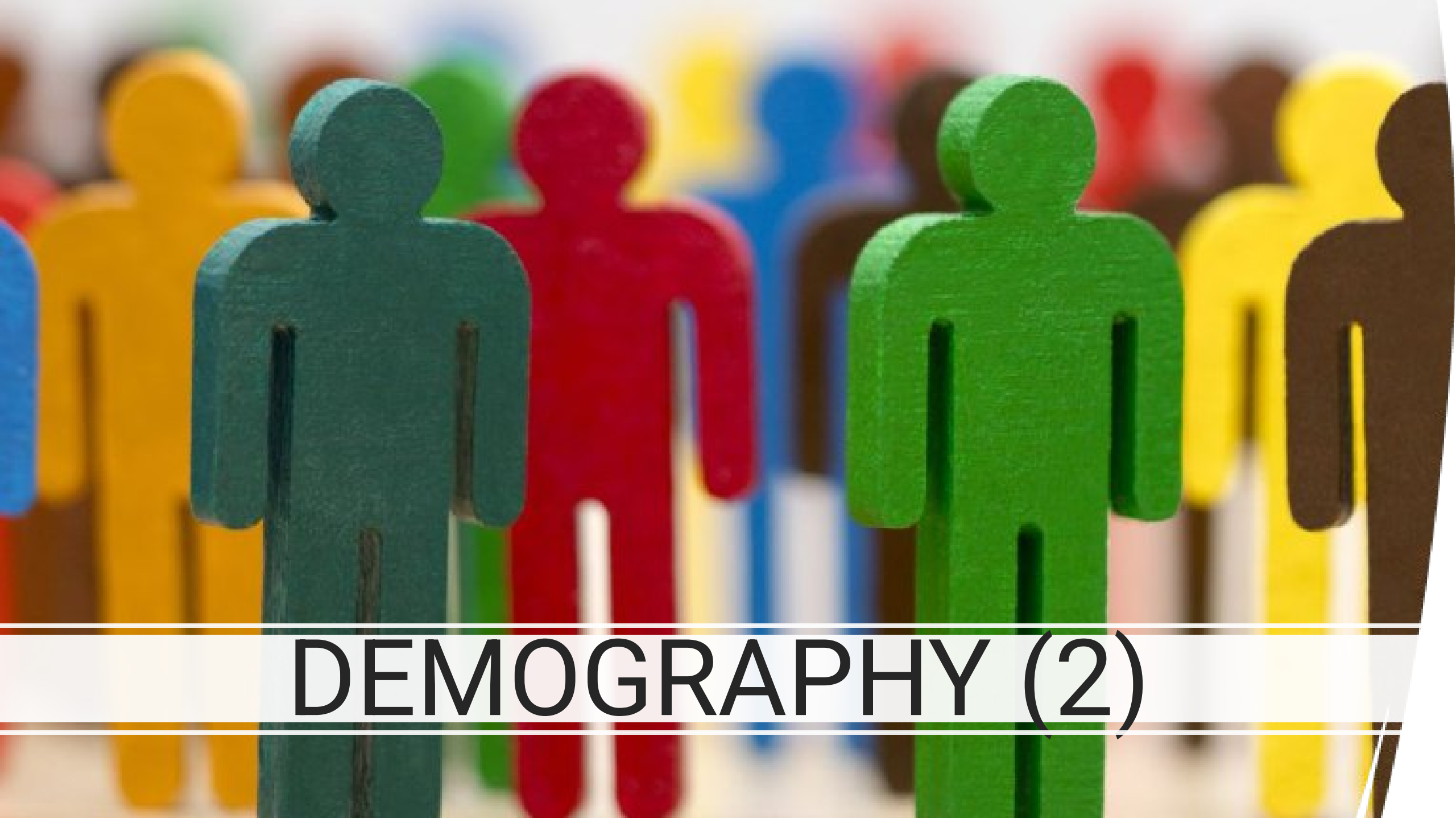


DEMOGRAPHY (2)

DEMOGRAPHY : POPULATION DYNAMICS

BIRTHS

DEATHS(MORTALITY)

MIGRATION

Mortality (Death)

Mortality Rate or Death Rate also called the: crude death rate.

