Source: The World Bank, 2008

Tempo effect of child mortality rate in the MENA region from the perspective of Millennium Development Goals

Ardeshir Entezari[1]
Nader Motie Haghshenas[1]
Somayeh Karami Nia[1]

Abstract

The past two decades have witnessed significant improvements in the living conditions and health status of the world people, particularly the traditionally neglected rural residents. Access to such amenities as electricity and piped water has risen above 90% and almost all children under five have been covered by vaccination.

Two of the Millennium Development Goals are directly related to the challenges posed by mortality. MDG 4, namely "Reducing infant and child mortality by two-thirds between 1990 and 2015" and MDG5, namely," Improving maternal health and reduce maternal mortality by three quarters between 1990 and 2015".The paper examines tempo effect of child mortality rates in the MENA (Middle East and North Africa) region during 1990-2006. Data used in this analysis are mostly taken from the Human Development Report (HDR) for 2008 ,WHO for 2007 and world Bank Group for 2008. Our analysis on 18 countries of MENA region reveals that tempo effect of child mortality rates during 1990-2006 (Divided to two set time series) are different among male and female and gender gap is dwindle.

Key Words:

Child Mortality Rate, MENA Region, MDG'S.

[1] Population Studies and Research Center in Asia & the Pacific (PSRC), Tehran, Iran. Corresponding Persons: E-mail: entezari@psrc.ac.ir or haghshenas@psrc.ac.ir.

Introduction

Health status is influenced by different factors, some associated with individual characteristics and behaviours, and others with the impact of collective factors that can either improve or worsen health. With regard to the individual, interactions between physical and psychological aspects and between objective and subjective health are strong, particularly at older ages when health problems are frequently multiple and include physical,psychological and social components.

All the Millennium Development Goals (MDGs) are relevant to the health and welfare of mothers and children, but MDGs 4 (reducing child mortality by two thirds) and 5 (reducing maternal mortality by three quarters) are specifically so. Under-5 mortality rate is a leading indicator of the level of child health and overall development in countries.

According to WHO (World Health Organization) Report, despite substantial progress in recent decades, the WHO European Region still shows unacceptable disparities in maternal and child health both between and within countries. In the country with the highest mortality in children under 5 years of age, the rate is 40 times that in the country with the lowest rate.

A child born in the Commonwealth of Independent States (CIS) is three times as likely to die before the age of 5 as a child born in the European Union (EU). The maternal mortality ratio in the central Asian republics remains at least double the average for the Region as a whole, and, although disparities between the EU countries, the Nordic countries and other groups have narrowed in recent years, large differences remain.

Differences between countries are only part of the story; there can be staggering imbalances in mortality rates within a country, too. In the European Region today, some subgroups and districts show mortality rates for mothers and babies that are just as serious as those in sub-Saharan Africa or southern Asia.

Almost universally, rural populations have higher mortality than their urban counterparts; rates vary widely by ethnicity and wealth status, and remote areas bear a disproportionate burden of deaths. For example, according to demographic and health survey data from 2000, 18% of women in Azerbaijan with incomplete secondary education were not assisted by a skilled birth attendant during childbirth, as opposed to only 1% of women with postsecondary education.
In the United Kingdom, although maternal mortality levels were low, women from black African ethnic groups were seven times more likely to die than white women. In urban areas, the risk of maternal and perinatal death often differed

significantly between women in poorer areas and those in wealthy suburbs. Recently arrived migrants, refugees and asylum seekers also had less access to care and sometimes concealed their pregnancies from the authorities, including the health services.

Similarly, lower social groups in England and Wales had infant mortality rates considerably higher than the national averages, and the gap was increasing. For example, in 2002–2004, the overall infant mortality rate was 4.9 per 1000 live births, while the rate for those in the routine and manual occupation group was 5.9. Infant mortality had declined for all socioeconomic groups, but the rate of decline was slower for the routine and manual occupation group. The mortality gap between this group and the general population was 13% in 1997, but rose to 19% in 2004. Further, in England and Wales, the infant mortality rate is10.2 per 1000 live births if the mothers are of Pakistani origin. This is twice the average rate for the general population and has led to the setting of national targets to reduce the gap in infant mortality rates in the United Kingdom.
In 1999, the officially reported infant mortality rate in Romania was 18.58 per 1000 live births, but the rates for different ethnic groups were: 27.1 per 1000 for ethnic Romanians, 19.8 for ethnic Hungarians and 72.8 for the Roma population. Similar inequities continue to exist in many eastern countries in the European Region and the gap show no signs of narrowing.

