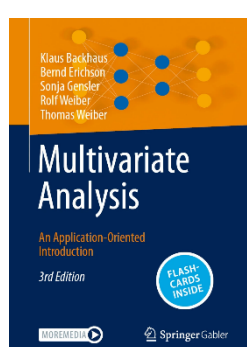


CONTINGENCY ANALYSIS

34	14
11	48

MAIN RESEARCH QUESTION	ARE TWO VARIABLES ASSOCIATED WITH EACH OTHER?
EXAMPLE	ASSOCIATION BETWEEN SMOKING (SMOKER VS. NONSMOKER) AND LUNG CANCER (YES, NO)
TYPE OF ANALYSIS	STRUCTURE-TESTING METHOD
MEASUREMENT LEVEL	
DEPENDENT VARIABLE	NOMINAL
INDEPENDENT VARIABLES	NOMINAL
RECOMMENDATIONS	<ul style="list-style-type: none">▪ THE PROPORTION OF CELLS WITH EXPECTED COUNTS FEWER THAN FIVE SHOULD NOT EXCEED 20% (RULE-OF-THUMB). NONE OF THE EXPECTED COUNTS SHOULD BE LESS THAN ONE. COMBINING SEVERAL CATEGORIES OF A VARIABLE TO MEET THESE REQUIREMENTS, SHOULD BE CAREFULLY CONSIDERED.▪ THE CHI-SQUARE TEST IS VALID IF THERE ARE MORE THAN 60 OBSERVATIONS. FOR SAMPLES WITH 20 TO 60 OBSERVATIONS, USE THE YATES CORRECTION. FOR SAMPLE SIZES SMALLER THAN 20, FISHER'S EXACT TEST IS APPROPRIATE. YET, IN SUCH CASES IT IS RECOMMENDED TO INCREASE THE SAMPLE SIZE TO IMPROVE THE ROBUSTNESS OF THE ANALYSIS.▪ THE PHI COEFFICIENT, CONTINGENCY COEFFICIENT, CRAMER'S V, GOODMAN AND KRUSKAL'S λ- AND τ-COEFFICIENT CAN BE USED TO ASSESS THE STRENGTH OF ASSOCIATION. A MEANINGFUL INTERPRETATION OF THE DIFFERENT COEFFICIENTS REQUIRES KNOWLEDGE ABOUT THE MINIMUM AND MAXIMUM VALUE OF THESE MEASURES.
KEYWORDS	CHI-SQUARE STATISTIC, CONFOUNDING VARIABLES, CONTINGENCY COEFFICIENT, CRAMER'S V, CROSS TABULATION, EXACT FISHER TEST, GOODMAN AND KRUSKAL'S LAMBDA, GOODMAN AND KRUSKAL'S TAU, LOG-LINEAR MODEL, MULTIDIMENSIONAL CONTINGENCY TABLE, PHI COEFFICIENT, TAU COEFFICIENT, TEST FOR HOMOGENEITY, TEST FOR INDEPENDENCE, THEIL'S U (UNCERTAINTY COEFFICIENT), YATES' CORRECTED CHI-SQUARE TEST



BACKHAUS, KLAUS; ERICHSON, BERND; GENSLER, SONJA; WEIBER, ROLF; WEIBER, THOMAS (2025)
MULTIVARIATE ANALYSIS – AN APPLICATION-ORIENTED INTRODUCTION, SPRINGER: BERLIN

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