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EFFECT OF RELIGION ON FERTILITY *

by

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It is generally believed that affiliation to certain religions is responsible to a great extent for perpetuating value systems and beliefs favourable to abundant fertility. Therefore, it is commonly suggested that differences in this phenomenon can be minimized through adoption of secularization procedure based upon extensive family planning education in order to bring about radical changes in attitudes and motives affecting tendencies toward reproduction. Convinced with the popularity of this point of view, many population authorities tend to generalize that religion in many of the underdeveloped countries representsone of if not the major obstacle confronting programmes designed to cope with the dilemma of excessive number of births than one can adequately feed. Such an argument has further been enforced by the observed inverse association between birth rates characterizing groups affiliated to religions other than Catholicism, Buddhism, Islam

* Population Problems and Prospects in Egypt, North Carolina University Press, Chapel Hill, 1971, Editor: Abdel R. Omran

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and Hinduism. Several studies have gathered information that revealed the existence of differences in this respect.

Accordingly, it became generally accepted in population circles that Catholic, Moslim, Buddhist and Hindu religions are set apart from the others by peculiar system of theological teaching that places high emphasis on large family. Although the reasons may vary, they center in most cases around the notion that the standing of religious leaders at the top of the hierarchy of these churches either oppose strongly the use of most forms of contraception or discourage in one way or another efforts adopted by couples to interfere with the normal course of reproduction.

Beside the negative effect of religion, there is also a strong view claiming that high fertility characteristic of underdeveloped countries springs from similar effect exerted by a host of socio-economic variables of which the nature of agrarian economies, prevalence of high level of illiteracy, and massive poverty are the most predominant. Under these circumstances, there seems to be a consensus agreement among demographers that the collaboration of these factors impinge directly on attitudes responsible for the persistence of traditions strongly resistent to practice of contraceptives. To cope with this undesirable situation, a great deal of attention has been devoted to designing programmes that seek solution to the population dilemma facing many underdeveloped countries through either maintaining a rate of economic development much faster than that of

population growth, or rationalization of values and traditions that hinder the evolution of attitudinal system favourable to delay of marriage and practice of birth control.

Although these and other related propositions are regarded by many authorities as the remedy for the problem, there are sufficient justifications to challenge their adequacy in rendering such a solution due to the obvious fact that the road to rapid economic development is not easily accessible without prior control of current explosive rate of population growth. Furthermore, it seems we overlook the fact that many of these countries suffer either from lack of adequate resources, technical knowledge, or working capital to accelerate the pace of economic progres. Nor is there plausible reasoning behind the common assumption that religion markedly affects decisions pertaining to acceptance of contraceptive practices. This can be clearly demonstrated by the existence of significant fertility differences not only among but also between social classes belonging to the same as well as different religions and periods of time. However, before seeking an empirical answer to this issue, the analysis will be primarily oriented to have a close look at the demographic history of the world that may help to show the extent to which industrialization and secularization of religious beliefs do necessarily guarantee a decline in fertility. After brief presentation of these historical evidence, the present paper will embark upon detailed examination of the influence of Moslem religion on fertility with special

reference to Egypt. Apart from the historical review, the analysis throughout the present paper will systematically attempt to answer many of the perplexing questions dealing with the phenomenon of human fertility but with particular emphasis on the following:

1. To what extent does the Moslem religion affect the desired family size in Egypt?
2. To what extent does it encourage early marriage and universality of marriage?
3. To what extent does it favour the perpetuation of traditional rate of fertility?

It is hoped that treatment of these as well as other related questions of similar nature will help to enrich our knowledge and understanding of the major factors responsible directly for maintaining traditional rate of fertility in underdeveloped countries. Though not designed specifically for this purpose, the analysis of the data will be conducted in such a manner that helps to visualize the process by which fertility, particularly among the same religious group, undergo successive and consistent decline as a resemblant to what had happened earlier among similar groups in Western societies.

Religion in a Historical Context

A close look at the early history of the declining in fertility reveals certain facts that negotiate the deterministic effect of religion in the process of family limitation. Even controlling for the same religion and socioeconomic characteristics shows inconsistent influence on attitudes toward reproduction. The underlying effect

of these variables varies markedly from one place to another and even in the same place within a short lapse of time. This can clearly be testified by several examples in the demographic history of the world.

One of the outstanding exaples can be illustrated by the experience of France which shows an early decline in traditional fertility in an overwhelmingly Catholic country with no evidence of large scale industrialization, widespread education, high standard of living, or deliberate policy propagating application of sophisticated methods of contraceptives as often postulated.[1] Available data show that the completed family size in France was roughly the same, if not even smaller than that in Protestant Britain and the United States at the beginning of the current century.[2]

Another interesting example is that of Italy which questions the validity of the claim that high fertility is characteristic of Catholic couples. Her experience presents certain facts that testify to the occurrence of rapid and consistent downward trend in fertility despite the powerful influence exerted by the Church against birth control.[3] Interestingly, her birth rate continued to drop from 37.0 in 1890 until it reached 17.9 in 1958,[4] and levelled up since that time. Even during the Mussolini regime with its expansionist population policy, the same downward trend continued despite great efforts for reversing it.[5] Although we may doubt the reliability of the birth rate as an accurate measure for international comparisons, the decline reflects,

as far as a country is concerned, a genuine change. However, comparable data for 1950-1951 show that married women who were 15-49 years old have had fewer children in Italy than in many Protestant countries, including the United States.[6] Today her birth rate stands below that of the United States, and ranks perhaps the lowest in the world in the Northern provinces.[7]

Judging from these brief facts, it seems obvious that the argument concerning the role of Catholicism in perpetuating high fertility in underdeveloped countries can hardly be supported even by historical events. The low-fertility pattern that evolved earlier in France and Italy had virtually taken place with essentially no whatsoever changes in religious teaching including the strong and persistent opposition of the Church to birth control. Historically neither France nor Italy was in a favourable position with respect to industrialization and urbanization, nor had they resorted to family planning propaganda to bring about a change in attitudes toward reproduction. On the contrary, such a change occurred despite the enactment of several social and legislative measures to encourage high fertility.

Even today, population studies in Latin American countries cast doubt on the existence of religious differences in attitudes toward desired family size and contraceptive practice.[8] Interestingly, they show not only an increasing tendency among couples toward the use of contraceptives but also a widespread practice of abortion. Nor do the findings justify the belief that women in these countries are not

familiar with reliable methods of birth control. Indeed, there might be significant differences between classes with respect to knowledge and effective use of contraceptives, however, such differences are not necessarily due to direct influence of socioeconomic factors. The recent demographic trend in countries like Argentina or Spain shows a rapid decline in fertility with no indication of change in religious values or remarkable increase in industrialization.[9] Furthermore, the contrast between the Catholics and Protestants in the United States reveals practically no significant difference in the completed family size.[10] In fact, the Catholics have relatively smaller families than the Protestant Baptist. On the whole, the empirical evidence does not seem to support the commonly cited explanations concerning the role of Catholicism in shaping attitudes favourable to the perpetuation of the large-family system.