Countries in the Middle East and North Africa (MENA) are going through demographic and epidemiological transitions characterized by a reduction in fertility and mortality, a declining incidence of communicable diseases, and an increase in noncommunicable diseases (NCDs) and injuries.

A girl born in Egypt today is expected to live for 72 years—nearly 20 years longer than a generation ago due in large part to improvements in child survival. This girl is expected to give birth to 3.1 children in her lifetime—three fewer children than she would have expected to bear had she been born in the early 1970s. This reflects a much greater use of family planning services. As people in MENA live longer, there has been a corresponding increase in age-related noncommunicable diseases, particularly in the high-income Gulf States.

In addition to demographic factors, rapid urbanization and changing lifestyles in the region have resulted in a dual burden of disease: NCDs and injuries (often associated with more developed countries) are increasing and, at the same time, infectious diseases (often associated with less developed countries) remain high. Lifestyle changes related to increased income and development such as smoking

and decreased levels of physical activity, together with growing environmental risks like air pollution, have led to an increase in noncommunicable diseases.

The health situation in the MENA region is diverse and changing and therefore requires interventions that meet the unique needs of the region. Faced with difficult choices in prioritizing investment in health interventions, MENA policymakers can benefit from the work of the Disease Control Priorities Project.

Aim of Study

The main aim of this study is to examine tempo effect of child mortality rates (CMR) in the MENA (Middle East and North Africa) region during 1990-2006. The paper is designed to answer the main question that do countries with different historical experiences and development levels manifest similar patterns of reduction in CMR at the regional level for achieving to MDG's?

Data and Research Methodology

This study is secondary analysis. Statistical population includes 18 countries at MENA region. Data used in this analysis are mostly taken from the Human Development Report (HDR) for 2008 ,WHO for 2007 and World Bank Group for 2008.According to research goals, the analysis covers two different period times (1990-2006). The concept of tempo of child mortality rate (CMR) refers to change in the degree of CMR during a period of time. To measure the tempo of CMR, we calculate:

$$TA = \frac{1}{n}(CMR^{t+n} - CMR^{t})$$

Where *TA* is the tempo of CMR, *n* is the number of years, and CMR is the rate of child mortality (Under five-mortality rate) at the years t and $t^{+}n$.

General Picture

Socio-economic, demographic and health indices in the MENA region

Most die from causes that are readily preventable in rich countries: acute respiratory infections, diarrhea, measles, and malaria. Rapid improvements before 1990 gave hope that mortality rates for infants and children under five could be cut by two-thirds in the following 25 years. But progress slowed almost everywhere in the 1990s. On average, all regions except Sub-Saharan Africa and South Asia are close to achieving the target.

But even there, more than half the countries are off track. Progress has been particularly slow in Sub-Saharan Africa, where civil disturbances and the HIV/AIDS epidemic have driven up rates of infant and child mortality. Progress in South Asia as a whole is slow due high child mortality in India and Pakistan. Based on the most recent data available, only 33 developing countries are making enough progress to reduce under-five mortality rates to one-third of their 1990 level by 2015.

Middle East and North Africa (MENA) region at one time had the highest population growth rates in the world, exceeding Sub-Saharan Africa. In the 1990s population growth slowed, and is now about 2 percent -- still more than South Asia, but less than Sub-Saharan Africa. Nonetheless, this demographic transition will continue to pressure social and economic infrastructures for years to come.

