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**Paper Teaching Methodology and Community Medicine**

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Q:1 (A) What is epidemiology? Explain determinants, distribution, health related states and events?

Ans: **Epidemiology:**

It is the study of distribution and determinants of health related state or events in specific population and application of this study to the control of health problems.

**Determinant of Disease:**

It includes identifying the underlying causes or risk factors of disease by analytical studies.

**Enviromental Factors**

* Overpopulated
* Huminity humankind
* Nutrition

**Agent Factors: Host factors:**

* Agent :M.leprae **Age:** all ages
* Source of infection: case  **Sex:** both
* Portal of exit: nose **population**  :Rural>Urban
* Infectively: High infectivity;low **Migration**

Pathogenicity. **Immunity**: decreased

* Attack rates:4.4-12 % CMI.

Genetic factors.

**Distribution of disease**: By time, place and person.

1. **Time distribution**: Epidemiologist have identified three kinds of time trends or fluctuations in disease occurance;

* **SHORT – TERM FLUCUATION:**

The best known short-term fluctuation is an epidemic. The types of epidemic are

* Common source epidemics
* Propagated epidemics
* Slow epidemic
* **Periodic fluctuation:**
* Seasonal trend e.g smallpox in spring .
* Cyclic trend: Some disease occur in cycles e.g curse pandemics occur at intervals of 7-10 years.
* **LONG-TERM OR SECULAR TREND:** Progressive increase or decrease over a long duration. Generally for years or decades e.g: coronary heart disease,lung cancer,and diabetes etc.

1. **PLACE DISTRIBUTION:**

Geography of disease is important because world is not a uniform unit. Cultures, standard of living and outside environment change greatly.

* **International variations:** Disease frequency different in differrents countries e.g cancer of oral cavity and utrine cancer are more than india and stomach cancer most in japan.
* **National variations:** A disease is spreadingin a nation is not similar e.g in the same nation have shown variable distribution like leprosy,malria and goiter.
* **Rural Urban Variations:** There is a different disease.As urban region accidents,lung disease bronchitis is more common while in rural region skin and zoonotic diseases are commonly spread.Due to the lack of activites rural areas has meternal and high child mortality rates.
* **Local distribution:**

We can frequently know about the variations in diseases if its inner or outer the city.We can study these variations by the aid of spot maps.

C: **person distribution:**

Some of the basic factors of epidemiological studies are explained below;

**Age:** Different disease are found in different age group.Measles in children cancer in middle ages and atherosclerosis in old ages.

**Sex:** In females more common are obesity, DM and hypertension.

**Marital status:** Mortility rates are found in married.

**Ethnicity:** penile cancer occurs more in people but in religions like Muslim and jews have fewer penile cancers because they do circumcision.

**Occupation:** Every occupation has different disease.

**Social class:** The different class has different diseases.A good example is that hypertension and IHD are commonly founded in the upperclasses group.

**Behavior:** Human behavior like smoking, drug,abuse, overeating, and a sedentary life can have different diseases.

**Health related states and events:**

* What is the problem?
* What is its magnitude?
* Where did it happen?
* Who are affected?
* Why did it happen?

Health realted states: Epidemiology is applied whole collection of health related:

* Chronic disease
* Environmental problems
* Behavioral problem
* Injuries
* Infectious disease

**B: Part:** What is primary and secondary data?Explain it with at least two examples.

Ans: **PRIMARY DATA:**

Primary data are arises by the researcher for a special purpose of addressing the research problem at hand.

**SECONDARY DATA:**

Secondary data are the data that are already collected for purpose than the research problem at hand. **EXPLANANTION:**  When we compare the primary data into into secondary data. Secondary data are collected rapidly and easily. It has low cost and done in short time. Primary data is the first hand information and secondary is the second hand information.Primary data they are more time consuming, more effective, more money, more accurate more sutible and more adequate.

And primary data are exactly opposite that is less time, less money, less accurate less effective and less adequate.

**Examples of primary and secondary data** :

**Primary: secondary data:**

* Questionare survey Books published
* Photograph collection journals, Reports,internet

Newspaper,articles

Q:2 If you want to conduct cross sectional study,how will you conduct? Explain each and every step with example.

Ans: **Cross sectional study steps:**

1. **Defining the problem under study:** It can be both descriptive and analytical.

It means to identify which disease status is being assessd.

It also measure association between expose and out come.

However,expose and outcomes are assessd simultaneously

**Measure of association are**,

Prevalence ratio

Prevalence odd ratio

For example:

Analytical cross sectional study of obesity will be like

Exercise

Exercise relative prevalence

|  |
| --- |
| 0+ 0-  50 100  20 80 |

Obesity 0+=(50) /(20)=1.67

150/ 100

1. **Defining population under study:**

Defining a population under study means the population which is exposed to outcome of the disease under observation.

Expose and disease are determined at baseline and re assessed throughtout a period of follow up.

Number of total population is defined.

Number of collected cases are also defined (obesity here).