By the same token, we have sufficient reasors to doubt the validity of the assumption that Buddhism or upward changes in socioeconomic characteristics account directly for differences in fertility. One of the most interesting historical examples is demonstrated by the experience of Japan. In spite of a phenomenal rate of social and economic progress during the second half of the 19th century,[11] the birth rate remained higher than what one should expect for an industrial country. In 1920, it was 36.3,[12] which does not appear too much lower than in many traditional agricultural countries today. It was not until 1948, when the government legalized abortion, that the

downward movement of the birth rate gained momentum. The birth rate declined from 33.7 in 1948 to 18.0 in 1958,[13] a drop of 46.6 per cent within ten years. Today it stands at 17.7 as compared to 21.1 for the United States.[14] However, had such a legislation been enacted earlier, it is doubtful that it would have attracted public support despite rapid industrialization due to the existence of certain underlying factors typical to those currently operating in underdeveloped countries.

In short, neither the decline in the agrarian sector and its related characteristics have historically accounted for automatic reduction in fertility, nor have the religious values prohibited widespread public use of even abhorred method of birth control. For the remaining two religions -- the Hindu and the Moslem -- there are unfortunately no historical examples to serve as illustrations. This paper is designed to present a detailed examination of the currently publicized beliefs concerning the influence of Islam on the desired family size and actual reproduction performance in Egypt.

Theoretical Assumptions

In view of the inconsistent effect of the same religion as well as socioeconomic factors on fertility of human groups and societies, it does not seem unreasonable to assume that their function is subject to manipulation by other important causes which impinge directly on beliefs and attitudes pertinent to reproductivity. From the standpoint of population control policy, the corollary proposition examined throughout this research postulates that, irrespective of religion or

socioeconomic characteristics, differences in the actual experience with or the expectation of child deaths, whether between or among social classes, are the fundamental motivating forces that influence attitudes toward reproduction and consequently effective use of contraceptives. On the basis of this assumption, it is hypothesized that actual experience with the death of a child, or the fear of his expected death, as generated in the ecological setting due to the prevelance of unhealthy social environment and lack of medical facilities creates a pessimistic feeling that motivates couples to "stockpile" children early in the reproductive period, in order to compensate for actual frequent losses and as a safeguard against anticipated events.

If this assumption is correct, it follows that fertility and child mortality must be strongly and positively correlated among all social classes, regardless of religious affiliation. As the number of children who die per family increases, so does also the number ever born. In other words, the size of the family for the non-Moslems who experience child deaths must be larger than for the Moslems who escape this event in all social classes, otherwise, the hypothesis is not supported. The primary objective of this paper is to examine in various ways the validity of this hypothesis and, in particular, to contrast religion and child mortality as major causal factors of Egypt's population dilemma.

The Data and Sample Design

The data upon which this study is based were obtained by a fertility survey conducted in 1963, in Cairo, Egypt. A stratified sample of native mothers who married once and were still residing with their husbands, had at least five years duration of marriage, and were less than 50 years of age was interviewed for this purpose by a group of professional social workers. The criteria of stratification, size, and residential allocation of the sample were determined by detailed analysis of the 1960 census of Cairo in addition to refined fertility tables obtained from the Department of Census and Statistics. These criteria included the completed family size, religious affiliation, and age of the mothers, in order to insure, as much as possible, a homogeneous and sizable representation of the sample in various analytical categories.

The first step in the sampling design was to delineate the ecological areas of the city of Cairo which are likely to display marked differences in characteristics generally regarded relevant to differential fertility. Based on the analysis of the census and fertility data for the 232 ecological units constituting the city in 1960, it became evident that measures of fertility in general, and the completed family in particular, was strongly and inversely associated with all indices of socioeconomic status. Thus, by using the completed family size as a criterion for stratification, it was possible to classify the 232 units into eight fertility-type areas distributed

on a continuum that varied from an average of 2.9 children to as high as 8.0. In the meantime, this procedure assured, as the correlation tables indicated, considerable socioeconomic and reproductive differences between the residents.

Having delineated these areas, the second step was to secure a sizable representation of the sample across cultural lines, particularly with regard to religion. Since almost 84 per cent of the population of Cairo is Moslem (about 90 per cent for the whole country), it was practically impossible to obtain adequate numbers of Christians (mostly Copts) for a reliable assessment of reproductive differences without deliberate demarcation of their segregated residential units. Hence, each fertility-type stratum was in turn divided into two categories, each included units overwhelmingly occupied by families affiliated with either religions. From each of these categories, two sampling units were proportionally selected according to the population size of married women. This procedure finally produced thirty-two units from which the sample was to be drawn. The statistically estimated sample was allocated equally between, but proportionally among the units in each of the eight fertility-type strata constituting the two major religious classes.

The third and final step in the sampling procedure was designed particularly to maximize the probability of an equal distribution of the subsample of married Moslem and Christian mothers according to age in the various fertility-type areas. To achieve this objective, the number of cases assigned to each sampling unit was equally allocated

among the possible seven age specific groups of five years each, between the ages of 15-49. Through the identification list obtained from the Census Bureau for married mothers who were classified according to religion and age in each of the thirty-two sampling units, the specified number of families required from each was systematically selected and their addresses were recorded. The total interviewed sample which met the eligibility qualification for the study was 2 695 married mothers.

Analytical Procedure

In order to shed light on the controversy over the major causal factors accounting for differences in fertility, it is necessary to conduct the analysis holding constant the various relevant factors in question in order to determine the magnitude of the increase or the decrease in reproductive rates that results as each independently varies. Therefore, no attempt is made in the research to construct social classes, since we are not interested in describing reproductive patterns, but rather searching out the most profound cause that can be manipulated in order to initiate or accelerate a reduction in fertility, particularly in low-income countries. In other words, the emphasis throughout the research will be based on assessment of the comparative effect of the factors themselves rather than on their interrelationships. In most cases, the analysis will investigate four variables independently. The measure of effective reproduction reported here pertains to the number of children ever born per mother either by duration of marriage or at a specific age.

An attempt will be made to test the validity of the old and the new hypothesis by holding constant both religion and experience with child deaths in order to determine which has the most profound direct effect accounting for differences in the desired as well as the actual reproductive behaviour among educational classes. Furthermore, the analysis will also attempt to show the extent to which age at marriage and duration of marriage affects fertility of Moslems and Christians in these classes.

Religion and Fertility

There are at least two previous studies which investigated the impact of Moslem religion on fertility. One of these was conducted in Egypt,[15] whereas the other took place in Lebanon.[16] In view of the limitation of space, their findings and interpretations will be only briefly presented. Interestingly, both studies revealed no differences in fertility between the Moslems and Christians in rural areas.[17] Moreover, each religious group displayed absence of differences between the various social classes in these areas.[18]

In contrast, both studies reported religious differences in fertility rates of urban residents. The Egyptian study showed that the Moslems were relatively more reproductive than the Christians in each social class.[19] But generally, fertility and social class were inversely associated in both religious groups.[20] The Lebanese study, on the other hand, suggested the presence of class differences among Moslems but not among Christians whose total fertility rates (special use of the term) were quite low, even lower than those reported in estern societies.[21] On the whole, the number of children born per family was extremely high even by social class except for the few urban Christians in Lebanon.

