	CROSS SECTIONAL	CASE CONTROL	Cohort Studies
Advantages	-primarily used to determine prevalence -useful at identifying associations and generating hypotheses about the cause of disease -useful to study chronic conditions - Relatively easy, quick and inexpensive. - Minimal ethical problems - Can be used to estimate the risk by calculating the odds ratio. -allows study of several diseases / exposures -useful for estimation of the population burden, health planning and priority setting of health problems -relatively common conditions; allows for stratification; different from surveillance / registers	-Study of rare diseases (NCDs) -Study of diseases with long latency period -Evaluate all possible factors associated with the disease -Quantification of the risk associated with exposure (s) -Save cost and time (least expensive; least time-consuming) -No value in the study of rare exposure -Not for study of several diseases associated with a single exposure -effect measure: odds ratio(past)	**Retrospective** -In retrospective there is less time consumed for the study (the data is already there) -Retrospective is cheaper than prospective -Retrospective is suitable for diseases that take a long time to develop (e.g. cancers, Parkinson's,.) **Cohort studies** -Useful in rare exposures -Can study multiple outcomes of a single exposure / risk factor -Certain about the temporality of exposure and disease (disease occurs after exposure) -We can calculate incidence proportion and rate -Can quantify Risk Ratio and Risk Difference -Provides better evidence than case-control study, and cross-sectional study -Can establish a natural history of disease when not known -suitable for incidence estimation - effect measure: relative risk (follow up)
Disadvantages	- do not differentiate between cause and effect or the sequence of events - Rare conditions cannot efficiently be studied - It deals with survivors - Not useful for establishing causal relationships	-Cases don't represent cases in the general population -Selection bias - Recall bias - Inability to define the temporal sequence between the disease and the exposure	**Retrospective** -Sometimes difficult to determine the accuracy of the historical data in retrospective studies

	- Confounding is difficult to control	-not suitable for calculation of frequency measures.	**Cohort studies** -There is potential for loss to follow up, especially in diseases that take a long time to develop -Measurement errors, multiple interviews, tests -Not suitable for evaluation of rare diseases -Takes a long time (if prospective) -More expensive than case-control and cross-sectional studies -Provides weaker evidence than RCTs -Non response
	*observational (analytic) research could be descriptive **Uses**: 1.Describe the state of health 2. Describe the distribution of risk factors & other attributes. 3. Factors associated with diseases 4. Factors associated with use of health services 5. Determine the association of various factors and diseases. 6. Make comparisons within and among various communities to determine if services are allocated according to needs **Examples**: 1.National Surveys; (NHANES) in USA 2. Patient satisfaction in primary care clinics 3. CHD in relation to physical exercises.	-overall aim is to identify and quantify the risk factor(s) associated with the occurrence of a health problem -Analytic research	**Examples of Famous Cohort Studies** -The Framingham Study (1948) -British Physicians Cohort UK -Nurses Health Study USA (1976) -Women Health Initiative (WHI) -Study of women across the nation (SWAN) in USA **What can we measure in a Cohort study:** -Risk (incidence proportion) -Rate (incidence rate) -Prevalence -Risk Ratio (relative risk) -Risk Difference -Attributable Risk Fraction

	4. Obesity in relation to diabetes mellitus 5. KAP 6. A census		

Factors affecting incidence rate	**Factors affecting Prevalence**
-New risk factor -Changing habits -Changes in virulence of causative organisms -Changes from intervention programs -Selective migration of susceptible persons -Population pattern (aging) -Reporting -Screening -New diagnostic tools	-Changes in incidence -Changes in disease duration and chronicity -Intervention programs -Selective attrition -Changing classifications

Advantages of longitudinal study design	Allow the researcher to measure pattern of change & obtain factual information, requiring collection on a regular or continuing basis
Disadvantages of longitudinal study design	Conditioning effect

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