

Global and Regional Perspectives of Early Childhood Development in the Middle East and North Africa

Introduction

An initial step toward understanding the status of early childhood development (ECD) in the Middle East and North Africa (MENA) is to examine how the MENA region fares compared to other regions in the world. Moreover, identifying the specific situation of individual countries and benchmarking their status provides greater insight into the progress made by different countries. This type of comparative analysis offers an occasion for the region as a whole and for the individual countries to identify deficits in ECD and can lead to opportunities for learning and exchange of experiences. This chapter provides an overview of the status of ECD in the MENA region (a) compared to other regions and (b) benchmarking the status of ECD in 12 MENA countries. As explained in chapter 1, ECD in MENA is measured in terms of health, nutrition, and cognitive, social, and emotional development of children using a number of indicators.

The health status of children is examined through indicators of early mortality, prenatal care, having a trained attendant at birth, and immunizations. Children's nutritional status is measured by stunting (height-for-age) as well as the availability of micronutrients, specifically iodine. To assess cognitive and social or emotional development, the analysis looks at the extent to which children are engaged in developmental learning activities, attendance in early childhood care and education, whether children are violently disciplined, and whether children are engaged in child labor at age five. These were the indicators selected to measure ECD in MENA (see box 2.1). The use of these indicators is predicated on the available data. Examining additional indicators could provide an even richer picture of ECD in MENA.

To better understand the context and conditions that influence ECD outcomes, the analysis also examines background factors that may be associated with ECD outcomes at the individual, household, and community levels, and their

Box 2.1 ECD Indicators Examined in MENA

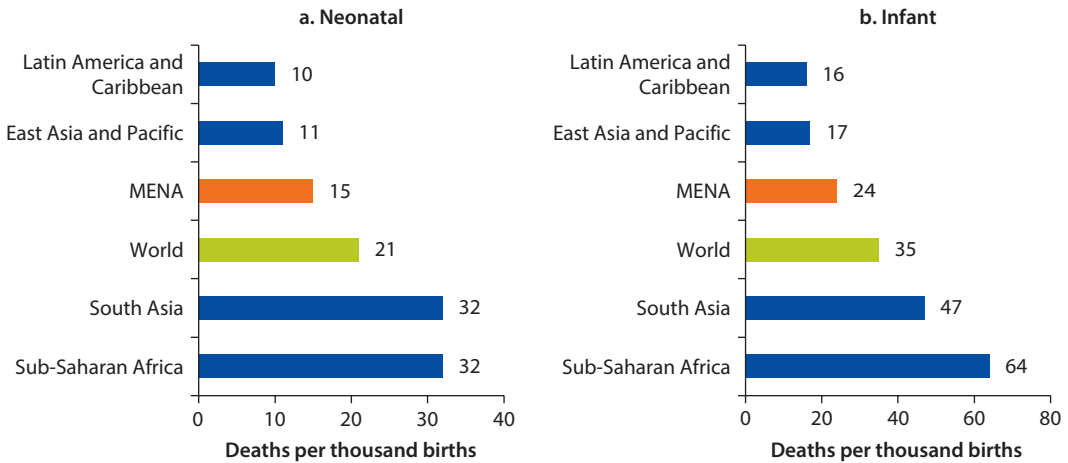
Prenatal care
Trained attendant at delivery
Neonatal mortality (dying in the first month)
Infant mortality (dying in the first year)
Fully immunized
Stunting/Height-for-age
Salt iodization
Early childhood care and education
Parental development activities
Violent child discipline
Child labor

relationships. Finally, the analysis measures the gaps and extent of inequality in ECD outcomes across MENA countries. Children should have equal opportunities for healthy development during their early years, regardless of their circumstances. The analysis is based on the latest available data for each of the countries studied.¹ While under normal circumstances ECD indicators change relatively slowly, on the ground today, in light of the Arab Spring and conflicts in the region, there may be substantial changes in ECD. Children may face additional challenges, but there may also be new opportunities to promote ECD.

Early Childhood Development in MENA—A Global Setting***Survival, Health Care, and Nutrition***

The first step in healthy ECD is simply surviving early childhood. In MENA, around one in every 40 children dies in the first year of life. Although there have been improvements over time, too many children still die of preventable causes. Numerous dimensions of a country's development and children's experiences shape early mortality. Many different inputs to children's early development can affect early mortality, including health and health services, nutrition, caregivers' child-rearing knowledge, birth timing and spacing, and access to clean water and sanitation (Naudeau et al. 2011).

Early death represents the ultimate loss of all a child's development potential and the compounded effects of malnutrition and diseases. MENA's infant mortality rate (dying in the first year of life) of 24 deaths per thousand births is lower than the world average of 35 deaths per thousand births (figure 2.1); however, it is higher than in East Asia and the Pacific (17 deaths per thousand births) and Latin American and the Caribbean (16 deaths per thousand births)—regions with income levels similar to MENA. Most of infant mortality is composed of neonatal mortality (dying in the first month of life). MENA has fewer deaths in the first month of life (a lower neonatal mortality rate) than the world average,

Figure 2.1 Infant and Neonatal Mortality Rates (Deaths per Thousand Births)—Regional Comparison, 2012

Source: UNICEF 2014.

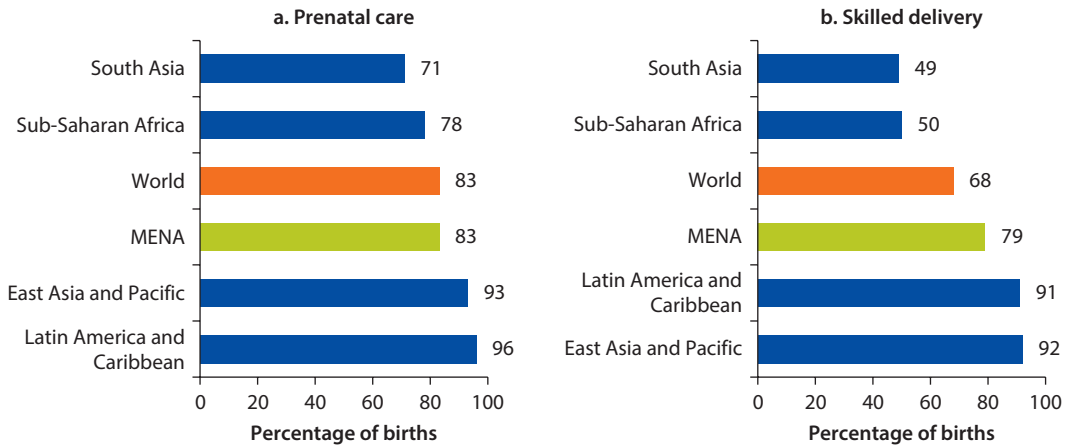
Note: MENA = Middle East and North Africa.

but its rate of 15 deaths per thousand births means that 1 in every 67 children dies in the first month of life (figure 2.1).

Addressing both early mortality and ECD begins during pregnancy. In MENA, 83 percent of births receive prenatal care. While this is the same as the world average, it is substantially lower than regions with similar income levels, such as East Asia and the Pacific and Latin America and the Caribbean, where over 90 percent of births receive prenatal care. MENA has only a 5-percentage-point higher rate of prenatal care than Sub-Saharan Africa. Delivery with a skilled attendant is also an important component of reducing newborn mortality and illness. At 79 percent, the rate of deliveries handled by a skilled attendant in MENA is substantially higher than the world average of 68 percent (figure 2.2), but below Latin America and the Caribbean and East Asia and the Pacific.

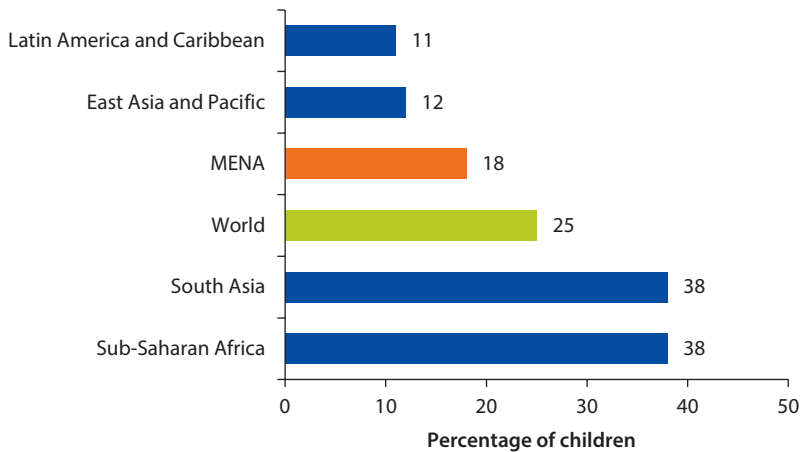
The full immunization of children plays an important role in reducing child mortality—diseases such as measles are a major cause of child mortality. MENA is approaching high immunization coverage, with 89 percent of children fully immunized against diphtheria, pertussis, and tetanus (DPT) (UNICEF 2014). Immunizations also prevent the illnesses that can hamper healthy physical growth (Molina 2012). While there are a variety of other important immunization needs, at least in terms of DPT, MENA is doing better than the world average (84 percent), and is close to other high-performing developing regions, such as Latin America and the Caribbean (93 percent) and East Asia and the Pacific (92 percent).

Malnutrition, which impairs the growth of almost a fifth of children, is a major challenge for MENA. Stunting—being more than two standard deviations below the height of a healthy reference child of the same age and gender—has been connected to decreased cognition, poorer school performance, decreased productivity later in life, and decreased income (Glewwe and Miguel 2008;

Figure 2.2 Prenatal Care and Delivery with a Skilled Attendant—Regional Comparison, 2008–12

Source: UNICEF 2014.

Note: MENA = Middle East and North Africa.

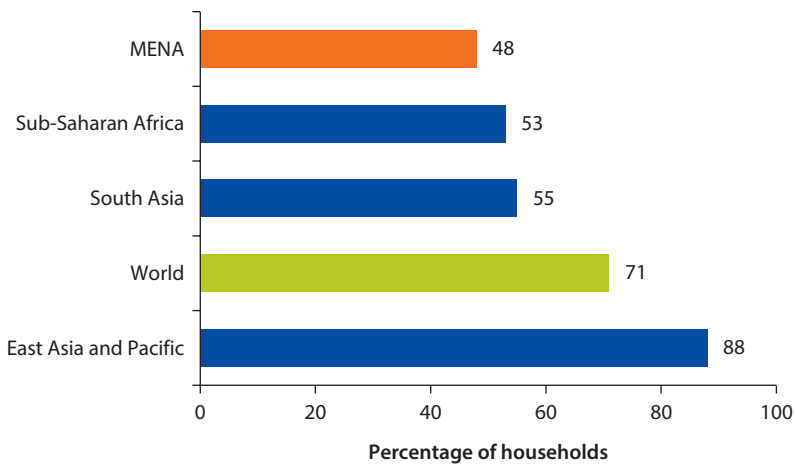
Figure 2.3 Children Stunted, Ages 0–59 Months—Regional Comparison, 2008–12

Source: UNICEF 2014.

Note: MENA = Middle East and North Africa.

Grantham-McGregor et al. 2007; Walker et al. 2011). Almost a fifth (18 percent) of children in MENA are stunted. As a result of being stunted, children in MENA will accumulate less health and human capital and face lower wages later in life. This is one-fifth of the future workforce that will be less productive in their working years, because of almost entirely preventable malnutrition. While MENA's rate of stunting is lower than the world average, as well as South Asia or Sub-Saharan Africa, it is higher than that of Latin America and the Caribbean, where 11 percent of children are stunted, and East Asia and Pacific, where 12 percent of children are stunted (figure 2.3).

Figure 2.4 Households with Adequately Iodized Salt—Regional Comparison, 2006–10



Source: UNICEF 2012.