In order to account for these differences, each study has listed a number of important factors. Beside religious taboos, strong desire for male children, and resistance of customs and values to the principle of family limitation, the Egyptian study stressed early age at marriage and opposition to contraceptives as the two major direct causes responsible for perpetuating the differentials, as well as the excessive rate of reproduction.[22] However, the analysis actually showed that the completed family for the couples categorized as Controllers was larger than for the non-Controllers, especially in the lower class.[23] On the other hand, the Lebanese study attributed high fertility in general, and among the Moslems in particular, to a variety of causes borne out of fatalism, traditionalism, and isolationism from Western contacts.[24] To resolve the controversy, an attempt will be made to channel the present analysis along the same lines in order to determine the extent to which the various factors cited by these as well as other related studies affect fertility in Egypt.

Religion and the Desired Family Size

The emphasis upon religous and cultural values has become most popular as an explanation of the persisting traditional levels of fertility in underdeveloped countries. As repeatedly noted in the literature, religion in Egypt is in consonance with the institutional network favourable to perpetuating the large family among Moslems. Their unmatched desire for sons is supported by internalized religious beliefs and ritualistic practices that keep reproduction continuously in progress, especially among farmers and lower social classes.

Considering the agrarian nature of the economy and the traditional mode of life, sons are highly valued for agriculture work, for protection, and for support in old age. Closely allied with these reasons is a host of explanations assuming hostile nature of Moslem culture against interaction between sexes. It explicitly defines their relationship, and violation of the established pattern is regarded as a religious and moral offence. Women are confined to reproduction and their lives centre around home, raising children, working in the fields, etc.

Although it is interesting to learn about such historical speculations, they are neither plausible nor can stand up to empirical test. Probably they might have performed certain functions in the past, not only in Egypt, but throughout the world when mortality was extremely high and fertility and economic prosperity went hand in hand. At that time, land was abundant, which consequently encouraged the evolution of institutional systems conducive to uncontrolled reproductivity. As a general rule, all countries of the world favoured high fertility, otherwise, they would have perished. Religion served both national and familistic interest, and furnished the best inducive device to high fertility as well condolence at times of distress.

Today the economic situation has dramatically changed, and excessive fertility is no longer functional especially in the face of the heavy financial burdens encountered by parents in bringing up their children. Vacant land ceased to exist and family's holdings are inadequate to keep even the father fully employed. It is surprising that high emphasis is placed on the role of children's support to

their aged parents in countries where the average life expectancy hardly reaches 35 years. Even in this era of revolutionary medical discoveries, only 2.0 to 3.5 per cent of the population of these countries survives to age 65.[25] Perhaps additional empirical evidence will help to substantiate further what does seem already as a reasonable argument. Table I shows the relationship between religious affiliation and the desired completed family in each educational class according to experience with child deaths during the 30 years under discussion.

It is obvious from this table that religion has no bearing on attitudes and beliefs concerning the family size in Egypt. Looking first at the corresponding standardized averages in each column, we see no differences in desires between the subpopulations of Moslems and Christians at all three dates of marriage. Within each religious group, the desired family size was higher for those with than without child loss, and the margin of difference tended to increase among the younger generation. This is probably a result of change in the pattern of expectation which follows the decrease in the proportion of families affected by child mortality. It is also interesting to note the consistent decline in the desired number of children during these years. Irrespective of religous affiliation, absence of child deaths appears as the key factor for secular evolution of attitudes favourable to the small-family ideal. The gradual shift from high to low desires reflects indirectly an increase in security about the survival of children coupled with rational change in women's evaluation of

Table 1 - Mothers' Desired Completed Family by Religion, Education, Year of Marriage, and Experience with Child Deaths - Cairo, 1963.

Table of Marriage and Education of Mother	Desired Completed Family						Number of Mothers					
	No Experience			Experience			No Experience			Experience		
	Total	Moslems	Christians	Total	Moslems	Christians	Total	Moslems	Christians	Total	Moslems	Christians
1929 - 1938												
Illiterate	3.9	4.0	3.8	4.1	4.0	4.2	77	46	31	236	147	89
Read and Write	3.5	3.2	3.7	4.1	4.3	3.7	71	28	43	74	47	27
Primary	3.5	3.1	3.8	3.6	3.7	3.5	93	42	51	53	19	34
Secondary or more	3.2	*	2.8	*	*	*	16	5	11	7	4	3
Stand. Average**	3.6	3.6	3.6	4.0	4.0	3.7						
1939 - 1948												
Illiterate	3.8	3.7	4.0	3.8	3.7	3.9	120	92	28	295	211	84
Read and Write	3.2	3.2	3.3	3.6	3.7	3.4	118	65	53	130	65	65
Primary	2.7	2.7	2.7	3.6	3.9	3.4	155	81	74	160	27	33
Secondary or more	2.7	2.7	2.7	3.1	3.2	*						
Stand. Average	3.3	3.2	3.4	3.6	3.7	3.5						
1949 - 1958												
Illiterate	3.4	3.4	3.2	3.7	3.6	4.0	183	151	32	196	163	33
Read and Write	3.3	3.2	3.4	3.7	3.6	3.8	108	70	38	63	40	23
Primary	2.8	2.8	2.9	3.7	3.6	3.8	221	119	102	43	18	25
Secondary or more	2.5	2.5	2.6	3.9	3.8	*	249	143	106	23	16	7
Stand. Average	3.1	3.1	3.2	3.7	3.7	3.9						

* Desired Completed Family for ten or less cases is not calculated.
** The Standardized Average is based on the sample distribution by education.

reproductivity under the impact of prevailing economic circumstances. Without such a security, the desired family size among couples who had child death experience remained comparably higher, even though they virtually realized the cost involved in raising children.

In both religious groups, the data confirm the impression that the incidence of child death had coloured unfavourably the attitudes of the younger subpopulations to the extent that they expressed desires typical of those who were married 30 years ago. In contrast, marked attitudinal changes seem to distinguish between those which escaped such an undesirable event. Between 1929-1958, the standardized desired number of children for the Moslems has dropped from 3.6 to 3.1. Similarly, it declined from 3.6 to 3.2 children among the Christians during the same period. The effect of such a change is clearly manifested in the downward trend in the total standardized averages of both religious groups. Furthermore, it can be proved by the data that these groups are experiencing a comparable decline in the proportion of families with child deaths in each educational class, which in turn results in the prevalence of identical pattern of expectation.

Looking at each educational class, we further see no evidence of religious difference in attitudes toward the desired family size. In fact, the findings would seem to pertain to a single religion. Although education appeared inversely associated with the number of desired children, such an association should not be interpreted as an indicator of causal relationship. Regardless of education, the incidence of child death had consistently been reflected in an expressed set of attitudes favourable to relatively larger families. In other words, if all

educational groups are exposed equally today, as they were in the pre-medical era to the same risk of the experience with the expectation of child deaths, there will be no reason to support the belief that educational level accounts for differences in the ideal family size. Both child mortality and attitudes attached to fertility are closely and directly associated in both religious groups, regardless of educational attainment.

