**Slide 1**

بسم الله الرحمن الرحيم

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**Slide 4**

# DEMOGRAPHY

Demographic Transitions Population Pyramids
Dependency Ratio Age Sex Composition

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( PGTs Community Medicine)

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**Slide 2**

## Vision /Mission of RMU:

- To impart evidence based research oriented medical education
- To provide best possible patient care
- To inculcate the values of mutual respect and ethical practice of medicine

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**Slide 5**

## SEQUENCE OF LECTURE:

- Learning objectives (1 slide)
- Core subject (41 slides)
- Horizontal Integration, not relevant
- Vertical Integration, (1 slide)
- Digital library references Research (1 slide), Ethics(1 slide)
- End of lecture Assessment (04 slides)

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**Slide 3**

## REPRODUCTION MODULE

| VISION | MISSION STATEMENT | CORE VALUES |
|---|---|---|
| Highly recognized and accredited centre of excellence in Medical Education, using evidence-based training techniques for development of highly competent health professionals, who are lifelong experiential learner and are socially accountable. | To impart evidence based research oriented health professional education in order to provide best possible patient care and inculcate the values of mutual respect, ethical practice of healthcare and social accountability. | ✔ Merit ✔ Pursuit of Excellence ✔ Integrity ✔ Diversity & Inclusivity ✔ Social Impact |

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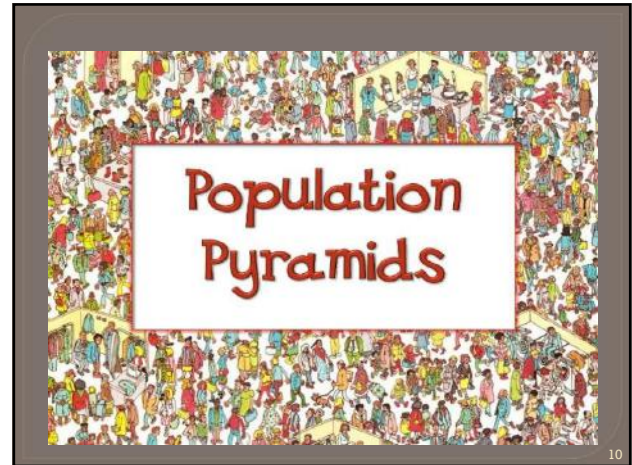**Slide 6**

## Learning Objectives

- Explain population pyramid
- Read and interpret a population pyramid
- Identify and interpret population pyramids in different stages of growth
- Identify and interpret different types of population pyramids with respect to shape
- Explain any asymmetry in shape
- Identify baby boom in population pyramid
- State importance of population pyramids
- Calculate and interpret dependency ratio
- Explain age and sex composition of a population
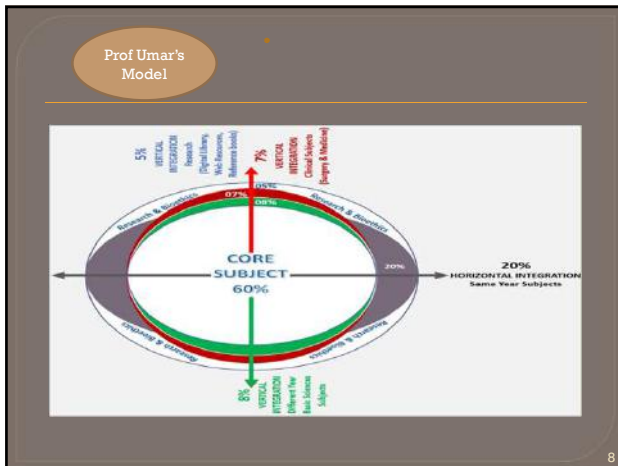- Calculate sex ratio from a given data

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## SGD: TEACHING STRATEGY

| Sr.No | Headings | Approximate% |
|---|---|---|
| 1. | Title Of SGD | |
| 2. | Learning Objectives from Study Guides | |
| 3. | Core Concepts of the topic | 95% |
| 4. | Related Advance Research points | 3% |
| 5. | Related Ethical points | 2% |
| | | |