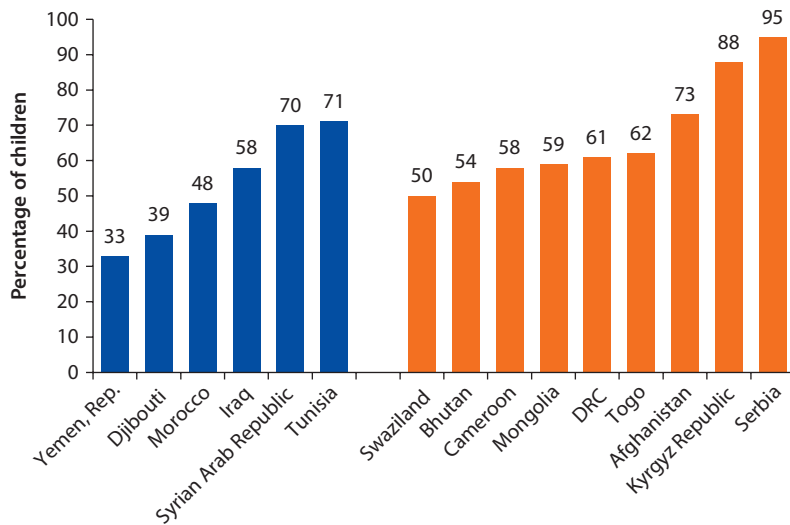
Note: MENA = Middle East and North Africa. The period 2006–10 is the last period with comparable data for MENA.

MENA has the fewest households with adequately iodized salt² of any region, putting children at great risk for impaired cognitive development. Micronutrients such as iron, vitamin A, zinc, and iodine, play an important role in both physical and cognitive development. Iodine-deficient individuals average 10-point-lower IQs than non-deficient individuals (Molina 2012). Iodized salt is the primary means for delivering iodine to children. At a rate of 48 percent of households with adequately iodized salt, MENA is lower than Sub-Saharan Africa (53 percent) and South Asia (55 percent), and falls well below the world average of 71 percent of households having adequately iodized salt (figure 2.4).

Social, Emotional, and Cognitive Development

Although it has been proven that play and interaction are important components of ECD, children in MENA are missing out on important opportunities to develop socially and emotionally, and are at a substantial disadvantage compared to other regions. Parents' engagement in activities that promote learning is an important support of cognitive development, and an important indicator of parenting practices and the social-emotional engagement of parents with their children. Figure 2.5 shows the percentage of children ages 36–59 months engaged in at least four of six different activities that support child development,³ comparing a number of MENA countries with a random subsample of other countries. As the figure shows, the performance of MENA countries is generally lower than the other countries in terms of supporting early development. Only 33 percent of children in the Republic of Yemen, 39 percent of children in Djibouti, and 48 percent of children in Morocco are engaged in development activities—below the lowest of the random sample of other countries, Swaziland, where 50 percent of children are engaged in development activities. While Iraq, the Syrian Arab

Figure 2.5 Children Aged 36–59 Months Experiencing at Least Four of Six Development Activities, Selected Countries



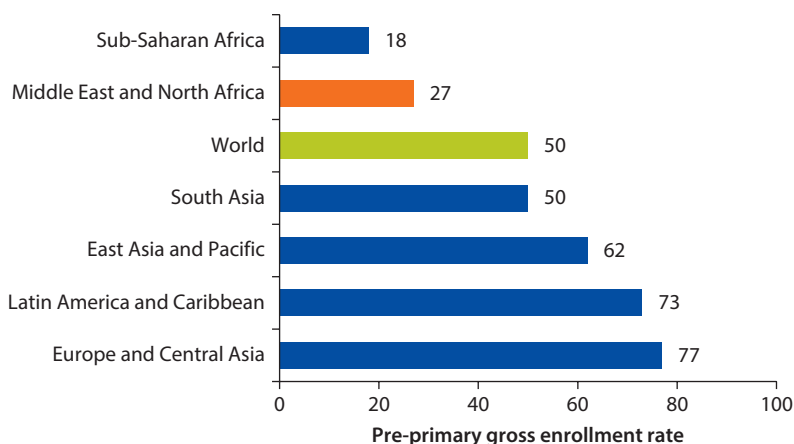
Source: UNICEF (2013), except Djibouti (Ministry of Health [Djibouti], Institute of Statistics and Demographic Studies, and League of Arab States 2012), Iraq (The Central Statistics Organization and the Kurdistan Regional Statistics Office 2012), and Tunisia (Ministry of Development and International Cooperation, National Institute of Statistics, and UNICEF 2013).

Note: DRC = Democratic Republic of the Congo. Djibouti is for 24–59 months.

Republic (pre-conflict), and Tunisia do better, their rates are still low. In the random subsample of other countries, Afghanistan, Kyrgyzstan, and Serbia do better than any of the MENA countries with data. Looking at all the MENA countries with data, Tunisia performs the best but still ranks 24th out of 49 countries in terms of development activities. Iraq is 31st, Morocco 40th, Djibouti 44th, and Yemen 47th out of the 49 countries.

Early childhood education and early learning play an important role in school success. However, the MENA region is substantially underinvesting in this important stage of education. Despite evidence that early childhood care and education (ECCE) improves cognition and socioemotional development and endows lifetime benefits, pre-primary gross enrollment in MENA is almost half that of the world average. MENA's rate of pre-primary enrollment is lower than all other regions except Sub-Saharan Africa and is about one-third the rate of Europe and Central Asia and Latin America and the Caribbean (figure 2.6).

Another challenge that risks hindering the healthy development of children is violent discipline. Violent child discipline⁴ is widespread in MENA, negatively impacting children's physical, psychological, and social development. Comparing MENA countries with available data and countries in other regions shows that MENA countries have the highest percentage of children aged 2–14 years who are violently disciplined.⁵ Yemen and the West Bank and Gaza have the highest rates of violent discipline (out of 50 countries), with 95 percent of children violently disciplined. Tunisia, Iraq, Algeria, Syria (pre-conflict), Morocco, and the Arab

Figure 2.6 Gross Enrollment Rates in Pre-Primary—Regional Comparison, 2011

Source: World Development Indicators.

Republic of Egypt all have high rates of violent discipline, between 79 and 93 percent. Tunisia has the 5th highest rate of violent discipline, Egypt the 8th highest, Morocco the 11th highest, Syria (pre-conflict) the 14th highest, Algeria the 17th highest, and Iraq the 26th highest. Only Djibouti has a lower rate, around 38 percent and ranks 49th in violent child discipline among the 50 countries.

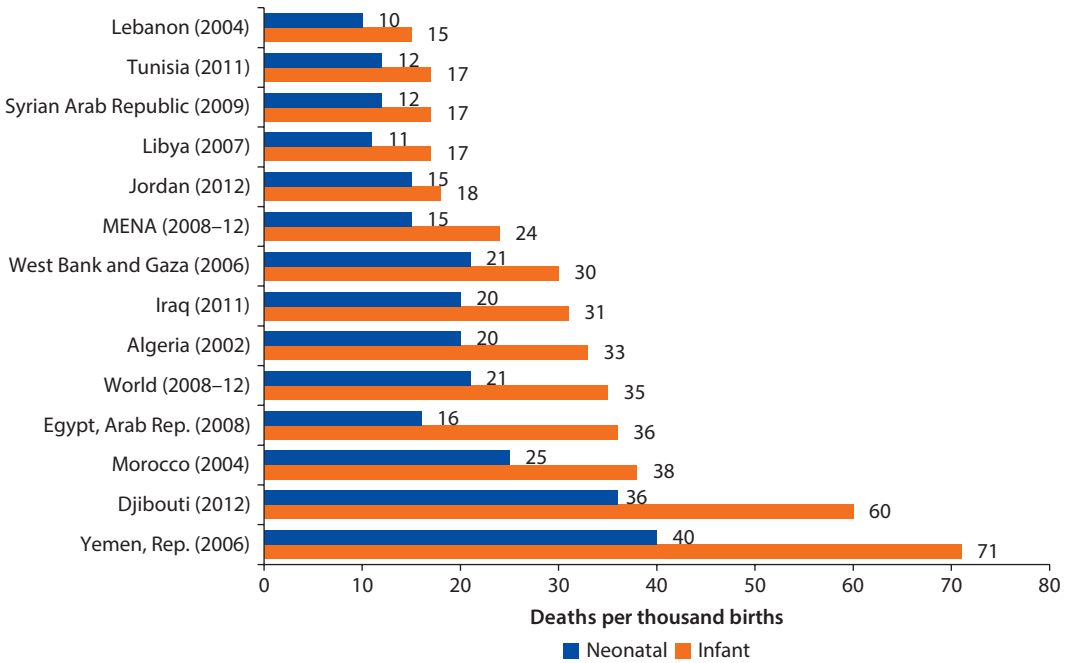
Early Childhood Development in MENA—Comparing Countries in MENA

Survival, Health Care, and Nutrition

There is wide variation in the status of ECD among countries in MENA. Infant mortality rates vary, with the highest rates in Yemen and lowest in Lebanon (figure 2.7). Djibouti and Yemen have infant mortality rates that are much higher than world average and closer to Sub-Saharan Africa. One in 15 children dies in the first year of life in these countries. In Yemen, one in every 25 children dies in the first month of life. Morocco, Egypt, Algeria, Tunisia, and the West Bank and Gaza all had higher neonatal and infant mortality rates, as of their last survey, than the 2010 regional average. Egypt is notable for the unusually large gap between neonatal and infant mortality. Compared to other countries with similar infant mortality rates, Egypt has a much lower neonatal mortality rate. Children are less likely to die in the first month of life, but more likely to die in the remainder of the first year of life, suggesting Egypt is facing different early health challenges than other countries. Lebanon, Jordan, Libya, and Syria (pre-conflict) all had lower rates than the regional averages, although the recent conflicts in Libya and especially Syria are likely to have altered this situation.

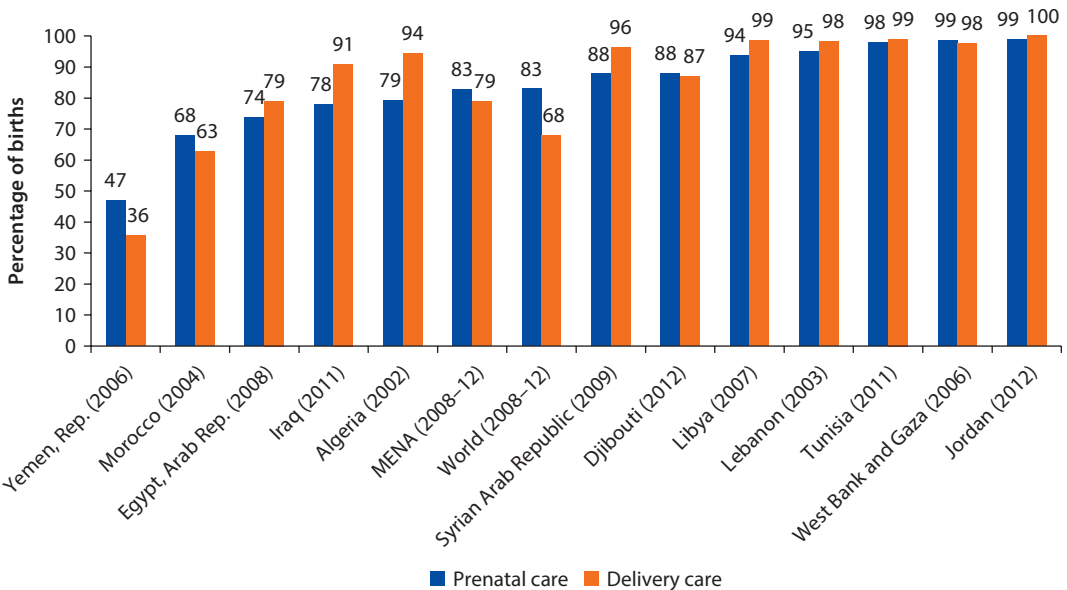
Most MENA countries do well in terms of use of prenatal care and in having skilled attendants at birth. However, several countries have substantial gaps in coverage, putting mothers and children at great risk (figure 2.8). A number of

Figure 2.7 Neonatal and Infant Mortality by Country or Territory Deaths per Thousand Births—Most Recent Survey



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1). World and MENA averages from UNICEF (2014).
 Note: MENA = Middle East and North Africa.