Apparently, the data offer no support for the popular belief that religion plays an important role in perpetuating motives favourable to large families in Egypt. It also seems relevant at the moment to examine the validity of the argument commonly cited with reference to the high values placed by the Moslems upon having several sons. Although inference from the preceding empirical evidence casts doubt on the presence of an unusual tendency, nevertheless, the available data provides further explicit information. An examination of this point reveals that the unbalanced desire in favour of sons is an instinctive phenomenon influenced neither by religion nor socio-economic characteristics. Without exception, both the Moslems and Christians in all educational classes expressed preference for having more boys than girls. But in general, the margin of the difference in the desired sex-ratios was not of significance. For the older generation of illiterate mothers, the number of desired sons per 100 daughters was 112 for the Christians and 118 for the Moslems. This corresponds to 115 for the Christians and 114 for the Moslems who completed primary education. The younger generation of illiterate mothers expressed a desired ratio of 122 sons per 100 daughters for

the Christians as compared to 118 for the Moslems. For those who completed secondary or more education, the ratio was 111 and 105 for the Christians and Moslems, respectively.

In short, the data cast doubt for the existence of an unusual tendency among Moslems to favour high fertility or place special emphasis upon male children. Furthermore, the recent speculation that the death of sons alone induces high fertility in underdeveloped countries does not seem supported by this set of facts. In this respect, the available data show that, apart from the number, age, birth order, and the time elapsed in the reproductive period at which child deaths occurred, the sex of the children who died made no difference in fertility. Whether that child was a boy or a girl, parents compensated immediately and continued to do so for some time, since they were still biologically capable of reproduction. Evidently, this was made possible partly because most of child deaths normally occur at the beginning rather than at the end of the reproductive period, and partly because the family at that time had not yet reached the number of sex of the desired children.* Even when these events took place at an intermediate period, it seems that frustration of the parents and lack of certainty about the survival of older children evokes a pessimistic feeling of their probable death.

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* This point has been proved in a previous article presented by the author to the Population Association of America at its annual meeting in New York City, April 1966.

Religion and Age at Marriage

Probably the most reasonable of all arguments concerning the unfavourable influence of religion in underdeveloped countries is that it encourages early marriage and hence high fertility. In this respect, the demographic literature presents an amazing variety of interesting interpretations. Since many of these are popular, it seems reasonable to focus the analysis on the most significant ones. The argument frequently begins with the notion that parents in these countries view their daughters as a potential liability, especially since they make little if any financial contribution to the family budget. As a rule, parents are obligated, either morally or religiously, to secure an early marriage for their daughters. With particular reference to the Moslem countries, it has commonly been cited that the presence of a strong bond between father and son, coupled with easy divorce by males encourage wives to reproduce many offspring, as rapidly as possible, in order to strengthen holding over their husbands and secure continuity of economic support. At the same time, the tendency toward joint economic arrangements or incorporation of the nuclear family by large kinship units serves to buffer parents against the financial burdens encountered in raising children.

Accordingly, early age of marriage and universality of marriage in underdeveloped countries have long been viewed as a product of cultural peculiarities that set them apart from Western societies. These societies are believed to have been distinguished thoughout

history by the existence of strong traditions emphasizing the residential and economic independency of the nuclear family. Not only today, but before the Industrial Revolution, marriage in European countries was restricted to those who could secure a piece of land adequate to support a family. Consequently, "the principle of no holding, no marriage, operated as a fairly effective check upon population increase. The conditions of mortality tended to make the average age of marriage for the young men vary between twenty-two and twenty-five years."[26]

Although these explanations appear plausible, they simply do not stand up under closer inspection. If we suggest that religion or cultural factors operated as a mechanism for encouraging postponement of marriage in Western societies, it seems equally important to ask how much such a delay has historically affected rates of fertility. When this question is posed, the evidence can no longer substantiate the alleged effect of early marriage on fertility in contemporary underdeveloped countries. In view of the cultural controversy, it may be startling to learn that until 1911, the completed family in Ireland was 7.88 children for women, rather than men, who married at the age of 20-24 years, and 6.68 children for those who married at 25-29 years.[27] Comparable data for Great Britain show a completed family of 6.31 children for women who married at the age of 20-24.[28] In contrast, the 1951 census of India indicates that the completed family in various provinces varied from 5.8 to 6.7 children for women who married at an estimated average age of about 15 years.[29] Despite the marked cultural difference in age at marriage, India's current

fertility rate does not appear so exceptional when compared to those which existed in Western societies less than a century ago.

On the other hand, it might be true that fewer people in underdeveloped countries today go through life without marrying than in industrial societies. However, this should not necessarily be interpreted as a product of cultural peculiarities unless we ignore the implications of a long history of wars and emigration on the sex and age structure of these societies. It seems more reasonable to view marriage in the unhealthy societies as an adaptable mechanism geared to the circumstances surrounding their struggle for survival against the adversity of nature. The same situation prevailed earlier in Western Europe and the United States except we seem to overlook the writing of Adam Smith, Malthus, and Griffith with respect to factors affecting marriage rate.[30] However, let us expose the currently publicised argumuments to an empirical test in order to show to what extent religion accounts for early marriage among Moslems. The analysis will begin by examining: first, the influence of religion on age at marriage of various educational classes; second, the over-all influence of both variables -- religion and age at marriage -- on fertility in both the presence and absence of child mortality. Table 2 shows the average age at which the husbands were married according to religion, education and year of marriage.

It will be noted from this Table that religion has accounted for some differences in age at marriage. On the whole, the data indicate that the age at marriage for the Christians was consistently higher

Table 2 - Average Age of Husband at Marriage by Religion, Education, and Year of Marriage - Cairo, 1963

Education of Husband	Age at Marriage						Number of Wives					
	Moslems			Christians			Moslems			Christians		
	1929-1938	1939-1948	1949 1958	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958
None	26.6	25.7	25.9	27.8	26.6	26.2	1,1	268	281	81	115	64
Primary	26.7	26.8	26.5	28.3	27.1	29.2	93	103	116	98	108	88
Secondary	27.2	26.8	28.3	28.8	28.7	30.9	62	77	86	70	86	81
College	30.4	28.1	29.5	31.0	29.2	31.3	52	149	237	40	76	133
S. Average*	27.7	26.7	27.4	28.9	27.2	29.0						

* The Standardized Average is based on the sample distribution by education of husband.

than for the Moslems in each educational group and at all the three dates. However, education appeared to have a much more significant effect than religion in determining the age of males at marriage. Within each religious group, we note that education accounted for a substantial delay in marriage. In 1929-1938, the difference in age at marriage between the higher and lower educational class was 3.8 years for the Moslems as compared to 3.2 for the Christians. Standardizing for education revealed only a difference of 1.2 years between these two religious groups. In the younger generation, the well educated class was married 3.6 years older among the Moslems and 5.1 among the Christians. In contrast, religion accounted only for a difference of 1.6 years.

It should, however, be noted in Table 2 that the effect of religion and education on age at marriage had been modified by the increase in economic opportunities following World War II. For both the Moslems and Christians, age at marriage of the younger generation appeared to have been the same as in the pre-war period. It dropped substantially in all educational classes during the decade of the war, and then began to rise after that date. With exception of the lower educational group, the recovery in the age at marriage to the pre-war level was much faster for the Christians than for the Moslems. In fact, this decade was not only characterized by a considerable decline in the age at marriage, but it also showed a sudden increase in the proportion of the population that married. For the country as a whole, the marriage rate jumped from 11.1 per

1 000 population in 1939, to 15.6 in 1943, and continued relatively the same until 1946.[31] It then began a slow decline, but reached the pre-war level only in 1952.

