My Childhood, My Future

Early Childhood Development in Algeria

WORLD BANK GROUP

CHAPTER 4

Algeria

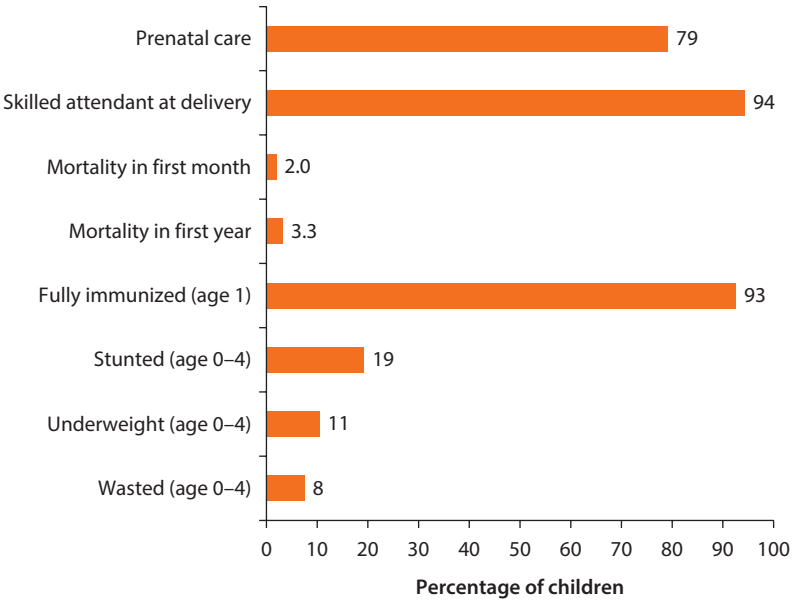
The State of Early Childhood Development in Algeria

Early childhood development (ECD) in Algeria is fairly advanced in some areas but not in others, putting children at risk of falling short of their full potential for early development. Figure 4.1 shows summary indicators of ECD in Algeria. In terms of early health care, Algeria does fairly well. While only 79 percent of births received prenatal care, 94 percent had a skilled attendant at delivery. In the first month of life, 2.0 percent of children die, and 3.3 percent die in the first year of life. Algeria has high immunization rates, with 93 percent of children age one fully immunized. Malnutrition is a problem in Algeria, where 19 percent of children are stunted, 11 percent are underweight, and 8 percent are wasted.

This chapter presents a detailed analysis of the status of ECD in Algeria. The health status of children is examined through indicators (see box 4.1) of early mortality, prenatal care, having a skilled attendant at birth, and immunizations. Children's nutritional status is measured by stunting (height-for-age), underweight (weight-for-age) and wasting (weight-for-height). 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 relationships (see annexes 4A, 4B, and 4C for additional information on the data and these relationships). For the overall country context, see box 4.2. Finally, the analysis measures the gaps and extent of inequality in ECD outcomes.

The analysis is based on the latest available data: the Pan Arab Project for Family Health survey (PAPFAM) from 2002. The data covers primarily the health dimension of early childhood from before a child is born up through age four. If more indicators were available and examined, they could provide an even richer picture of ECD in Algeria. This chapter also refers to the summary findings of the 2006 Algerian Multiple Indicator Cluster Survey (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008). The microdata for this survey were not available and therefore could not be used for this chapter.

Figure 4.1 ECD Summary Indicators



Source: World Bank calculations based on Algeria PAPFAM 2002.
Note: ECD = early childhood development.

Box 4.1 ECD Indicators Examined in Algeria

Prenatal care
Skilled attendant at delivery
Neonatal mortality (dying in the first month)
Infant mortality (dying in the first year)
Fully immunized
Stunting/height-for-age
Underweight/weight-for-age
Wasting/weight-for-height

Survival, Health Care, and Nutrition

The first step in healthy ECD is simply surviving early childhood. In Algeria, 1 in every 30 children dies before the age of one. In 2002, infant mortality, which refers to children dying before their first birthday, was 33 children per thousand.[1] Most infant mortality is composed of neonatal mortality—children dying within the first month of life. In Algeria, 20 children out of every thousand die during their first month of life. While infant mortality has been falling over time—down from around 55 children per thousand in 1990, compared to other countries in the region, Algeria has made somewhat less progress (World Development Indicators).

Box 4.2 Summary of Development Indicators in Algeria

Algeria is an upper-middle-income country with a gross domestic product per capita in 2012 of about $5,348 (in current US Dollars, table B4.2.1). Algeria has an estimated population of 38 million, of which 27 percent are under the age of 15. The average life expectancy at birth is 71 years. The primary school gross enrollment rate in Algeria was 119 percent in 2012. Overall, Algeria ranks 93 out of 186 countries with comparable data in the 2012 Human Development Index.

Table B4.2.1 Algeria's Socioeconomic Indicators

	1990	*2012*
Total population (millions)	26.2	38.5
% of population under 15	44	27
GDP per capita (current US Dollars)	$2,365	$5,348
Life expectancy at birth (years)	67	71
School enrollment, primary (% gross)	90	117

Sources: UNDP 2014; World Development Indicators.
Note: GDP = gross domestic product.

Addressing both early mortality and ECD begins during pregnancy and delivery. Yet, in Algeria as of 2002, only 79 percent of births received prenatal care from a health professional.[2] This means that one-fifth (21 percent) of births did not receive prenatal care, putting children (and mothers) at great risk. Although Algeria has been making progress in raising prenatal care rates, which were 58 percent in 1992 (World Development Indicators), there is still substantial room for improvement. Despite progress from 2002 to 2006, when the rate was 89 percent (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008), there remain gaps in prenatal care coverage.