- It is the number of deaths per 1,000 population in a given year.

The death rate (also called the crude death rate) is the number of deaths per 1,000 population in that population in a given year.

$$\frac{\text{Number of deaths}}{\text{Total population}} \times K = \frac{8{,}504{,}709}{1{,}149{,}285{,}000} \times 1{,}000 = 7.4$$

In the 2008, the death rate in India was 7 per 1,000.

Crude death rate in Jordan in 2023 was 2.11/1000 population. (MOH, Jordan Mortality Report,2023)

Mortality Measurements:

Death Measurements are classified into :

- Age-Specific death rate.
- Cause-specific death rate.
- Sex-specific death rate.

Age-specific death rate

Cause-specific death rate

Infant Mortality Rate (IMR)

The infant mortality rate is the number of deaths of infants under age 1 per 1,000 live births in a given year.
The IMR is considered a good indicator of the health status of a population.

$$\frac{\text{Number of deaths of infants under age 1 in a given year}}{\text{Total live births in that year}} \times K = \frac{78{,}400}{3{,}227{,}000} \times 1{,}000 = 24.3$$

There were 24 deaths of infants under age 1 per 1,000 live births in Brazil in 2007.

- IMR in Jordan is 14/1000 live births (JPFHS,2023)

Table (15) Age - specific numbers of deaths and death rate by sex for Jordan 2023						
Age group	Deaths (number)		Population (number)		Death rate per 100 000 population	
	Male	Female	Male	Female	Male	Female
<1	1380	988	129280	122890	1067.5	804
1-4	199	170	548875	521120	36.3	32.6
5-9	137	85	722465	690600	19	12.3
10-14	108	85	628100	592710	17.2	14.3
15-19	186	91	602305	542895	30.9	16.8
20-24	205	101	627145	515700	32.7	19.6
25-29	233	102	555540	448010	41.9	22.8
30-34	245	134	478310	408960	51.2	32.8
35-39	326	172	426045	360645	76.5	47.7
40-44	436	216	367600	310035	118.6	69.7
45-49	599	292	312325	259565	191.8	112.5
50-54	893	461	226115	196490	394.9	234.6
55-59	1154	649	153815	141750	750.3	457.8
60-64	1285	781	104215	97645	1233	799.8
65-69	1265	867	81530	82350	1551.6	1052.8
70-74	1159	956	63610	56925	1822	1679.4
75-79	1488	1361	39170	38370	3798.8	3547
80-84	1304	1291	18515	18885	7042.9	6836.1
85+	1241	1696	12040	13455	10307.3	12605
All ages	13843	10498	6097000	5419000	227	193.7

SOURCE: JORDAN MORTALITY REPORT,2023

Maternal Mortality Ratio

- The Maternal Mortality Ratio is the number of women who die as a result of complications of pregnancy or childbearing in a given year per 100,000 live births in that year.

- Deaths due to complications of spontaneous or induced abortions are included.

- A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes.

Maternal Mortality Ratio

- This measure is sometimes referred to as the maternal mortality rate

- In Jordan MMR 23.7 deaths per 100,000 live birth (HPC, 2025)

Morbidity

- Morbidity refers to disease and illness, injury and disability, in a population.

- Data about the frequency and distribution of a disease can aid in controlling its spread, and in some cases, may lead to identification of its causes.

Population Composition
Age and Sex Composition

A population composition is based on the personal traits of its individual members including age, sex, race, ethnicity and many other characteristics

Age and sex are the most basic characteristics of a population.

the age and sexual composition of a population can be depicted by a population pyramid

Every population has a different age and sex composition— the number and proportion of males and females in each age group

This structure can have considerable impact on the population's social and economic situation, both present and future.

