

The Health Sector of a High Fertility Region: The Arab World

Dr. SULYMAN AL-QUDSI

Located at the tricontinental hub of Europe, Asia, and Africa, the Arab world has unique geopolitical significance. It is the crossroads of movement and trade, base of extensive empires, and resource area for 67% of the world's petroleum. It is the home of diverse ethnic and religious groups including Muslim and Christian Arabs, Kurds, Druze, Berbers, and Armenians. It is also a fountain of political and ideological ferment and locus of some of the most persistently explosive conflicts in the world. No country on earth can be unconcerned with the course of major developments in the region [Held, 1993].

The history of the Arabs goes back a few thousand years before Christ. The origin of the word "Arab" remains obscure, although philologists have offered various explanations. One such explanation associates the term with nomads; the root "Ahbar" means to move or pass. The Arabs themselves seem to have used the word at an early date to distinguish the Bedouin from the Arabic speaking town and village dwellers; and indeed, this use persists to some extent [Lewis, 1993]. The earliest known events in Arabian history are migrations from the Arabian Peninsula into neighboring areas. About 3500 B.C., Semitic-speaking peoples of Arabian origin migrated into the valley of the Tigris and Euphrates rivers in Mesopotamia, supplanted the Sumerians, and became the Assyro-Babylonians. Another group of Semites left Arabia about 2500 B.C. and settled along the eastern shore of the Mediterranean Sea; some of these migrants became the Amorites and Canaanites of later times [Bram and Dickey, 1992].

Beginning in the seventh century (A.D.), Arabs, proclaiming the new religion of Islam, ventured out from the Arabian Peninsula to conquer wide regions extending from the Arabian/Persian Gulf to the Atlantic Ocean. Arabic became the language of all the peoples who lived between Baghdad and Cordoba—a significant aspect of Islamic civilization. It became both

the language of daily life and the language of science and literature, completely replacing Coptic, Aramaic, Greek, and Latin. The strategic geo-graphical position of Islamic countries enabled them to dominate international trade in the Middle Ages and to attract and nurture intellectuals from all over the world [Hassan and Hill, 1986]. Islamic science and medicine thrived; scholars such as Abu Bakr al-Razi and Jabir B. Hayyan were world renowned; scientific institutions flourished—for example, Bayt al-Hikma (House of Wisdom).

Today, the Arab world extends from the Arabian/Persian Gulf on the east to the Atlantic Ocean on the west, a vast area that exceeds 4.6 million square miles and embraces 21 countries. The common denominator among residents of the Arab world is their language. Formal Arabic is the official language in all countries of the Arab League. In addition to their common language, most Arabs share the same religion. The overwhelming majority (over 90%) are Muslims, predominantly of the Sunni persuasion, and Islam is a vital force in everyday life.

Despite its linguistic, religious, and cultural cohesion, the Arab region is also rich in diversity. In territorial size, some countries (Sudan and Saudi Arabia) comprise vast areas that approach 1 million square miles while others (Bahrain) are small enough to fit into a major Western city. Economically, a wide disparity exists between the rich oil states, with per capital incomes ranging from \$5,000 (Libya) to \$22,000 (UAE), and the

poor labor-exporting countries, where per capita incomes are under \$1,300 (Jordan) and may be less than \$520 (Yemen). The combined population of the "upper-income" countries falls well under 10% of the total population of the Arab world [Faour, 1993].

In addition to per capita income, there are great disparities in urbanization and education. Levels of urbanization are about 75% in countries of the Arabian Peninsula (with the exception of Oman), and in Iraq, Jordan, Lebanon, and Libya; they are around 50% in Algeria, Egypt, Morocco, Syria, and Tunisia; the rate is between 22 and 40% in Sudan and Yemen.

Secondary school enrollment figures show that about one-half of the relevant age groups are enrolled in secondary school. However intercountry variations are marked: In Sudan and Morocco enrollment ratios are 20 and

29, respectively; in Algeria and Egypt they are 53 and 74; and 97 in Bahrain

[World Bank, 1994b].

The objective of this chapter is to provide an overview of the health sector of the Arab countries. The chapter is in three parts. The first reviews the population and health profiles. Part two focuses on fertility and mortality rates. The last section of the chapter contains a summary of salient findings.

THE ARAB POPULATION

The Arab world is the home of some 236 million persons. The region has one of the highest population growth rates in the world. In several countries

the population growth due to natural forces only is well over 3 (To, annum. For instance, Jordan's population is increasing at 3.3 ft & Syria's at 3.7 ft, and the West Bank and Gaza at about 4-5 (Table 3-1).

The high population growth rates make the population histograms of many Arab countries hat-based, reduce the doubling time (the time during which the population will become double its current size if population growth rate remain at current levels), enhance the population momentum, increase the dependency ratio, and temporally put tremendous pressure on the labor markets.