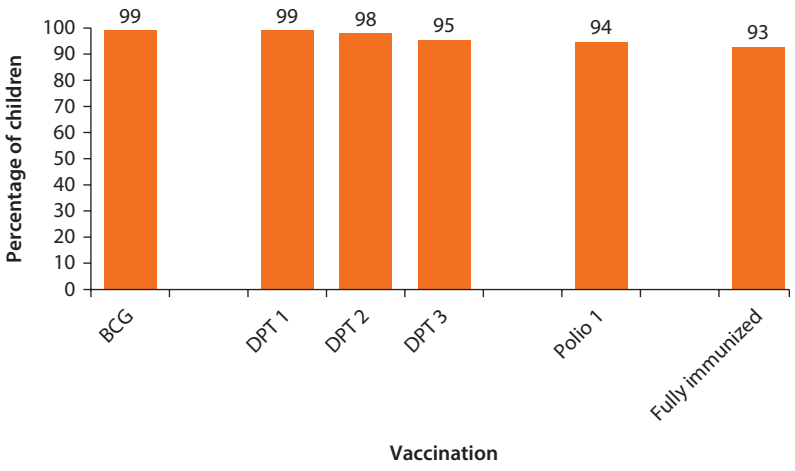
In terms of delivery, however, almost all (94 percent) births[3] in Algeria in 2002 were attended by a health professional. This rate remained essentially the same (95 percent) in 2006 (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008). Algeria has been doing well on delivery care for decades; in 1992, the rate was already at 72 percent (World Development Indicators). Algeria is well above the regional average for delivery care of 79 percent (UNICEF 2014); however, there is a notable gap of 15 percentage points between prenatal care, at 79 percent, and delivery care, at 94 percent. The gap indicates that there are health services available to women that are not being used for prenatal care.

Algeria has good immunization coverage, with around 93 percent of one-year-olds fully immunized and therefore protected against preventable childhood illnesses, loss of life, and impaired development. Children are considered fully immunized if they have received immunizations for all six major preventable childhood diseases: tuberculosis, diphtheria, whooping cough, tetanus,[4] polio,[5] and measles. Data was not available in the PAPFAM survey on measles vaccine coverage, or the second and third polio doses, so full immunization is calculated based on the other immunizations. Children

should be fully immunized by twelve months of age; this analysis focuses on children 12–23 months to allow for optimal parental recall. For the immunizations with available data in the PAPFAM, Algeria is close to full immunization coverage; 93 percent of children 12–23 months are fully immunized.[6] As figure 4.2 shows, the first polio vaccine has the lowest coverage rates (94 percent), suggesting that if data were available on the second and third doses, lower rates of immunization would be observed. However, as of 2002 Algeria had achieved near-universal coverage of the BCG (Bacillus Calmette-Guérin) and DPT (diphtheria, pertussis, tetanus) vaccines, indicating substantial health system capacity for delivering immunizations. In 2006, with data on all immunizations, the rate of full immunizations was 88 percent. Measles vaccines had the lowest coverage, at 91 percent, and there were deficits in receiving the full sequence of three-dose vaccines (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008).

