



Tutorial 2: Demography Tutorial



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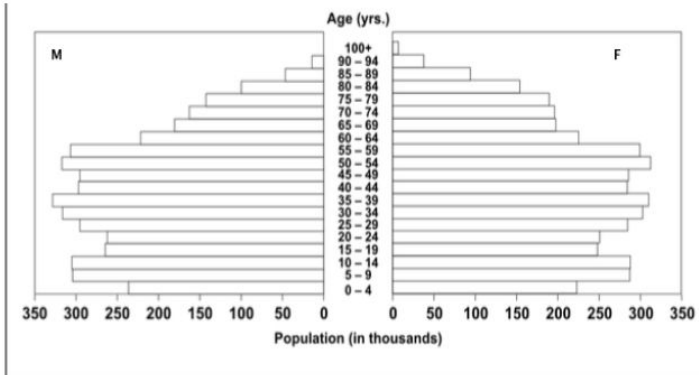
- Main text
- Males slides
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Exercise 1:

- We interpret the sides of the population pyramid by comparing male and female ages and ages within the same sex.
- the 2 main factors that caused an increase in life expectancy are:
 - 1-sanitation (الصرف الصحي)
 - 2-vaccination.

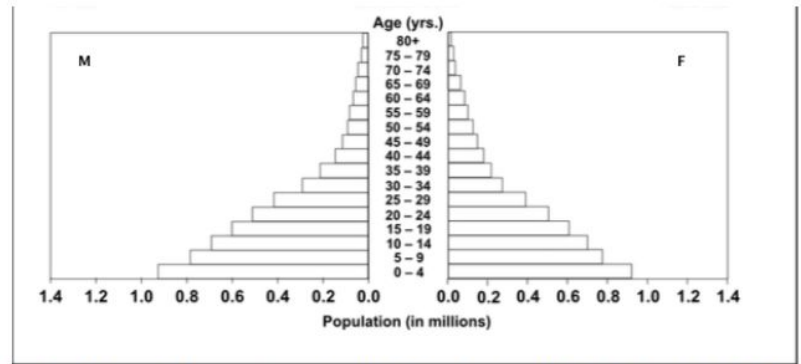
Consider the following two population pyramids:

Population pyramid A



Source: U.S. Census Bureau [Internet]. Washington, DC: IDB Population Pyramids [cited 2004 Sep 10]. Available from: <http://www.census.gov/population/international/>.

Population pyramid B



Source: U.S. Census Bureau [Internet]. Washington, DC: IDB Population Pyramids [cited 2004 Sep 10]. Available from: <http://www.census.gov/population/international/>.

1. Describe the shape of each of these two pyramids. What are the most striking features in each?

- Pyramid A: (stationary)
- 1- high apex (= longer life expectancy).
 - 2-narrow base (when compared with what's directly above it)(= low birth rate).
 - 3-sides are fairly equal
- مع انه ال elderly يعتبر شوي زياده).

- Pyramid B: (expansive)
- 1- low apex (= short life expectancy).
 - 2-wide base (= high fertility rate).
 - 3- sides show a young population since most are twenty-ish..

2. What are the main differences in population composition between pyramid A and Pyramid B?

- A: low fertility, long life expectancy.
 B: high fertility, low life expectancy.

3. Based on the pyramid shapes, can you guess the level of development of each of these two countries?

- Pyramid A: developed country.
- Pyramid B: developing country.

4. What are the possible stages of demographic transition in each of country A and country B?

- Pyramid A: Low stationary.
- Pyramid B: Late expanding.

Exercise 2:

During which stage of demographic transition is population growth the highest? Explain why.

Late expanding (birth rate > death rate).

1-During which stage of demographic transition is population growth the lowest ?
Low stationary (birth rates = death rates).

Exercise 3:

2-During which stage of demographic transition is negative population growth?
Declining (birth rates < death rates).

The following data shows the population distribution of Saudi Arabia in 2000 and 2015.

| Age groups (years) | Year 2000 | Year 2015 |
|--------------------|-----------|-----------|
| < 15 | 8000000 | 7000000 |
| 15 - < 65 | 12000000 | 19000000 |
| 65+ | 500,000 | 900,000 |

1. Calculate the dependency ratio in each of these two years.

$$\text{Dependency ratio} = 100 \times \frac{\text{Pop under 15} + \text{pop over 65}}{\text{Pop age 15-64}}$$

$$\text{Year 2000: } \frac{(8000000+500000)}{12000000} \times 100 = 0.7 \times 100 = 70\%$$

$$\text{Year 2015: } \frac{(7000000+900000)}{19000000} \times 100 = 0.42 \times 100 = 42\%$$

-dependency ratio can be used to compare countries.
-when u calculate dependency ratio of <15 it's called child dependency ratio.
-when u calculate dependency ratio for >65 it's called senior dependency ratio.