Many countries of the region have a high male-to-female sex ratio. In the oil-producing countries, for instance, the selectivity of the immigration process and policies render the sex ratio predominantly male. In fact, seven Arab countries top the list of the world's most-male countries. In the United Arab Emirates there are 206 men for every 100 women; Qatar, 168; Bah-rain, 145; Kuwait, 133; Saudi Arabia, 119; Oman, 110; and Libya, 110 [*The Economist*, 1991].

Another notable characteristic of population in the Arab Middle East is its dynamic mobility, both by choice and necessity. The Bedouins of the Arabian Peninsula migrate from one geographic location to another in search of hunting and grazing land. Other movements are mandated by political reasons, such as the displacement of Palestinians in 1948 following the establishment of the state of Israel. Similarly, Syrians, Egyptians, and Lebanese have all been subjected to displacement due to the Arab-Israeli wars; the Lebanese conflict has led to massive population dislocation; the Iraq-Iran war has led to a large influx of Kurds into Turkey; and the conflict between the North and the South in Sudan has led to movement of refugees to the capital and other cities, creating large squatter settlements. Other forces causing population displacement include man-induced engineering developments. For instance, the construction of the Aswan Dam in 1964 submerged agricultural land in Aswan and Merowe in Egypt and Sudan, respectively. The Nubians who inhabited the areas were forced to resettle in large numbers. During the Arab oil decade of the 1970s over 3 million workers migrated from "labor surplus" Arab countries to the Gulf and Libya, making up for labor

shortages and helping to sustain development efforts. Most recently, the Gulf crisis and war led to the displacement of several million "third-country nationals," including 500,000 Palestinians, 1 million Yemenis, 800,000 Egyptians and several hundred Sudanese from Kuwait, Iraq, and Saudi Arabia [Shami, 1993; Al-Qudsi et al., 1993].

Overall Health Profile

The region's rapid population growth was the result of a substantial decline in mortality triggered by the increasing use of antibiotics, by vaccinations, and by the spread of disease control and sanitation programs. Most countries of the region have made considerable progress in improving health conditions for their citizens, and these conditions still fall short of aspirations. "Good health" is obviously a multidimensional, complex phenomenon; measuring it is correspondingly difficult. Life expectancy at birth and infant mortality rates are two indicators of health conditions that are widely used. Life expectancy at birth has improved substantially throughout the Arab world. In most countries, a newly born child can expect to live 15 years longer than his or her parents.

However, intercountry differences in key health indicators are still wide. The infant mortality rate varies among countries, as discussed below. Life expectancy at birth also varies, from 73.4 years in Kuwait to 51.5 years in Yemen, while the number of patients per physician ranged from 5,639 for Yemen to 660 in Saudi Arabia. In several Gulf countries, patients enjoy free health services, while in some other countries inequitable distribution of health services remains a problem. Access to medical services and medical care is often very difficult for some sectors of the population, particularly those living in rural areas. For example, during 1985-1987 the percentage of the population with access to health services was only 35% in Yemen, 51% in Sudan, 74 and 76% in Morocco and Syria, respectively, 81% in Egypt, 90% in the UAE, and 100% in Kuwait [UNDP, 1991].

Table 3-1 Population Indicators for Arab Countries

Country	Population	Population	(%)	Family	
	size (million)	growth (%)	Age	size	Urban
Algeria	27.9	2.5	44	—	54.3
Bahrain	0.6	2.4	32	6.9	83.5
Egypt	58.9	2.3	40	5.3	44.3
Gaza	0.7	5.0	60	ô	94 ^a
Iraq	19.9	3.7	48	7.8	72
Jordan	4.2	3.3	41	6.9	68
Kuwait	1.3	3.3	43	8.8	96.3
Lebanon	3.6	2.0	33	ô	84
Libya	5.1	3.4	47	ô	82
Morocco	28.6	2.3	40	ô	47
Oman	1.9	4.9	36	6.3	11.9
Qatar	0.5	1.0	23	6.7	90
Saudi Arabia	18.0	3.2	43	7.4	78.5
Sudan	28.2	3.1	46	6.6	23.3
Syria	14.0	3.7	48	ô	51.1
Tunisia	8.7	1.9	37	5.6	57.2
UAE	1.7	1.9	32	7.4	82.2
West Bank	1.4	4.0	50	ô	94*
Yemen	11.6	3.8	50	ô	28.9

'Applies to both Wss: Bank and Gaza.

Source: [Fareed, 1993; *World Population Data Sheet*, 1994; World Bank, 1994a].

These differences are the result of differences in resource- and non-resource-dependent characteristics. Resource characteristics include income and wealth variations while nonresource characteristics include genetic, psychological, and cultural factors. More specifically, differences in orientation toward smoking, drinking, diet, exercise, and occupational risk in interaction with availability (or lack) of medical goods and health facilities could produce differential health status outcomes. Whatever the underlying reasons are, continued existence of health inequalities across and within countries poses important challenges to policy makers in these countries.