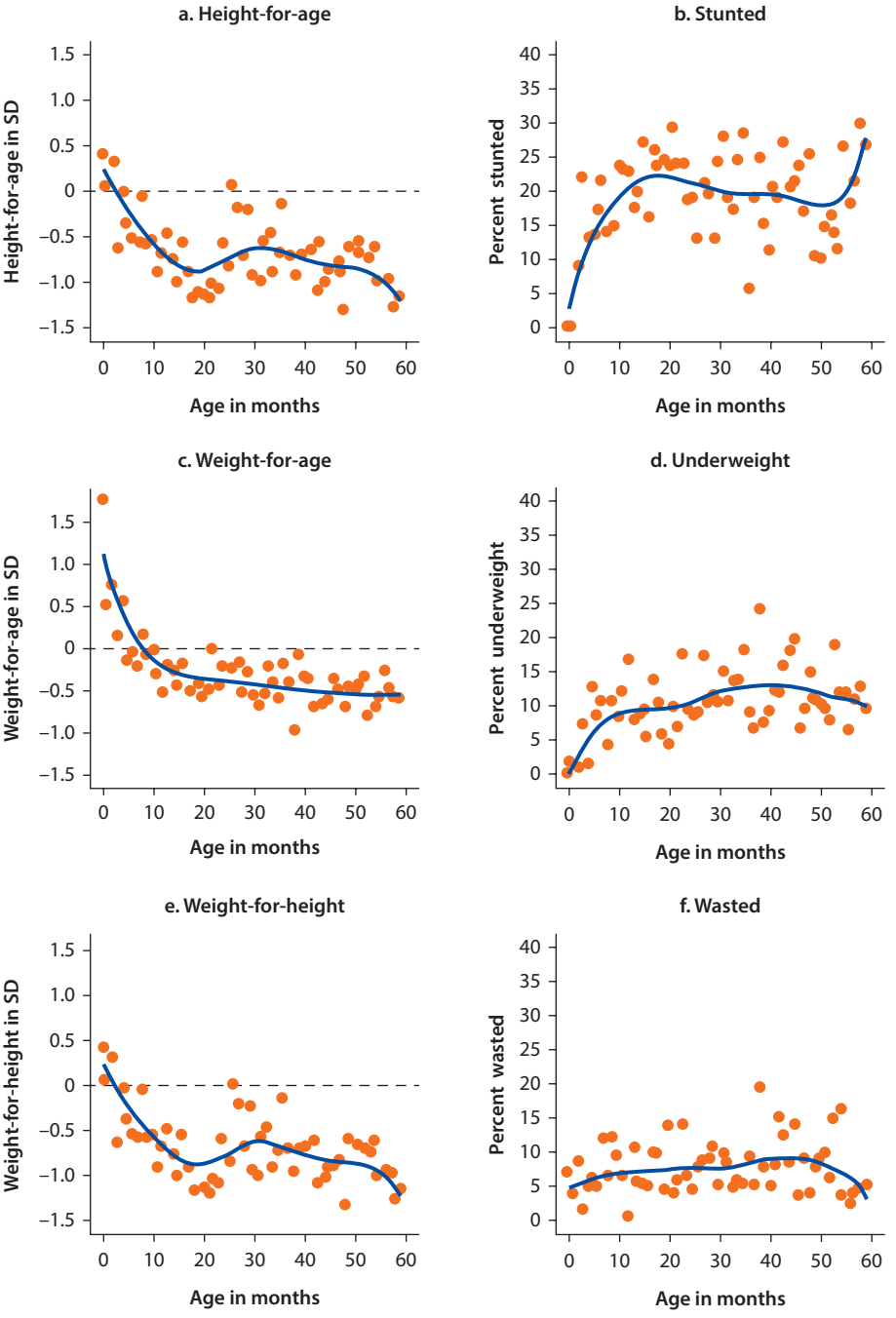
Children in Algeria start their lives on fairly healthy footing, in terms of nutrition measured by height-for-age; however, over the first two years of life, they experience a substantial falling off from healthy growth. Figure 4.3 shows how Algerian children fare compared to a healthy reference population.[7] We examine nutrition status in Algeria using six indicators: stunting and height-for-age, underweight and weight-for-age, wasting and weight-for-height. In 2002, almost one in five children (19 percent) ages zero to four were stunted, 11 percent were underweight, and 8 percent were wasted. Substantial improvements had occurred in nutrition by 2006, when 11 percent of children were stunted, 4 percent underweight, and 3 percent wasted (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008).

Figure 4.2 Percentage of Children Aged 12–23 Months Immunized, by Vaccination



Source: World Bank calculations based on Algeria PAPFAM 2002.
Note: BCG = Bacillus Calmette-Guérin (tuberculosis vaccine); DPT = diphtheria, pertussis, tetanus. Since there were data issues with the polio 2 vaccine and information on polio 3 and measles was missing for Algeria, the percentage of children fully immunized is likely a slight over-estimate.

Figure 4.3 Average Height-for-Age, Weight-for-Age, and Weight-for-Height Compared to Healthy Reference Population in Standard Deviations and Percentage Stunted, Underweight, and Wasted, by Age in Months, Ages 0–4 Years



Source: World Bank calculations based on Algeria PAPFAM 2002.
Note: SD = standard deviations.

Nutrition patterns vary across the different measures. In 2002, children in Algeria began life with height-for-age that is similar to the healthy reference population. However, their growth falters early, with height-for-age that is below the healthy average within the first several months of life. At birth, children are similar to the height of the healthy reference population, slightly above average in weight, and average in weight-for-height. Height-for-age is low for the population, fluctuating between around –1 SDs (standard deviations) and –0.5 SDs from 15 months onward. Correspondingly, stunting rises rapidly; more than 20 percent of children are stunted by 20 months of age. Stunting decreases slightly between 20 months and 50 months, but then appears to rise again between 50 months and 60 months, corresponding to a drop in height-for-age. In the first year of life, children's weight-for-age falters. Weight-for-age remains about half an SD below the reference median after age one. Likewise, around 10 percent of children are underweight by age one, and between 10 and 15 percent of children are underweight between ages one and five. Weight-for-height, graphed against age, shows that children fall below a healthy weight-for-height in the first year of life and fluctuate between –0.5 and –1 SD below the healthy reference median thereafter. Wasting, being far below a healthy weight-for-height, generally increases with age.

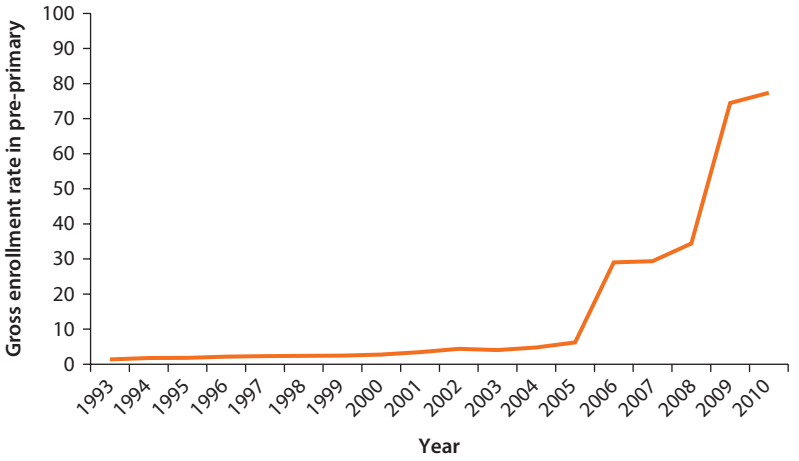
Micronutrients such as iron, vitamin A, zinc, and iodine play an important role in both physical and cognitive development. Iodine plays a vital role in cognitive development, and iodine deficiency is the most common cause of preventable mental retardation and brain damage in the world (El-Zanaty and Way 2009). Iodized salt is the primary means for delivering iodine to children. In 2006, although about two thirds (61 percent) of households had adequately iodized salt,[8] the lack of iodized salt in the remaining third (39 percent) of households puts children in these households at great risk for impaired cognitive development (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008).