Population Composition
Age and Sex Composition

- Age and sex are the most basic characteristics of a population.
- Every population has a different age and sex composition— the number and proportion of males and females in each age group—
- This structure can have considerable impact on the population's social and economic situation, both present and future.

Age and Sex Composition

- Young and old populations have markedly different age compositions; as a consequence, they also have different proportions of the population in the labor force or in school, as well as different medical needs, consumer preferences, and even crime patterns.

Median Age

A population’s age structure has a great deal to do with how that population lives.

- The median age is the age at which exactly half the population is older and half is younger.

- the median age in Jordan, is 22.9 years ,which means that half of the pop. are less then this age (HPC,2023)

Sex Ratio

- The sex ratio is: the ratio of males to females in a given population,
- usually expressed as the number of males for every 100 females.
- The sex ratio at birth in most countries is about 105 or 106 males per 100 females.
- After birth, sex ratios vary because of different patterns of mortality and migration for males and females within the population.

Population Pyramid

- A graph that shows the number or percentage of people in a particular age group living in a country.
- A population pyramid graphically displays a population's age and sex composition.
- Horizontal bars present the numbers or proportions of males and females in each age group.
- The sum of all the age-sex groups in the population pyramid equals 100 percent of the

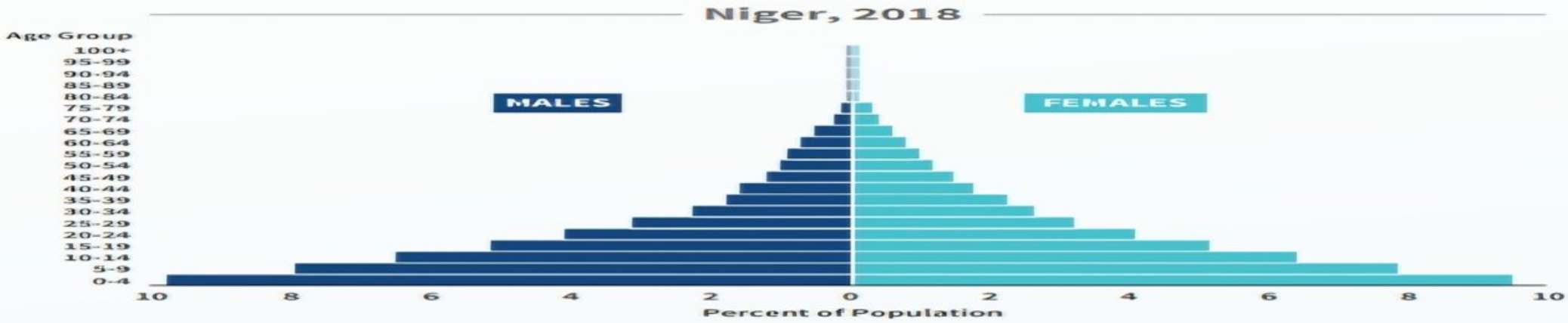
Population profiles(pyramids)