Table 3-2 records data on health expenditures along with figures on population per medical staff person in some Arab countries. One interesting feature of health expenditure figure is its low levels relative to that in developing countries, where it is about 4.7% of GDP [World Bank, 1993: A.9]. It is clearly low in labor-exporting countries such as Egypt, Jordan, Syria, and Morocco. Second, in several countries — Syria, Egypt, and Morocco—the contribution of government to total health expenditure is relatively modest. Third, there is a wide disparity in absolute dollar amount of health expenditure, particularly on a per capita basis. For instance, while the per capita health expenditure in 1990 was \$18 in Egypt, the corresponding figure for Saudi Arabia was \$322. Differences of such an order of magnitude probably translate into differences in the health outcome both within and across countries.

Country differences with respect to adult mortality rate are marked. The republic of Yemen has the highest male adult mortality rate, 334 per 100,000 followed by Sudan with 267. Jordan has a relatively low rate of 138 while Algeria and Tunisia have rates of 135 and 166, respectively (Table 3-3). In all countries adult mortality rate is higher for males than for females due to the higher risk factors that men are typically subjected to — for example, occupational risk, industrial accidents, car accidents, smoking-related risks, war and conflict-related risks. In addition to the role of genetics, falling victim to diseases depends on the age, income, nutrition, and exercise and work habits of individuals. Figure 3-1 displays the relationship between age and expected disability: visual, mental, chronic, and psychological — for males and females separately¹.

The prevalence of malnutrition among children under 5 years of age is 13% in Egypt, 10% in Tunisia, and 55% in Sudan [World Bank, 1993]. The leading reasons for the prevalence of malnutrition are poverty, inter-household and interregional economic disparities, and the inadequacy of infrastructure to deal with natural disasters. For instance, in Sudan and Yemen economic hardships including famine situations reoccur. They result in large numbers of deaths and create human and medical hardship. Preschool children and women are typically at greatest nutritional risk. In the case of Egypt, empirical work has demonstrated that household income has pronounced effects during early childhood and that the

¹ The figure is drawn based on the regression results of a multinomial logit model that was applied to Jordan's microdata, which are data derived at the individual level (unpublished).

impact on child malnutrition and mortality persists even when one controls for other socio-economic forces [Casterline et al., 1989]. Results of dietary studies in Egypt have shown that the average diet of low income, nutritionally vulnerable groups —children under 5 and pregnant and lactating women— provided only 76% of recommended caloric allowances, that the average amount of protein in the diet of these groups was below the recommended allowances, and that only 11% of their protein was from animal sources. Further, about half of rural farm laborers suffer from secondary anemia as a result of heavy iron losses associated with schistosomiasis and hookworm infections [El-Mehairy, 1984].

Table 3-2 Health Indicators in Arab Countries

Country	Health expenditure (million \$)	Per capita health expenditure \$	Health expenditure (%GDP*)	Public health expenditure (%GDP*)	Private health (%GDP*)	Population/physician ô	Population/nurse ô
Yemen	217	19	3.2	1.5	1.7	5639	ô
Egypt	921	18	2.6	1.0	1.6	1,320	490
Sudan	ô	ô	ô	ô	ô	ô	ô
Morocco	661	26	2.6	0.9	1.6	4,840	1,050
Jordan	149	48	3.8	1.8	2.0	770	500
Syria	283	23	2.1	0.4	1.6	1,160	870
Tunisia	614	76	4.9	3.3	1.6	1,870	300
Algeria	4,159	166	7.0	5.4	1.6	2,330	330
Oman	ô	ô	ô	ô	ô	1,060	400
Saudi Arabia	4,784	322	4.8	3.1	1.7	660	420

Table 3-3 Mortality Rate in Arab Countries

Country	Male	Female
Sudan	267	234
Yemen	334	327
Egypt	214	158
Morocco	214	183
Jordan	138	93
Syria	157	121
Tunisia	166	136
Algeria	135	105
Saudi Arabia	175	138
Iraq	194	129
Libya	191	144

Source: World Bank (1993)

The region continues to suffer from tuberculosis; poorer countries have the highest incidence. In Sudan, for example, the annual incidence rate during the period 1985-1990 was 211/100,000 persons. Morocco had an incidence rate of 125; Iraq, 111; and Egypt, 96. Oil producing countries had substantially lower rates 22 and 12 in Saudi Arabia and Libya, respectively [World Bank, 1993],

Infections and toxemia are reported to be among the leading causes of maternal deaths. Complications associated with childbirth are common in the region and at times leave residual damage to the kidneys or reproductive organs. Anemia is also a frequent complication, particularly in Jordan, Egypt, and Morocco, where its prevalence among pregnant women reaches 50, 47, and 46%, respectively [World Bank, 1993].