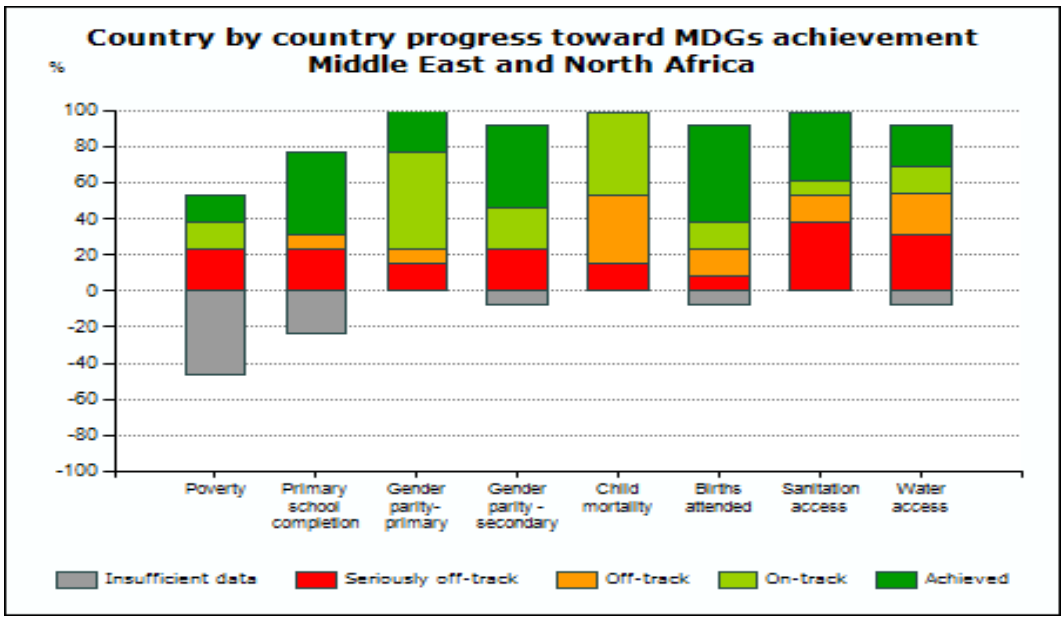
The region has experienced a fairly steady decline in the poverty rate, though not sufficient to avoid a rising count in the number of poor. The proportion of population living below $1.25 a day fell from 4.3 percent in 1990 to 3.6 percent in 2005, but the number of poor people increased from 9.7 million to 11 million. If $2 a day line is used, the poverty rate fell from 20 percent in 1990 to 17 percent in 2005, but the number of people living below $2 a day has increased from 44.4 million to 51.4 million. Overall, MENA is advancing to meet the MDGs, albeit progress has been uneven. Social and human development indicators for MENA showed marked improvement during the 1980s and 1990s, continuing a trend established over earlier decades.

Significant advances have taken place in improving indicators such as life expectancy, child mortality, and school enrollment for both men and women, among others. For instance, MENA has been gradually improving universal access to primary education since 1990. While Algeria, Egypt, Iran, Jordan, Syria, and Tunisia have already reached the universal primary completion rate and half of the other countries are likely to achieve the goal by 2015, Djibouti and Morocco require more effort to accomplish the goal by 2015.

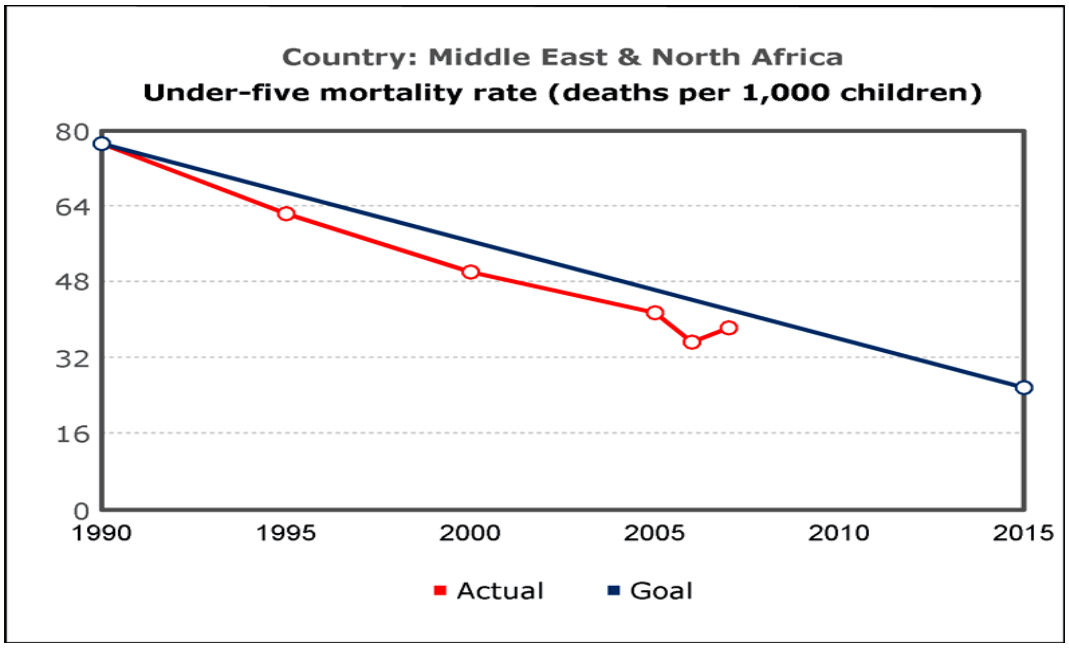
MENA has significantly increased gender equality in education as well. Half of the countries already achieved gender parity both in primary and secondary education and the other countries are likely to achieve the goal very soon except for Djibouti, Iraq, Lebanon, and Morocco, which need to accelerate efforts to reach the goal.

