WOMEN

For Egyptian women, like women in other societies, marriage and childbearing are defining events of their lives. Profound changes occur when women experience these two central life events. An examination of marriage, childbearing, and childrearing patterns is, thus, crucial to an understanding of the evolving status of Egyptian women.

3.1 Marriage

As Table 4 shows, roughly half of all Egyptian women are currently in the reproductive ages 15-49. Almost two-thirds of these women are married. The age at which women marry has been steadily increasing over time (El-Zanaty et al., 1993). Nevertheless, many women, especially those living in rural Egypt, marry while they are still in their teens. Among rural women in the 25-29 age cohort living in Lower Egypt, for example, the median age at first marriage is 19.1 years, more than three years younger than the age at which urban women in the region are married. The urban-rural differential in age at marriage for women in this cohort is even greater in Upper Egypt, where rural women are on average 17.4 years of age when they are married, more than four years younger than urban women in the region.

Differences in age at marriage directly influence the number of years that a woman will spend married. Given the current marriage pattern, it is estimated that an Egyptian woman will be married for an average of 25 of the 35 years of her reproductive life span (between the ages of 15 and 49). A woman will remain single for almost 8 years at the beginning of the reproductive period before she marries for the first time, and she will spend more than two years as a widow or divorced. Urban women will spend considerably fewer years married than rural women. However, for rural

Table 4 Demographic profile of Egyptian women, by urban-rural residence and place of residence, Egypt 1992

Demographic indicator	Total	Urban	Rural	Urban Governorates	Lower Egypt			Upper Egypt		
					Total	Urban	Rural	Total	Urban	Rural
Age[a]										
Percentage less than 15	40.4	36.7	43.7	35.9	40.2	36.1	41.9	43.6	38.9	45.6
Percentage age 15-49	47.7	51.0	44.4	52.6	48.1	50.4	44.8	44.2	48.4	42.5
Marriage										
Never married[b]	29.6	33.3	26.3	33.8	30.6	32.0	30.0	25.4	33.5	21.3
Currently married[b]	65.2	62.1	68.2	61.6	63.9	62.9	64.4	69.6	62.1	73.4
Median age at first marriage[b]										
Women age 25-49	19.2	20.9	17.9	21.1	19.1	20.8	18.5	17.9	20.5	17.2
Women age 25-29	19.9	22.0	18.4	22.0	19.9	22.4	19.1	18.3	21.6	17.4
Years[c] spent:										
Single	7.7	9.3	6.3	9.7	7.6	8.8	7.0	6.3	8.6	5.1
Married	25.0	23.7	26.0	23.4	24.8	23.9	25.1	26.3	24.2	27.4
Widowed/divorced	2.4	2.1	2.7	1.9	2.7	2.3	2.9	2.4	2.2	2.5
Married to relative[d]	40.2	31.8	47.6	30.9	34.0	25.7	37.5	54.0	41.1	59.5
Childbearing										
Average births per woman[e]	3.9	2.9	4.9	2.7	3.7	2.8	4.1	5.2	3.6	6.0
Median age at first birth[b]										
Women 25-49	21.2	22.8	19.9	23.1	20.9	22.6	20.4	20.1	22.2	19.3
Women 25-29	21.7	23.8	20.3	23.8	21.6	24.2	20.9	20.3	23.3	19.4
Teen childbearing[f]	9.9	5.1	13.9	5.0	8.3	4.8	9.4	15.5	6.1	20.1
Childrearing										
Have child under age 6[g]	61.7	55.5	67.1	53.8	61.5	55.6	64.0	67.4	59.4	70.8
Years spent with child under age 6[h]	15.2	12.8	17.7	12.3	15.0	12.8	16.0	17.9	14.0	19.8
Child loss[g]										
One child died	17.9	14.6	20.7	13.7	17.6	13.9	19.2	21.0	17.6	22.5
Two or more children died	14.4	8.6	19.5	8.2	11.5	5.3	14.1	22.2	13.6	25.9