Figure 2.8 Prenatal and Delivery Care in MENA by Country or Territory—Most Recent Survey

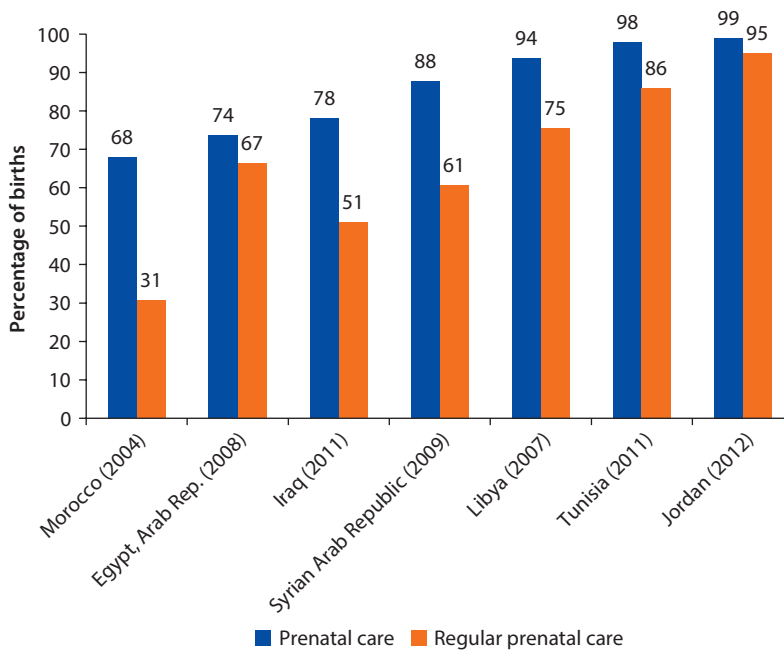


Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1). World and MENA averages from UNICEF (2014).
 Note: MENA = Middle East and North Africa.

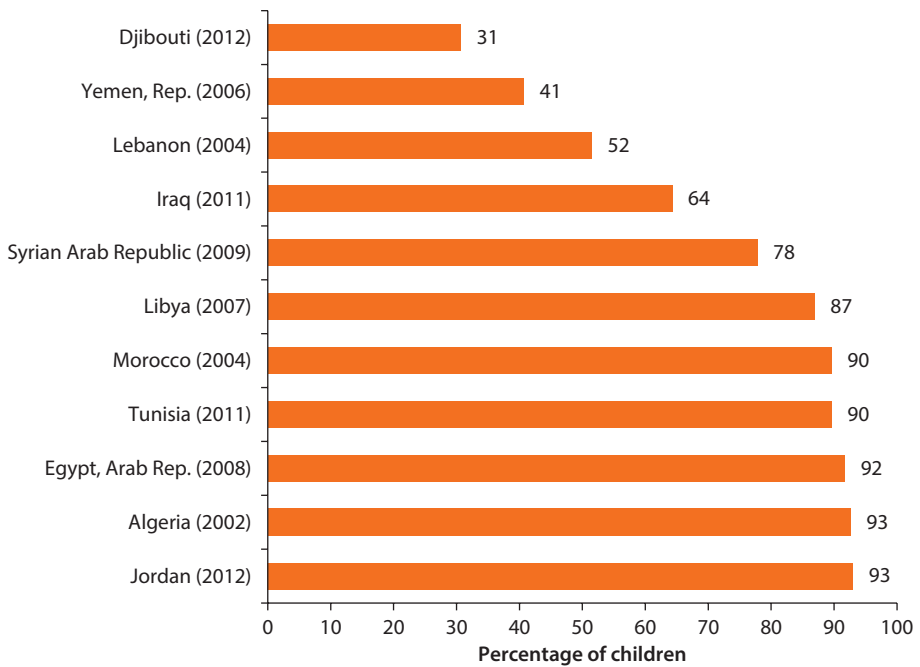
MENA countries are approaching universal prenatal and delivery care, including Tunisia, Djibouti, Libya, Lebanon, West Bank and Gaza, and Jordan. In Syria (pre-conflict), Iraq, and Algeria there are moderate shortfalls, with prenatal care coverage that is lower than the percentage of births with skilled delivery attendants. In Egypt and Morocco, between a third and a fifth of births are occurring without prenatal care or without skilled delivery attendants. Yemen has very low rates, with only 47 percent of births receiving prenatal care and 36 percent of births attended by a skilled professional.

Access to regular prenatal care needs to increase in most MENA countries. While MENA does well in terms of births receiving at least one visit of prenatal care, there are large gaps in the amount of regular prenatal care (at least four visits) received by mothers (figure 2.9). Among countries with data, Jordan performs best, with 99 percent of births receiving prenatal care and 95 percent receiving regular prenatal care. Tunisia also does well, with 98 percent of births receiving prenatal care and 86 percent regular prenatal care. Libya and Syria (pre-conflict) have moderate gaps between prenatal care and regular prenatal care, while in Egypt, almost all of those who receive prenatal care (74 percent of births) do so regularly (67 percent). In Morocco, while 68 percent of births receive prenatal care, only 31 percent of all births do so regularly, and in Iraq, while 78 percent of births receive prenatal care, only 51 percent do so regularly. It is important to address these gaps, but different outreach is likely to be required to address the different types of gaps.

Figure 2.9 Prenatal Care and Regular Prenatal Care by Country—Most Recent Survey



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Figure 2.10 Children Aged 12–23 Months Fully Immunized, by Country—Most Recent Survey

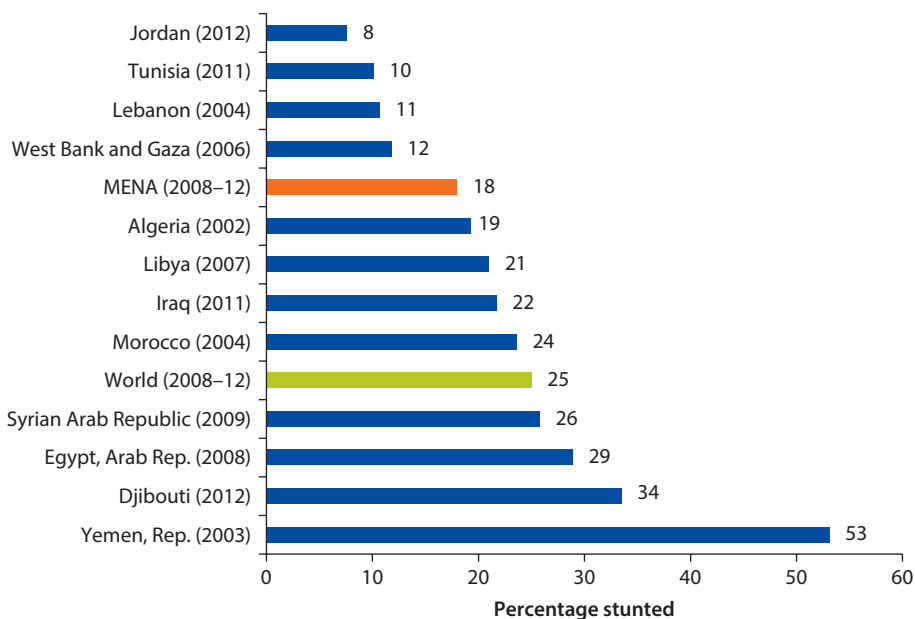
Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: Lebanon lacked information on the Bacillus Calmette-Guérin (BCG) vaccine, so full immunization was calculated for the other vaccines for Lebanon. Algeria lacked information on the measles vaccine and the second and third polio doses, so full immunization was calculated for the other vaccines for Algeria. Tunisia is 18–29 months of age.

A number of MENA countries are approaching an adequate level of immunizations, while others have not achieved the necessary level of immunization coverage to protect children against preventable illnesses and deaths (figure 2.10). Children are considered fully immunized if they have received immunizations for all six major preventable childhood diseases: tuberculosis, diphtheria, whooping cough, tetanus,⁶ polio,⁷ and measles. They should be fully immunized by 12 months of age.⁸ A number of MENA countries have achieved the level of immunizations that will confer herd immunity,⁹ including Morocco, Tunisia, Egypt, Jordan, and Algeria. Libya, with 87 percent of children fully immunized, is quite close to adequate coverage. In Syria (pre-conflict) as of 2009, only 78 percent of children were fully immunized, and immunization rates are likely to have fallen as a result of the recent conflict. Yemen, Djibouti, Iraq, and Lebanon have very low rates of full immunization, ranging from 31–64 percent.

Receiving a full course of multidose vaccines is one of the greatest challenges in countries with lower immunization rates. Comparing the deficits in immunizations in Yemen, Djibouti, and Iraq shows that countries face somewhat different challenges in terms of immunization coverage; for instance, Iraq does much better on polio coverage than on DPT. Djibouti does better at Bacillus Calmette-Guérin vaccine coverage than Yemen, but Yemen does better than Djibouti on measles coverage. Children also tend to not complete a full course of multidose

Figure 2.11 Children Aged 0–59 Months Stunted, by Country or Territory—Most Recent Survey



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1). World and MENA averages from UNICEF (2014).

Note: MENA = Middle East and North Africa.

immunizations; in Djibouti, while around 70 percent of children receive the first polio dose, only around 40 percent receive the third dose. Increasing the rates of immunization coverage will require targeting all these different types of gaps, which are often country-specific.

Stunting is pervasive in all of the MENA countries. Figure 2.11 shows the percentage of children ages 0–59 months who are stunted in MENA countries. Although Jordan, Tunisia, Lebanon, and the West Bank and Gaza have rates that are relatively low, that 8–12 percent of children are stunted represents substantial harm to hundreds of thousands of children in terms of development and human capital accumulation. In a number of countries (Algeria, Libya, Morocco, Iraq, and Syria [pre-conflict]), a fifth to a quarter of children are stunted, meaning children have between a 1 in 5 to 1 in 4 chance of diminished physical and cognitive health and lower wages later in life. Egypt has more stunting than the world average, with 29 percent of children stunted. Djibouti is similar, with a third (34 percent) of children stunted. Yemen in particular has a very serious problem with nutrition and stunting, with more than 53 percent of children stunted; more than half the children in Yemen are falling short of their full development potential.

MENA countries have continually struggled to reduce stunting. Djibouti has had increases in stunting, from 28 percent in 1989 to 34 percent in 2012, and stunting in Yemen has remained above 50 percent since 1992 (World Development Indicators). Although Egypt was making progress in decreasing stunting through

the early 2000s, rates have since increased substantially. Stunting has risen and fallen in Algeria, Syria (pre-conflict), and West Bank and Gaza and remained essentially constant in Iraq, Lebanon, and Libya. Only Tunisia, Jordan, and Morocco have made some overall progress in decreasing stunting, with some fluctuations.

Children's chances of having access to adequately iodized salt, which aids in healthy brain development, vary dramatically within MENA, from 0–97 percent.¹⁰ Djibouti has the lowest rate—less than 1 percent—and Morocco, Iraq, Yemen, and Syria (pre-conflict) all have very low rates—between 20 and 30 percent. Libya (53 percent) and Algeria (61 percent) do better than the MENA average but are below the world average. Egypt, West Bank and Gaza, Jordan, and Lebanon all do fairly well—between 77 and 88 percent—but still have room for improvement. Only Tunisia has nearly universal coverage (97 percent). The gaps in iodized salt access need to be rapidly addressed to ensure that children in MENA develop their full cognitive potential; iodizing salt is one of the most cost-effective development interventions in the world.