Cognitive, Social, and Emotional Development

Evidence has shown that early childhood care and education (ECCE) improves cognition and socioemotional development, with benefits that can last a lifetime. While the 2002 PAPFAM does not collect data on early childhood education, other sources indicate that, as of 2010, Algeria has a 77 percent gross enrollment rate in pre-primary (World Development Indicators). Algeria has made enormous progress in ECCE attendance in recent years (figure 4.4). Starting in 1993, gross enrollment in pre-primary was only 1 percent. As recently as 2005, the gross enrollment rate in pre-primary was only 6 percent, but starting in 2006, enrollments rapidly increased.

Although it has been proven that play and interaction are important components of ECD, children in Algeria are missing out on these opportunities for psychosocial growth. In the 2006 MICS survey, caretakers of children ages zero to four were asked whether adults in the household had engaged in any of six different activities that support child development.[9] The results showed that less than two-thirds (62 percent) of children zero to four had experienced four or

Figure 4.4 Gross Enrollment Rate in Pre-Primary, 1993–2010



Source: World Development Indicators.

more development activities (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008).

Another challenge that risks hindering the healthy development of children in Algeria is violent discipline. Disciplining children is an important part of child rearing. However, research has found that violent discipline negatively impacts the physical, psychological, and social development of children (UNICEF 2010). Violent child discipline[10] is common in Algeria, with 83 percent of children ages two to four having experienced it as of 2006 (Ministry of Health, Population and Hospital Reform and National Office of Statistics 2008).

Key Factors Affecting Early Childhood Development

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.

Survival, Health, and Nutrition

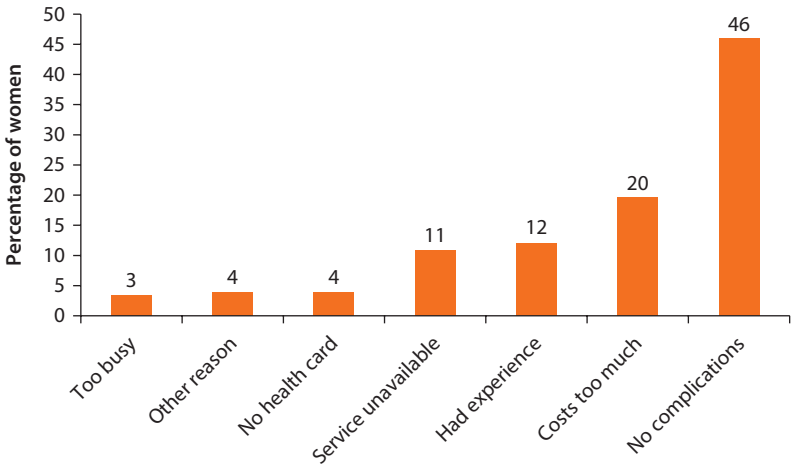
An Algerian child's chance of dying in the first year varies substantially by background characteristics. As of 2002, boys have a higher chance of dying in the first year of life than girls; this is a common pattern globally due to genetic factors (Hill and Upchurch 1995). Wealth is also related to mortality early in life: neonatal mortality was 24 per thousand in the poorest fifth of households compared to 16 per thousand in the richest fifth of households. The gap is even larger in infant mortality which was 39 per thousand in the poorest fifth of households

compared to 21 per thousand in the richest fifth of households. Similar differences were observed with women's education and partner's education as with wealth. Rural areas have slightly higher infant mortality than urban areas. After accounting for multiple characteristics, children from the fourth level of wealth were less likely to die in the first month of life than children from the poorest fifth of households. Female children were less likely to die in the first month of life. Children from the fourth and richest fifth of households and those with secondary-educated household heads were less likely to die in the first year of life.

Use of prenatal care is closely associated with wealth, education, and geography. Use of prenatal care is 79 percent on average nationally as of 2002. While 93 percent of births in the richest fifth of households received prenatal care, only 63 percent of births in the poorest fifth of households did so. The differences between a mother or father with no education and a mother or father with secondary or higher education were very similar to the wealth gaps. Births in rural areas were less likely to receive prenatal care (71 percent) than births in urban areas (86 percent). Taking into account other characteristics, use of prenatal care was significantly[12] higher for births from all other wealth statuses as compared to the poorest fifth of households. Mothers and fathers with more education were significantly more likely to use prenatal care. Being in a rural as opposed to urban area significantly decreased the chance of prenatal care.

Lack of perceived need, cost, and unavailability are all barriers to the use of prenatal care. The 21 percent of women who did not use prenatal care were asked why they did not (figure 4.5). The most common reason was that they had no complications (46 percent). This reason and "had experience" (11 percent) indicate that prenatal care is often misperceived as curative,

Figure 4.5 Reasons for Not Receiving Prenatal Care, Reported by Women Who Did Not Use Prenatal Care



Source: World Bank calculations based on Algeria PAPFAM 2002.

