

3 | CONDITIONAL PROBABILITY

GIVEN:

$$P(\text{GENDER} = \text{FEMALE}) = 0,4940786$$

$$P(\text{FREQCONSALCOHOL} = \text{FREQUENTLY}) = 0,0331596$$

NOBESITY		
1 INSUFFICIENT-WEIGHT	0,1288489	-IW
NORMAL-WEIGHT	0,1359545	-NW
OBESITY-TYPE-I	0,1662719	-OT1
OBESITY-TYPE-II	0,1406916	-OT2
OBESITY-TYPE-III	0,1534818	-OT3
OVERWEIGHT-LEVEL-I	0,1373757	-OL1
OVERWEIGHT-LEVEL-II	0,1373757	-OL2

$$P(OT1 \text{ or } OT2 \text{ or } OT3 \text{ or } OL1 \text{ or } OL2 | G = \text{FEMALE}, \text{FCAC} = \text{FREQ})$$

$$P(OT1 \text{ or } OT2 \text{ or } OT3 \text{ or } OL1 \text{ or } OL2, G = \text{FEMALE}, \text{FCAC} = \text{FREQ})$$

$$P(G = \text{FEMALE}, \text{FCAC} = \text{FREQ})$$

$$P(OT1 \text{ or } OT2 \text{ or } OT3 \text{ or } OL1 \text{ or } OL2, G = \text{FEMALE}, \text{FCAC} = \text{FREQ}) =$$

$$\sum_i P(N=i, G = \text{FEMALE}, \text{FCAC} = \text{FREQ}) =$$

$$\sum_i P(N=i) \cdot P(G = \text{FEMALE}) \cdot P(\text{FCAC} = \text{FREQ}) =$$

$$0,1662719 \cdot 0,0163835 +$$

$$0,1406916 \cdot 0,0163835 +$$

$$0,1534818 \cdot 0,0163835 +$$

$$0,1373757 \cdot 0,0163835 +$$

$$0,1373757 \cdot 0,0163835 = 0,0120451$$

$$P(G = \text{FEMALE}, \text{FCAC} = \text{FREQ}) =$$

$$P(G = \text{FEMALE}) \cdot P(\text{FCAC} = \text{FREQ}) =$$

$$0,4940789 \cdot 0,0331596 = 0,0163835$$

$$P(\text{OT1 or OT2 or OT3 or OL1 or OL2}, G = \text{FEMALE}, \text{FCAC} = \text{FREQ}) =$$

$$P(G = \text{FEMALE}, \text{FCAC} = \text{FREQ})$$

$$\frac{0,0120451}{0,0163835} = 0,7351970$$