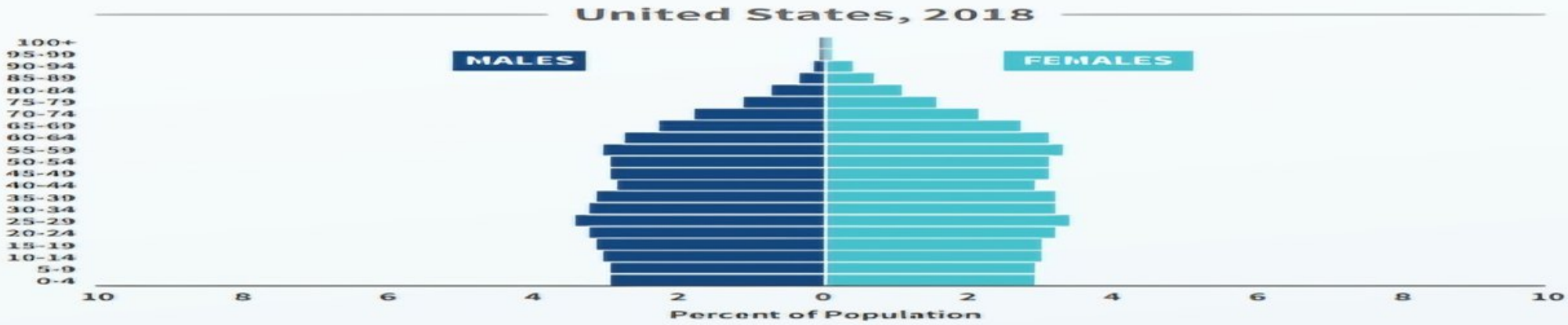
Populations of countries can differ markedly as a result of past and current patterns of fertility, mortality, and migration. However, they all tend to fall into three general profiles of age-sex composition

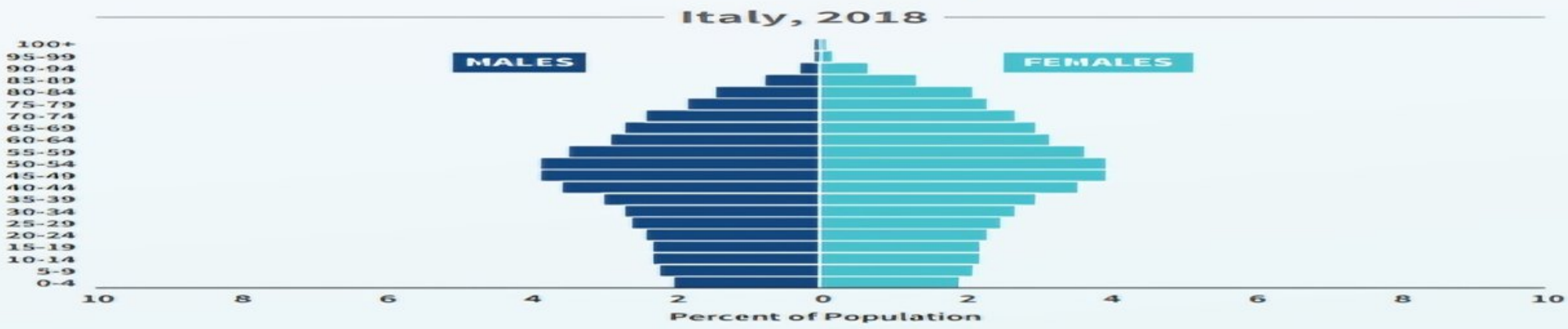
1. Rapid growth is indicated by a pyramid with a large percentage of people in the younger ages.