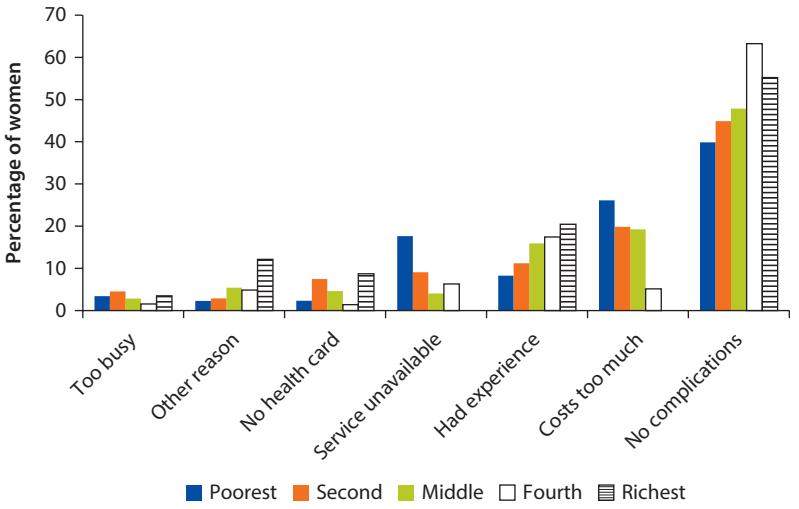
rather than preventive, medicine. Cost was the next most common barrier to prenatal care use (20 percent) along with unavailability of prenatal care (11 percent).

Cost and unavailability differentially affect women by wealth level (figure 4.6). Poorer women, who are less likely to use prenatal care, are also more likely to report cost or availability barriers. While 18 percent of women from the poorest fifth of households cited service unavailability as their primary reason for not using prenatal care, 0 percent of women from the richest fifth of households did so. Likewise, 26 percent of women from the poorest fifth of households cited cost as their reason for not using prenatal care, compared to 0 percent of women from the richest fifth of households.

Differences in deliveries by skilled birth attendants, based on wealth, education, and geography, were smaller than in prenatal care, but are still related to background. Births in the poorest fifth of households had an 87 percent chance of being handled by a skilled attendant, compared to a 98 percent chance in the richest fifth of households. Similar patterns were observed by women's and partner's education. The urban rate of delivery care was 97 percent while the rural rate was 90 percent. After taking into account multiple characteristics, use of delivery care increased significantly with higher wealth. There were significant differences in use of delivery care by women's education and partner's education. Rural areas have significantly lower chances of deliveries by skilled attendants.

Algeria has a high level of full immunizations (93 percent) and moderate differences in access to this important health resource based on background. There are some disparities in immunization coverage by parent's education level, geography, and wealth. For instance, while only 84 percent of children

Figure 4.6 Reasons for Not Receiving Prenatal Care by Wealth Level, Reported by Women Who Did Not Use Prenatal Care



Source: World Bank calculations based on Algeria PAPFAM 2002.

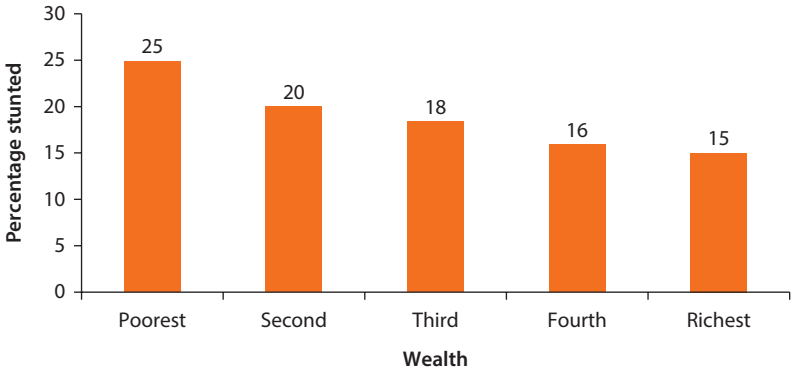
12–23 months from the poorest fifth of households have been fully immunized 93–97 percent of children from other wealth levels have been immunized. The second fifth of households actually has the highest immunization rates, at 97 percent. There was a gap between illiterate mothers, 90 percent of whose children were immunized, and secondary- or higher-educated mothers, 95 percent of whose children were immunized. There is a small rural-urban gap, with 91 percent of rural children immunized compared to 94 percent of urban children.

After taking into account other characteristics, children in the second and third fifths of households in terms of wealth were significantly more likely to be immunized than the poorest children. Children with primary-educated mothers were significantly more likely to be immunized than illiterate mothers, but there were no other significant differences based on parent's education. Overall, it is notable that while Algeria struggles to reach the poorest households and illiterate mothers for immunizations, generally the immunization program is acting as a broad public health program without large differences based on background.

In Algeria, stunting shows moderate differences by wealth level, suggesting that both poverty and public health and nutrition problems are behind stunting. For instance, stunting is highest in the poorest fifth of households (25 percent) and decreases with increasing wealth to a still-high 15 percent of the richest fifth of households (figure 4.7). Although information is not available on parent's education in the anthropometric data, information on household head's education is (and the head is likely to be one of the parents). Stunting decreases consistently with increasing household head education, dropping from 23 percent for children with illiterate household heads to 15 percent for children with highly educated parents. Males were slightly more likely to be stunted (21 percent) than females (18 percent), and urban children less likely (18 percent) than rural children (21 percent).