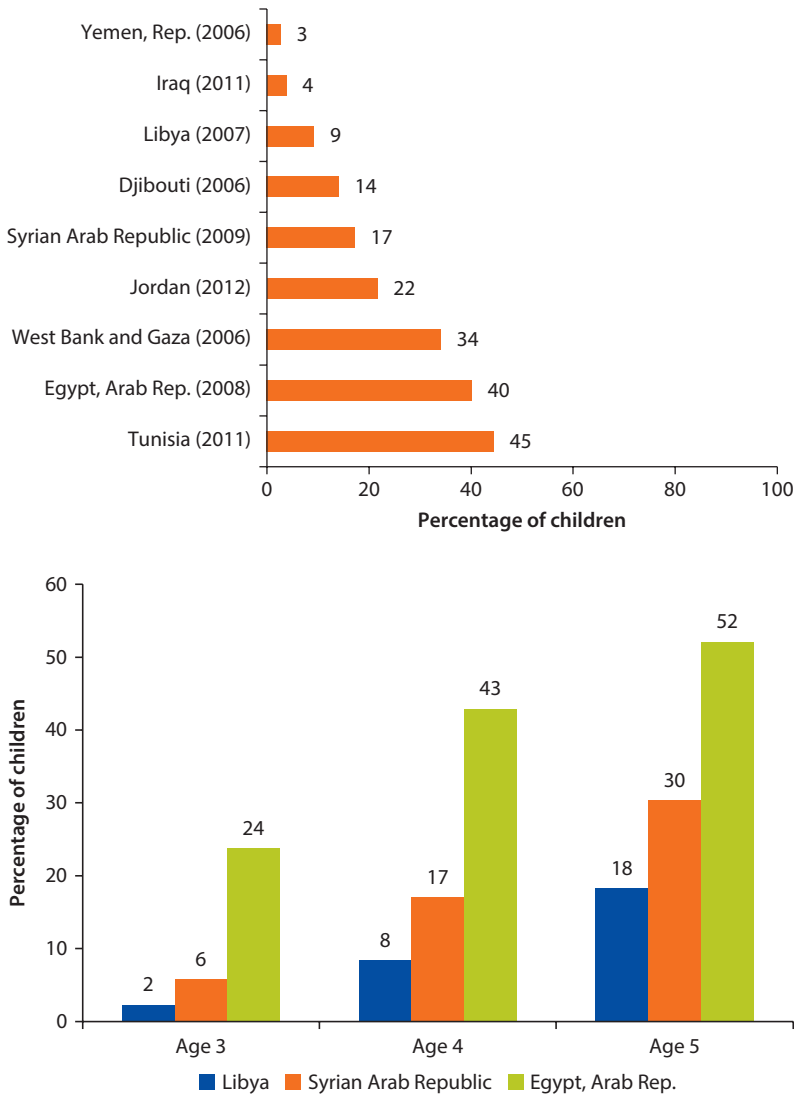
Social, Emotional, and Cognitive Development

Children in MENA are missing out on important opportunities to develop cognitively, socially, and emotionally and to prepare for school. Just a third of children ages zero to four years in Djibouti (37 percent) and a quarter in Yemen (26 percent) experience activities that support their cognitive and educational development, and only half of children in Iraq (54 percent), West Bank and Gaza (47 percent), and Syria (pre-conflict) (55 percent) experience development activities. Jordan (82 percent) and Tunisia (71 percent) do better, but still show substantial deficits. While all activities are important to social and emotional development, reading and naming, counting, and drawing have an important educational and cognitive component. As activities, singing songs, being taken outside, and playing, are particularly common. However, reading books, telling stories, and naming/counting/drawing are far less common. While families are often engaged socially and emotionally with their children, there is room for improvement in the cognitive development of children, especially in terms of reading, naming, counting, and drawing.

While rates vary, in every country surveyed, less than half of children participate in early childhood care and education. Figure 2.12 shows the percentage of children in ECCE in different MENA countries. Rates are particularly low in Iraq and Yemen, where only 3–4 percent of children attend ECCE. Libya, Djibouti, and Syria (pre-conflict) also have low rates (9–14 percent). In Jordan around a fifth (22 percent) of children attend ECCE. While West Bank and Gaza (34 percent), Egypt (40 percent), and Tunisia (44 percent) do relatively well for MENA, in these countries and territories more than half the children are missing out on this important development opportunity.

Although attendance tends to be higher among five-year-olds, many children never attend ECCE. Figure 2.12 also shows the percentage of children at ages three, four, and five who attend ECCE in Libya, Syria (pre-conflict), and Egypt. Few three-year-olds in Syria (pre-conflict) and Libya attend ECCE, while

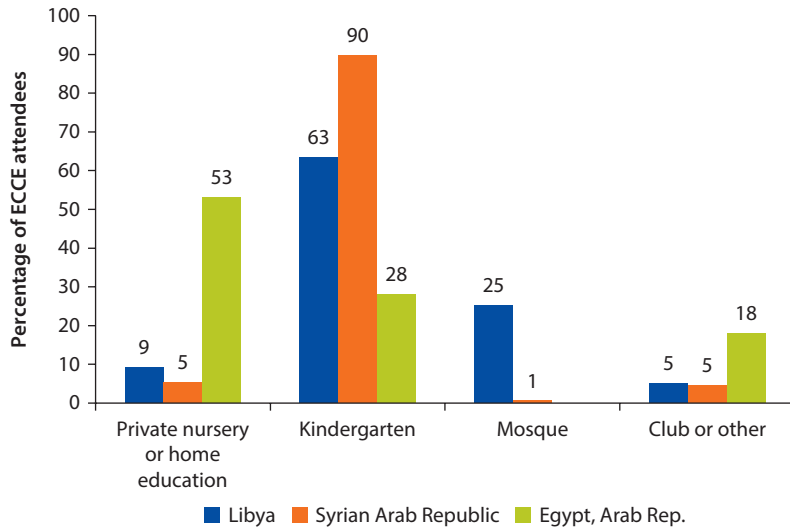
Figure 2.12 Percentage of Children in ECCE, by Country or Territory and by Age
Age is for selected countries



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: Ages 3–4 in Tunisia, Jordan, West Bank and Gaza, Iraq, Djibouti, and Yemen. Ages 3–5 in Egypt, Syria (pre-conflict), and Libya. All are current ECCE attendance, except for Egypt, which is ever attendance.

in Egypt 24 percent of three-year-olds have attended ECCE. Rates are still relatively low for four-year-olds in Libya and Syria (pre-conflict). Only at age five are a fifth (18 percent) of children in Libya and a third (30 percent) of children in Syria (pre-conflict) attending ECCE. Half of children in Egypt have attended ECCE by age five. Even when accounting for lower rates of attendance among younger children, most children are missing out on this important opportunity for early development and school readiness.

Figure 2.13 ECCE Types by Country, Children Attending ECCE, Ages 3–5

Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: Syria (pre-conflict) and Libya are current early childhood care and education (ECCE) attendance. Egypt is ever attendance. Mosque was not a response option in Egypt.

Different countries have different ECCE systems. Figure 2.13 shows the different types of ECCE attended in Libya, Syria (pre-conflict), and Egypt. Kindergartens provide 90 percent of ECCE in Syria (pre-conflict), 63 percent in Libya, and 28 percent in Egypt. Mosques are an important ECCE provider in Libya (25 percent). Kindergartens in Egypt are a mix of public and private programs; private nurseries (53 percent of ECCE) are actually the most common form of ECCE. These different types of ECCE are likely to have varying quality and offer differing support for early development.

Even among very young children—ages two to five—violent discipline is common practice in MENA. In Djibouti, 36 percent of children ages two to five are violently disciplined, and this is the lowest rate in the region. In Syria (pre-conflict) the rate is 85 percent, and in Iraq 77 percent. Yemen and Tunisia have rates of 93 percent, and West Bank and Gaza is the highest, with 96 percent of children ages two to five violently disciplined.

Moreover, at age five a substantial proportion of children in MENA are engaged in some type of child labor—that is, working for someone not a member of the household, doing household chores, or doing other family work. Work and chores at such an early age are likely to endanger children’s development and may reduce their chances of successfully transitioning into school. There is variation among countries in MENA in the proportion of five-year-olds who are engaged in child labor: 24 percent in Tunisia, 19 percent in Djibouti, 16 percent in Yemen, 12 percent in Syria (pre-conflict), 10 percent in Iraq, and 7 percent in Libya.

Factors That Influence Early Childhood Development in MENA

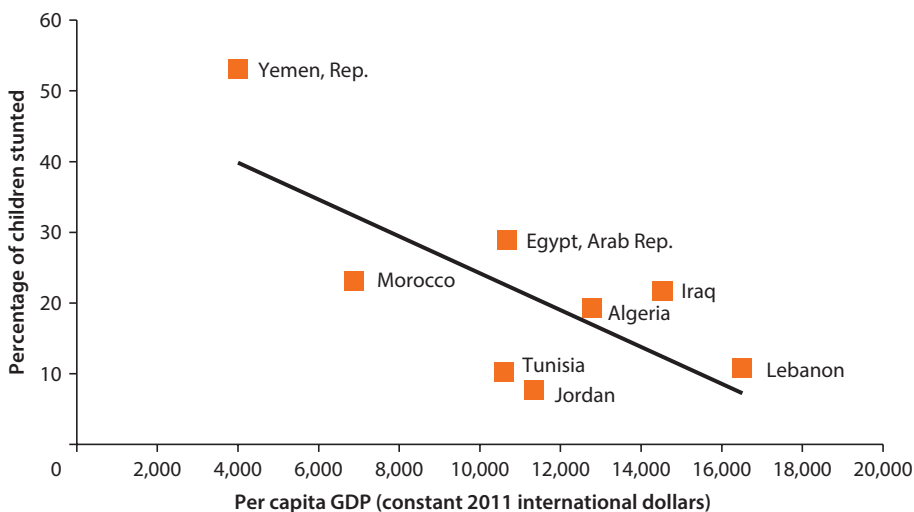
Country Development and ECD

Countries' success in promoting ECD depends to some extent on their overall level of development. However, the differences in ECD across countries with similar levels of development also demonstrate that countries which commit to addressing ECD can make substantial progress regardless of their GDP or other development indicators. As figure 2.14 shows, places with quite similar levels of income, such as Egypt and Tunisia, have widely varying stunting rates, ranging from 29 percent in Egypt to 10 percent in Tunisia. In fact, Lebanon's stunting rate (11 percent) is quite close to that of Tunisia, which has substantially lower per capita GDP than Lebanon.

Stunting is linked with other indicators of human development. Figure 2.15 shows how stunting and the Human Development Index (HDI) are linked in each country. The HDI incorporates measures of income, education, and life expectancy. Countries with low HDI have high stunting, and stunting generally decreases with higher HDI. Although there is a clear link between overall human development and stunting, some countries' rates of stunting do not follow this pattern. For instance, Egypt, Libya, and Yemen have high stunting rates relative to their HDI, while Jordan and West Bank and Gaza have lower stunting than would be expected given their HDI.