2. Zero growth or decreasing is reflected by a pyramid with a smaller proportion of the population in the younger ages.

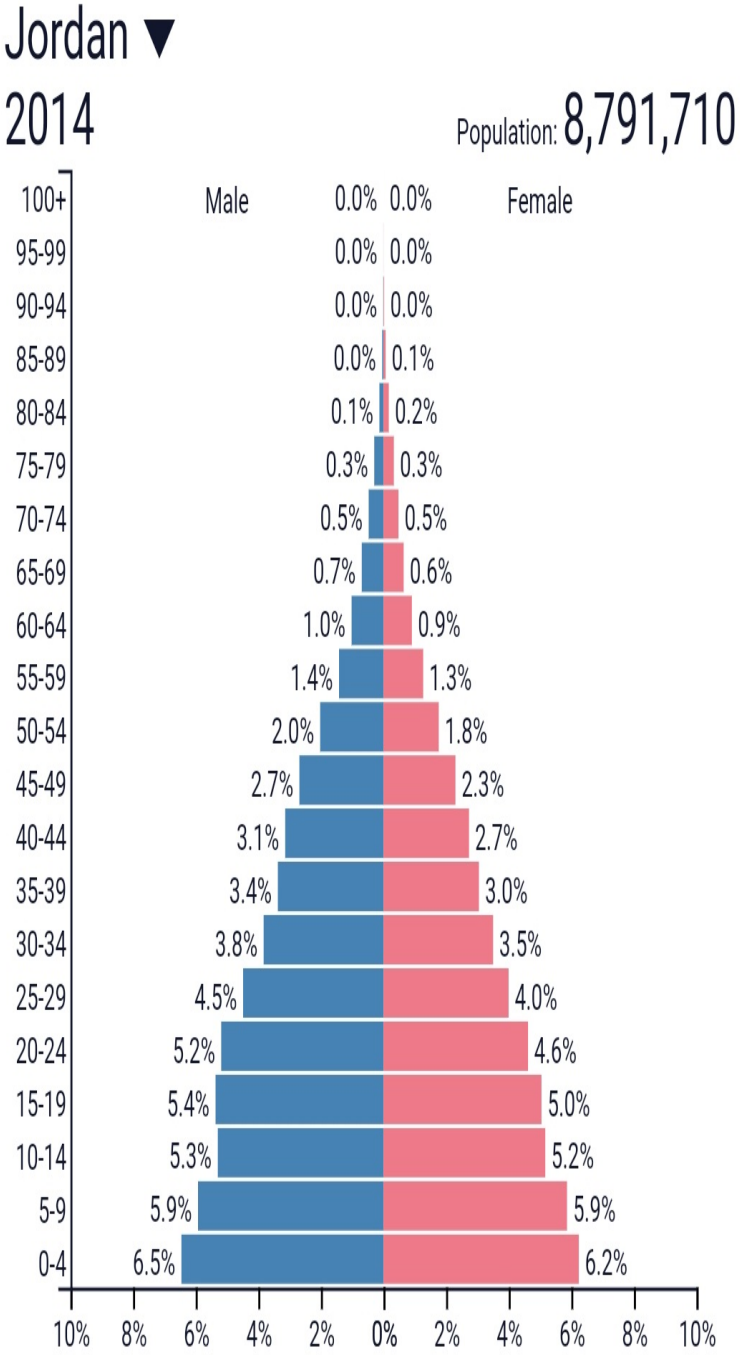
3. Slow growth populations are shown by roughly equal numbers of people in all age ranges, tapering off gradually at the older ages.