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Population Pyramids

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Prof Umar's Model



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Core concept

## WHAT IS A POPULATION PYRAMID

- Is a pictorial representation of the age sex composition of a population
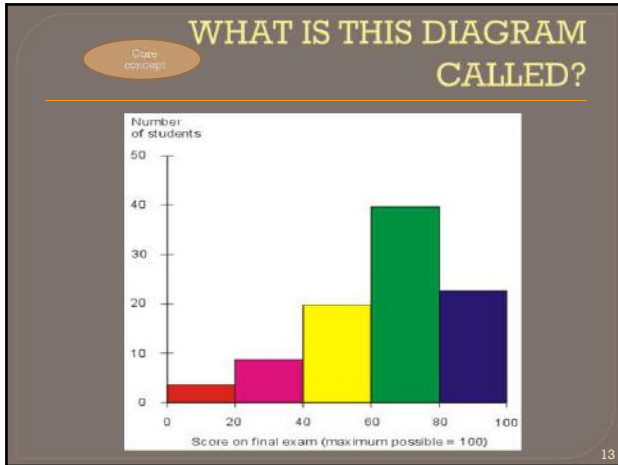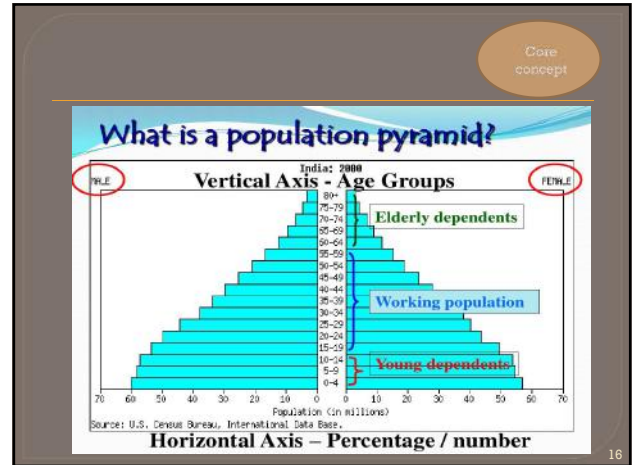
- Age pyramid

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Core concept

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Core concept

- It is a diagram that gives information about the proportion of males and females in each age group.
- Also shows:
-    - proportion of young people (0 -14 )
-    - proportion of working people (15 – 59)
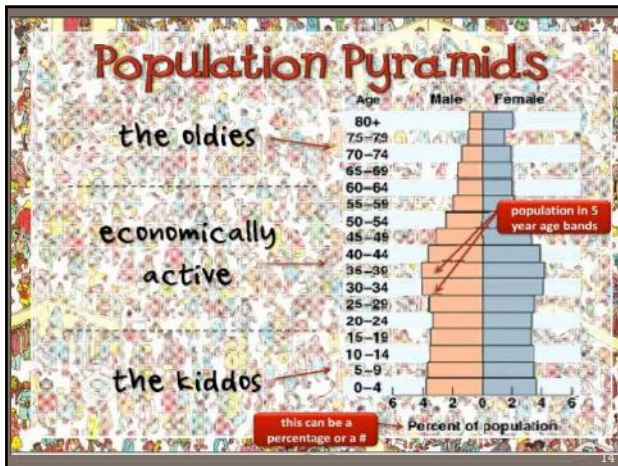-    - proportion of elderly people (60+)

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## WHAT IS THIS DIAGRAM CALLED?

Core concept



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Core concept

### What is a population pyramid?



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## HOW TO READ A POPULATION PYRAMID

Core concept

- Read the title of the country
- Comment on general shape of the pyramid
- Note the proportion of people in various age groups
- Note the sex ratio
- Interpret the data

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Core concept

- In a population pyramid each age-variable is presented in the form of a histogram, the two gender histograms are plotted horizontally back-to back

- On the left for males and on the right for females.

- On the y-axis are age groups: the subintervals are usually five-year age groups; on the x-axis is the number of males/females or the corresponding proportion.