It is obvious from the preceding discussion that Christian males marry at an older age than Moslems in Egypt. However, this does not imply that Moslem males enter the marital relationship at a considerably lower age than in industrial societies. At least since 1940, their average age at marriage in Egypt was higher than in the United States for each educational group.[32] In fact, the comparison between the median age at marriage in these two countries contradicts the historical importance placed on the effect of males' age at marriage on fertility. Available data show that, in 1958, the median age at marriage for males in Egypt was 26.2 years,[33] compared to 22.8 in 1960, for the United States.[34] This median was above the level which prevailed in the United States since 1910. In addition, the 1960 censuses reported that 69.6 per cent of the males were married in Egypt compared to 69.3 in the United States.[35] This fact is in striking refutation of the pronouncements that religion accounts for the perpetuation of early marriage and universality of marriage among the Moslems.

Expectedly, it may be argued that age at marriage of females is the direct cause of high fertility among Moslems in Egypt. The answer to such a speculation can also be found by examining the available empirical data. Table 3 shows a comparison between the average age at marriage for the Moslems and Christians according to education during three decade periods.

Table 3 - Average Age of Mother at Marriage by Religion, Education, and Year of Marriage - Cairo, 1963

Education of Mother	Age at Marriage						Number of Mothers					
	Moslems			Christians			Moslems			Christians		
	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958
Illiterate	17.1	18.4	18.3	17.3	18.2	19.9	193	303	314	120	112	65
Read & Write	17.7	18.6	20.1	18.0	19.2	20.6	75	130	110	70	118	61
Primary	18.6	20.0	20.4	18.6	21.0	21.4	61	108	137	85	107	127
Secondary	*	20.9	21.6	19.2	21.9	23.1	9	45	124	13	46	89
College	----	24.4	24.8	*	*	24.1	---	11	35	1	2	24
S. Average **	17.6	19.3	19.7	18.0	19.8	20.9						

* Average for ten or less cases is not calculated.

** The Standardized Average is based on the sample distribution by education of mother.

Similarly, the above-mentioned Table shows the presence of a small, though not significant difference, between the age at marriage for Christian and Moslem women. With exception of those who completed college, the Christians tend to marry at a slightly higher age than their Moslem counterparts. There also appears to be a general tendency toward an increase in the margin of religious difference in age at marriage among most educational groups in the younger generation. But in general, the contrast between the Moslems and Christians is not sufficiently sharp enough to justify the religious grounds intervening in marriage customs in Egypt. Regardless of religion, education of females is by far the most significant factor determining postponement of marriage.

Looking at the trends in husbands' and wives' age at marriage, we see that each follow a distinctive pattern, irrespective of education or religion. The age at marriage for the wives showed a consistent increase with no apparent fluctuation during the period under discussion. This pattern deviated from that of the husbands whose age was marked by a significant rise and fall, which coincided with the fluctuation in the economic cycle that took place in Egypt. The analysis of the data by five year periods indicates that males' age at marriage began to rise during the depression years of the thirties. However, the upward trend did not last long, and by the advent of the prosporous years of the Second World War, it dropped below the initial level. In contrast, the age for the females showed a slow, but rather a consistent rise throughout the period.

The data also suggest that the current programmes of economic development are likely to reduce age at marriage for males with no concomitant change in the current trends among females. The discrepancy between the sexes with respect to age at marriage may be attributed to the nature of the factors that influence each independently. The increase in economic opportunities favours early marriage for males, whereas education accounts for the delay among females.

Similarly, the age at marriage and the proportion of married women cannot possibly explain the marked differences in fertility between Egypt and the United States. Since 1950, the average age at marriage for the Moslems was comparably the same as in the United States, except for the illiterates.[36] However, the median age at first marriage for females in 1958 was 19.1 years in Egypt compared to 20.3 for the United States in 1960.[37] Furthermore, the 1960 census for these countries shows that the proportion of married women was 67.6 and 68.0 per cent, respectively.[38] In short, neither age at marriage nor percentage of population married seems to provide a meaningful explanation of the difference in fertility or birth rates between Egypt and the United States.

The preceeding analysis presented in this paper has mainly attempted to show the extent to which religion affects attitudes toward the desired family size and age at marriage of various educational groups. As the data indicated, religion failed to be of any significance in this respect. This leads us to the second phase

of the current analysis which seeks to uncover the degree to which these factors, namely, religion and age at marriage, affect, independently and interdependently, the rate of fertility of educational classes in both the absence and presence of child death experience. Apart from the assumed influence of religion, there are two ways by which age at marriage is frequently viewed as a significant cause of differential fertility. Since females are the bearers of children, and their reproductive period is biologically defined, it has generally been emphasized that the older the age at which they marry, the lower will be the rate of reproduction, and the smaller will be the family size. This line of reasoning is based on the ground that late age at marriage affects fertility either directly, through diminishing the risk of pregnancy, or indirectly, through shortening the length of the exposure period.

Therefore, the following analysis will begin by controlling, first, the duration of marriage in order to show the direct effect of religious differences in age at marriage on the number of children ever born per mother in each educational group according to experience with and without child deaths; secondly, the current age in order to show the indirect effect as manifest in the form of religious difference in the duration of marriage. Table 4 presents the basic information for examining the effect of the first set of factors. It shows the number of children ever born per mother by religion, education, duration of marriage, and experience with child deaths.

It is obvious from this Table that religion fails to account for differences in the reproductive performance of couples of

Table 4 - Average Number of Children Ever Born Per Mother by Duration of Marriage, Religion, Education and Experience with Child Deaths - Cairo, 1963

Duration of Marriage and Education of Mothers	Number of Children Ever Born Per Mother						Number of Mothers					
	No Experience			Experience			No Experience			Experience		
	Total	Moslems	Christians	Total	Moslems	Christians	Total	Moslems	Christians	Total	Moslems	Christians
5 - 14 years												
Illiterate	3.3	3.2	3.6	5.0	5.1	4.8	183	151	32	196	163	33
Read & Write	3.1	3.1	3.1	4.7	4.6	4.8	108	70	38	63	40	23
Primary	2.6	2.6	2.5	4.1	3.9	4.2	221	119	102	43	18	25
Secondary or more	2.1	2.1	2.2	4.1	4.1	*	249	143	106	23	16	7
Stand. Average**	2.9	2.9	3.0	4.6	4.6	4.6						
15 - 24 years												
Illiterate	4.9	4.7	5.5	7.5	7.4	7.7	120	92	28	295	211	84
Read & Write	4.4	4.4	4.4	7.0	7.4	6.7	118	65	53	130	65	65
Primary	3.1	3.1	3.2	6.3	6.7	5.9	155	81	74	60	27	33
Secondary or more	3.2	3.3	3.1	4.6	4.6	*	82	39	43	22	17	5
Stand. Average	4.1	4.1	4.4	6.7	6.8	6.6						
25 - 34 years												
Illiterate	5.3	5.8	4.5	8.8	9.0	8.4	77	46	31	236	147	89
Read & Write	5.0	4.6	5.3	8.8	9.0	8.3	71	28	43	74	47	27
Primary	4.3	4.1	4.5	6.2	5.5	6.5	93	42	51	53	19	34
Secondary or more	3.4	*	2.9	5.7	*	*	16	5	11	7	4	3
Stand. Average	4.7	4.9	4.4	7.7	7.8	7.4						

* Average number of children ever born for ten or less cases is not calculated.