[a] Percentage of de facto female household population in age group
[b] Percentages are based on all women 15-49 and medians on all women age 25-49 and all women age 25-29. The all women denominators were obtained by using the proportions ever married from the household schedule to inflate the information on marital status and age at first marriage obtained from ever-married women in the individual questionnaire.
[c] Average number of years a woman will spend between the ages of 15 and 49 single, married or widowed or divorced if current age-specific distributions by marital status remain constant.
[d] Percentage of ever-married women 15-49. For currently married women, current husband is a relative, while for divorced or widowed women, the last husband was a relative.
[e] Total fertility rate for all women 15-49 for the 3-year period before the survey.
[f] Percentage of all women 15-19 who have already given birth or are pregnant with the first child. The all women denominators were obtained by using the proportions ever married from the household schedule to inflate the information on pregnancy status and childbearing obtained from ever-married women in the individual questionnaire.
[g] Percentage of ever-married women 15-49.
[h] Average number of years that an ever-married woman will spend between the ages of 15 and 49 with at least one child under the age of six if current age-specific proportions of women with a child under age six remain constant.

women there are marked differences between Upper and Lower Egypt in the average number of years a woman will spend single before marriage—7 years in Lower Egypt compared with 5.1 years in Upper Egypt.

Marriage not only occurs early for many Egyptian women, but it often cements family bonds; around 40 percent of ever-married women reported that their current (last) husband was a relative. Consanguineous marriage—i.e., marriage to a relative—is especially common in Upper Egypt, particularly in rural areas, where six in ten ever-married women were married to relatives.

3.2 Childbearing

Childbearing patterns have changed significantly for Egyptian women. In 1980, women were having on average of more than five births (Hallouda et al., 1983). In the early 1990s, they were having less than four births (El-Zanaty et al., 1993). Again, there are marked urban-rural differentials in childbearing indicators (see Table 4). Rural women have an average of two births more than urban women and, on average, rural women are more than three years younger than urban women when they give birth. Childbearing also is much more common among rural than urban teens; 14 percent of rural women 15-19 have given birth or are pregnant with their first child compared with 5 percent of urban teenagers. Among rural teens, those from Upper Egypt are twice as likely as those from Lower Egypt to have begun bearing children.

The majority of ever-married women in the reproductive ages are caring for at least one child under the age of six. However, lowered fertility has had an impact on the time that Egyptian women spend caring for young children. Currently, ever-married women in urban areas will spend around 13 years during their lives with a child under age 6 while rural women will spend nearly 18 years with a young child. Ever-married women in rural Upper Egypt spend the longest time caring for young children—they will have at least one child under age 6 during almost 20 years of their lives.

Along with lowered fertility, the changing demographic profile in Egypt has included a substantial decline in child mortality. Almost one in five children born in the late 1970s died before the fifth birthday (Hallouda et al., 1983); by the early 1990s, fewer than one in ten children died before age five (El-Zanaty et al., 1993). Although child mortality has fallen substantially, many Egyptian women continue to experience the death of at least one of their children. Almost one in three ever-married women has lost at least one child (see Table 4). In rural Upper Egypt, nearly half of all ever-married women have had one of their children die, and one-quarter have experienced the death of two or more of their children.

3.3 Attitudes toward Childbearing

The changing patterns of childbearing among Egyptian women are not surprising in view of the substantial shifts in fertility desires during the 1980s. As Table 5 shows, only about two-fifths of married women in Egypt expressed a desire to limit childbearing in 1980. By the early 1990s, two-thirds reported that they want no more children. Reflecting these desires, the mean ideal number of children has dropped by more than one child. Substantially fewer women also expect financial help from their children when they are old.

Significant changes in fertility attitudes since the 1980s are evident for women in all areas in Egypt. However, women in rural Upper Egypt have shown the greatest shift in fertility desires. In 1980, for example, only 20 percent of married women in rural Upper Egypt indicated that they wanted no more children; by 1992, 56 percent expressed a desire to end childbearing. Ideal family size also showed the sharpest decline for these women—from 6 children in 1980 to 3.5 children in 1992. Changes in women's perceptions of their dependency on their children for support in old age, that were evident for the country as a whole, are also observed in rural Upper Egypt. Nevertheless, almost half of ever-married women in rural Upper Egypt continue to expect financial assistance from children in old age compared with only slightly more than one-quarter of women in rural Lower Egypt.

