Semester : V Subject : Statistics for AIDS Academic Year: 2023 2024

EXPLORING TWO OR MORE VARIABLES:

Contigency Table:

In statistics, a contigency table is a type of table in a matrix format that displays the frequency distribution of the variables.

Example:

Consider the below table that shows the total number of smokes and non-smokes in an organization.

Gender	Smoker	Non-Smokes	Total
Male	72	44	116
Female	34	53	87
Total	106	97	203

By seeing this table we can say that 34 are female smokers out of ~~106~~ 87 female ~~smokers~~, It gives the data of total smoker → 106, total non-smoker → 97, total Male → 116, total female → ~~203~~ 87.

* A crucial problem of multivariate statistics is finding the direct-dependence structure of the variables containing in the contigency table.

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* If some of the conditional independence are revealed, then the storage of the data can be done in a better way.

* To achieve this, the relative frequencies from the contigency table are used.

Relative Frequency Contigency Table:

$$\text{Percentage value for cell } x = \frac{\text{Count Value in cell } x}{\text{Total Number Surveyed}} \times 100$$

Cell 1: $(72/203) \times 100 = 35.47\%$
Cell 2: $(44/203) \times 100 = 21.67\%$
Cell 3: $(34/203) \times 100 = 16.75\%$
Cell 4: $(53/203) \times 100 = 26.11\%$

Gender	Smoker	Non-smoker	Total
Male	35.47%	21.67%	57.14%
Female	16.75%	26.11%	42.86%
Total	52.22%	47.78%	100% .

This is how contigency table is used to display the frequency of multivariate variables.