

**BIOSTATISTICS AND EPIDEMIOLOGY**

**PHAR222**

**Home Work 3**

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**1.** A study is conducted to evaluate the relationship between serum cholesterol level and the occurrence of myocardial infarction in women.

In the study 500 women with high serum cholesterol levels and 500 women without high serum cholesterol levels were followed over a 10 year period. During the study 40 of the women with high serum cholesterol levels and 15 of the women with normal serum cholesterol levels develop a newly diagnosed myocardial infarction.

Calculate Absolute Risk ( Risk Difference ) and calculate the AR% (EAF) and PAF.

**Solution:-**

 **Myocardial Infarction-MI-**

| **Serum Cholesterol Level** | **Yes** | **No** |
| --- | --- | --- |
| **High** | **40** | **500** |
| **Normal** | **15** | **500** |

**Absolute Risk (AR) = Re - Ro**

 **= 40/540 – 15/515**

 **= 0.074 – 0.029**

 **= 0.045**

 **Re - Ro**

**EAF (AR%) =ـــــــــــــــــــ**

 **Re**

 **= 0.045/0.074**

 **= 0.608 x 100%**

 **= 60.8 %

 RT- Ro**

**PAF = ـــــــــــــــــــــ
 RT**

 **55/945 - 15/500**

 **= ــــــــــــــــــــــــــــــــــــ**

 **55/945**

 **= 0.484 x 100%**

 **= 48.4%**

1. Case-control study- pancreatic cancer and coffee drinking

 **Pancreatic Cancer**

 **Cases Controls**

| **28** | **280** |
| --- | --- |
| **140** | **2600** |

**168 2880**

1. Calculate the OR.
2. Calculate the prevalence of coffee drinking in this population ( estimated from the prevalence in controls).
3. Calculate the population attributable fraction (PAF)
4. What does this result mean?

**Solution:-

 28x2600**

**a-OR = ــــــــــــــــــــ**

 **140 x 280**

= **1.86**

**b- P = 280/ 2880**

 **= 0.0972**

**OR= 1.86**

 **Pe (OR-1)
 c- PAF = ـــــــــــــــــــــــــــــ
 Pe (OR-1) +1**

 **0.0972 (1.86 -1)
 = ــــــــــــــــــــــــــــــــــــــ**

 **0.0972 (1.86-1) +1**

 **= 0.0836/ 1.0836**

 **= 0.077 x 100%**

 **= 7.71 %**

**d- It means that 7.71% of Pancreatic Cancer can be prevented, if we stop drink coffee.**