The region has a well-developed infrastructure. About 88 percent of its population has access to improved water sources, and 91 percent to electricity. About 70

percent of its roads are paved. But with internal freshwater resources of 730 cubic meters per capita, MENA ranks well below the average of other regions. More than half of the countries are unlikely to achieve access to sanitation facilities target for 2015.



Source: World Bank Group, World Development Indicators database, 2008.



Source: Ibid.

Finding

A) Demographic Characteristics

Table 1 shows demographic indicators of the MENA region countries at the threshold of the 21st century. As indicated in this table, majority of the MENA region countries varied significantly in terms of population size, annual growth rate, and population density and population sex ratio and in the Percent of population Urban. Annual Population growth rate for these courtiers varies from 1.3 percent in Lebanon to 6.8 percent in UAE. This highly rate affected by predominant role of international migration in the majority of Persian Gulf Countries. These countries have experienced remarkable changes in terms of Sex ratio. The difference in favor of male had become more noticeable in 2005, except in Lebanon and Morocco Countries.

Table 1: Demographic Indicators for MENA region Countries at the threshold of the 21st Century

Country	Population (in Millions)	Annual Growth Rate (%)	Population Density (per square KM)	Sex Ratio	Population Under Age 15 (% of Total)	Population Age 65+ (% of Total)	% Urban
Algeria	34.7	2.4	15	101.9	30	5	63
Bahrain	0.8	3.3	1.124	134.4	27	3	100
Egypt	74.9	2.1	75	101.1	33	5	43
Iran	72.2	2.4	44	103.3	26	5	67
Jordan	5.8	3.5	65	105.2	37	3	83
Kuwait	2.7	3.3	150	146.1	24	2	98
Lebanon	4	1.3	383	95.9	27	8	87
Libyan	6.3	2.9	4	106.8	30	4	77
Morocco	31.2	1.9	70	96.4	29	6	56
Oman	2.7	3.4	9	129.0	30	2	71
Qatar	0.9	5.1	84	306.9	23	1	100
Saudi	28.1	3.9	13	120.7	38	2	81
Sudan	39.4	2.6	16	101.4	41	4	38
Syria	19.9	3.1	108	102	37	3	50
Tunisia	10.3	1.9	63	101.1	25	6	65
Turkey	74.8	1.9	95	100.9	28	6	62
UAE	4.5	6.8	54	203.6	19	1	83
Yemen	22.2	3.6	42	102.2	45	3	30

Sources: United Nation Population Division, (2008),UNDP Report, HDR, (2007, 2008) and PRB(2008).

B) Socio-Economic and Health Indicators

Table 2 shows socioeconomic and Health Indices in the MENA region countries at the threshold of the 21st century. As indicated in this table, all of the MENA region countries varied significantly in terms of GDP per capita, IMR, and Human Development Indices. IMR for these courtiers varies from 7 per 1000 live births in Qatar and UAE to 81 per 1000 live births in Sudan in 2005. The highest HDI belonged to Persian Gulf Countries.