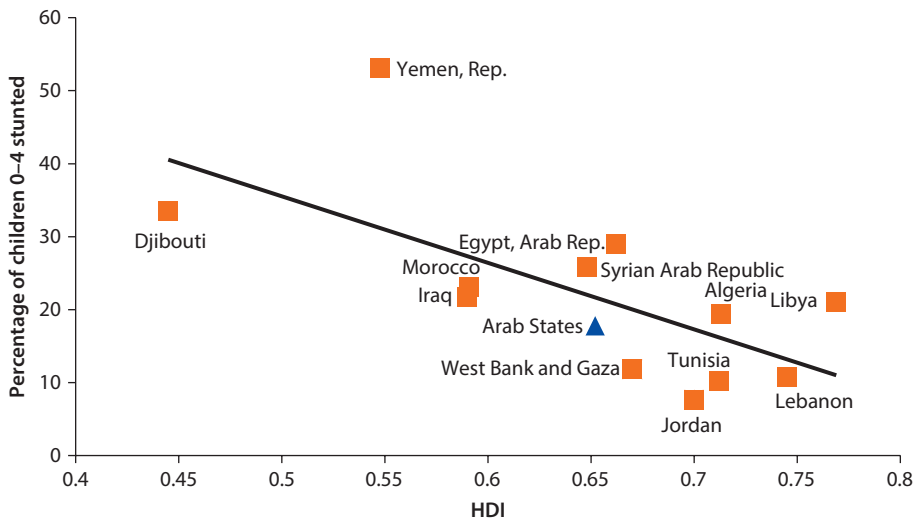
Countries with similar primary enrollments often have very different pre-primary enrollments. Figure 2.16 shows the pre-primary gross enrollment and primary gross enrollment rates for different MENA countries. Countries with comparable and high primary gross enrollment rates have very different pre-primary enrollment rates. For instance, Iraq has a 104 percent gross enrollment rate in primary, but only a 6 percent rate for pre-primary. Lebanon, with the

Figure 2.14 Children Aged 0–4 Stunted and per Capita GDP, by Country



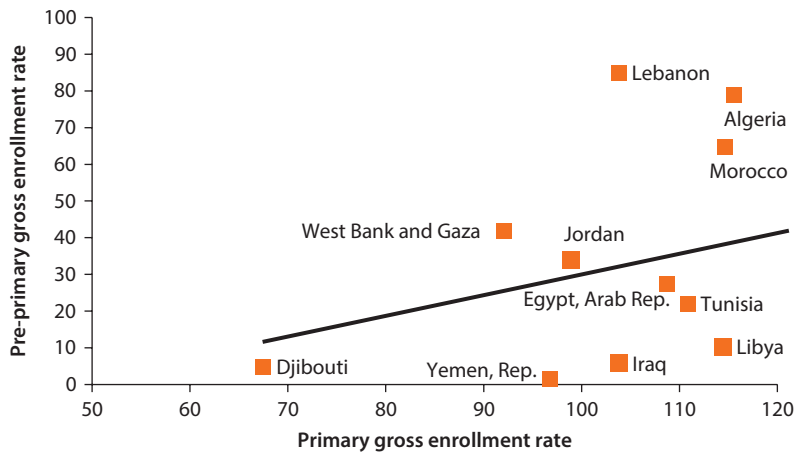
Source: World Bank calculations (stunting) and World Bank (2014) (GDP).

Figure 2.15 Children Aged 0–4 Stunted and the Human Development Index (HDI), by Country or Territory



Source: World Bank calculations (stunting) and UNDP (2014) (HDI).

Figure 2.16 Pre-Primary versus Primary Gross Enrollment Rates, by Country or Territory



Source: World Development Indicators (2014 data).

Note: Iraq data are from 2004; Libya, 2006; Tunisia, 2003 (last available year with both indicators).

same 104 percent gross enrollment rate in primary, has an 85 percent rate for pre-primary. Pre-primary enrollments vary widely even in countries with otherwise similar basic education capacity. MENA countries' commitments to basic education are not necessarily translating into investments in pre-primary. While other development indicators such as education, per capita GDP, and HDI are linked to countries' progress in ECD, it is also clear that countries can make substantial strides in ECD at all levels of economic development.

Children's Background and ECD

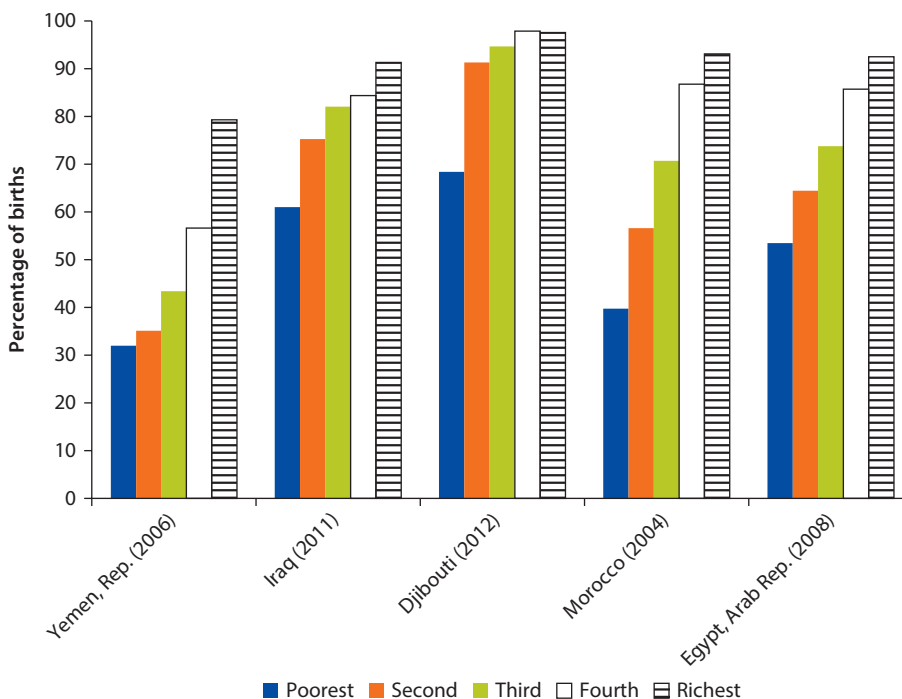
A number of background characteristics at the child, family, and community levels affect ECD outcomes: gender, parents' education, household socioeconomic status (wealth),¹¹ geographic location (region or governorate), and residence (urban/rural). Understanding these relationships can help identify why some children have poor ECD outcomes and which children to target with policy or programmatic interventions.

Although wealth, education, and geographic differences are all found to influence ECD in MENA, there are no substantive or systematic differences in ECD based on gender. Violent discipline is a pervasive problem in MENA, regardless of children's background, and child labor, which is a substantial problem in MENA, is not systematically related to children's background. All other dimensions of early development tend to be shaped by children's backgrounds.

Household Wealth and ECD

Access to prenatal care is closely related to the wealth of the household. In every country included in the analysis, children born to poorer households are less likely to receive prenatal care than children born to richer households. However, the extent of differences based on wealth varies substantially by country. Households were divided into wealth quintiles to observe the relationship

Figure 2.17 Prenatal Care by Wealth Level and Country, Selected MENA Countries



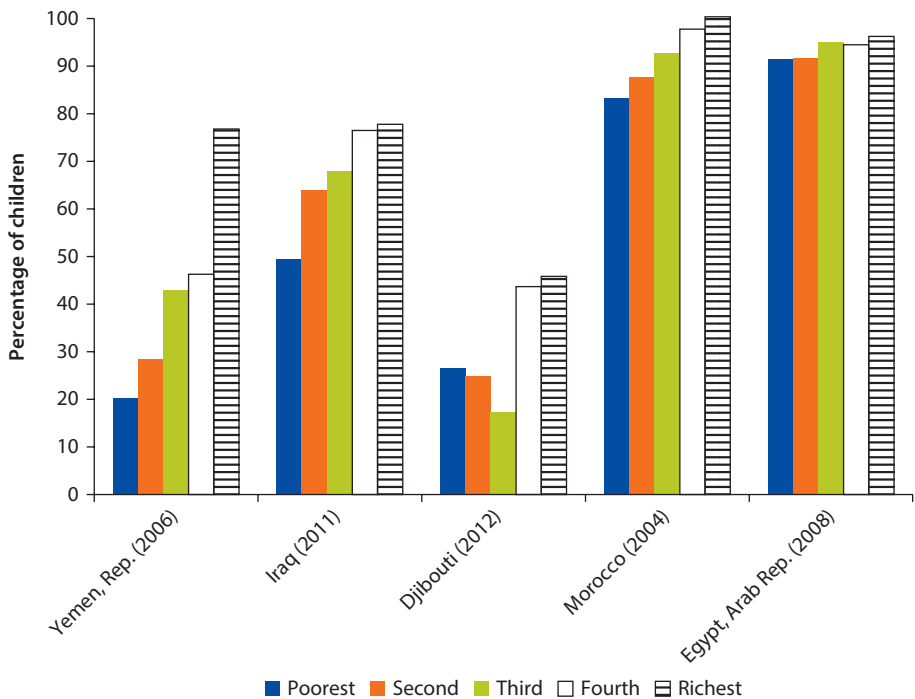
Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: MENA = Middle East and North Africa.

between their wealth level and the various ECD indicators. Figure 2.17 shows the relationship between wealth level and use of prenatal care. The influence of wealth ranges from a moderate difference in Djibouti between the poorest and richest 20 percent of households to a large disparity in Yemen, where the gap between the richest and poorest is much bigger. In Djibouti, use of prenatal care ranges from 69 percent among the poorest to 98 percent among the richest; yet in Yemen, the rate of prenatal care among the poorest households (32 percent) is less than half the rate of the richest households (79 percent). The disparity between the richest 20 percent and the poorest 20 percent is also stark in Morocco, and to a lesser extent in Egypt. The poorest children are at the greatest risk for missing out on prenatal care, but the differences in prenatal care by wealth vary substantially by country.

In some countries, children are fully immunized regardless of wealth, but in others, children’s chances of being protected against common illnesses are closely related to their families’ wealth. For example, in Egypt there are small differences in rates of immunizations based on wealth, whereas in Iraq and Morocco, children from poorer households are less likely to be fully immunized (figure 2.18). In Yemen, children from poorer households are much less likely to be fully immunized: a child from the poorest fifth of households has only a 20 percent

Figure 2.18 Children Aged 12–23 Months Fully Immunized, by Wealth Level and Country, Selected MENA Countries



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

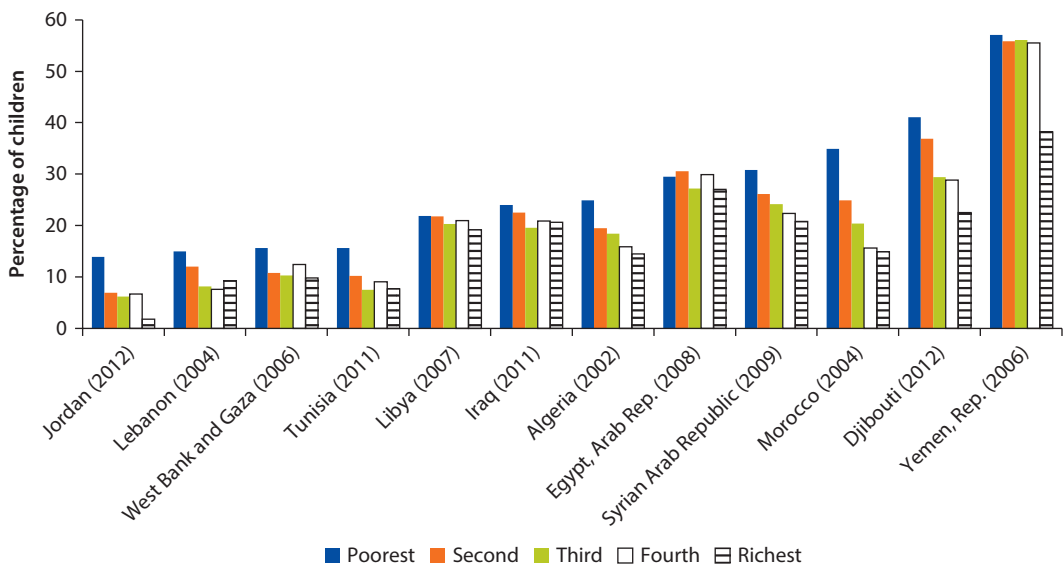
Note: MENA = Middle East and North Africa.

chance of being immunized, while a child from the richest fifth of households has a 75 percent chance. Even being from the fourth level of wealth gives a child a much lower chance of being fully immunized in Yemen—only 45 percent.

Comparing the patterns of immunizations and prenatal care based on the level of a household’s wealth shows that in Djibouti, children have equal access to these important early health inputs regardless of wealth. In Egypt, despite substantial differences in prenatal care based on wealth, children are relatively equitably immunized. Iraq has moderate differences based on wealth in both prenatal care and early immunizations, as does Djibouti, while Morocco shows much greater differences in prenatal care than immunizations. In Yemen, there are enormous differences based on wealth in children’s chances of receiving both prenatal care and immunizations. Especially in countries with inequitable prenatal care but more equitable immunizations, examining how immunizations reach children regardless of wealth can provide important lessons for other countries, and for extending other health services.