After taking into account other characteristics, children from higher wealth levels are significantly less likely to be stunted as compared to the poorest fifth

Figure 4.7 Percentage of Children Aged 0–4 Stunted, by Wealth Level



Source: World Bank calculations based on Algeria PAPFAM 2002.

of households. In terms of height-for-age, children from the third, fourth, and richest fifth of households all have significantly higher height-for-age than children from the poorest fifth of households. Stunting and height-for-age were also affected by the household head's education. Having a preparatory-educated household head significantly decreased the chance of stunting and increased height-for-age. Female children were significantly less likely to be stunted and have significantly higher height-for-age than male children.

Similar but somewhat smaller differences occurred in underweight rates by background characteristics, compared with stunting. The chance of being underweight decreased with wealth and household head's education. There were no appreciable regional or rural/urban differences in rates of being underweight, but rural areas show lower average weight-for-age. After taking into account other characteristics, children were significantly less likely to be underweight in the fourth and richest fifth of households as compared to the poorest fifth of households. In terms of weight-for-age, children from the richest fifth of households have significantly higher weight-for-age than children from the poorest fifth of households. Having a preparatory-educated household head significantly decreased the chance of being underweight, and increased weight-for-age. Female children were significantly less likely to be underweight and have significantly higher weight-for-age than male children.

Wasting and weight-for-height show even smaller differences by background characteristics compared to stunting or underweight and height- or weight-for-age. There was a slight wealth gradient and a slight education gradient for wasting and especially weight-for-height. While there was no difference in wasting for rural/urban areas, there was a difference in average weight-for-height, with rural areas having lower average weight-for-height than urban areas. After taking into account other characteristics, the statistical pattern for wasting and weight-for-height was essentially identical to that of underweight and weight-for-age. In sum, wealth and parents' education appear to have an important impact on early childhood mortality, health, and nutrition.

Children Face Unequal Opportunities for Healthy Development

Children in Algeria 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 4.1). Children face unequal opportunities for healthy development while still in utero. There is moderate inequality in whether their mothers receive prenatal care. The analysis shows that 7.7 percent of opportunities would have to be distributed differently for children to have equal opportunities for prenatal care. The opportunity for delivery with a skilled professional is more equal, with only 2.4 percent of opportunities needing to be redistributed for equality of opportunity to have prevailed. While there are unequal chances to

Table 4.1 Percentage of Opportunities to Be Redistributed

	Dissimilarity index
Prenatal care	7.7***
Skilled delivery	2.4*
Fully immunized	2.2
Neonatal mortality	13.9
Infant mortality	14.7
Stunted	9.9

Source: World Bank calculations based on Algeria PAPFAM 2002.
Note: Significance level: * = chance <5 percent, ** = chance <1 percent, *** = chance <0.1 percent.

Table 4.2 Contributions of Background Characteristics to Inequality
Percentage

	Wealth	*Woman's education*	*Partner's education*	*Rural*	*Head's education*	*Child's sex*
Prenatal care	21.3	37.0	26.4	15.4	n.a.	n.a.
Skilled delivery	17.9	36.8	22.3	23.0	n.a.	n.a.
Fully immunized	44.5	36.2	16.3	3.0	n.a.	n.a.
Neonatal mortality	28.9	n.a.	n.a.	2.2	19.0	2.2
Infant mortality	42.8	n.a.	n.a.	5.0	41.9	5.0
Stunted	56.4	n.a.	n.a.	4.2	32.0	4.2

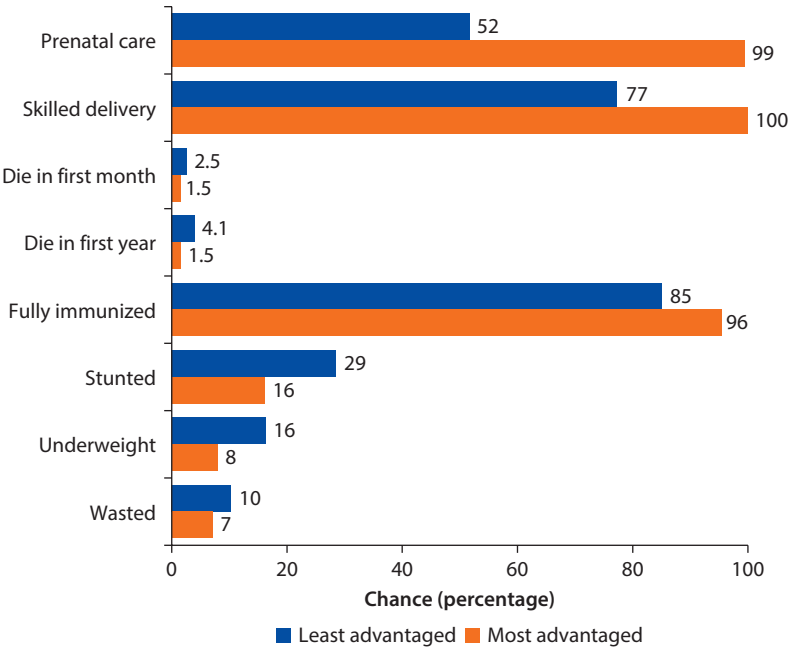
Source: World Bank calculations based on Algeria PAPFAM 2002.
Note: Shapley decompositions of the dissimilarity index. n.a. = not applicable or not available.

die early in life, since this is a rare occurrence, it is not possible to ascertain whether these differences are due to chance. Differences observed in immunizations and stunting may also be due to chance.