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Core concept

- Width of the base:
    Birth rate varies with width of the base, a wide base indicates a high birth rate and a narrow base indicates a low birth rate
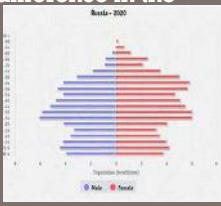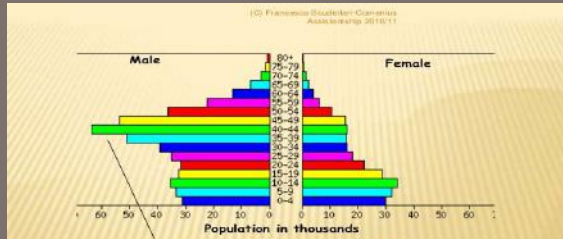


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## Slide 19

**Symmetry:**
- Statistically speaking pyramids should be relatively symmetrical
- Any asymmetry indicates a difference in the male and female population
- This pyramid shows more females at age ranges above 50 which indicates that Women are living to older Ages than males.
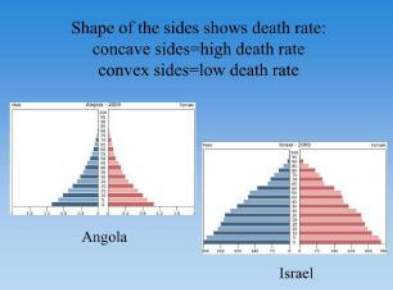


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## Slide 22



This country has a large number of temporary workers. These are people who migrate here especially to find a job.

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## Slide 20

### Shape of sides:

Shape of the sides shows death rate:
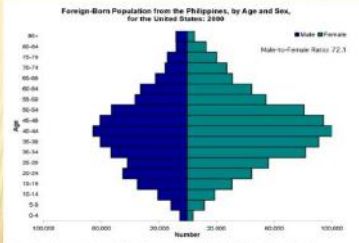concave sides=high death rate
convex sides=low death rate



Angola

Israel

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## Slide 23

e.g. of male labour influx:

2000: Qatar
2005: Dubai,

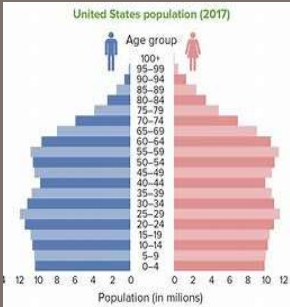e.g of female labour influx:
2000: USA (from The Philippines)



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## Slide 21

### Bumps in the sides:

- Bumps in the sides indicate a demographic anomaly



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## Slide 24
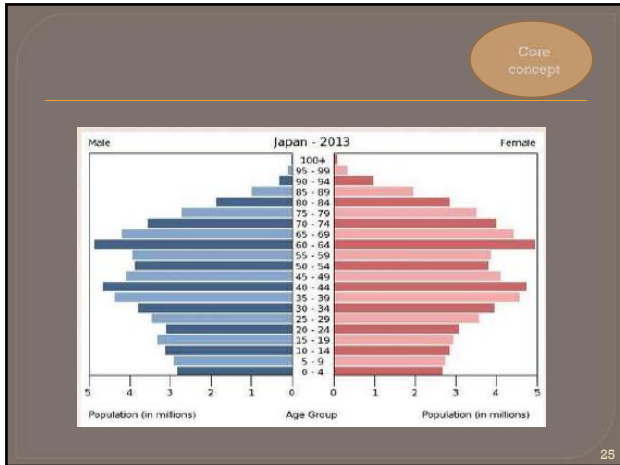
### BABY BOOM

- When large proportion of women in a population have children in the same years typically due to some critical event like war
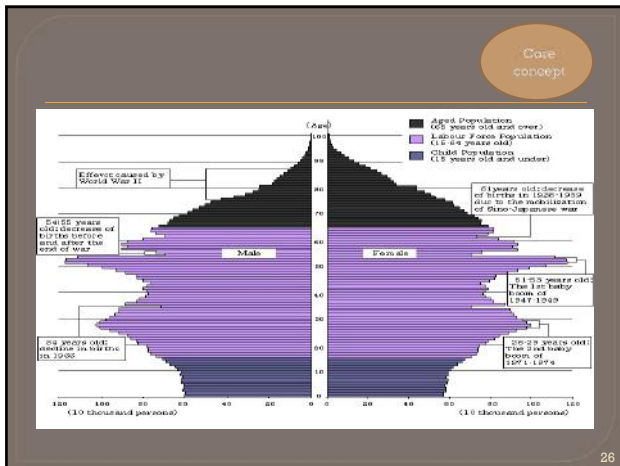
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## TYPES OF POULATION PYRAMIDS