While in some countries stunting is a pervasive problem regardless of a household’s wealth level, in other countries household wealth is closely associated with stunting. Overall, MENA has a substantial problem with stunting, but the contributions of public health problems, low nutrition quality, and food affordability vary substantially by country. In Libya and Egypt, there are small differences in the percentage of children who are stunted based on the wealth level of the household, which suggests that stunting is a pervasive public health and nutrition quality problem rather than an issue of food costs (figure 2.19). A number of countries, including Lebanon, West Bank and Gaza, Algeria, Iraq, Syria (pre-conflict),

Figure 2.19 Stunting by Wealth Level and Country or Territory, Ages 0–4



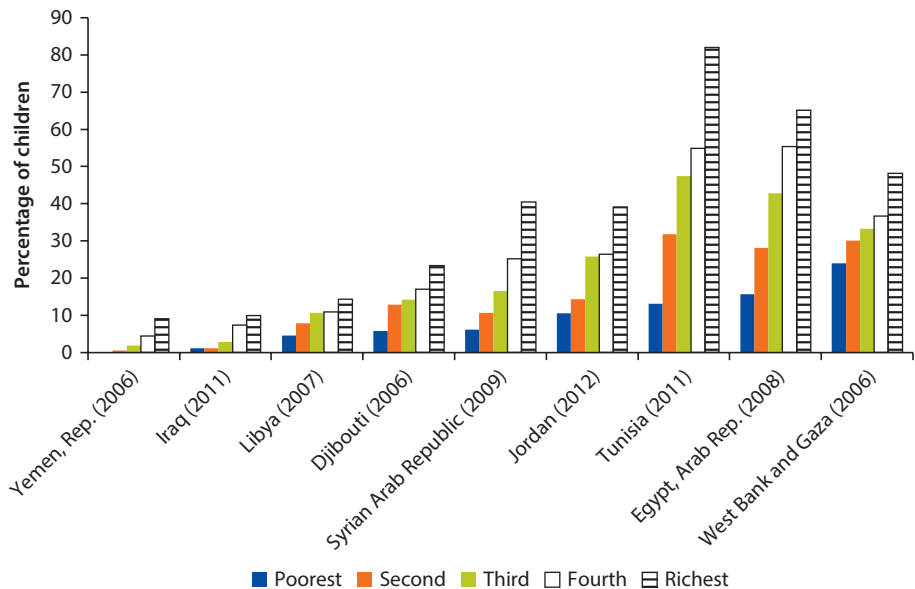
Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: MENA = Middle East and North Africa.

Morocco, Djibouti, and Yemen, show some differences in the level of stunting based on household wealth, but there are still high rates of stunting even among the wealthiest. In Morocco and Djibouti, the poorest fifth of households has particularly high stunting. In Yemen, only the richest fifth of households has lower stunting than other wealth levels. Among all the countries and territories surveyed, it is only in Jordan that the richest 20 percent of households has stunting levels less than 2 percent—the level that would occur naturally in a healthy population.

Throughout MENA, children have very different chances of attending ECCE depending on their families' wealth. Figure 2.20 shows how ECCE attendance varies by wealth. In countries with low overall rates of ECCE attendance, such as Iraq and Yemen, children from the poorest households, who are the most likely to benefit from ECCE, have less than a 2 percent chance of attending, while in Iraq the richest children have a 10 percent chance, and in Yemen a 9 percent chance. In Libya, a child's chance of attending ECCE rises from 5 percent if he or she is from the poorest fifth of households to 14 percent if he or she is from the richest fifth of households. In Djibouti, the difference is 6 percent versus 23 percent. While the poorest children in Jordan have an 11 percent chance, the richest children have a 39 percent chance. In West Bank and Gaza, a child from the richest fifth of households is twice as likely to attend ECCE (48 percent) as a child from the poorest fifth of households (24 percent). In Egypt, a child from the richest fifth of households is more than four times as likely to attend ECCE (65 percent) as a child from the poorest fifth of

Figure 2.20 Children Attending ECCE, by Wealth Level and Country or Territory, Selected MENA Countries and Territories



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

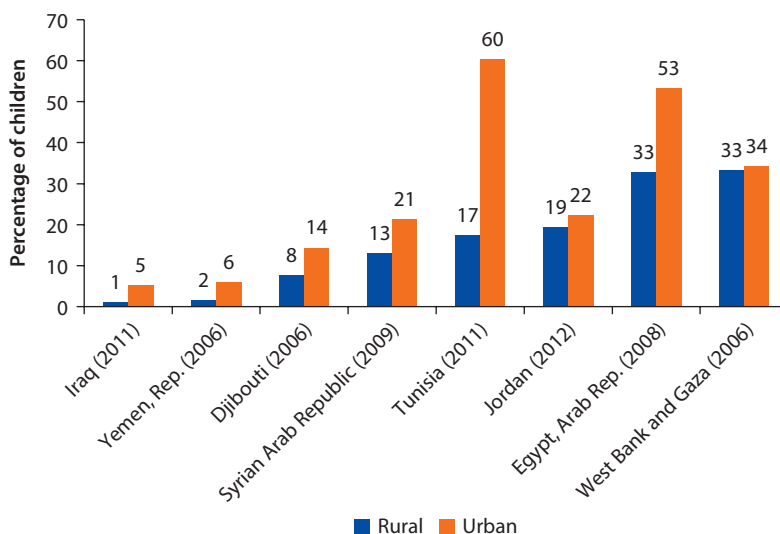
Note: Ages 3–4 in Jordan, Tunisia, West Bank and Gaza, Iraq, Djibouti, and Yemen. Ages 3–5 in Egypt, Syria (pre-conflict), and Libya. All are current early childhood care and education (ECCE) attendance except for Egypt, which is ever attendance.

households (16 percent). In Syria (pre-conflict), a child from the richest fifth of households is more than six times as likely to attend ECCE (41 percent) as a child from the poorest fifth of households (6 percent). A similar pattern is observed in Tunisia, where the poorest children have a 13 percent chance and the richest an 82 percent chance. These differences mean that, depending on the wealth of their households, children reach primary school age having had very different chances of attending ECCE, preparing for school, and developing cognitively, emotionally, and socially.

Location of Residence and ECD

Whether a child lives in an urban or a rural area is also associated with ECD outcomes. For instance, there are large urban/rural gaps in ECCE attendance. Figure 2.21 shows the different chances children have of attending ECCE depending on whether they live in an urban or rural area. Only in the West Bank and Gaza are urban and rural rates of ECCE attendance nearly the same, although they are also close in Jordan. Children in Iraq and Yemen are nearly four times as likely to attend ECCE if they live in an urban as opposed to rural area. In Syria (pre-conflict), while a rural child has a 13 percent chance of attending ECCE, an urban child has a 21 percent chance. In Egypt, there is a 20 percentage point gap between urban (53 percent) and rural (33 percent) children. Tunisia has the largest gap, 43 percentage points, with 17 percent of rural children attending ECCE compared to 60 percent of urban children. These early

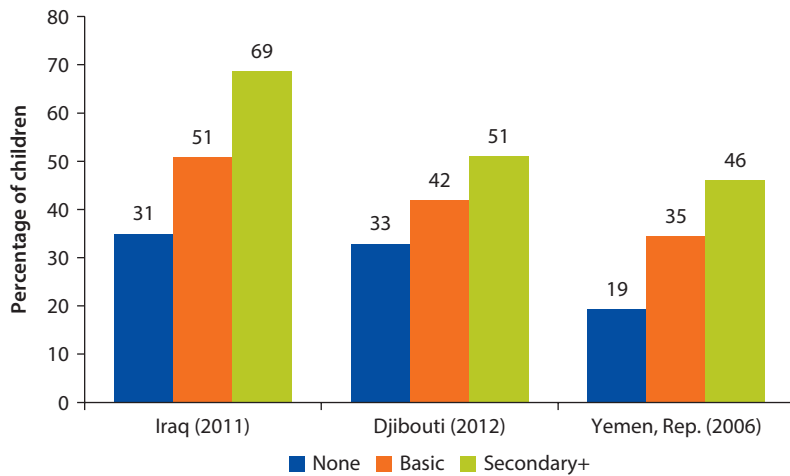
Figure 2.21 Children Attending ECCE, by Urban/Rural Residence and Country or Territory, Selected MENA Countries and Territories



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: Ages 3–4 in Jordan, Tunisia, West Bank and Gaza, Iraq, Djibouti, and Yemen. Ages 3–5 in Egypt, Syria (pre-conflict), and Libya. All are current early childhood care and education (ECCE) attendance except for Egypt, which is ever attendance.

Figure 2.22 Children Aged 0–4 Experiencing at Least Four Development Activities, by Mother’s Education and Country, Selected MENA Countries



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

differences in access to early learning based solely on where children live will shape their cognitive development and school success.

Mother’s Education and ECD

Children with less-educated mothers are less likely to be engaged in development activities. Figure 2.22 shows how development activities vary by mother’s education in Iraq, Djibouti, and Yemen. In Iraq, while 35 percent of children with uneducated mothers experienced at least four development activities, 69 percent of children with secondary or higher educated mothers did so. In Djibouti, the differences are more moderate: 33 percent of children of uneducated mothers versus 51 percent of children with secondary or higher educated mothers. In Yemen there is a large gap even between uneducated mothers (19 percent) and mothers with just a basic education (35 percent), as well as mothers with a secondary or higher education (46 percent). Although the patterns vary somewhat by country, children with less-educated mothers have poorer chances of fully developing their social, emotional, and cognitive potential. They will be less prepared for school and more likely to attain lower levels of education, perpetuating cycles of inequality. A similar pattern is observed in terms of father’s education.

Unequal Opportunities for Early Childhood Development in MENA

Children in MENA face unequal opportunities for healthy development, based on factors beyond their control. To measure the extent of inequality, the analysis calculates (a) the percentage of opportunities that needed to have been distributed differently for equality of opportunity to have occurred for each of the ECD indicators, and (b) the chance of whether these differences might have occurred by random variation (table 2.1).

Table 2.1 Dissimilarity Indices Measuring Inequality of Opportunity for ECD in MENA

	<i>Algeria</i>	<i>Djibouti</i>	<i>Egypt, Arab Rep.</i>	<i>Iraq</i>	<i>Jordan</i>	<i>Lebanon</i>	<i>Libya</i>	<i>Morocco</i>	<i>Syrian Arab Republic (pre-conflict)</i>	<i>Tunisia</i>	<i>West Bank and Gaza</i>	<i>Yemen, Rep.</i>
Prenatal care	7.7***	6.4**	9.0***	20.9	0.5	2.6	2.0*	14.3***	5.1***		0.5	16.8**
Skilled delivery	2.4 *	9.6***	9.0***	2.9***	0.2		0.7*	19.6***	2.1***		0.8*	26.1***
Fully immunized	2.2	22.2	1.7	8.6***	2.3	18.4	2.7	3.6	6.2*	4.4		20.6*
Neonatal mortality	13.9	insig.	24.9	9.7	19.7		30.7	19.5	insig.	40.0	insig.	insig.
Infant mortality	14.7	insig.	20.3	6.1	20.3		25.8	19.8	insig.	33.4	insig.	15.5
Stunted	9.9	9.6	9.0**	7.1**	24.1*	insig.	6.3	16.1***	13.0***	19.8	13.4**	4.9*
Iodized salt			7.2***	20.3***			16.9***		32.3***		insig.	
Development activities		13.9 *		12.6***	3.4				10.6***	11.8**	5.7**	19.3***
Violent discipline		11.6		2.6	4.5				1.7	insig.	0.8	
ECCE		34.6	21.8***	43.5***	24.4***		23.7***		36.3***	25.5***	12.1**	
Child labor		23.2		17.0***			25.7		12.1	21.7		25.1

Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: Data are Dissimilarity Index. ECCE = early childhood care and education; MENA = Middle East and North Africa.

* $p < .05$ ** $p < .01$ *** $p < .001$

Insig. denotes an insignificant underlying model. Some outcomes could also not be modeled because rates were too high or low.

Children face unequal opportunities for healthy development while still in utero. There are substantial differences in whether their mothers receive prenatal care and whether their births are attended by a skilled birth attendant; few of these differences are due to chance.¹² Morocco, Iraq, and Egypt have some of the most extensive inequality in prenatal and skilled delivery care.

