Mortality

Mortality refers to the **incidence of death in a population**, usually measured through statistical indicators like **Crude Death Rate (CDR), Infant Mortality Rate (IMR), Maternal Mortality Rate (MMR), and Life Expectancy**.

- ❖ It helps demographers and geographers understand **population decline, health conditions, and socio-economic development levels**.
- ❖ According to **UN Demographic Dictionary (1958):**
  "Mortality is the frequency of occurrence of death in a defined population during a specified interval of time."

Controlling Factors of Mortality

Mortality is influenced by **biological, socio-economic, environmental, medical, and political factors**. These factors determine whether mortality is **high** (shorter lifespan, poor health) or **low** (longer life expectancy).

1. Biological Factors

- ➢ **Age:** Infant and old-age mortality are naturally higher. Mortality is lowest in the age group 10–40 years.
- ➢ **Sex:** Women generally have lower mortality rates than men (due to biological resilience), though maternal mortality may increase risk in less-developed regions.
- ➢ **Genetic factors:** Hereditary diseases (e.g., sickle cell anemia, hemophilia) affect mortality.

2. Health and Medical Factors

- ➢ **Healthcare facilities:** Availability of hospitals, doctors, medicines reduces mortality.
- ➢ **Immunization & vaccination:** Control of diseases like smallpox, polio, measles drastically lowers mortality.
- ➢ **Maternal & child healthcare:** Better prenatal and postnatal care reduces infant/maternal mortality.
- ➢ **Public health services:** Safe drinking water, sanitation, waste disposal → prevent epidemics.

3. Environmental Factors

- ➢ **Climate:** Extreme climates (deserts, polar regions) often linked with higher mortality.

- ➢ **Natural disasters:** Earthquakes, floods, droughts increase mortality suddenly.
- ➢ **Pollution:** Air, water, and soil pollution raise mortality from respiratory and water-borne diseases.
- ➢ **Epidemics & pandemics:** Historical (Plague, Spanish Flu) and recent (COVID-19) events show major mortality impacts.

4. Socio-Economic Factors

- ➢ **Standard of living:** Higher income → better nutrition, healthcare → lower mortality.
- ➢ **Education:** Especially female literacy → improves child health practices → reduces mortality.
- ➢ **Occupation:** Hazardous jobs (mining, construction) increase mortality risk; white-collar jobs → safer.
- ➢ **Housing & sanitation:** Poor slum conditions → higher mortality from communicable diseases.

5. Political and Policy Factors

- ➢ **War and conflict:** Greatly increase mortality (battle deaths, famine, refugee crises).
- ➢ **Government health policies:**

    - ▪ Proactive welfare states (e.g., Scandinavian countries) have low mortality.
    - ▪ Weak governance → poor healthcare access → high mortality.

- ➢ **Population policies & programmes:** Family planning, maternal-child health programmes reduce mortality rates.

6. Technological Factors

- ➢ **Medical technology:** Antibiotics, vaccines, surgical advances → reduced mortality.
- ➢ **Transport & communication:** Faster emergency services save lives.
- ➢ **Food technology:** Preservation, refrigeration, and agricultural advances reduce famine deaths.

7. Psychological & Cultural Factors

- ➢ **Health practices & beliefs:** Traditional medicine, delayed treatment → higher mortality.
- ➢ **Dietary customs:** Malnutrition from cultural food taboos (especially for women/children) may increase mortality.
- ➢ **Addictions:** Alcoholism, smoking, drug abuse increase mortality.

Measurement of Mortality

Since **mortality** means the **incidence of death in a population**, it is measured by several **statistical indicators**. These measures help in comparing mortality levels across countries, regions, and time.

1. Crude Death Rate (CDR):

- **Definition:** Number of deaths per 1,000 population in a given year.

- **Merit:** Simple, easy to calculate.
- **Limitation:** Does not consider **age and sex structure** of the population (a younger population naturally has lower mortality than an older one).

2. Age-Specific Death Rate (ASDR):

- **Definition:** Number of deaths per 1,000 persons in a specific age group in a year.
- **Formula:**
- **Merit:** More precise, as mortality differs sharply by age.

3. Sex-Specific Death Rate (SSDR):

- **Definition:** Number of deaths per 1,000 males or females in a year.
- **Use:** Shows gender differences in mortality.

4. Cause-Specific Death Rate (CSDR):

- **Definition:** Number of deaths due to a specific cause (e.g., TB, cancer, accidents) per 100,000 population.
- **Use:** Helps public health planning.

5. Infant Mortality Rate (IMR):

- **Definition:** Number of deaths of infants (under 1 year of age) per 1,000 live births in a year.
- **Benchmark:**

  - ❖ High IMR → poor healthcare and nutrition.

❖ Low IMR → better health and development.

6. Child Mortality Rate (CMR) / Under-5 Mortality Rate:

- ➢ **Definition:** Deaths of children under 5 years per 1,000 live births.
- ➢ **Use:** Indicates survival chances of young children, linked with maternal health, nutrition, and sanitation.

7. Maternal Mortality Rate (MMR):

- ➢ **Definition:** Number of maternal deaths (due to pregnancy, childbirth, or complications) per 100,000 live births.
- ➢ **Use:** Measures quality of maternal healthcare and delivery services.

8. Standardized Mortality Rate (SMR):

- ➢ **Definition:** Mortality rate adjusted for age/sex differences, allowing comparison between populations with different structures.
- ➢ **Use:** More accurate than crude measures when comparing countries.

9. Expectation of Life / Life Expectancy:

- ➢ **Definition:** Average number of years a newborn is expected to live if current mortality trends continue.
- ➢ **Benchmark:**
  - ▪ Low in developing countries (~60–70 years).
  - ▪ High in developed countries (~75–85 years).

10. Case Fatality Rate (CFR):

- ➢ **Definition:** Percentage of deaths due to a specific disease among diagnosed cases.
- ➢ **Use:** Shows severity of diseases (e.g., COVID-19 CFR).