1. Triangular-shaped
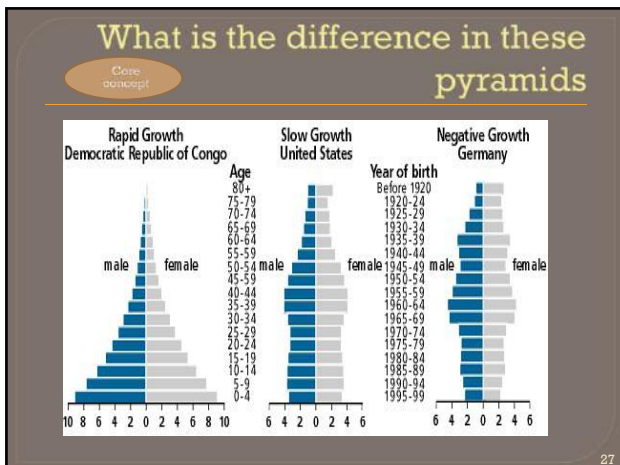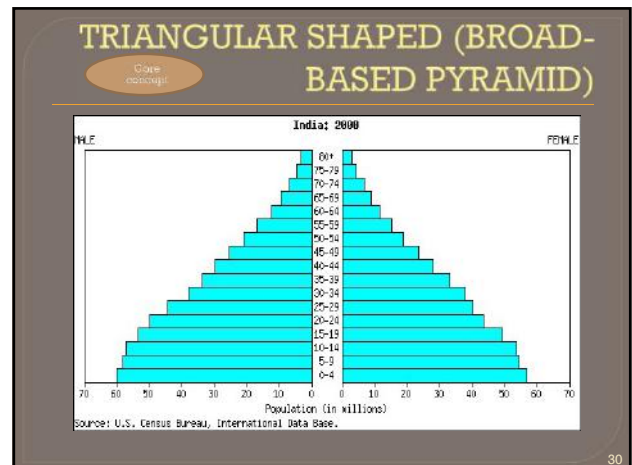2. Beehive-shaped Pyramid
3. Rectangular-shaped Pyramid

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Shape of pyramids is controlled by
· births
· deaths
· migrations

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## TRIANGULAR SHAPED (BROAD-BASED PYRAMID)



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Core concept

- **Title:** India, 2000
- **Shape:** Broad Base  -  high birth rates
-                 Narrow Top  -  small elderly pop
-                                  - high death rate
- **Proportion: -** Large proportion of young
-                    - high young dependency
-                       ratio
- **Sex Ratio:** Balance pyramid - Balance sex ratio
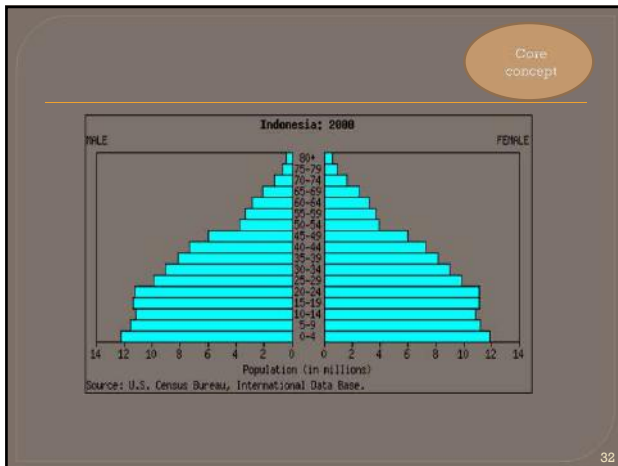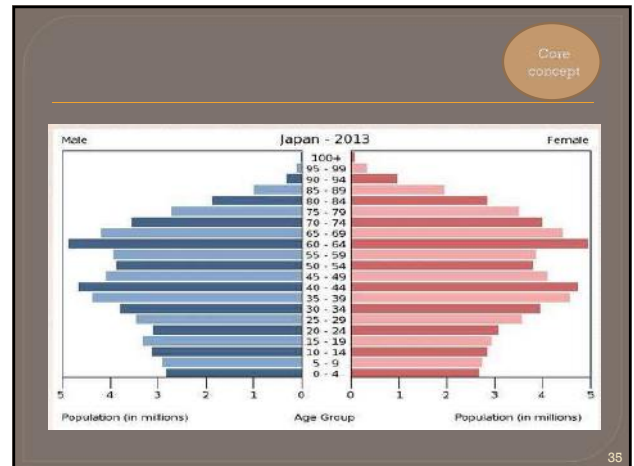
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Core concept