2. During which year was it higher? Provide a plausible explanation.

2000, population between 15-65 has grown compared to the dependent.

Exercise 4:

| Age groups | No. of females (mid-year) | Live births | ----- |
|------------|---------------------------|-------------|-------|
| 15-19 | 100 | 8 | |
| 20-24 | 250 | 80 | |
| 25-29 | 200 | 96 | |
| 30-34 | 300 | 84 | |
| 35-39 | 200 | 40 | |
| 40-44 | 150 | 24 | |
| 45 – 49 | 250 | 20 | |
| Total | 1450 | 352 | |

1. Calculate the crude birth rate from this table.

Can't be calculated here because mid year population (male+ female) is not given.

2. Calculate the general fertility rate from this table.

$$\text{General fertility rate} = 1000 \times \frac{\text{Number of live births in a year in a specific locality}}{\text{Mid-year female population age 15-49 (reproductive age) in that same year and same locality}}$$

$$242 \text{ live births per one thousand women} = 1000 \times \frac{352}{1450}$$

3. Calculate the age-specific fertility rate for women from 20 to 34 years of age.

$$\text{Age-specific fertility rate} = 1000 \times \frac{\text{Number of live births among a specific age group}}{\text{Mid-year female population in that age group in that same year and same locality}}$$

$$346 \text{ live births per one thousand women} = 1000 \times \frac{80+96+84}{250+200+300}$$

Exercise 5:

- عدم تقليد حلول الدول الأخرى مثلما فعلته دولة المغرب حيث أقامت العديد من دور الرعاية بكلفة عالية ولم يستفيد منها غير أقل من 2% لأنه الfamily dynamic مختلف.
- حنا ما نبي نزيد الbirth rate ولا نبيه يقل عن عدد معين. نبغاه متوازن عشان المرأة تقدر تشتغل و تتعلم و تربي.

1- What Strategies have been successful in reducing birth rates.

- Education.
- Socioeconomics.
- Contraceptive measures.
- Working.

Policies:

تحديد عمر الزواج, توقيف الإعانات على الأطفال الزيادة عن رقم معين

2- Today 4% of the population is above 65 years in Saudi Arabia, This population portion will increase to 12% in 2040, List three challenges and three solutions to deal with increase of the aging population in Saudi Arabia?

| Challenges | Solutions |
|---|---|
| -Comorbidities. | -Primary prevention and secondary prevention. -Fund home care. -Telehealth. -corporatization of care (instead of the government allocating a part of the budget to be utilized by the ministry of health, it buys health care services from corporations). |
| -Dependency ratio increase. | |
| -We are not improving the quality of life we are just delaying death = non productive individuals using up resources, | تأخير عمر التقاعد |

Interactive population pyramid:

https://www.ined.fr/en/everything_about_population/population-games/tomorrow-population/

Practice Questions

Q1: The population growth rates are highest during:

A. 1st stage of demographic transition .

B. 2nd stage of demographic transition.

C. 3rd stage of demographic transition.

D. 4th stage of demographic transition.

Q2: Calculating the population doubling time using the standard exponential growth formula assumes:

A. That the population will continue to grow at the current rate B.

B. The population growth rate will slowly decline due to probable decline in fertility over time

C. The population growth rate will increase due to decline in mortality and steady fertility rates.

D. None of the above.

Q3: An age dependency ratio of 120 mean that there are:

A. 120 children under 15 year for every 100 person over 65.

B. 120 young adults in the age group 15-64 for every 100 person over age 65.

C. 120 elderly persons over age 65 in the age group for every 100 persons in the age group 15 to 64 years.

D. 20 children under age 15 and elderly person over age 65 for every 100 persons in the age group 15-64 years in the population.

Q4: A population pyramid with a broad base and a narrowing top is characteristic of:

A. Slowing growing population.

B. Population with zero growth rate.

C. A rapidly growing population.

D. Population with a negative growth rate.

Q5: The denominator for general fertility rate relates to:

A. All women.

B. The total population.

C. Women in the reproductive age group.

D. Women and men in the reproductive age group.

Q6: Use the following data to calculate the CBR (crude birth rate) per 1,000:

Island of Mauritius, 1985

Total Births: 18,247

Total female population: 491,310

Total male population: 493,900

A. 18.5 births per 1,000.

B. 37.1 births per 1,000.

C. 99.4 per 1,000.

D. 29.3 per 1,000.

Answer key:

1 (B) , 2 (A) , 3 (D) , 4 (A) , 5 (C) , 6 (A)

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