Car accidents are, regrettably, responsible for significant mortality. In Bahrain and Kuwait they cause 3.5 and 3.4% of all deaths, making these countries respectively first and second in the world in terms of the most deaths caused by motor accidents [The Economist, 1991]. One can only speculate that such high rates are the result of two forces: modern technology and traditional cultural values. That is, the slow-adjusting cultural values are challenged by the fast pace of importation and use of consumer technologies.

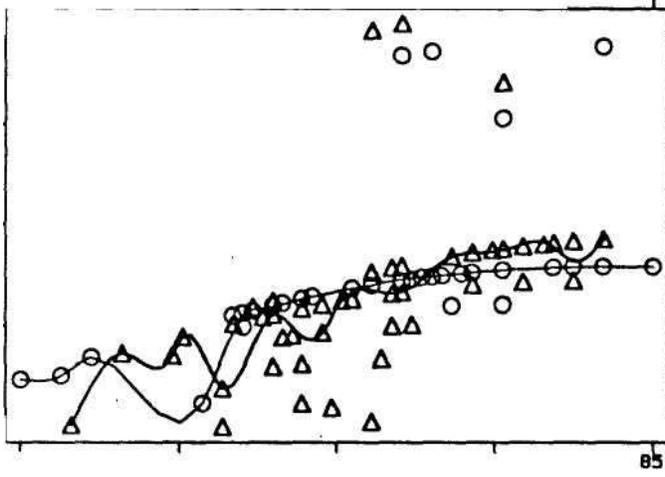
Regional conflict continues to claim many lives. The Gulf war, for instance, is estimated to have caused over 100,000 deaths in Iraq and over

1,000 in Kuwait (laour, 1993). Scarcity of essential medicine, food shortages, and lack of potable water had a dramatic impact on health: 900,000 Iraqi children, accounting for 29% of all children, were malnourished.

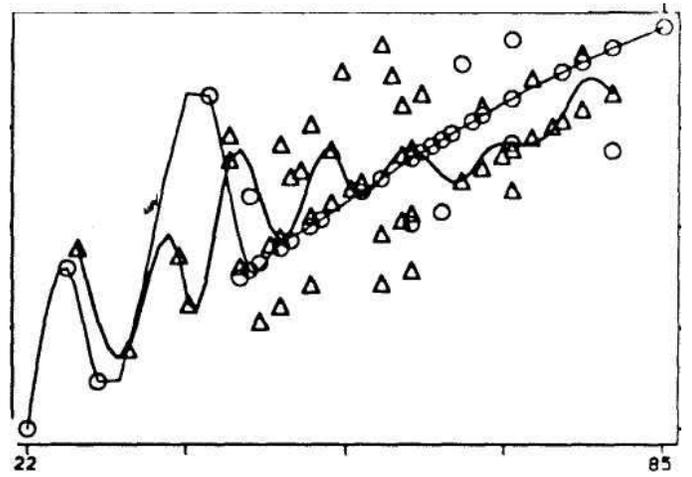
Scarcity of fresh water in some countries and degraded quality of water in others cause significant health problems. The Middle East is rich in hydrocarbon sources of energy but poor in water resources. Over 50% of all the populations in the Middle East and North Africa, excluding the Maghreb, depend either on water from rivers which cross an international boundary before reaching them or upon desalinated water and water drawn from deep wells. Millions of people face daily problems in obtaining water for drinking, cooking, bathing, and washing. More than 25% of the population of Egypt, Sudan, Algeria, and Yemen are estimated to be without access to uncontaminated water, and unknown but large proportions have to spend hours daily to collect water. Cholera and typhoid related to contaminated water are common in Egypt, Sudan, and Yemen.

Large proportions of the population of some Arab countries do not have access to safe drinking water nor to sanitation. For example, 46% of the population of Morocco, 30% of Tunisians, 21% of the Syrian population, 10% of Egyptians, and 66% of the population in Sudan do not have access to safe drinking water [UNDP, 1994: Table A.2]. Oil spillage and resultant water pollution are common at the shores of the Gulf countries. The scarcity and contamination of water imply that mother's milk has a greater effect in promoting child survival in distressed areas where water and sewage facilities are poor [Sirageldin and Diop, 1991].