While the inequality in rates of early deaths tends to be high, given the relative infrequency of early deaths it cannot be determined if this is due to chance or a systematic pattern. Children's chances of being fully immunized are relatively equitably distributed; however, in Syria (pre-conflict), Iraq, and especially Yemen there is substantial and significant inequality of opportunity.

Children tend to face unequal opportunities for healthy physical growth, with significant differences in stunting rates in Egypt, Iraq, Jordan, Morocco, Syria (pre-conflict), the West Bank and Gaza, and Yemen. Children also face very unequal opportunities for healthy brain development, in terms of access to iodized salt. In every country except West Bank and Gaza there is substantial and significant inequality in children's access to iodized salt.

Children's chances of experiencing development activities also tend to be unequally distributed, with statistically significant inequality in Djibouti, Iraq, Syria (pre-conflict), Tunisia, West Bank and Gaza, and Yemen. Inequality on this measure is particularly high in Yemen. There is no substantial or significant inequality in children's chances of violent discipline; it is a pervasive problem. While the inequality is fairly high for rates of child labor at age five, this could almost always be due to random variation. The greatest inequality tends to be in rates of ECCE attendance, with significant inequality in Egypt, Iraq, Jordan, Libya, Syria (pre-conflict), Tunisia, and West Bank and Gaza, as well as very high measures of inequality.

In sum, children face unequal chances for healthy development from before they are born throughout the early life course, with particularly unequal chances for attending early childhood care and education. Children's unequal chances for early development across a variety of domains are likely to compound each other such that children have very different chances of healthy development and school success as they get older.

A number of factors contribute to the inequality in ECD outcomes. Household wealth, mother's education, and urban/rural location make the largest contributions to children's unequal chances. Father's education tends to play a smaller role in inequality than mother's education. The contributions of urban/rural and regional differences vary substantially by country. However, where the data are available, self-reported access to health care does not contribute substantially to inequality. Children's gender also contributes little to inequality. While children in MENA may experience unequal opportunities later in life due to gender, during early childhood males and females face relatively equitable chances to develop. If children are to have equal chances for early development, the different circumstances contributing to inequality will have to be targeted in each country and for each issue.

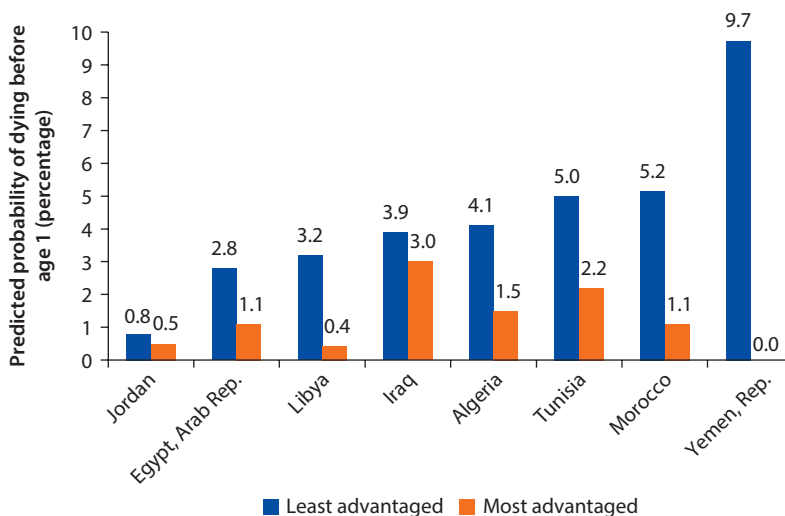
Children tend to be consistently advantaged or disadvantaged across a variety of dimensions of ECD, and can face very different life chances based on just

a few characteristics. Early childhood is when cycles of poverty and inequality are transmitted across generations. A child who lives in the poorest 20 percent of households and with uneducated parents (a least advantaged child) has very different chances for healthy ECD compared to a child who has parents with secondary or higher education and is from the richest 20 percent of households (a most advantaged child). Differences in chances for the least and most advantaged children may also vary by urban/rural residence and region. The analysis that follows presents the chance (predicted chance) of different ECD outcomes (based on multivariate regressions) for a least advantaged and most advantaged child.

Children are systematically more likely to die in the first year of life based on just a few characteristics. Figure 2.23 presents the simulations for the most and least advantaged child in terms of infant mortality (neonatal mortality follows a similar pattern). The most advantaged child has at most a 2.2 percent chance of dying in the first year of life across all the countries, while the least advantaged child has a much higher chance that varies widely between countries. In Iraq and Jordan, the least advantaged child is a little more likely to die in the first year of life; in Tunisia, Egypt, and Algeria, she or he is two to three times as likely to die; in Morocco, almost five times as likely to die; and in Libya, eight times as likely to die. In Yemen, where the gap is highest, the least advantaged child has a 9.7 percent chance of dying in the first year of life compared to the most advantaged child, who has a near-zero chance of dying.¹³

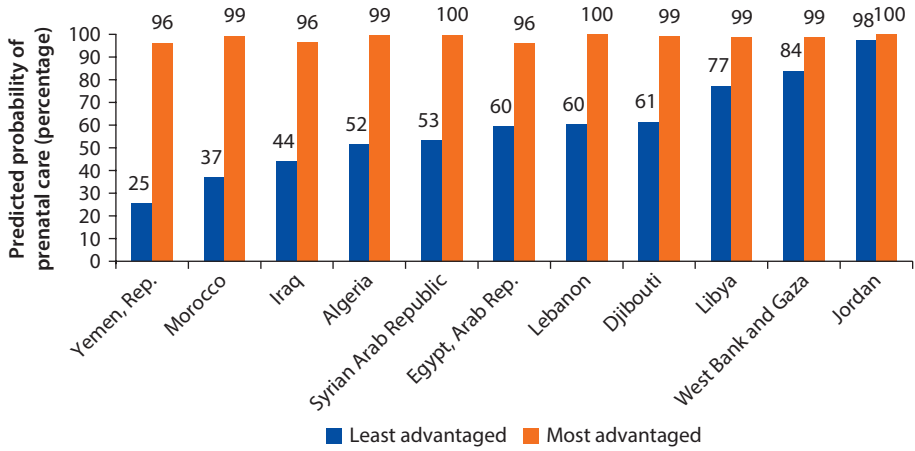
Everywhere in MENA, the most advantaged child is almost certain to receive prenatal care, but the least advantaged child has substantially lower and varying chances (figure 2.24). The chances of a most advantaged child receiving prenatal care are 96–100 percent, while the chances of a least advantaged child receiving

Figure 2.23 Infant Mortality—Most and Least Advantaged Simulations



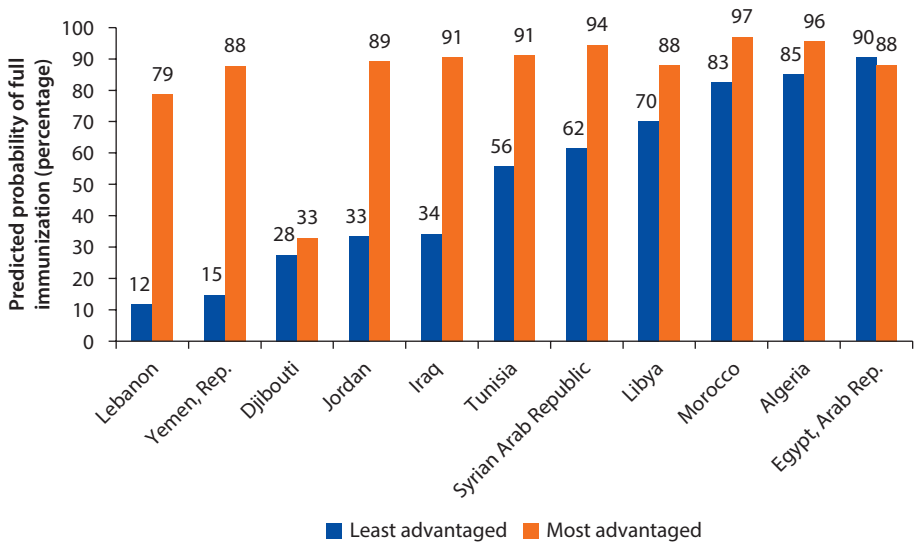
Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Figure 2.24 Prenatal Care—Most and Least Advantaged Simulations



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Figure 2.25 Children Fully Immunized at Age 1—Most and Least Advantaged Simulations



Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

prenatal care range from 25 percent in Yemen to 98 percent in Jordan. Even in countries with relatively high rates of prenatal care coverage, such as Iraq, the least advantaged child may have a low chance of prenatal care, indicating that children with multiple disadvantages are at particularly high risk for poor early health. The pattern for skilled delivery care tends to be similar to that for prenatal care.

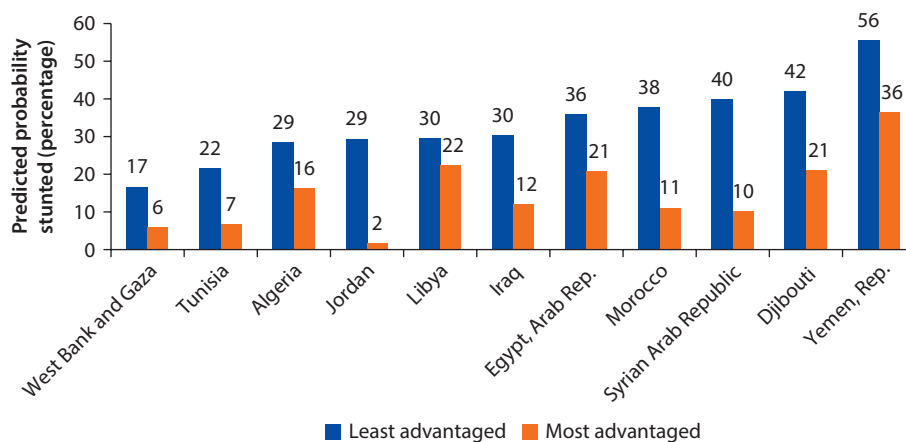
While in some countries children have relatively equal chances of being fully immunized regardless of their circumstances, in others children have substantially different chances based on just a few characteristics. Figure 2.25 shows the chances a most advantaged and least advantaged child have of being fully

immunized at age one, by country. The most advantaged child has a fairly high chance of being immunized (88–97 percent) everywhere except in Lebanon (79 percent) and Djibouti (33 percent). Lebanon and especially Djibouti have systematically low immunization rates. The chances of a least advantaged child being fully immunized vary widely by country. In Egypt, the least advantaged child actually has a slightly higher chance of being fully immunized—a result that is notable for its rarity. In Libya, Morocco, and Algeria, the least advantaged child has an 83–89 percent chance of being fully immunized at age one. In Syria (pre-conflict), the least advantaged child has only a 62 percent chance and in Djibouti, a 28 percent chance. In Jordan, which has relatively high immunization rates, the least advantaged child is nonetheless at a substantial disadvantage, with only a 33 percent chance of being fully immunized. In Lebanon and Yemen, the least advantaged child has a very small chance of being immunized, between 12 and 15 percent.

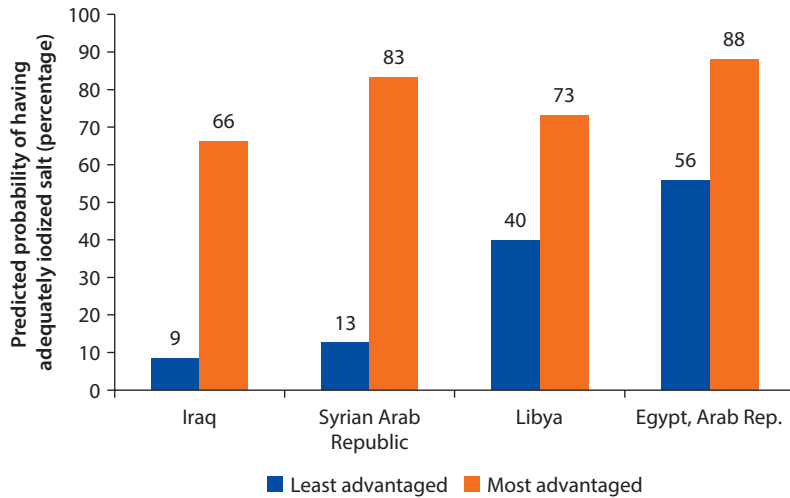
Everywhere, the least advantaged child has a higher chance of stunting than the most advantaged child, although the magnitude of differences varies substantially. Figure 2.26 shows how chances of stunting vary for the least and most advantaged children. While the chances of a most advantaged child being stunted vary from 2 percent in Jordan to 36 percent in Yemen, the chances of a least advantaged child being stunted vary from 17 percent in the West Bank and Gaza to 56 percent in Yemen. The least advantaged child always has a high chance of being stunted. In some countries, such as in Libya and Yemen, the relative differences are not very large; in others, such as Jordan, Syria (pre-conflict), and Morocco, the differences are substantial.