- **Title:** Singapore, 2000
- **Shape:** Rocket-shaped / Narrow Base
-             – Low Birth Rates, Slow pop growth
- **Proportion:** Large proportion of working
-                   population, 15-59 yr old - large
-                   group of economically active pop
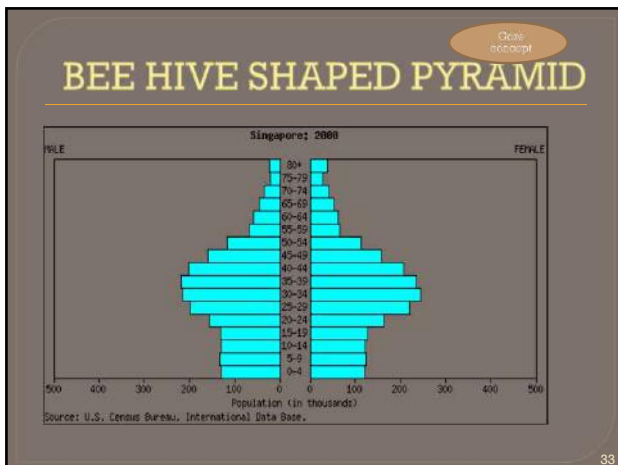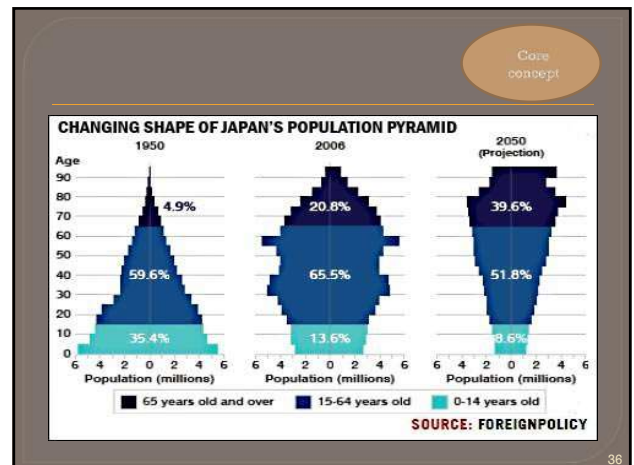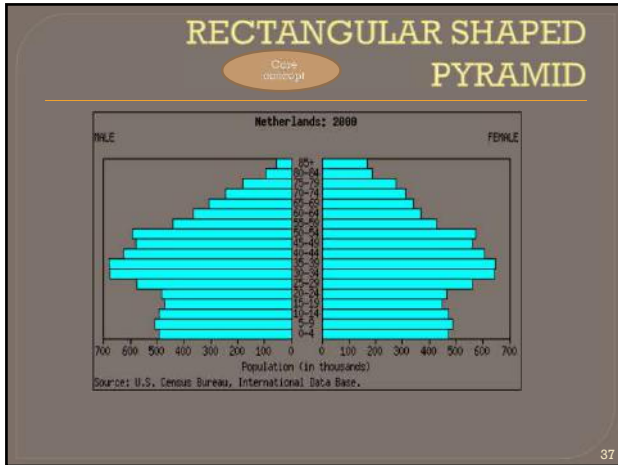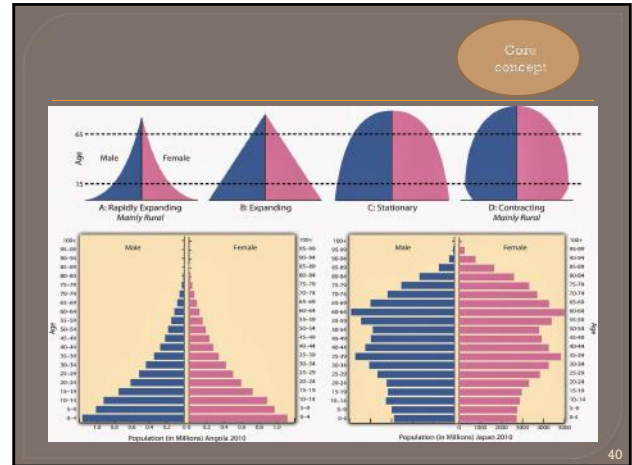- **Sex Ratio:** Balanced pyramid