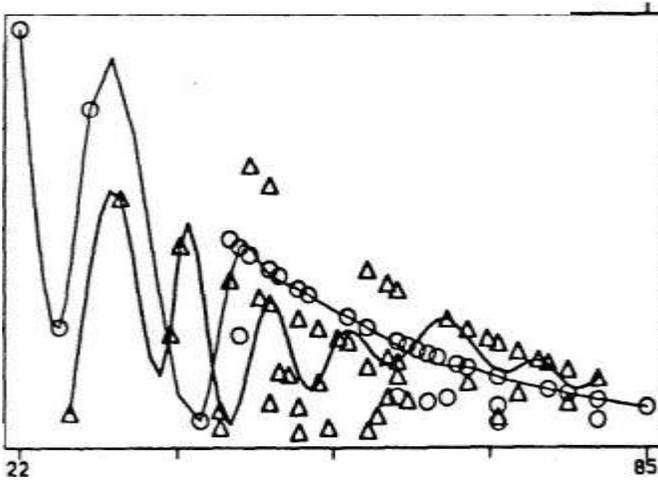
Vision Disability M/F



Chronic Disability M/F



Mental Disability M/F



Psychological Disability M/F

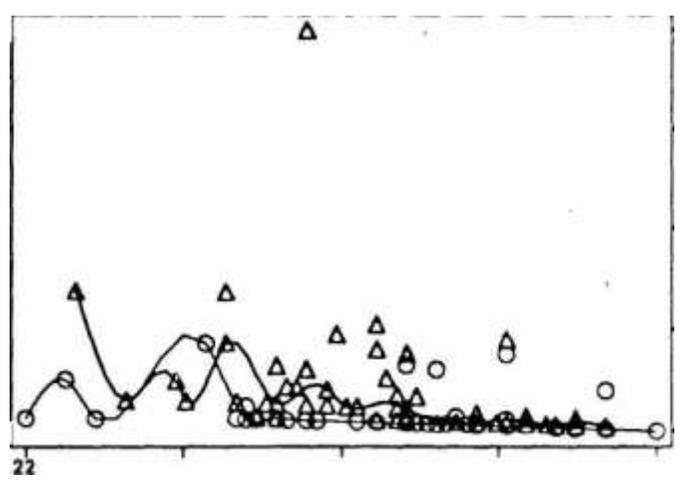


Figure 3-1. Relationship between age and expected probability of visual, mental, chronic, and psychological disability for males and females.

Fertility and Infant Mortality

The single most remarkable demographic aspect of the Arab region is the nearly universal high level of fertility—the average level of childbearing is 6 children/woman. Figure 3-2 portrays the number of children that women normally have between the ages of 15 and 45 in selected Arab countries. While fertility levels are high in general, disparities exist within and across countries. In Algeria in 1988, for instance, women still gave birth to more than six children in the southern part of the country but less than four in the north. Lebanon, despite its small size, harbors strong regional contrasts: Beirut (2.3 children/woman) versus the north (4.3 children/woman), for instance. In Egypt the average family numbers only 3.6 children in Port Said but 8.2 in Fayoum [Fargues, 1994].

By country, three trends can be distinguished. First is the group of countries with persistent high fertility rates and declining mortality. This group includes Jordan, Oman, Syria, Yemen, the West Bank, and Gaza, where the per capita income level is low to moderate. The birth rate among these countries was 44 births/1,000 population in 1990, well above the birth rate of 30 for all developing countries in that year. Infant mortality rate (IMR) dropped sharply from 196/1,000 live births in 1950 to 65 deaths/1,000 in 1990. Life expectancy in these countries increased from 30 to 60 years in males and from 40 to 63 for females.