Table 2: Socioeconomic and Health Indices for MENA region Countries at the threshold of the 21st Century

Country	GDP Per Capita (US$)	Adult Literacy rate	IMR	Human Development Indices			
				LE Index	GDP Index	EDU Index	HDI 2005
Algeria	7.062	69.9	27	0.778	0.711	0.711	0.733
Bahrain	21.482	86.5	8	0.889	0.799	0.914	0.866
Egypt	4.337	71.4	33	0.761	0.629	0.732	0.708
Iran	7.968	82.4	32	0.754	0.731	0.792	0.759
Jordan	5.530	91.1	24	0.782	0.670	0.868	0.773
Kuwait	26.321	93.3	8	0.871	0.930	0.871	0.891
Lebanon	5.584	NA	19	0.775	0.671	0.871	0.772
Libyan	10.335	84.2	21	0.806	0.774	0.875	0.818
Morocco	4.555	52.3	43	0.757	0.637	0.544	0.646
Oman	15.602	81.4	10	0.833	0.843	0.776	0.814
Qatar	27.664	89	7	0.834	0.938	0.852	0.875
Saudi	15.711	82.9	16	0.878	0.844	0.806	0.812
Sudan	2.083	60.9	81	0.540	0.507	0.531	0.526
Syrian	3.808	80.8	19	0.811	0.607	0.775	0.724
Tunisia	8.371	74.3	19	0.808	0.739	0.750	0.766
Turkey	8.407	87.4	23	0.773	0.740	0.812	0.775
UAE	25.514	88.7	7	0.889	0.925	0.791	0.868
Yemen	930	54.1	77	0.412	0.447	0.655	0.508

Source: Ibid.

C) Changes in Child Mortality Rates (1990-2006)

Table 3 shows changes in child mortality rates (CMR) in MENA region countries in during 1990-2006.As indicated in figure 1, trends of CMR have sharply declined and followed from the world. CMR reduction in the first period (1990-2000) was rather than to the third period (2001-2006) and has experienced remarkable changes in both sexes. Gender gap between male and women have dwindled specially in during 2001-2006 (Table 4 and Figures 2-3).

Table 3: Changes in Child Mortality rates (CMR) in MENA region Countries in during 1990-2006

Country	CMR 1990-1995	CMR 1996-2000	CMR 2001-2006	TA (1)	TA (2)
Algeria	69	52	41	-3.4	-2.2
Bahrain	19	16	15	-0.6	-0.2
Egypt	91	58	47	-6.6	-2.2
Iran	72	52	41	-4	-2.2
Jordan	40	32	26	-1.6	-1.2
Kuwait	16	12	11	-0.8	-0.2
Lebanon	38	33	30	-1	-0.6
Libyan	41	26	23	-3	-0.6
Morocco	89	59	46	-6	-2.6
Oman	31	23	17	-1.6	-1.2
Qatar	21	15	12	-1.2	-0.6
Saudi	44	31	26	-2.6	-1
Sudan	120	135	120	3	-3
Syrian	38	28	22	-2	-1.2
Tunisia	52	30	25	-4.4	-1
Turkey	82	48	36	-6.8	-2.4
UAE	15	13	11	-0.4	-0.4
Yemen	139	112	95	-5.4	-3.4

Source: Ibid.

Table 4: Gender Gaps in Child Mortality rates in MENA region Countries in during 1990-2006

Country	CMR 1990-1995		CMR 1996-2000		CMR 2001-2006	
	Male	Female	Male	Female	Male	Female
Algeria	75	63	53	51	42	40
Bahrain	18	20	16	16	15	15
Egypt	95	86	59	56	48	45
Iran	75	69	51	53	40	42
Jordan	42	38	34	30	28	24
Kuwait	18	15	14	10	12	10
Lebanon	43	34	39	28	35	24
Libyan	41	41	28	25	24	22
Morocco	98	80	67	51	53	38
Oman	33	30	25	21	19	16
Qatar	24	19	16	15	12	12
Saudi	48	41	35	27	31	21
Sudan	114	128	142	128	127	113
Syrian	45	30	32	24	25	18
Tunisia	57	47	32	28	27	23
Turkey	85	79	53	42	41	32
UAE	16	13	13	13	11	12
Yemen	143	135	116	108	101	90

Source: Ibid.

Figure1: Changes in Child mortality Rates between (1990-1995) and (2001-2006)