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### Slide 38

- **Title**: Netherlands, 2000
- **Shape:** Rectangular-shaped - Zero Pop Growth
- Narrow Base - Low Birth Rates
- - Life-expectancy is high e.g. 80+
- - Low death rates
- **Proportion:** Bars of equal length - Balance
- Proportion
- **Sex Ratio:** Balance pyramid - Balance Sex
- Ratio

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### IMPORTANCE

- Policy Planning
  - ~ future housing estates
  - ~ future schools
  - ~ future jobs
- Comparison with other countries
  - ~ developed (US) vs developing (Pakistan)

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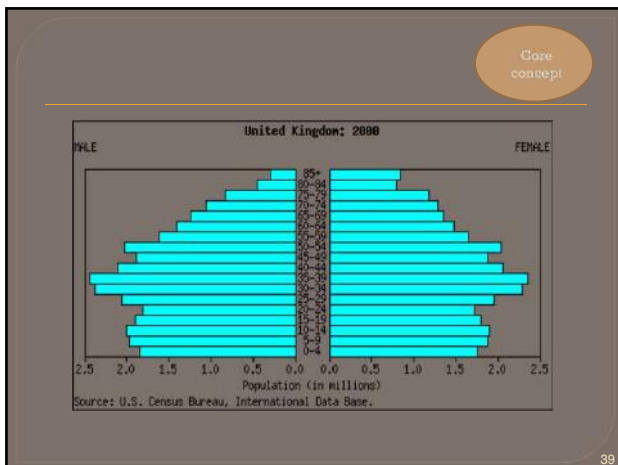
### A BROAD BASE POPULATION PYRAMID MEANS

- Increase food production.
- Build more homes and schools
- Plan for more job opportunities for the young in future.
- Implement birth control campaigns

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## A NARROW BASED POPULATION PYRAMID MEANS

*Core concept*

⦿ Work out incentives to encourage more births.
⦿ Hiring foreign labor.
⦿ Proper medical services and health care for the aged

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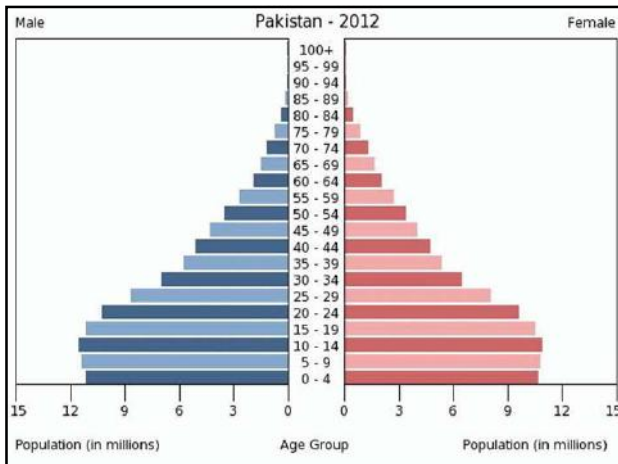
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## DEPENDENCY RATIO