** The standardized average is based on the sample distribution by education.

comparable characteristics. In each educational class, the loss of at least one child to the Christian families was sufficient to induce reproduction of a number of children higher than for their Moslem counterparts who succeeded in preventing occurrence of this event. It can also be shown by detailed analysis of the data that the margin of fertility difference between the Moslems who had no child deaths and the Christians who had, becomes significantly greater in each educational group with the increase in the number of deceased children. As a brief illustration, the average number of children ever born per illiterate mothers who completed 25-34 years of marriage was 5.8 for the Moslems with no child deaths compared to 9.5 for the Christians who lost three or more children. In the same manner, the average was 4.6 in contrast to 10.6 children for those who can read and write. The corresponding figure for the mothers who completed primary education was 4.1 and 8.7 children, respectively. The same conclusion can also be reached if the analysis is restricted to a shorter duration of marriage. Furthermore, it is equally true that fertility of the Christians who had no child deaths was much lower than their Moslem counterparts with three or more child losses. To present further evidence about the contrast in marital birth rates according to religious differences in child death experience would only be to labour the point. In short, the data suggest that religion is one of the least useful factors for explaining the traditional rate of reproduction observed in Egypt.

fertility rate does not appear so exceptional when compared to those which existed in Western societies less than a century ago.

On the other hand, it might be true that fewer people in underdeveloped countries today go through life without marrying than in industrial societies. However, this should not necessarily be interpreted as a product of cultural peculiarities unless we ignore the implications of a long history of wars and emigration on the sex and age structure of these societies. It seems more reasonable to view marriage in the unhealthy societies as an adaptable mechanism geared to the circumstances surrounding their struggle for survival against the adversity of nature. The same situation prevailed earlier in Western Europe and the United States except we seem to overlook the writing of Adam Smith, Malthus, and Griffith with respect to factors affecting marriage rate.[30] However, let us expose the currently publicised argumuments to an empirical test in order to show to what extent religion accounts for early marriage among Moslems. The analysis will begin by examining: first, the influence of religion on age at marriage of various educational classes; second, the over-all influence of both variables -- religion and age at marriage -- on fertility in both the presence and absence of child mortality. Table 2 shows the average age at which the husbands were married according to religion, education and year of marriage.

It will be noted from this Table that religion has accounted for some differences in age at marriage. On the whole, the data indicate that the age at marriage for the Christians was consistently higher

Table 2 - Average Age of Husband at Marriage by Religion, Education, and Year of Marriage - Cairo, 1963

Education of Husband	Age at Marriage						Number of Wives					
	Moslems			Christians			Moslems			Christians		
	1929-1938	1939-1948	1949 1958	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958	1929-1938	1939-1948	1949-1958
None	26.6	25.7	25.9	27.8	26.6	26.2	141	268	281	81	115	64
Primary	26.7	26.8	26.5	28.3	27.1	29.2	93	103	116	98	108	88
Secondary	27.2	26.8	28.3	28.8	28.7	30.9	62	77	86	70	86	81
College	30.4	28.1	29.5	31.0	29.2	31.3	52	149	237	40	76	133
S. Average*	27.7	26.7	27.4	28.9	27.2	29.0						

* The Standardized Average is based on the sample distribution by education of husband.

secondary or more education, was 247 children with no deaths (married at an average age of 22.4 years) compared to 547 for their Christian counterparts who had child deaths (married at an average age of 24.0 years). In the marriage duration 25-34 years, there was apparently no marked religious difference in age at marriage within each educational class. Nevertheless, fertility varied considerably with child deaths. For the illiterate Moslems who had no child loss, the marital birth rate was 195 children as compared to 281 for the Christians who experienced such an event. The comparable figure for the Moslems and Christians who completed primary education was 141 and 218 children, respectively.

Conversely, it should be understood that absence of child death experience among the Christian families had produced lower marital birth rates than for the Moslems with experience, in each level of education, and duration of marriage. The rate for the illiterate Christians who were married 25-34 years was 152 children in contrast to 281 for the Moslems. Those who completed primary education showed a rate of 156 children for the Christians compared to 191 for the Moslems. The cross-contrast between these various rates clearly indicates that late age at marriage, whether for the highly educated Moslems or Christians had even failed to depress their fertility below the level practised by illiterates or semi-literates who had not experienced child deaths. In other words, late age at marriage can hardly be viewed as a significant cause of low fertility particularly among high social classes because however late a normally

biological woman may marry, she has enough time in the reproductive period to give birth to a considerably large number of children. Finally, there seems no reason to believe that it will provide even a partial remedy to the contemporary population dilemma confronting many underdeveloped areas. Although population policies have frequently placed high emphasis on the effect of late age at marriage on fertility, the evidence indicates the contrary in the presence of women's experience with child mortality. In other words, one can hardly suggest a delay in the marriageable age of females as a partial solution to the question of high fertility in these countries due to the fact that it is neither practically possible nor does the prospect seem encouraging. Such a delay is attainable only through higher education or economic independency rather than through formal legislation as some authorities advocate. Even if the average age at marriage reaches a level comparable to that in most European countries, the data do not seem to suggest a corresponding sharp decline in the number of children ever born without prior control on causes of infant and child deaths. This point can be illustrated by the data in Table 5 which shows the extent to which postponement of marriage would affect fertility of Moslems and Christians as they experience child loss.

It is obvious from the data presented in the Table that late age at marriage for either the Moslems or the Christians has appreciably failed to upset the rapid compensations for child deaths that took place among educational groups in each duration of marriage.

Table 5 - Average Number of Children Ever Born Per Mother by Duration of Marriage, Religion, Education, Age at Marriage, and Experience with Child Deaths - Cairo, 1963

Duration of Marriage and Education of Mother	Number of Children Ever Born Per Mother											
	No Experience						Experience					
	Moslems			Christians			Moslems			Christians		
	18 yrs	18-20 yrs	21+ yrs	18 yrs	18-20 yrs	21+ yrs	18 yrs	18-20 yrs	21+ yrs	18 yrs	18-20 yrs	21+ yrs
5 - 14 Years												
None	3.2	3.4	3.0	3.2	3.8	3.0	4.9	5.1	4.8	5.2	4.5	4.6
Primary	2.5	2.7	2.5	3.0	2.7	2.4	*	4.4	3.9	3.0	4.5	5.0
Secondary or more	2.3	2.0	2.1	*	2.8	2.0	*	5.7	2.9	*	---	*
Stand. Average**	2.9	3.0	2.7	3.0	3.5	2.9	4.4	4.9	4.3	4.5	4.5	4.7
15 - 24 years												
None	4.9	4.9	3.8	5.6	4.8	4.0	7.7	7.6	6.3	7.7	7.2	6.1
Primary	3.0	3.1	3.0	3.1	3.2	3.3	7.7	6.3	6.2	5.4	4.9	6.1
Secondary or more	---	3.6	3.2	3.7	2.8	3.0	---	5.0	4.2	*	*	*
Stand. Average**	4.3	4.3	3.5	5.5	4.2	3.8	7.6	6.8	5.9	7.2	6.4	5.7
25 - 34 Years												
None	5.8	5.2	4.4	5.9	4.8	4.4	9.4	8.4	7.5	8.9	8.2	5.8
Primary	4.3	3.6	4.1	5.1	4.3	3.9	6.7	4.7	*	7.0	5.6	*
Secondary or more	---	*	---	*	3.0	*	*	*	---	---	*	*
Stand. Average**	5.4	4.8	4.6	5.0	4.5	4.0	8.5	6.9	7.2	8.4	7.8	5.5

* Average number of children born for five or less cases are not calculated.