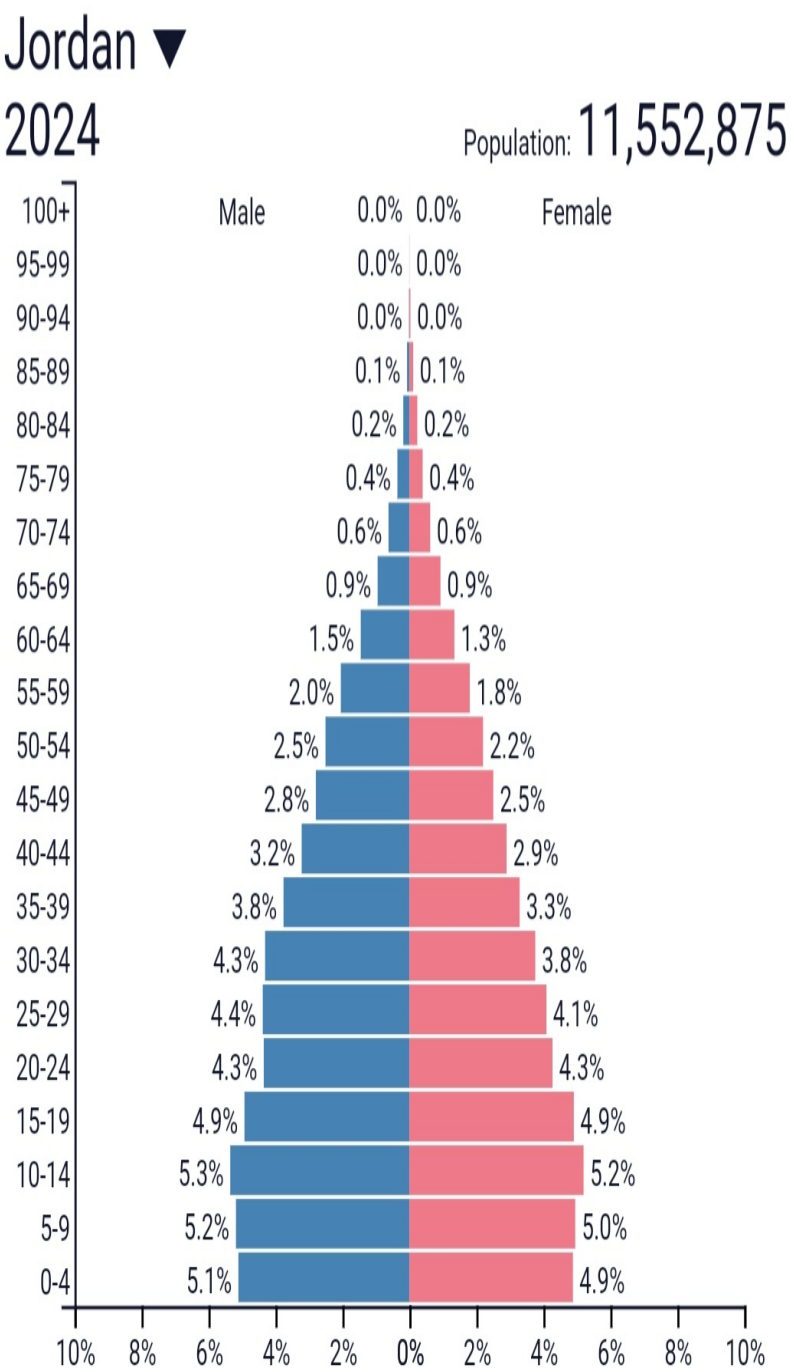






Sources: U.S. Census Bureau, Population and Housing Unit Estimates; and UN, Department of Economic and Social Affairs (DESA), *World Population Prospects 2019*, https://population.un.org/wpp/Download/Standard/Population/.





Jordan Population mid 2014 to 2024

Population change

- Population change has three components: births, deaths, and migration.
- As people are born, die, or move, their total numbers in an area change.
- During most of history, world population increased very slowly, but during the 20th century, this growth has accelerated (due to medical, scientific& economic enhancement that improved livings conditions &lowered mortality rate

How do populations change?

- A change in population size over a given period of time equals the number of people in the population at the beginning of the period plus any births that occur during the period, minus any deaths, plus net migration during the period.

Calculating population change over time

Where P_2 is the population at the later date, P_1 is the population at the earlier date; B is births and D is deaths between the two dates; and I is immigration (or in-migration) and E is emigration (or out-migration) between the two dates.

$$\text{Jan. 1996 population of Poland} + \left(\text{1996 births} - \text{1996 deaths}\right) + \left(\text{1996 immigration} - \text{1996 emigration}\right) = \text{Jan. 1997 population of Poland}$$

$$38{,}609{,}400 + (428{,}200 - 385{,}500) + (8{,}200 - 21{,}000) = 38{,}639{,}300$$

Population change

- The change in population size accounted for by more births in the population than deaths is referred to as "natural increase."
- The term "natural decrease" refers to population decline resulting from more deaths than births.
- Net migration is the number of immigrants minus emigrants.

Growth Rate

The growth rate is the rate at which a population is increasing (or decreasing) in a given year due to natural increase and net migration, expressed as a percentage of the base population.

The growth rate takes into account all components of population growth: births, deaths, and migration.

It equals (births – deaths)+_ net migration/ total population X K (100).

It should never be confused with the birth rate, but it sometimes is.

THE END