*Core concept*

**Children + Elderly   X 100**
     **Working Age**
 = **Pop below 15 + 65 & above   X 100**
        **Pop 15 – 64  years**
**Dependency Ratio of Pakistan = 64.39 in 2011**

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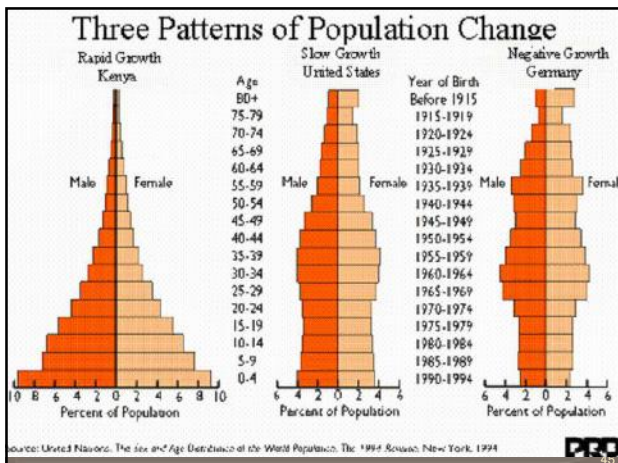
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## AGE –SEX COMPOSITION

*Core concept*

**R**efers to the proportion of males & females in different age-groups. It has a direct bearing on social, economic, health needs of communities or countries. In an "old" population, for example, the society has to arrange for the care of the elderly, & the country's health system must be organized accordingly. In a "young" population, on the other hand, the country has to provide more schools, immunizations, & economic support for the young

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## SEX RATIO

Core concept

- The no. of females per 1000 males (park)
- Ratio of males to females in population. Expressed as number of males per 100 females.

**Sex Ratio = Number of Males   X 100**
               **Number of Females**

- **Affected by ????**

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## VERTICAL INTEGRATION:

- Significant predictors of neonatal mortality:
  - Bio-demographic factors
  - Literacy
  - Mode of delivery

Impact of mothers' socio-demographic factors and antenatal clinic attendance on neonatal mortality(tandfonline.com)

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Core concept



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**Add screen shot**
**Update from results of latest statistics**

- Population of Pakistan: 231,402,116
- Population pyramid: Triangular shaped
- Population of Pakistan 2021 – PopulationPyramid.net
- Table of Content (pbs.gov.pk)
- https://www.pewresearch.org/

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Core concept



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## ETHICS:

**Add screen shot and few lines from relevant article**

- Population ethics and the prospects for fertility policy as climate mitigation policy
- Beegle, K., Christiaensen, L., Dabalen, A., & Gaddis, I. (2016). *Poverty in a rising Africa*. Washington: World Bank Publications.
- Introduction: Population and Ethics: Difficult Questions, Global Challenges (tandfonline.com)

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## ASSESSMENT:

**MCQs:**

1. As children and the elderly are considered to be dependent on economically productive age group, higher dependency ratio reflects the need for a society to provide for their younger and older population groups. Which statement best describes the term "demographic bonus"?

a. It is an inevitable consequence of demographic transition
b. It is mostly caused by increased old age dependency ratio
c. It is because of decline in fertility
d. It does not depend on the pace of decline in family size
e. It is depends on increase in life expectancy at birth

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2. In 2005, Pakistan crude birth rate was 36 births per 1000 population and the crude deathrate was 9 deaths per 1000 population. What was the population growth rate of the country in that year assuming no in and out migrations?
a. 2.9 %
b. 2.8 %
c. 2.7 %
d. 2.6 %
e. 2.5 %

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3. The total number of reported births in Rawalpindi district was 10,000 and deaths was 5000 in the year 2007. By giving these figures we are referring to:
a. Absolute numbers
b. Crude birth rate
c. Growth rate
d. Crude death rate
e. Vital index

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**SEQ:**

Q.1

a. What is population pyramid?
b. What information we can get out of a population pyramid?
c. What variables are on x-axis and y-axis of population pyramid?

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# THE END

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