** The Standardized Average is based on the sample distribution by education.

Table 5 (Continued)

Duration of Marriage and Education of mother	NUMBER OF MOTHERS											
	No Experience						Experience					
	Moslems			Christians			Moslems			Christians		
	18 yrs	18-20 yrs	21+ yrs	18 yrs	18-20 yrs	21+ yrs	18 yrs	18-20 yrs	21+ yrs	18 yrs	18-20 yrs	21+ yrs
5-14 years												
None	98	63	60	18	24	28	91	59	53	19	15	22
Primary	26	46	47	9	36	57	4	5	9	7	10	8
Secondary or more	7	52	84	2	23	81	1	7	8	2	--	5
15-24 years												
None	66	46	45	31	16	34	129	69	58	78	41	30
Primary	18	35	28	10	23	41	9	6	12	5	16	12
Secondary or more	--	14	25	6	9	28	--	9	8	1	3	1
25-34 years												
None	37	26	11	33	24	17	128	49	17	73	31	12
Primary	18	10	14	17	19	15	6	11	2	19	12	3
Secondary or more	--	5	--	4	6	1	3	1	--	--	1	2

Looking at the reproductive performance of women with no education, we see that the cumulative fertility rate in the marriage duration 5-14 years was higher for both Moslem and Christian women who were married older than 21 years of age (age at marriage was 23.0 years for the Moslems and 23.4 years for the Christians), than for their counterparts who were married younger than 18 years (age at marriage was 16.0 years for the Moslems and 16.1 for the Christians). In other words, a delay of 7 years in the age at marriage demonstrated no biological hindrance to human reproductivity. Similarly, the marital birth rate per 1 000 mothers in this duration for the above-mentioned groups was higher with late than early marriage. The corresponding rate with child death experience was 454 children for the Moslems and 451 for the Christians. In contrast, the rate with no experience was 294 and 295 children for the Moslems and Christians, respectively. Comparisons between these figures support further the assumption that religion is by no means a crucial factor in determining human reproductivity.

Although age at marriage and the number of children born in each of the other two durations were inversely associated whether with or without child deaths, such an association should not technically be attributed to age per se, but rather partly to the biological nature of the human reproductive period and partly to the degree of security parents have concerning the survival of at least the desired number of children. Regardless of religion, late age at marriage continued to show higher fertility with child death experience for

all educational groups in these two durations. Apparently, the excessive compensation for the death of children, that eventually had occurred early in the first duration of marriage, was carried over through the reproductive period, and whatever fertility differences that might have appeared later were primarily due to differences in the number of children who died. In other words, if women were able to stretch their childbearing period for an extra few years, there is no doubt that equal experience with an exposure to the risk of child deaths would have induced the same rate of fertility irrespective of age at marriage. Since this is not the case, differentiation in the length of potential reproductive years tended to restrict to some degree their compensative capacity particularly among the lower educational classes which suffer severely from lack of adequate hygienic and medical facilities. Nevertheless, the marital birth rate of mothers experienced child deaths remained consistently higher throughout the reproductive period despite a considerable delay in age at marriage. This fact is demonstrated by the data which show that, in the marriage duration 25-34 years, the lower educated Moslem or Christian mothers with experience, who were married at an average age of 21 years or more (age at marriage for the Moslems and Christians was 21.9 and 22.0 years, respectively), had a marital birth rate of 271 and 208 children, respectively. The corresponding rate for those with no child death experience who were married younger than 18 years of age (age at marriage for the Moslems and Christians was 15.9 and

15.6 years, respectively), was 189 and 197 children respectively.

If we repeat these same comparisons within or between the various religious and educational groups in each duration of marriage, the fact remains that late age at marriage can hardly be viewed as a direct cause of the early decline of or contemporary differential in human fertility. This does not mean that it has no effect, but simply to rectify the misconception of confusing fecundity with fertility in discussions pertaining to the contemporary population dilemma. Certainly, a remarkable delay in age at marriage is likely to account for a concomitant reduction in fecundity, but we must operate in our speculations within the limits often practised in human societies. Within the scope of these limits, fecundity remains relatively unchanged, and however late normally reproductive women may marry, they have enough time to produce a large family, especially under constant insecurity of the survival of their children. This is not a unique feature of contemporary unhealthy societies unless we overlook a great deal of evidence present in the demographic history of Western Europe during the past century.

So far, we have seen that Moslem and Christian women in each educational group, who were married at the same age and had the same duration of marriage, had produced at least two different cumulative fertility rates according to experience with child deaths. Nevertheless, an amazing number of rates can in fact be obtained by taking into consideration the effect of the numerous multiple combinations that result from the number of children who died, age and birth

order of those who died and the length of time elapsed in the reproductive period prior to first experience with this event. Or if we analyze the data according to the number of children who died, the result will be a series of rates that can be arrayed into a continuum having minimum and maximum values which represent the extreme limits of reproductive performance that are likely to be recorded in a society initially passing through the dimension of time without any changes in its socio-economic and cultural characteristics except gradual shift from a most primitive to a most advanced state of medical and paediatric standard. At the moment, we are not concerned with detailed illustration of this point, since the presented data permit reconstruction of such a conceptual model. It is enough to say that by calculating the proportion of reproductive women in each marital cohort (this represents also calendar year of marriage), according to number of deceased children, we will be able to explain empirically the theory of demographic transition. Based on this conceptualization the magnitude and speed of decline in the birth rate of any society depends mainly upon the corresponding character of the downward change in this proportion since it affects both the process of compensation as well as the pattern of expectation.