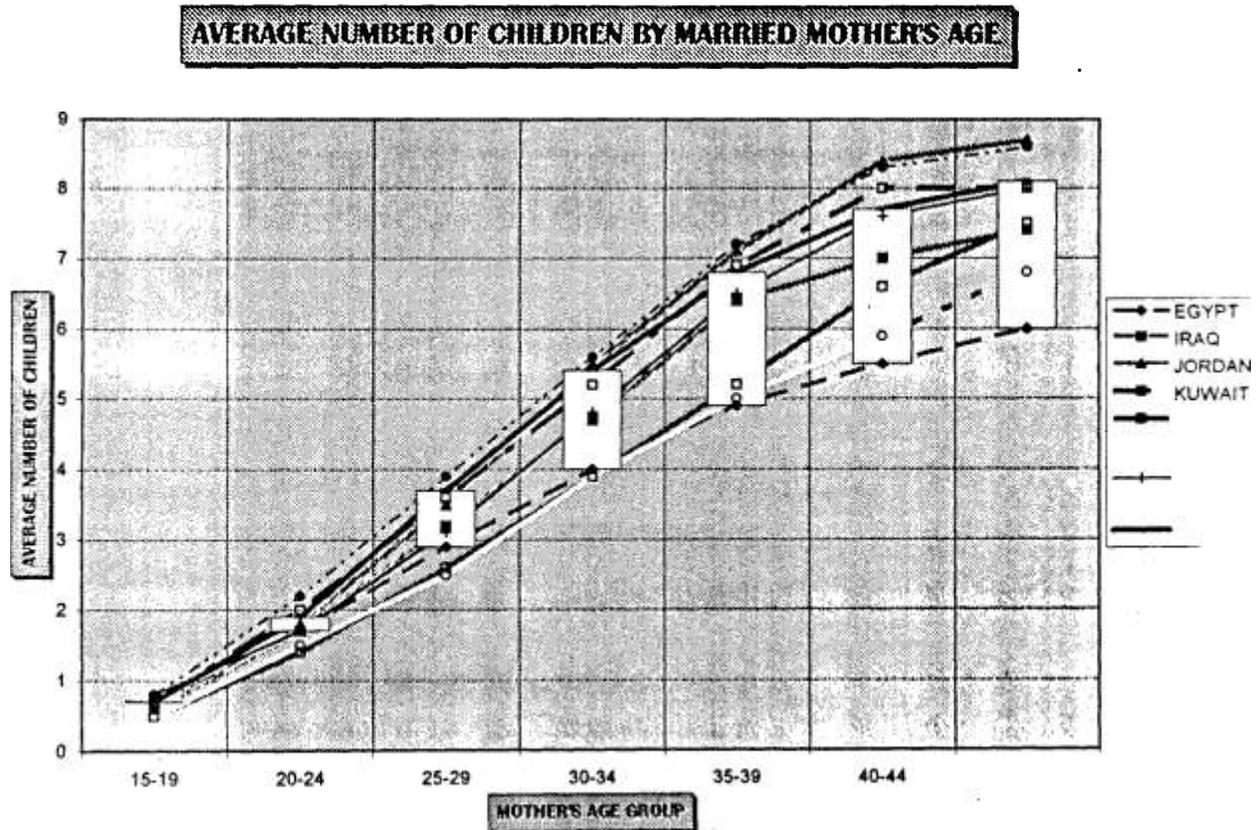
The second group consists of countries that share similar trends in declining fertility and mortality levels. These include Morocco, Egypt and Lebanon, whose socioeconomic development is at an intermediate level. The fertility rate is declining in these countries at rates that are faster than the rate of decline in mortality rates, leading to a deceleration in the natural growth rate.

The third group consists of the Gulf countries, which are characterized by high fertility amid rapidly declining mortality rates. These include Bahrain, Iraq, Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates. These countries had high fertility and mortality until the 1950s. In the early 1950s the birth rate for this group of countries was 49 births/1,000; the death rate was 23 deaths/1,000. During the next few decades, the harvesting of oil caused the influx of waves of immigrants and contributed to rapid improvement in health standards and socioeconomic development in general. The average birth rate for these countries (which includes substantial numbers of immigrants) dropped to 36 by 1990, while the death rate plummeted to 6/1,000 [Omran and Roudi, 1993].

The remarkable improvements in infant mortality rates are recorded in Table 3-4. Egypt's infant mortality rate was reduced from 170/1,000 births in 1960 to 120 in 1981 and to 58 in 1992. In the Gulf region the improvement has been substantial: Saudi Arabia's 1992 rate of 31 is much lower than the 190 rate that existed in 1960. Other countries recorded improvements also, but the current levels of IMR remain high, particularly in Sudan (100), and Yemen (107). Within a country, differentials are also quite large due to differentials in standards of living, education, knowledge of health-related technologies, and access to health facilities.

Studies on the causes of infant mortality are scarce; one exception is the work of Shah [1985], which showed that there are four major causes of infant and child death in Kuwait. Congenital anomalies,

prenatal condition, respiratory diseases, and intestinal infections constituted more than four-fifths of all infant deaths during the period 1979-1983.



EXPLAINING THE ARAB DEMOGRAPHIC PROFILE

Here we attempt to provide an explanation of the demographic profile of the Arab countries. Our foregoing discussion showed that fertility trends in Arab countries appear to lag despite improvements in living standards and marked reduction in infant mortality rates. Our explanation involves economic and cultural forces.

Economic forces influence population growth through their impact at the micro level or on the family unit. Children represent a type of social security insurance for their parents as the elders age and retire from the productive life. Throughout history, socioeconomic modernization has been characterized by a

demographic transition from high to low death (mortality) and birth (fertility) rates. The theory of demographic transition states that at the early stages of modernization, and as per capita income rises, death rates begin to fall as a result of improving public health facilities, education, and nutrition. This decline in death rates combined with relatively high birth rate will initially accelerate population growth. With continued economic growth, increased education, rise in per capita income, and increased participation of women in economic activity, there will be a decrease in the desired fertility, and the use of population control techniques will reduce the birth rate and consequently slow down population growth. This argument is in line with the socioeconomic perspective that believes that "development is the best contraceptive" and that family planning behavior is of little value in bringing about changes in reproductive behavior. This view rests on the assumption that fertility declines are brought about by changes in the demand for children as society develops. A second view advocates family planning, pointing to the largely unmet need for contraception and the substantial levels of unwanted fertility which could be reduced by providing information about, and access to, contraception. Supporters of this position see a potential for declines in fertility independent of changes in desired family size [Bongaarts, 1993].