**Example:** exposure between obesity and osteoarthritis is defined in a selected population.

1. **Sampling:**

The third step in a cross sectional study is sampling.

The basic unit around which a sampling procedure is planned is called sampling unit.

It can be ;

* Person
* Group
* Component- eye, physiological response

Sampling frame: list of all sampling

Unit in a population

Sample – collection of sampling unit from the eligible population.

For example: Sample A,B,C,D

AExposed have a disease

Bexposed do not have disease

CNon exposed and have disease

DNon exposed do not have disease

Note: Exposure in this case is obesity.

4**)Collecting the data:**

The data from the samples selected among a certain population is selected. Data here means association between obesity and osteoarthritis in a certain population. Measurement of prevalence and measurement of association is being collected.

Example: osteoarthritis . yes no

Obesity yes 80 20 = 100

no 40 60=100

**5: Analyzing interpretation of data:**

**Let suppose:** We have data from samples being gathered and medical exam diagnose osteoarthritis for people having obesity as follow.

yes no

obesity y 80 20= 100

n 40 60 = 100

osteoarthritis

**Prevalence ratio:**

Prevalence of osteoarthritis: 120 = 0.6

200

Prevalance of osteoarthritis among : 80= 0.8

the samples (obese) 100

prevalence among samples (non obese): 40=0.4

100

Prevalence ratio:0.8 =2.0

0.4

Interpretation: the proportion of people with OA is 2- fold greater if a person is obesity.this interpretation is further analyzed for random sample population.

**6) Drawing the conclusion:** The prevalence ratio **,p**revalence odd ratio and repeated cross-sectional studies are conducted over exposure and disease. Thus the magnitude and distribution of exposure vs generalized results are drawn upon population based sample.if there are multiple exposure and disease outcomes,still it is possible to measure and draw a conclusion over short period of time,keeping in mind the data, samples outcomes and interpretation of the whole scenario.

Q:3; Write down difference between cohort study and case control study.

Explain it with example

Ans**: Difference between cohort & case control study**

|  |  |
| --- | --- |
| **Cohort study** | **Case control study** |
| 1:It further gose from cause to effect Prospective study is the longitudinal cohort study where we follow a group of similar individual. | 1:It further gose from cause to effect retrospective study.mean a group of people who have the diseaseare the group of people whi don’t have the disease. |
| 2:Cohort study starts with the people who are expose to risk factor | 2:Case control study starts with the disease. |
| 3:Cohort study tests whether the disease effect those people more frequently who exposed or those who are not exposed. | 3:Case control study tests whether the suspected cause of disease occur more frequently in those who have the disease or those who don’t have the disease. |
| 4:cohort study include large number of cases. | 4:It involves few number of cases. |
| 5:it is specially for testing the complete formulated hypothesis. | 5:Case control study is the first approach to test hypothesis. |
| 6: Cohort study include long time period for follow up. | 6:Case control study always give quick result. |
| 7:Cohort study is not benificial when the disease information in inadequate. | 7:case control study is best for the study of some disease. |
| 8:it diagnostic incidence rate is mostly risk between the exposed and non exposed cases. | 8:case control study only gives us the possible risk |
| 9:it involve the information of more than on disease. | 9:it cannot give us a large quantity of information about disease other than the study we selected. |
| 10:Cohort study is expensive than case than case control study. | 10:it is almost in expensive. |
|  |  |
|  |  |

**COHORT STUDY:**

Cohort studies typically observe large groups of individual recording their exposure to certain risk factors to find clues as to the possible causes of disease. They can ne prospective studies and gatherdata going forward,retrospective cohort studies which look at data already collected. The nurse Health study is one example of a large cohort study,and has produced many improtants link between lifestyle choices and health by following hundreds of thousand of women across North America.Such research can also help identify social factors that influence health.

**Example**:Cohort study is two type one is sociological research and the other is educational cohort.Socialogical research include the group of people who are born in the same period of time like a generation. Educational cohort is the group of people who begin schooling and college from the same time like freshman class of collage student.

**For example**: Cohort study scientist ask the participant to record the lifestyle in detail then they analyze the possible events between the lifestyle factors and the disease. The disease may be obesity fatigue sedentary life style.

**Case Control study:** A case studyis a designed to helpdetermine if an exposure is associated with an outcome i.e disease or condition of interest. In theory,the case control study can be described simply. First, identify the cases (a group known to have the out come) and a controls a group known to be free of outcome. Then, look back at time to learn which subjects in each group had the exposure (s),comparing the frequency of the exposure in the case group to the control group.

**By definition:**  A case-control study is always retrospective because it starts within outcome then traces back to investigate exposure. When the subjects are enrolled in their respective groups,the outcome of each subject is already known by the investigator this, and not the fact that the investigator usually makes use of previously collected data,is what makes case control studies retrospective.

**Example**: Case control study is the study of two groups who are exposed to disease or those who have not exposed.for example Cancer we look back in time to find the outcome that the person has tobacco smoker or not,its mean two group of people who are smoker and the other are non smoker.