**Demography Tutorial**

**Exercise 1:**

**Consider the following two population pyramids**

**Population pyramid A**

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**Population pyramid B**

****

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

Pyramid A:

-Height: The apex is high, which suggests high life expectancy in this population.

-Base: is narrow, suggesting a low fertility rate in this population

-Side: suggests a fairly equal distribution of all age groups in this population (although the elderly population are still fewer)

-Type of pyramid: Stationary population

Pyramid B:

-Triangular in shape

-Height: Life expectancy is until 80+

-Base: wide, suggestive of high fertility rate.

-Side: concaved on the sides (most of the population is below the age of 25 y)

-Type of pyramid: Expansive

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

The fertility rate and the life expectancy

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

Country A is most probably a highly developed country. Country B is most probably a developing country.

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

Country A: Low stationary

Country B: Late expanding

**Exercise 2:**

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

Stage 3 (late expanding stage). Because during this stage the birth rates are greater than the death rates.

**Exercise 3:**

**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.**

Dependency ratio =

(# of people below 15 y + # of people > 65) / (# of people 15 - 65 y)

Dependency ratio 2000= 0.71

Dependency ratio 2015= 0.42

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

2000. Between 2000 and 2015 the population that is between 15 and 65 years of age has grown compared to the dependent age groups.

**Exercise 4:**

**Consider the following hypothetical data.**

|  |  |  |  |
| --- | --- | --- | --- |
| 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.**

It cannot be calculated because we do not have information about the mid-year population size (for both males and females)

**2. Calculate the general fertility rate from this table.**

General fertility rate = (# of live births / # females reproductive age mid-year)\*1000

GFR = 242.8 live births per 1000 women

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

Age-specific fertility rate =

(# of live births among women within a specific age group/ # of females in that same age group) \* 1000

Age-specific fertility rate for 20 - 34 years =

(# of births for women between 20 to 34 years / # of women between 20 - 34 year ) \* 1000

Age-specific fertility rate for 20-34 y=

[(80 + 96 + 84) / (250 + 200 + 300) ] \*1000 = 346.7 live births per 1000 women