Table 5 Percentage of currently married women age 15-49 who want no more children, mean ideal number of children among currently married women age 15-49, and percentage of ever-married women age 15-49 who expect financial help from their children, by urban-rural residence and place of residence, Egypt 1980 and 1992

Attitude indicator	Total	Urban	Rural	Urban Gover-norates	Lower Egypt			Upper Egypt		
					Total	Urban	Rural	Total	Urban	Rural
Want no more children										
1980	40.6	49.4	34.1	51.9	45.8	48.4	45.0	24.8	42.7	19.5
1992	66.8	70.2	63.7	70.1	70.9	71.4	70.6	59.6	69.0	55.7
Ideal number of children[1]										
1980	4.1	3.2	4.8	3.0	3.7	3.1	3.8	5.6	4.0	6.0
1992	2.9	2.6	3.1	2.6	2.7	2.6	2.8	3.3	2.8	3.5
Expect financial help from children										
1980	61.4	48.4	71.4	43.4	62.3	47.3	67.2	74.8	67.2	77.1
1992	35.5	28.5	41.7	26.7	33.9	27.1	36.8	43.5	34.1	47.5

[1] Calculated only for women giving numeric answers.

4 REPRODUCTIVE HEALTH PROFILE OF EGYPTIAN WOMEN

The importance of reproductive health care to improvements in women's lives was a chief concern of the International Conference on Population and Development (United Nations, 1994). The 1992 DHS provides a status report on two crucial aspects of women's reproductive health care: utilization of family planning services and health care services during pregnancy and childbirth. As Table 6 shows, knowledge of family planning is virtually universal among married women; two-thirds have experience in using some method of family planning and almost half are currently using a method. Despite the widespread knowledge and experience with family planning, nearly one in five married women remains in need of family planning services.

An examination of the maternity care indicators in Table 6 suggests that many Egyptian women are in need of improved health care services during pregnancy and childbirth. Prenatal care from a trained provider was received for only about half of all births in the five years preceding the 1992 EDHS. Moreover, care was both early (within the first five months of pregnancy) and often (four or more visits) for only 40 percent of those births for which any prenatal care was received. Tetanus toxoid coverage was slightly higher than prenatal care coverage, reflecting the fact that some women—responding to a media campaign promoting the importance of the injections to child survival—seek the shots even when they do not utilize other prenatal care services. Finally, only 27 percent of births in the five years preceding the survey took place in a health facility.

Utilization of reproductive health care services varies according to residence. Rural women are less likely to use family planning and maternity care services than are women living in urban areas. Considering regional patterns, there are marked differences in the use of family planning between Upper and Lower Egypt. This is particularly evident for rural areas: half of women in rural Lower Egypt are using a family planning method compared with less than one-quarter of women in rural Upper Egypt. The need for family planning is greatest among women in rural Upper Egypt.

Table 6 Reproductive health profile of Egyptian women, by urban-rural residence and place of residence, Egypt 1992

Reproductive health indicator	Total	Urban	Rural	Urban Gover-norates	Lower Egypt			Upper Egypt		
					Total	Urban	Rural	Total	Urban	Rural
Family Planning										
Knows method[a]	99.6	99.8	99.4	99.9	100.0	100.0	100.0	99.0	99.5	98.7
Ever used method[a]										
Currently using method[a]										
Any method	47.1	57.0	38.4	59.1	53.5	60.5	50.5	31.4	48.1	24.3
Pill	12.9	14.0	11.9	12.5	15.1	17.3	14.1	10.7	13.8	9.3
IUD	27.9	34.6	22.0	36.8	32.6	36.3	31.0	16.4	27.6	11.6
In need of family planning[a]	20.1	15.2	24.3	13.4	17.7	14.6	19.0	27.5	20.3	30.5
Maternity care										
Prenatal care										
Any[b]	52.9	68.9	43.3	73.5	49.2	67.5	43.4	47.5	62.0	43.0
Early and frequent[c]	41.0	57.3	25.4	63.1	38.0	53.3	30.5	29.3	49.0	20.7
Tetanus toxoid injection[b]	57.3	56.9	57.5	52.0	64.0	67.8	62.4	53.3	55.3	52.8
Delivered in health facility[b]	27.1	47.9	14.6	56.2	23.7	44.5	17.2	17.8	36.1	12.2