Children have very different chances for healthy brain development based on their circumstances. Figure 2.27 shows that the chances of having adequately iodized salt in their household vary between the least and most advantaged child. Notably, the West Bank and Gaza is not included in the figure because the model

Figure 2.26 Stunting, Ages 0–59 Months—Most and Least Advantaged Simulations



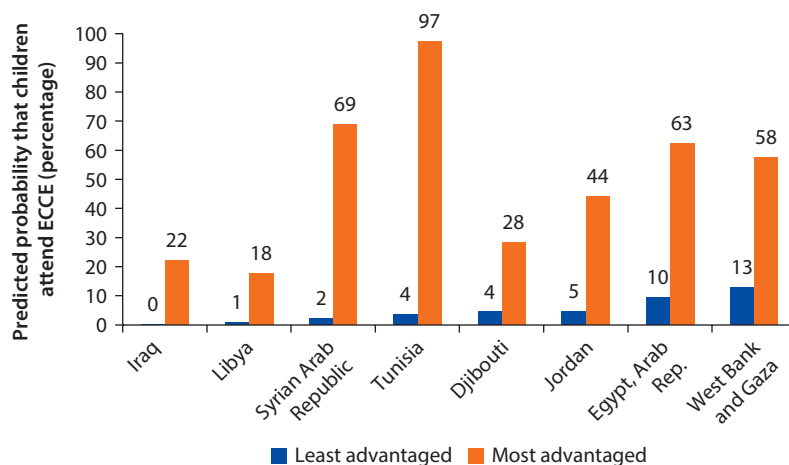
Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Figure 2.27 Iodized Salt—Most and Least Advantaged Simulations

Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

itself was insignificant, suggesting that there are no systematic differences by circumstances in terms of access to iodized salt in the West Bank and Gaza. However, in Iraq, Syria (pre-conflict), Libya, and Egypt there are very different chances depending on children's circumstances. While the most advantaged child has between a 66 and 88 percent chance of having adequately iodized salt, the least advantaged child has between a 6 and 56 percent chance across the different countries. Gaps are particularly large in Iraq, where the least advantaged child has a 9 percent chance while the most advantaged child has a 66 percent chance. Even in Egypt, which has relatively more equality than other countries, the most advantaged child has a 32 percentage point greater chance of having adequately iodized salt and healthy brain development.

Children also face radically different chances of attending ECCE and therefore developing cognitively and being school-ready based on circumstances. Figure 2.28 shows how chances for attending ECCE compare for the most and least advantaged child in each country. While the most advantaged child has an 18–97 percent chance of attending ECCE, depending on the country, the least advantaged child has a 0–13 percent chance. Differences in children's relative chances are enormous. In the West Bank and Gaza, the most advantaged child is more than four times as likely to attend ECCE as the least advantaged child, and this is the smallest relative gap. In Djibouti and Egypt, the most advantaged child is more than six times as likely to attend ECCE as the least advantaged child. In Iraq, Libya, and Tunisia, the most advantaged child is more than 17 times more likely to attend ECCE, and in Syria (pre-conflict), the most advantaged child is 32 times more likely to attend ECCE than the least advantaged child, 69 percent versus 2 percent. Children's chances of attending early childhood care and education in MENA are very different depending on just a few circumstances.

Figure 2.28 Attending ECCE—Most and Least Advantaged Simulations

Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: ECCE = early childhood care and education.

Conclusions

Early childhood is a critical time in human development and a time for effective policies and programs to ensure that children attain their full potential. In MENA, more needs to be done to ensure that children are experiencing healthy development. There have been some improvements over time, particularly in reducing early deaths and increasing use of prenatal and delivery care. However, there remain gaps in early health care that put children (and mothers) at risk for illness and death. Given the proven cost-effectiveness of immunizations in protecting children's health, all MENA countries should be approaching universal coverage; while some have made progress, many are far from this goal.

The high rates of stunting and low coverage of important micronutrients put too many children in MENA at risk for impaired physical and cognitive development. The low rates of development activities and low coverage of ECCE mean that children are not developing to their full cognitive, social, and emotional potential. The very high rates of violent discipline and the prevalence of child labor even at age five endanger children's early development. Although there are many challenges to ensuring that all children in MENA can develop to their full potential, there are also many proven policies and programs that can overcome these challenges and enhance and protect children's early development.

Children should have equal opportunities for healthy development regardless of their early circumstances. Factors over which children have no control, such as where they were born, their gender, or their families' characteristics, should not affect children's chances to grow and thrive. Additionally, research indicates that disadvantaged children receive the greatest benefits from early interventions. However, in MENA there are very unequal chances for children to develop, based on just a few circumstances; the most disadvantaged children are the least

likely to receive early developmental supports. Inequality in the early years, particularly in terms of early childhood care and education, means that children reach school age with very different chances to succeed. This inequality will only compound as children continue to develop. Early childhood is an important time to give children equal chances to succeed in school and in adult life. More must be done to ensure that children in MENA have equal opportunities to grow and thrive. Investing in the early years and redressing inequality have the potential to dramatically change the lives of millions of children, and even the development trajectories of MENA countries.

Annex 2A: Early Childhood Development Indicators, by Country or Territory

Table 2A.1 ECD Indicators, by Country or Territory
Percentage

	<i>Prenatal care</i>	<i>Skilled delivery</i>	<i>Fully immunized</i>	<i>Neonatal mortality</i>	<i>Infant mortality</i>	<i>Stunted</i>	<i>Iodized salt</i>	<i>Develop. activities</i>	<i>Violent discipline</i>	<i>ECCE</i>	<i>Child labor (age 5)</i>
Algeria	79.2	94.4	92.6	2.0	3.3	19.3	—	—	—	—	—
Djibouti	87.9	87.4	30.7	3.6	6.0	33.5	0.4	36.6	36.2	14.1	18.6
Egypt, Arab Rep.	73.6	79.0	91.7	1.6	2.4	28.9	76.7	—	—	40.2	—
Iraq	77.7	90.8	64.3	2.0	3.1	21.7	24.4	53.5	77.2	3.8	10.1
Jordan	99.1	99.6	93.0	1.5	1.8	7.6	—	81.6	91.3	21.7	—
Lebanon	95.4	98.2	51.5	1.0	1.5	10.7	—	—	—	—	—
Libya	93.8	98.7	86.9	1.1	1.7	21.0	52.5	—	—	9.3	7.0
Morocco	67.9	62.9	89.6	2.5	3.8	23.1	—	—	—	—	—
Syrian Arab Republic	87.7	96.3	77.9	1.2	1.7	25.8	30.4	55.0	85.0	17.2	12.3
Tunisia	98.1	98.6	89.6	1.2	1.7	10.1	—	71.1	94.9	44.5	24.0
West Bank and Gaza	98.5	97.7	—	2.1	3.0	11.8	87.7	46.8	95.5	34.1	—
Yemen, Rep.	47.0	35.7	40.7	4.0	7.1	53.1	—	25.5	93.2	2.7	15.8

Source: World Bank calculations based on household surveys (see annex 2B, table 2B.1).

Note: ECCE = early childhood care and education. — = not available.

Annex 2B: Microdata Datasets

Table 2B.1 Data Sources

Country	Surveys (references)
Algeria	PAPFAM 2002 (National Office of Statistics, Ministry of Health Population and Hospital Reform, and League of Arab States 2003)
Djibouti	PAPFAM 2012 (Ministry of Health [Djibouti], Institute of Statistics and Demographic Studies, and League of Arab States 2012) and MICS 2006 (Ministry of Health and League of Arab States 2007)
Egypt, Arab Rep.	DHS 2008 (El-Zanaty and Way 2009)
Iraq	MICS 2011 (The Central Statistics Organization and the Kurdistan Regional Statistics Office 2012)
Jordan	DHS 2012 (Department of Statistics [Jordan] and ICF International 2013)
Lebanon	PAPFAM 2004 (The Arab League and The Republic of Lebanon Central Administration of Statistics 2006)
Libya	PAPFAM 2007 (League of Arab States 2009)
Morocco	DHS 2003/4 (Ministry of Health, ORC Morocco, and League of Arab States 2005)
Syrian Arab Republic	MICS 2006 (Central Bureau of Statistics et al. 2008) and PAPFAM 2009 (League of Arab States and Syrian Arab Republic 2011)
Tunisia	MICS 2011/2012 (Ministry of Development and International Cooperation, National Institute of Statistics, and UNICEF 2013)
West Bank and Gaza	PAPFAM/MICS (NHS) 2006 (Palestinian Central Bureau of Statistics 2007)
Yemen, Rep.	PAPFAM 2003 (Ministry of Health and Population Republic of Yemen and Pan-Arab Project for Family Health) and MICS 2006 (Ministry of Health and Population and UNICEF 2008)

Note: DHS is the Demographic and Health Survey, MICS is the Multiple Indicator Cluster Survey, and PAPFAM is the Pan-Arab Project for Family Health Survey. The 2006 NHS for West Bank and Gaza was a combined PAPFAM/MICS survey.

Notes

1. Some of the data is from surveys that are several years old; however, it is the latest available, and it offers an opportunity to analyze the status of ECD at that point of time, which also presents a baseline for future analysis when newer data is available.
2. More than 15 ppm of iodine in the salt.
3. The six activities were: (1) read books or look at picture books with the child; (2) tell stories to the child; (3) sing songs with the child; (4) take the child outside the home, compound, yard, or enclosure; (5) play with the child; and (6) spend time with the child, naming, counting, and/or drawing things.
4. Per the MICS definitions, violent child discipline is based on discipline by anyone in the household within the last month, and includes psychological aggression (shouted, yelled, or screamed at the child; called the child dumb, lazy, or another name like that); physical punishment (shook the child; spanked, hit or slapped the child on the bottom with a bare hand; hit the child on the bottom or elsewhere on the body with something like a belt, hairbrush, stick, or other hard object; hit or slapped the child on the hand, arm, or leg); and severe physical punishment (hit or slapped the child on the face, head, or ears; beat the child with an implement (hit over and over as hard as one could).
5. Source is UNICEF (2013), except Djibouti (Ministry of Health [Djibouti], Institute of Statistics and Demographic Studies, and League of Arab States 2012), Iraq (The Central Statistics Organization and the Kurdistan Regional Statistics Office 2012), and Tunisia (Ministry of Development and International Cooperation, National Institute of Statistics, and UNICEF 2013).

6. The DPT vaccine is a combination vaccine that covers diphtheria, whooping cough (pertussis), and tetanus. Children must receive three doses to be fully immunized.
7. Children must receive three doses to be fully immunized against polio.
8. This analysis focuses on children 12–23 months of age to allow for optimal parental recall.
9. Herd immunity occurs when even unvaccinated individuals in the population (the “herd”) are protected against illness because the disease can no longer spread. This is achieved once around 90–95 percent of infants are vaccinated.
10. Morocco, Yemen, Algeria, Jordan, Lebanon, and Tunisia data are for households rather than children. Children data are from World Bank calculations using household surveys (see annex 2B, table 2B.1). Household data are from World Development Indicators.
11. Wealth is defined in terms of which 20 percent of households a child falls into, based on an asset (wealth) index of durable goods.
12. Throughout, we use a 5 percent level of significance.
13. Such a low rate may be due to sampling variability.

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