Before leaving this section of the analysis, there still are certain related aspects to age at marriage that need discussion. Closely allied with the phenomenon of high birth rate in Moslem countries is frequently posed the question of the proportion of the population

that marries. Although many students of population have long viewed universality of early marriage as one of the major causes accounting for their contemporary population dilemma, the evidence at hand does not seem to justify their conclusion. Unlike the effect of age at marriage, it may probably be true that, everything being equal, the higher the per cent of the population that is married, the higher will be the crude birth rate, since each newly married couple is expected to reproduce at least one or two children. In this case, such an expectation does not necessarily account in the long-run for differences in cumulative fertility rates or completed family size. But since the effect of early age at marriage on reproduction has proved to be so insignificant, especially in the absence of fear of child death, it follows that differences between societies in the proportion of females which marry at such an age do not necessarily account for corresponding differences in the birth rates, partly because their overall total reproductive proportions of married women become more or less the same before age 30 and for the most part because of the presence of a healthy environment conducive to efficient early practice of birth control. In other words, if it is hypothetically true that Moslems are peculiarly characterized by early universal marriage, there is no reason to be concerned over this custom since we already know that Western women who were married at the age of 30-34 years had been able to reproduce a completed family of 5.45 children.[39] Assuming that the reproductive period of these women was terminated by age 45

(this is probably a higher age than for the Hutterites)[40], their marital birth rate (dividing number of children ever born by an average exposure of 13 years and multiply by 1 000), would have been 419 children per year of marriage. By contrast, the corresponding rate of the first ten years of exposure for the total sample of illiterate mothers who were married in 1929, at an average age of 17.9 years, was 428 children. For the second and third ten-year periods, the rate dropped to 304 and 100 children, respectively. If we eliminate the effect of mortality, the rate for that illiterate cohort would have been 340 children in the first 10 years, 170 in the second, and 18 children in the third. Such duration-specific rates produce a total fertility of 5.28 children for unbroken marriage of 30 years, which is still below that for the Irish women who were married at the age of 30-34 years. However, such a total fertility rate can further be reduced due to changes in the pattern of expectation which evolves as a mechanism designed for supporting high fertility in unhealthy societies.

Based on these calculations, it appears that if all the female population in Egypt is illiterate and marries at the age of 18 years, their marital birth rate with no child deaths during the first 10 years of exposure would be about 19 per cent lower than if they were married 14 years older but maintained an average annual rate of 419 children. To phrase it differently, the marriage of 100 per cent of these women at a younger age in a relatively healty environment would

presumably result in an average birth rate as equal to 64 per cent of that prevailing under current level of infant and child mortality (the average annual birth rate for the total sample of illiterates was 277 children compared to 176 for the portion that experienced no child deaths). The disparity can even get much larger if the contrast is made between the reproductive rates of mothers with and without child death experience. In fact, one of the findings in this research questions the validity of the popular assertion that females' fecundability diminishes consistently by age. If we analyze the data according to the time elapsed between marriage and first loss of a child, we find that women who experienced such an event at a relatively older age had compensated at a rate higher even than their own when they were just married. Detailed discussion of this point will be the focus of a separate paper in the future.

We have seen from the foregoing analysis that religion has failed to be of any significant effect in determining the number of children born for mothers who had the same or different education in each duration of marriage. This leads us to the second question raised earlier concerning differences in the size of Moslem and Christian families at various ages through the reproductive period. Table 6 presents the relevant data pertaining to this question.

It is obvious from this table that religion per se accounted for no fertility differentiation between educational classes at the three age intervals. On the contrary, experience with child deaths

Table 6 - Number of Children Ever Born Per Mother by Age, Religion, Education, and Experience with Child Deaths - Cairo, 1963

Age and Education of Mother	Number of Children Ever Born Per Mother						Number of Mothers					
	No Experience			Experience			No Experience			Experience		
	Total	Moslems	Christians	Total	Moslems	Christians	Total	Moselms	Christians	Total	Moslems	Christians
Age 20 - 29 Years												
Illiterate	2.8	2.8	3.4	4.5	4.6	4.0	111	103	8	106	89	17
Read & Write	3.1	3.0	3.4	4.2	4.2	4.2	47	33	14	31	22	9
Primary	2.3	2.4	2.2	3.6	3.6	3.6	79	48	31	19	5	14
Secondary or more	1.9	1.8	2.2	3.2	3.0	4.0	84	55	29	8	6	2
Stand. Average*	2.6	2.6	2.9	4.0	4.0	3.9						
Age 30 - 39 Years												
Illiterate	4.6	4.5	4.9	7.0	6.8	7.5	140	104	36	303	227	76
Read & Write	4.0	4.0	3.9	6.5	6.6	6.3	119	78	41	117	59	58
Primary	2.9	2.9	2.8	5.3	5.4	5.2	204	109	95	51	27	24
Secondary or more	2.4	2.4	2.4	4.7	4.9	4.2	183	100	83	25	17	8
Stand. Average*	3.7	3.7	3.8	6.2	6.2	6.2						
Age 40 - 49 Years												
Illiterate	4.9	5.2	4.4	8.3	8.5	8.1	129	82	47	318	205	113
Read & Write	4.5	4.3	4.6	8.2	8.5	7.7	131	52	79	119	71	48
Primary	3.6	3.4	3.8	6.3	6.1	6.4	186	85	101	86	32	54
Secondary or more	3.2	3.5	3.0	4.8	4.9	4.6	80	32	48	19	14	5
Stand. Average*	4.3	4.3	4.1	7.3	7.4	7.1						

* The Standardized Average is based on the sample distribution by education.

rather than religion seems to be the most influential factor accounting for age differences in cumulative fertility whether among or between educational classes. With no exception, one clearly detect that Christian women in all categories who experienced child deaths had reproduced on the average more children at younger ages than their Moslem counterparts who had opposite characteristics. The converse is also true. Furthermore, it can also be proved empirically that several significantly different fertility rates result in both religious groups according to the number of deceased children among couples who virtually had the same education and specific age.

Based on this finding it seems obvious that duration of marriage plays almost no direct role in determining differences in human fertility, particularly in societies which succeeded in exercising drastic control on causes of infant and child mortality. This is probably not true with respect to the unhealthy societies where there is widespread fear and insecurity of the survival of children that drive couples in almost all social classes to reproduce at a maximum. Under these circumstances, fertility and fecundity refer to the same phenomenon, and duration of marriage perhaps become the sole factor determining differences in fertility since the higher the number of exposure years, the higher will be the risk of pregnancies. But in societies or social classes which have common access to medical and sanatory practices, there is no reason for suggesting marked differentiation in fertility by duration of union since all couples are strongly motivated to restrict reproduction after the birth of the few desired number of

children and since the compensative process for deaths ceases to exist. This line of argument can be tested by the data at hand. As we already know about the approximate age at marriage for the various educational classes in each religious group, it seems obvious that little time is needed for families induced with fear and insecurity of the survival of their offspring to display an unusual capacity of reproduction. For instance, standardizing for education shows that the number of children ever born for the Moslems or the Christians with child death experience in the age group 20-29 years (exposure 8.6 years), was higher than for those with no child deaths who were at the age of 30-39 years (exposure 12.9 years), or almost the same as for the age group 40-49 years (exposure 24.3 years). Similarly, those who were at the age of 30-39 years (exposure 16.2 years), and experienced child deaths had a much higher fertility than their counterparts at the age of 40-49 years but escaped these events (exposure 24.3 years).

Judging from these facts, it should not be surprising that neither fertility nor crude birth rates in the unhealthy societies have shown any sign of change of the previously maintained traditional pattern. Since child deaths, particularly among infants often occur shortly after marriage, subsequently, the compensative process remains comparably the same at least for the first ten succeeding marriage-cohorts, which normally constitute the vast majority of the reproductive population. Although medical and

sanitary improvements may have brought about a reduction in the number of children who die, such a reduction is insignificant as far as the birth rate is concerned because the proportion of families affected by actual experience and exposed to the high risk of child loss remains relatively unchanged for these cohorts at the beginning of the reproductive period. Without a decline in this proportion, the birth rate is expected to remain as ever before irrespective of change in religion or socioeconomic characteristics.

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