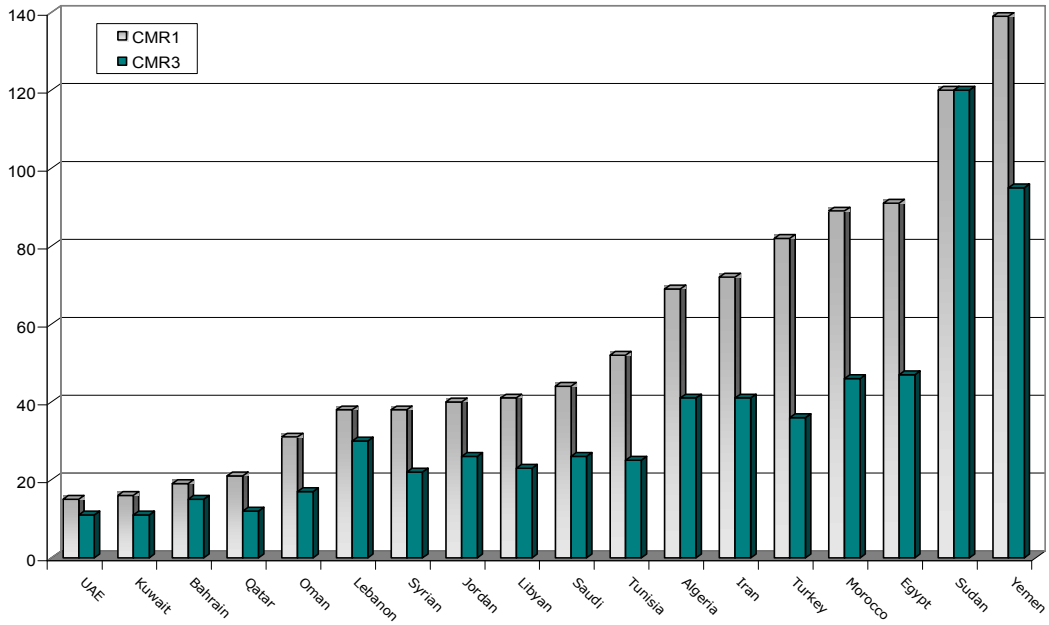


Figure 2: Gender Gap for child mortality rates at the first time (1990-1995)

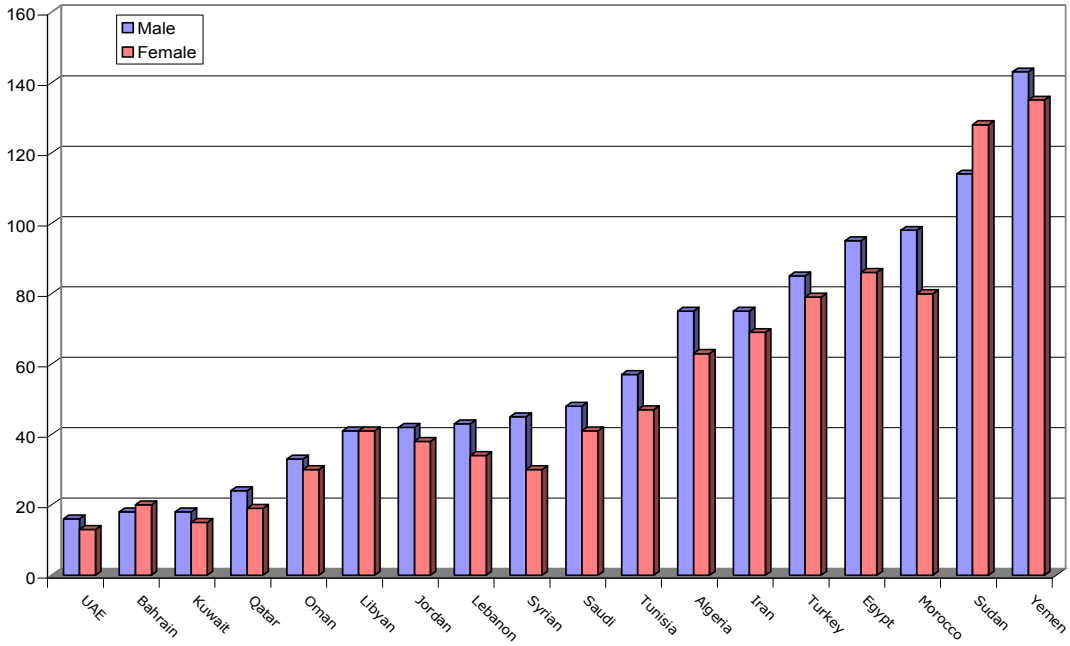
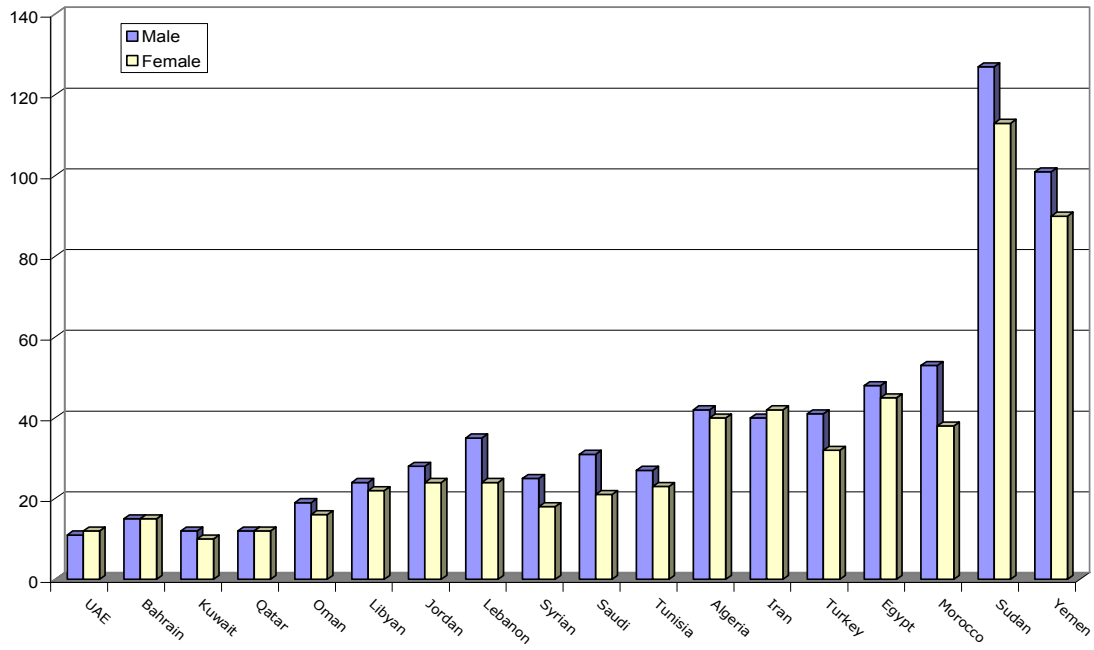