Wealth and education make the largest contributions to children's unequal opportunities. Table 4.2 shows the different contributions of circumstances to inequality for different outcomes as percentages. Wealth plays a particularly large role in immunizations and stunting, although differences may be random. Mother's education is particularly important for prenatal care and skilled delivery. Father's education plays a small but important role in inequality for these outcomes as well. Household head's education contributes to stunting. Rural/urban differences are small, and a child's sex contributes very little to inequality.

Children tend to be consistently advantaged or disadvantaged across a variety of different dimensions of ECD, and can face different life chances based on just a few characteristics. Early childhood is when cycles of poverty and inequality are transmitted across generations. If we observe a child who lives in a rural area, in the poorest 20 percent of households, with uneducated parents (a least advantaged child) and compare that child to one who has parents with higher education, is from the richest 20 percent of households, and lives in an urban area (a most advantaged child), we find that they have different chances of healthy ECD. Figure 4.8 presents the chances (predicted chance) of

Figure 4.8 Most Advantaged and Least Advantaged Simulations



Source: World Bank calculations based on Algeria PAPFAM 2002.

different ECD indicators (based on the regressions) for these "least advantaged" and "most advantaged" individuals.

On every indicator, the least advantaged child faces poorer prospects for healthy early development. While a least advantaged child has a 52 percent chance of receiving prenatal care, a most advantaged child has a 99 percent chance—a 47 percentage point gap in prenatal care. In terms of having a skilled delivery attendant, the most advantaged child has a 100 percent chance of having a skilled delivery attendant, compared to a 77 percent chance for the least advantaged child. Children face different prospects for surviving the first month and year of life based on their profile. While a most advantaged child has a 1.5 percent chance of dying in the first month or year, a least advantaged child has a 2.5 percent chance of dying in the first month, and a 4.1 percent chance of dying in the first year. In terms of being fully immunized, a most advantaged child has a 96 percent chance, compared to an 85 percent chance for a least advantaged child. In terms of height and weight, a least advantaged child has a 29 percent chance of being stunted while a most advantaged child has a 16 percent chance, and while a least advantaged child has a 16 percent chance of being underweight, a most advantaged child is half as likely to be underweight (8 percent). There is a smaller gap in wasting, with a 10 percent chance for the least advantaged child compared to a 7 percent chance for the most advantaged child.

Conclusions

Children in Algeria face a number of challenges in their early years. There are some gaps in early health care, especially prenatal care, and early mortality remains relatively high despite good immunization coverage. Malnutrition is a problem for children in Algeria, generating deficits in human development that will last throughout children's lives. There are shortfalls in access to adequately iodized salt, which threaten children's cognitive development. However, Algeria has made substantial progress in providing ECCE to most children. Children's development is threatened by high rates of violent discipline and low rates of development activities. Children also face unequal chances for healthy development based on their circumstances. More must be done to ensure children have equal opportunities to develop to their full potential, particularly focusing on those who are disadvantaged.

Annex 4A: The Data

The Data Set

The analysis utilizes cross-sectional data on the well-being of women and children collected in the Pan Arab Project for Family Health survey (PAPFAM) for 2002 in Algeria. The PAPFAM survey has a household questionnaire that includes important background characteristics of individuals and families. It also has a questionnaire for ever-married women ages 15–49, which captures information on important components of early childhood development (ECD) such as prenatal care, skilled assistance with the delivery of children, and children's immunizations. Weight and height data are collected for children under five years of age. The survey is nationally representative, and includes data that allows for an analysis of the relationship between ECD and child and household indicators within Algeria.

The Sample

The 2002 PAPFAM dataset for Algeria sampled 5,532 households, 9,597 ever-married women ages 15–49, and 4,348 children younger than 5 (anthropometric measures). The analysis in this note is weighted in order to be representative at the national level. The sample sizes reported (N) in each of the tables are based on the unweighted number of observations in the data.

Annex 4B: Indicators by Background Characteristics

Table 4B.1 Indicators by Background Characteristics

	Prenatal care	*Skilled attendant*	*Fully immunized*	*Died in first month*	*Died in first year*	*Stunted*	*Height-for-age (SD)*	*Underweight*	*Weight-for-age (SD)*	*Wasted*	*Weight-for-height (SD)*	*Percent of children*
Gender												
Male				2.3	3.5	20.8	−0.79	11.9	−0.43	8.1	−0.79	50.1
Female				1.7	3.1	17.8	−0.64	9.2	−0.29	7.0	−0.64	49.9
Wealth quintile												
Poorest	63.4	87.1	84.4	2.4	3.9	24.9	−0.96	13.5	−0.62	9.9	−0.96	26.4
Second	77.8	94.7	97.1	2.6	4.2	19.5	−0.80	11.8	−0.40	7.1	−0.80	22.0
Third	79.9	93.9	94.8	2.1	3.6	18.4	−0.67	9.9	−0.40	8.0	−0.67	17.7
Fourth	87.9	97.4	92.5	1.2	2.0	15.9	−0.56	8.1	−0.17	5.5	−0.56	18.0
Richest	92.6	98.2	94.8	1.6	2.1	14.5	−0.42	7.2	−0.05	6.2	−0.42	15.9
Residence												
Urban	86.3	97.0	93.7	2.0	3.0	18.2	−0.63	10.3	−0.29	7.6	−0.63	53.5
Rural	70.5	90.3	91.1	2.1	3.6	20.5	−0.81	10.8	−0.44	7.6	−0.81	46.5
Woman's education												
Illiterate	67.3	89.1	89.5	2.3	4.1							37.6
Read/write	80.6	95.6	92.7	1.8	2.6							15.3
Primary	90.0	97.5	96.6	2.0	2.7							24.7
Preparatory	92.6	98.6	92.8	1.6	2.0							18.4
Secondary+	99.2	100.0	95.3	1.1	1.1							4.1