Children are a source of labor in the farming and informal sectors of the economy. In Egypt, Sudan, Yemen, Iraq, and other countries, children start helping their parents in their farm, family shop, or business when they are well under the age of 12. Therefore they play a dual role at a young age and as a social security or insurance policy as their parents grow older and retire. For instance, 5% (7.4% in rural areas) of the working population in Egypt is between 6 and 14 years of age. In Morocco, child labor is around 9% (14% in rural areas). While common in many Arab countries, child labor has been on the decline due to modernization and economic forces [Courbage, 1994]. In old age sons and daughters support their needy parents. The financial and emotional support is substantial. In Egypt, for instance, a recent study reported that sons and daughters provide total financial support for nearly 50% of the elderly households in rural areas [Azer and Afifi, 1992].

The cost of having children is generally small in most parts of the region. In the cities public health facilities provide nearly free-of-charge services for labor and delivery functions. In rural areas midwives are common "means" of child delivery. The mother and members of the extended family care for the babies. The large family size which is prevalent across the region, as Table 3-1 shows, also implies economies of scale in the provision of basic activities such as food purchase, storage, cooking, eating, and drinking. Although compulsory education is a law in most countries, many children either drop out early or never attend because of an amalgam of reasons including lack of effective monitoring measures, limited capacity of the education system relative to cohort sizes, and need for the child's labor for the family's survival. While considerations for the "good quality" of education and training are emerging in parts of the region, they still are a matter of luxury for the great majority in rural areas and for the urban poor. These considerations suggest that the life-cycle benefits of children are apparently larger than the costs; and therefore families have incentive to have more children.

Cultural factors play an important role in affecting population growth through their impact on family size. Religious convictions affect the desired family size, use of contraceptives, and attitudes toward abortion. Islam in general encourages having more offspring and large families. Women marry at young

age: The universality of marriage and the rejection of premarital relations make a young marriage age almost inevitable for girls, as shown in Table 3-5. However, increased education, particularly for girls, together with rising urbanization trends and nuclearization of families, are constantly shifting upward the age at marriage. For instance, the female's median age at marriage in Egypt has risen from 17.4 to 20.1 between the 1950s and 1970s. The average age for men rose from 22.2 to 27.4 during the same period. In Jordan, the median age for females increased from 20.4 to 22.8 between 1961 and 1981 while the men's age rose from 24.8 to 26.8 years. In Kuwait, the median female age at marriage increased from 18.9 in 1965 to 22.4 in 1985. In Syria, the average age at marriage for women has risen from 19.5 years in 1960 to 21.5 years in 1976. Women with no schooling tend to marry at a younger age (18.5 years) while those who at least completed primary schooling had a median age of 24 years [Bendardaf, 1988]. The World

Fertility Survey found that the highest age at marriage among Arab Middle-Eastern countries in the late 1970s was in Tunisia (24 years), while the youngest age at marriage was found in Yemen (17), which has the region's highest fertility level [Omran and Roudi, 1993; Weeks, 1988].

Other than for child spacing purposes, married women do not in general practice birth control. The concept of family planning or birth control is far from being widely appreciated by the great majority of Muslims. One reason is that the religion considers the main purpose of marriage to be procreation, as the prophet Mohammad said: "Marry the affectionate and prolific (fertile) woman, for I shall make a display of your multitude."

Beyond the influence of traditions and religion, the use of contraceptives is affected by their physical availability in the marketplace, by their afford-ability, by ease of access to them and by awareness of their availability. At the individual level, contraceptive use is affected by personal attributes such as education, employment, health, and income status. In several countries awareness of contraceptive availability is quite high —over 75% among women who have ever married. The pill is the most widely recognized method, followed by intrauterine devices (IUDs). Traditional methods are known by few women and widespread contraceptive knowledge is fairly recent [Fareed, 1993]. The economic recession and rising unemployment rates in many countries of the region render the prospects for contraceptive use less favorable. The unemployment rate in Egypt and Morocco is 15%; it is 25% in Jordan, and 26% in Yemen, and 20% in Syria, and 21% in Algeria. The youth unemployment rate is four times higher than each above country's average, making them particularly susceptible to poverty, stress, and crime [Al-Qudsi et al., 1993].

Abortion as a means of birth control is allowed with an excuse, and disliked without one (in some Arab countries). To be more accurate, it is allowed in the first 4 months of pregnancy if the mother's health so requires, or when it is absolutely confirmed that the fetus is defective to a degree such that it will never develop to live a dignified normal life. In other cases, such as when a mother is already breast-feeding, or a family is destitute, religious scholars are not unanimous [Risplcr-Chaim, 1993].

