⑦ cohort studies :

→ Analytical study

↓

to know the association b/w

suspected factor	D/s of Etiological hypothesis

⇒ 2 groups :

(1) study :

→ share common characteristics (Age, sex, occupan & income)

&

Exposed to suspected factor

Incidence Rate (study) = $\frac{\text{No. of person with d/s}}{\text{Total No. person exposed}} \times 1000$

(2) control :

→ share common characteristics (Age, sex, occupan & income etc)

&

But not exposed to suspected factor

IR (unexposed) = $\frac{\text{No. of person with d/s}}{\text{Total No. person unexposed}} \times 1000$

cohort → group of person having common characteristic

⇒ steps :

(1) selection of study :

→ obtained from General population
- marraige cohort
- Birth cohort
- exposure cohort

→ special homogenous population
- doctors
- lawyers
- Nurses

(2) selection of control :

→ same characteristic (Age, sex, ocapation etc)
↓
but not exposed to facter

(3) Follow up :

→ periodical medical examination of both group

→ certain % of losses can occurs
↓
due to - death
- migration
- withdrawl

(4) Analysis :

→ To find, any association b/w suspected factor & d/s

& if +ve, then what is the strength of association

Cohort Groups	D/s		Total
	+ve	-ve	
Study (exposed)	a	b	a+b
control (unexposed)	c	d	c+d
	a+c	b+d	a+b+c+D

*) IR (study) = $\frac{a}{a+b} \times 1000$ (IE)

(*) IR (control) = $\frac{c}{c+d} \times 1000$ (IO)

If IF (study) > IF (control)

↓

+ve association b/w suspected factor & d/s

⇒ to study strength of association :

(i) Relative Risk : (RR)

$$RR = \frac{IE}{IO}$$

Exp. if RR = 3 than 3 times greater risk of developing d/s in exposed than unexposed

(ii) Risk differance : (RD)

$$RD = IE - IO$$

(iii) Attributable risk : (AR)

$$AR = \frac{IE - IO}{IE} = \frac{RD}{IE}$$

→ suggests, amount of d/s that might be eliminated if factor is controlled

(iv) Absolute Risk : → risk of developing d/s irrespective of exposure to risk factor

$$\text{Absolute Risk} = \frac{a+c}{a+b+c+d} \times 100$$

(v) population attributable Risk (PAR)

$$PAR = IP - IO$$

$$\left(IP = \frac{a+c}{a+b+c+d} \times 1000\right)$$

Exp.

Smoking	lung cancer (+ve)	lung cancer (-ve)	total
Present (Study)	120	1880	2000
Absent (control)	20	980	1000
			3000

⇒ IR (Exposed) = $\frac{120}{2000} \times 1000 = 60$ (IE)

⇒ IR (unexposed) = $\frac{20}{1000} \times 1000 = 20$ (IO)

⇒ IR (population) = $\frac{140}{3000} \times 1000 = 46.67$ (IP)

⇒ RD = IE − IO = 60 − 20 = 40

⇒ RR = $\frac{IE}{IO} = \frac{60}{20} = 3$

⇒ AR = $\frac{IE - IO}{IE} = \frac{60-20}{60} \times 100 = \frac{40}{60} \times 100 = 66.6\%$

⇒ PAR = IP − IO

= 46.67 − 20

= 20.67