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Table 4B.1 Indicators by Background Characteristics *(continued)*

	Prenatal care	*Skilled attendant*	*Fully immunized*	*Died in first month*	*Died in first year*	*Stunted*	*Height-for-age (SD)*	*Underweight*	*Weight-for-age (SD)*	*Wasted*	*Weight-for-height (SD)*	*Percent of children*
Partner's education												
Illiterate	63.4	87.0	91.9	2.1	3.8							20.3
Read and/or write	78.2	94.0	91.6	2.3	3.8							25.2
Primary	83.6	97.3	91.6	1.9	2.9							25.6
Preparatory	92.6	97.3	95.0	1.6	2.0							21.3
Secondary +	95.0	97.8	94.8	1.9	2.6							6.8
Don't know	75.8	90.1	82.1	2.0	3.7							0.3
Missing	56.6	93.0	100.0	3.8	6.4							0.4
Head's education												
Illiterate						23.2	−0.88	13.4	−0.51	8.3	−0.88	32.2
Read and/or write						20.1	−0.80	10.2	−0.45	7.5	−0.80	13.2
Primary						18.5	−0.70	9.4	−0.34	6.2	−0.70	16.4
Preparatory						15.6	−0.60	9.3	−0.28	7.9	−0.60	19.2
Secondary						17.1	−0.55	8.5	−0.15	7.3	−0.55	13.9
Higher education						14.5	−0.33	6.9	−0.09	6.8	−0.33	5.1
Total	79.2	94.4	92.6	2.0	3.3	19.3	−0.72	10.5	−0.36	7.6	−0.72	100.0
N (observations)	4,297	3,431	780	11,950	11,950	4,348	4,348	4,348	4,348	4,348	4,348	

Source: World Bank calculations based on Algeria PAPFAM 2002.
Note: Blank cells indicate not applicable or not available. SD = standard deviations.

Annex 4C: Relationship between ECD Indicators and Background, When Accounting for Multiple Characteristics

Table 4C.1 Relationship between ECD Indicators and Multiple Background Characteristics

	Prenatal	*Delivery*	*Fully immunized*	*Stunted*	*Height-for-age (SD)*	*Underweight*	*Weight-for-age (SD)*	*Wasted*	*Weight-for-height (SD)*	*Neonatal mortality*	*Infant mortality*
Wealth—20% of households—compared to poorest											
Second	+	+	+	–			+				
Third	+		+	–	+		+				
Fourth	+	+		–	+	–	+	–	+	–	–
Richest	+	+		–	+	–	+	–	+		–
Woman's education—compared to illiterate											
Read/write	+	+		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Primary	+	+	+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Preparatory	+	+		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Secondary+	+	+		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Partner's education—compared to illiterate											
Read/write	+	+		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Primary	+	+		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Preparatory	+	+		n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Secondary+	+			n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Rural	–	–									
Household head education—compared to illiterate											
Read/write	n.a.	n.a.	n.a.								
Primary	n.a.	n.a.	n.a.								

table continues next page

Table 4C.1 Relationship between ECD Indicators and Multiple Background Characteristics *(continued)*

	Prenatal	*Delivery*	*Fully immunized*	*Stunted*	*Height-for-age (SD)*	*Underweight*	*Weight-for-age (SD)*	*Wasted*	*Weight-for-height (SD)*	*Neonatal mortality*	*Infant mortality*
Preparatory	n.a.	n.a.	n.a.	–	+	–	+				
Secondary	n.a.	n.a.	n.a.				+				–
Higher education	n.a.	n.a.	n.a.								
Female	n.a.	n.a.	n.a.	–	+	–	+			–	
P-value (model)	0.000	0.000	0.021	0.000	0.000	0.000	0.000	0.184	0.009	0.015	0.000
Pseudo R-squared	0.123	0.120	0.069	0.014		0.016		0.009		0.012	0.014
Observations (N)	4,297	3,304	780	4,345	4,345	4,345	4,345	4,345	4,345	11,947	11,947

Source: World Bank calculations based on Algeria PAPFAM 2002.

Note: Blank cells indicate no statistically significant relationship. Constant Included, Robust Standard Errors Used, Woman's Education Secondary+ is a perfect predictor for delivery care; ECD = early childhood development; n.a. = not applicable or not available; SD = standard deviations.+ = chance <.05 and positive effect on outcome, – = chance < .05 and negative effect on outcome.

Notes

1. Mortality rates are for children born 1–10 years prior to the survey.
2. A doctor, a registered nurse, or a midwife.
3. As was true for prenatal care, delivery questions are asked about most recent live births in the last five years only. Since live births are likely to be associated with care by a health professional, the percent of live births with a health professional is likely to overestimate the number of deliveries with a health professional.
4. The DPT vaccine is a combination vaccine that covers diphtheria, whooping cough (pertussis), and tetanus. Children must receive three doses to be fully immunized.
5. Children must receive three doses to be fully immunized against polio.
6. As with prenatal and delivery care, these questions were asked of the most recent live birth in the past five years.
7. The units show how different Algerian children are compared with the reference population in terms of standard deviations (SD).
8. More than 15 ppm of iodine in the salt.
9. The six activities are: (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; (6) spend time with the child naming, counting, and/or drawing things.
10. 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).
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.

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