Further, the culture of the region is characterized by a strong desire for male offspring, which tends to increase pregnancies, deliveries, and family size in order to achieve the "targeted" number of desired

male members. Empirical work covering Jordan, Sudan, and Egypt affirms that son preference has a strong influence on fertility. More specifically, a woman's desire to cease childbearing is strongly affected by the number of male children she has. For instance, Gallal-Eldin [1984], relying on microdata, found that in Jordan 18% of mothers who have four surviving girls and no boys desire to cease childbearing. By contrast, nearly 45% of women with four surviving boys and no girls desire to cease childbearing. The corresponding percentages in Sudan were 30 and 69. Likewise, Aly and Shields [1991], utilizing microdata, found the son preference to be an important determinant of contraception and, hence, of fertility in Egypt. Contraceptive increases dramatically at each parity as the number of sons increases. They also found that rural families, which are more likely to exhibit son preference, have lower contraception rates than urban families and that women who marry young are less likely than other women to practice contraception later in their lives.

Table 3-5 Median Age at Marriage by Age Cohorts in Arab Countries

Country	Years	Age			kct		
		(20-24)	(25-29)	(30-34)	15-39	(41-44)	4<-4V,
Bahrain	1989	—	22.5	19.9	17.9	15.6	14.8
Egypt	1991	20.3	19.0	18.4	18.0	17.6	17.1
Jordan	1990	—	21.2	19.7	18.8	18.9	18.9
Kuwait	1987	ô	19.1	18.7	18.0	17.3	17.1
Morocco	1987	—	19.9	18.9	18.1	16.8	16.3
Oman	1988	16.2	15.7	15.6	15.2	15.0	14.7
Qatar	1987	ô	21.4	18.0	16.6	16.5	15.9
Saudi Arabia	1987	20.3	18.1	17.2	16.5	16.5	16.6
Sudan	1989-90	ô	20.5	18.1	16.4	15.8	16.3
Tunisia	1988	ô	22.8	21.3	20.6	19.4	19.9
UAE	1987	21.0	17.7	16.8	16.3	16.0	16.2

Role of Government

Governments can affect the overall fertility rate by devising effective family planning programs and by ensuring (particularly female and children) health-care assistance especially for the poor and the disadvantaged. The government can also affect the desired fertility level of the general public through economic incentives, the media, and education. But for governments to commit resources to the goal of affecting fertility the governments themselves must be committed to fertility reduction. The work of Caldwell and Larson [1989] attempted to assess the perception and commitment of governments to fertility reduction. Their analysis relied on records of government policy which are monitored by the United Nations in accordance with the recommendations of the World Population Plan of Action, adopted at the World Population Conference in Bucharest in 1974. By and large their results indicate

that government commitment to reducing fertility is low: Between 1978 and 1987, the great majority of Arab governments considered that their fertility levels were satisfactory despite the fact that they are the highest in the world. One can extrapolate from this that prospects for government support for future family planning programs may not be so favorable due to the budget squeeze that many countries are suffering from.

The above notwithstanding, some governments have succeeded in pursuing ambitious family planning programs. For instance, the government of Tunisia has made modern contraceptives and sterilization and abortion procedures available to a large segment of the Tunisian population. In response, the total fertility rate has dropped from 7 births/woman in the 1960s to 4.4 and 3.8 births per woman by 1988 and 1992 [Weeks, 1988] World Bank, 1994a].

Conclusions

Fertility rates in the Arab countries are among the highest in the world, and infant mortality rates have been declining rapidly. The resultant population growth rates are quite high, requiring large public-sector allotment for social services—public health, education, water, sanitation, etc. The overall health profile shows discernible improvement but disparities within and across countries are marked. The disadvantaged segments suffer the most, and their overall mortality and

morbidity rates are higher than the rest of the population.

A quantitative analysis (unpublished data) validates the hypothesis that fertility and child mortality are jointly determined—that fertility is influenced by child death. The impact of cultural and religious factors seems to dominate: son preference, young age at marriage, and religion are significant factors in deciding the expected number of pregnancies.

However, education of females plays a dual role. First, it lowers infant mortality rates, perhaps because better-educated mothers are more efficient at producing domestic health care. Second, female education reduces fertility through its impact on delayed marriage. From the policy perspective, the results suggest that governments can foster better health through the provision of medical care for children and women and through female education. A campaign to increase female education, if successful, would have a tremendous impact on infant mortality rate and on fertility. But whether governments will seriously invest in human resource development remains an open question: The onset of budget crisis and structural adjustment programs in several Arab countries may be socially disruptive and entail substantial cost, especially for the most vulnerable segments of the population—children and women. Governments will wish to ensure that these costs are minimized. Human development policies, especially preventive health care and education, have an important role to play in this respect.

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