

**COVENANT UNIVERSITY  
NIGERIA**

*TUTORIAL KIT  
OMEGA SEMESTER*

**PROGRAMME:  
DEMOGRAPHY AND SOCIAL STATISTICS**

**COURSE: DSS 121**

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**DSS121**  
**Introduction to Demography II**  
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1. Define fertility and mention some of its indicators

**Answer**

Fertility is defined as the measure of reproductive performance of women as obtained from the statistics of the number of live births. Fertility is the average number of births a woman would have over her life at prevailing rates of childbearing (Dudley & Leon, 2010). The main fertility indicators are as follows;

- Crude birth rate (CBR)
- General fertility rate (GFR)
- Child-woman ratio
- Age-specific fertility rate (ASFR)
- Total fertility rate (TFR)
- Gross reproduction rate (GRR)
- Net reproduction rate (NRR)

2. List the major determinants of population growth

3. Mention the general implications of high fertility rate in Nigeria or any other developing country of your choice

**Answer**

The following are the general implications of high fertility rate either in Nigeria or any other developing countries;

- a) Environmental Degradation
- b) Lack of Quality Education
- c) Lack of Quality Health Services
- d) Urban Congestion
- e) Hunger and Deprivation
- f) Lack of Quality Childhood and Child Nursing
- g) Infant and Maternal Mortality
- h) Low Birth Weight

4. Define mortality and mention its main indicators

5. Write short notes on the following: crude birth rate (CBR), total fertility rate (TFR) and age-specific fertility rate (ASFR)

**Answer**

- **Crude Birth Rate:** CBR is defined as the number of births per 1000 people in a year. It is the easiest and commonest measure of fertility. CBR for any population is obtained by dividing the number of live births recorded in a year by the total number of population at mid-year multiplied by 1000
- $CBR = B/P \times 1000$
- where;
- B= Total number of births in a given year; P= Mid-year total population. Thus, CBR can be compiled thus: No of live births x 1000

Mid-year pop

- **Total Fertility Rate:** TFR is defined as the number of children a woman will have if she lives throughout all the reproductive ages and follows the specific fertility rates of a given period (usually a year). It is the average number of children a woman will have if she experiences a given set of ASFRs throughout her lifetime. In other words, it is the average number of children a woman will have by the age of 50 if she is exposed to a given set of ASFR from age 15-49.

$$TFR = \frac{\sum ASFR \times \text{Magnitude of the age group}}{1000}$$

- **Age-Specific Fertility Rate:** ASFR is the number of births to women of a specific age group 'i' per year divided by the total number of women in that age group only and multiplied by 1000. It is the ratio of births by age of mothers in each age interval. It captures the number of births per 1000 women of a specific age group. It is computed thus;  $ASFR = \frac{B_i}{P_i} \times K$

Pi

Where;

Bi= No of registered live births to women in age group i

Pi = Mid-year population of women in age group i and K is constant (usually 1000).

6. Differentiate between population structure and population composition with examples
7. Enumerate the main demographic and socioeconomic determinants of fertility

### Answer

Some of the demographic and socioeconomic determinants of fertility are; age, sex, population of married couples, duration of marriage, household income, location of residence (rural or urban), culture, etc.

8. List and discuss any four demographic factors influencing fertility in any sub-Saharan country of your choice
9. Differentiate between maternal mortality rate and infant mortality rate

### Answer

- MMR measures the number of maternal deaths in a given period of time per 100,000 women of childbearing age during the same period. MMR is computed thus;  $MD_x/W_x \times 100,000$ .
- IMR on the other hand measures the death of newborns (infants) between the ages of 0 and 1 per 1000 live births. It is the probability of the death of a newborn baby before its 1<sup>st</sup> anniversary. IMR is computed thus;
- $IMR = D_0/P_0 \times 1000$ .

10. Birth rate is still high in Nigeria while death rate is on the decline. Why do you think this is so?

11. If the total birth in a community in a year is 28,247 and the mid-year population of the said community is 483,800; what is the CBR? Interpret your result.

**Answer**

$$\begin{aligned} \text{CBR} &= \text{Total births/mid-year pop} \times 1000 \\ &= 28,247/483,800 \times 1000 \\ &= 58.38 \end{aligned}$$

➤ This means that approximately in this community, 58 children die from every 1000 live births.

12. Define the following concepts with example

- i.) Maternal Mortality Rate
- ii.) Population Pyramid
- iii.) Age-specific Death Rate
- iv.) Life expectancy

13. Mention the basic indicators of measuring mortality.

**Answer**

The most common basic indicators of measuring mortality are as follows;

Crude birth rate, cause-specific mortality rate, age-specific mortality rate, maternal mortality ratio, maternal mortality rate, infant mortality rate, child mortality rate, etc.

14. If the number of births in country A is 4,158, 212 and maternal number of deaths observed in that country is 343; however, if the proportion of women of childbearing age (15-49years) is 65,624. Compute;

- i. maternal mortality rate &
- ii. maternal mortality indicator

15. What do you understand by the term population doubling time?

**Answer**

Population doubling time simply means the period (measured as per number of years) it will take a country to double its present population. That is, the number of years it will take a population to become two times its current size. In its crudest or simplest form, to calculate the doubling time of a country or an administrative area, we just simply divide **70** by the annual growth rate (in percentage). This is called **the rule of 70** in demography.

Doubling Time = **70 / r** ; (where r is the annual growth rate in percent)

16. As a demographer in training, where do you think Nigeria is presently in the phases of demographic transition theory? Explain why you think so.

17. Define population pyramid?

**Answer**

Population pyramid can be defined as a pictorial representation of the age and sex distribution of a population. One of the best ways to illustrate the population structure and composition of any country or population is to draw her population pyramid. Population pyramid represents the age and sex composition and / or structure of any country or administrative area more than any other tool.

18. What are the effects of fertility and mortality on age structure?

19. A national survey on population revealed that the number of children born in 2011 in a certain country was 9,789,050. However, the number of deaths recorded among children who

were less than one year of age was 397,450 in that same year. Determine the infant mortality rate and interpret your result.

**Answer**

$$\text{IMR} = \frac{\text{No of infant deaths}}{\text{Total children born}} \times 1000$$

$$\frac{397,450}{9,789,050} \times 1000$$
$$= 40.60$$

- **Interpretation:** This means that there is approximate 41 infant deaths per every 1000 children born in that country.

20. Why do you think countries embark on population projection?