Figure 3: Gender Gap for child mortality rates at the third time (2001-2006)



Summary and Policy Implications on Regional Balance

This paper declared that countries in the Middle East and North Africa (MENA) are going through demographic characterized by a reduction in child mortality rates. Majority of the MENA region countries varied significantly in terms of population size, annual growth rate, and population density and population sex ratio and in the Percent of population Urban. Trends of CMR have sharply declined and followed from the world. CMR reduction in the first period (1990-2000) was rather than to the third period (2001-2006) and has experienced remarkable changes in both sexes. Gender gap between male and women have dwindled specially in during 2001-2006.

Overall, MENA is advancing to meet the MDGs, albeit progress has been uneven. Social and human development indicators for MENA showed marked improvement in the 1990s, continuing a trend established over earlier decades.

The health situation in the MENA region is diverse and changing and therefore requires interventions that meet the unique needs of the region. Faced with difficult choices in prioritizing investment in health interventions, MENA policymakers can benefit from the work of the Disease Control Priorities Project.

The future of health indicators in the MENA region will remain a challenging and increasingly important tasks in the coming decades.

References

1. Ashford, (L), et al. (2001),New population Policies: Advancing Women's Health and rights, Population Bulletin, Population Reference Bureau;
2. Aoyama,(A), (2001), Reproductive Health in the Middle East and North Africa: Well-being for All. Washington, DC: The World Bank;
3. Population Reference Bureau (PRB),(2008),Data Sheet, Washington;
4. Lutz (w),et al.,(2004),The End of World Population Growth in the 21st Century", Earthscan press, London;
5. UNDP,(2007,2008),Human Development Report, New York;
6. United Nation Population Division,(2008),UN Projection Report, New York;
7. UN Millennium Development Goals [web site], (2005),New York, United Nations, Online at: http://www.un.org/millenniumgoals/goals.html;
8. World Bank,(2006),Investing in global health: A regional spotlight on the Middle East and North Africa region, Washington;
9. World Bank Group, (2008) World Development Indicators database; Washington;
10. WHO Report, (2007), The Millennium Development Goals in the WHO European Region: Health systems and health of mothers and children, Online at: http://www.euro.who.int/document/rc57/edoc08.pdf .

***