

6th Sem

Vital Statistics

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Demographic Ratio Calculation

Definition vital statistics are conventionally numerical records of marriage, births, sickness and deaths by which the health and growth of a community may be studied.

Uses of vital statistics

- ① It is used to individual
- ② used in operating agencies
- ③ use in research - demographic and Medical
- ④ use in public administration
- ⑤ International use of vital statistics

Methods of obtaining vital statistics

These are three methods of obtaining vital statistics

1. Registration Method: It is the cornerstone of vital statistics as for continuous and permanent compulsory recording of the occurrence of vital events
2. Census Enumeration: census enumeration at a specified time of individual inhabiting a specified area, during which particulars are collected regarding age, sex, marital status, occupation, religion etc.
3. Analytical Method:
It is assumed that the derivation of birth, death and marriage rates is the object of collecting vital statistics.

Measurement of Fertility

There are ^{some} important measurement of fertility

- ① Crude (Crude Birth Rate) and ~~Death~~ rate
death rate

(B) (2) Specific fertility Rate

(3) General fertility Rate

(3) Total fertility Rate

(4) Standard Population Rate

(B) Measurement of Mortality

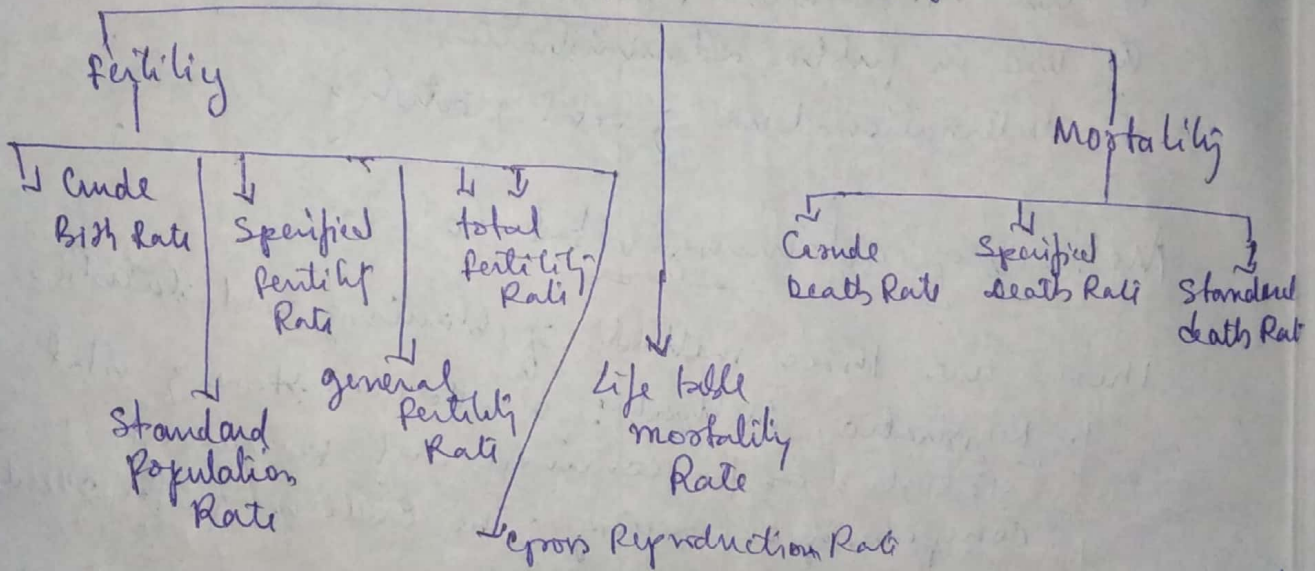
(a) Crude Death Rate

(b) Specified Death Rate

(c) Standard Death Rate

Diagram is short for understanding

Measurement of Demographic in vital statistics



(1) Crude Birth Rate: It is the rate of a locality is found dividing the total number of births in that area during a year.

$$\text{Formula} = \frac{\text{No. of Births in a locality in a year} \times 1000}{\text{No. of people living during mid part of the year}}$$

(2) General fertility Rate (GFR) (or $B = \frac{N_1}{P_1} \times 1000$)

formula

$$= \frac{\text{Total No. of births} \times 1000}{\text{Total no. of women in child bearing age group (15-45)}}$$