[a] Percentage of currently married women
[b] Percentage of births during the 5-year period before the survey receiving prenatal care from a trained provider
[c] Among births during the 5-year period before the survey in which the mother received prenatal care, the percentage in which the first prenatal care visit took place before the sixth month of pregnancy and in which the mother was seen for prenatal care four or more times

Rural-urban differences in the utilization of maternity care services also are evident. For example, 68 percent of urban births were to mothers reporting at least some medical care during pregnancy compared with only 43 percent of rural births. Early and frequent prenatal care also is more common for urban than for rural births, and there is a more than threefold difference in the proportion of urban and rural births delivered in a health facility. Only in the case of tetanus toxoid injections are the coverage figures similar for urban and rural births.

Regional differentials in the coverage of maternity care services are less marked than for family planning services. In general, however, births in Lower Egypt are somewhat more likely to receive both prenatal and delivery care than births in Upper Egypt. Tetanus toxoid coverage also is somewhat greater among births in Lower Egypt than among those in Upper Egypt.

5 SUMMARY AND CONCLUSION

This study has shown that women's lives have changed substantially in Egypt since 1980. Improvements in female education have been significant, and the majority of women aspire to higher education for their daughters. Although these educational gains have not been paralleled by substantial expansion in female employment, attitudes toward female employment have liberalized, and the majority of women now approve of the idea of women working outside the home. Marriage and childbearing, the central events in the lives of most Egyptian women, have also changed dramatically since the early 1980s. Women are marrying later and having fewer children. They are more likely to be using family planning to avoid unwanted childbearing.

These positive changes have taken place, particularly in rural areas, in a cultural context in which there are significant limits on the degree of autonomy that Egyptian women exercise in

decisionmaking with regard to crucial aspects of their lives and the lives of their children (Kishor, 1995; Nawar et al., 1995). The challenge in policy initiatives to support continuing improvements in women's lives is to build on the substantial gains that have already been made in increasing women's educational opportunities and affording them the means to control their reproductive lives, while maintaining the positive traditional values inherent in Egyptian society. The changes that have occurred over the past decade demonstrate that substantial and rapid transformations in women's lives are possible in Egyptian society.

In supporting continuing improvement in women's lives, expansion of educational opportunities remains crucial. Women's aspirations for education for their daughters rose sharply during the 1980s, especially in Upper Egypt. However, a number of constraints currently operate to limit the ability of girls to continue their education beyond primary school, of which the most important include:

- high levels of teen marriage, particularly in rural areas;
- inadequate appreciation of the value of education for women;
- low quality of education and its lack of relevance to girls' and women's needs;
- maldistribution of classrooms and female teachers; and
- financial and opportunity costs of education for women.

Interventions should be introduced to overcome these constraints at the national level and, especially, in rural areas of Upper Egypt.

Support for improvements in women's reproductive health are vital to continuing gains in the status of Egyptian women. The family planning program needs to be expanded. Growing attention needs to be paid to providing for other reproductive health needs, with a special focus on improved maternity care. Increasing the availability of family planning and other reproductive health care services involves not only ensuring the geographic proximity of services but paying greater attention to other potential barriers to women's use of these services. Programs must be designed that provide the information women need to make informed reproductive health care decisions. Increased emphasis must also be placed on the quality of the services being offered to women. Special family planning and reproductive health care interventions must be developed to meet the needs of rural women, particularly in Upper Egypt, and of teenage women.

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