(3) Specified fertility

$$\text{S.F.R} = \frac{\text{total no. of children born to women in 20-25 age group} \times 1000}{\text{total no. of women in 20-25 age group}}$$

(3)

(B) Gross Reproduction Rate

$$GRR = \frac{\text{No. of female children per 1000 new born female on the basis of current fertility without mortality}}{1000} \times 1000$$

(4) Net Reproduction Rate

$$NRR = \frac{\text{No. of female children per 1000 newly born female on the basis of current fertility and mortality rate}}{1000}$$

eg:

Compute (i) Specific fertility Rate (ii) General fertility Rate (iii) total fertility rate and gross reproduction Rate given no. of girls in 3000 ft.

Age group	No. of women	total births
15-19	20000	600
20-24	15000	2000
25-29	13000	1950
30-34	11000	1100
35-39	9000	450
40-44	5000	125
45-49	2000	15

Solution

Age group	No. of women (P)	total births (B)	Specific fertility Rate $B \frac{P}{1000}$
15-19	20000	600	$t = 30$
20-24	15000	2000	133.3
25-29	13000	1950	150.0
30-34	11000	1100	100.0
35-39	9000	450	50
40-44	5000	125	25
45-49	2000	15	7.5
	<u>75000</u>	<u>6240</u>	$\sum S.F.R = 495.8$

Formula

(i) $S.F.R = \frac{\text{total births}}{\text{No. of women}} \times 1000 = 495.8$

(ii) $G.F.R \text{ (General fertility Rate)} = \frac{\text{No. of births} \times 1000}{\text{No. of women (15-49)}} = \frac{6240}{75000} \times 1000$

$$= 0.0832 \times 1000$$

$$= 83.2 //$$

$$\textcircled{W} \text{ Total fertility Rate (TFR)} = \frac{\text{SFR} \times 5 \text{yr}}{1000}$$

$$= \frac{495.8 \times 5}{1000}$$

$$= 2.479 //$$

(IV) Gross Reproduction Rate

$$\text{(GRR)} = \frac{\text{female births per 1000 new born female without}}{\text{female without}}$$

Here total girls given 3000/- 1000 -

$$\text{G.R.R} = \frac{3000 \times 2.479}{6240 \times 1000}$$

$$= \frac{7437000}{6240 \times 1000}$$

$$= 1.1918 //$$

Mortality measurements

① Crude Death Rate

$$\text{formula C.D.R} = \frac{\text{Annual Deaths} \times 1000}{\text{Annual average population}}$$

$$\textcircled{\infty} = \frac{N_i}{P_i} \times 1000$$

② Specified Death Rate

$$\text{S.D.R} = \frac{\text{No. of deaths in the specific age group}}{\text{population in age group}} \times 1000$$

③ Standard Death Rate

$$\text{St.D.R} = \frac{\sum m_i s_i}{\sum S_i}$$

eg: 1.

(5)

Calculate of Crude death Rate of town A and B

Age Composition	Town A		Town B	
	Population	No. of deaths	Population	No. of deaths
Less than 5 yrs	3000	180	1500	70
5-20 yrs	5000	200	2200	55
20-50 yrs	4000	120	2800	56
Above 50 yrs	2000	140	2500	150

Solution

Age Composition	Town A			Town B		
	Population P_1	No. of deaths N_1	Death Ratio	Population P_2	No. of deaths N_2	Death Ratio
Less than 5 yrs	3000	180	60	1500	70	50
5-20 yrs	5000	200	40	2200	55	25
20-50 yrs	4000	120	30	2800	56	20
Above 50 yrs	2000	140	70	2500	150	60
	14000	640	45.7	9000	338	37.3
	(P_1)	(N_1)		(P_2)	(N_2)	

total

formula

Crude death Rate of town A

$$= \frac{N_1 \times 1000}{P_1}$$

$$= \frac{640}{14000} \times 1000$$

$$= 45.7$$

Crude death Rate of town B

$$= \frac{N_2 \times 1000}{P_2}$$

$$= \frac{338}{9000} \times 1000$$

$$= 36.8 \text{ //}$$

Note:

In the table, data indicates that out of 3000, 180 person die and death ratio is 60 in town A, similarly, out of 1500, 70 person die and 50 death ratio in town B. all are less than 5 yrs.

The crude death Rate of town A is more than town B which are 45.7 and 36.8 //