Cochran-Mantel-Haenszel Row-Mean-Scores Test

Dataset Name

Notes

Output Created		16-JUL-2026 14:41:12
Comments		
Input	Data	D:\DATA ANALYSIS\I Chi Square and Categorical Data Tests\Cochran Mantel Haenszel Test\dataset.csv
	Filter	<none>
	Weight	<none>
	Split File	<none>
Syntax		DATASET NAME CochranMantelHaenszelTestData.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.02

Warnings

The active dataset will replace the existing dataset named CochranMantelHaenszelTestData.

```
school into school_n
Old Value  New Value  Value Label

GP                  1  GP
MS                  2  MS


reason into reason_n
Old Value          New Value  Value Label

course                     1  course
home                       2  home
other                      3  other
reputation                 4  reputation
```

```
guardian into guardian_n
Old Value         New Value  Value Label

father                    1  father
mother                    2  mother
other                     3  other
```

Ordinal Cochran-Mantel-Haenszel analysis

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Crosstabs

Notes

Output Created		16-JUL-2026 14:41:13
Comments		
Input	Data	D:\DATA ANALYSIS\I Chi Square and Categorical Data Tests\Cochran Mantel Haenszel Test\dataset.csv
	Active Dataset	CochranMantelHaenszelTestData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each table are based on all the cases with valid data in the specified range(s) for all variables in each table.
Syntax		CROSSTABS /TABLES=sex_bin BY grade3 BY school_n /FORMAT=AVALUE TABLES /STATISTICS=CMH CHISQ /CELLS=COUNT ROW COLUMN EXPECTED /COUNT ROUND CELL.
Resources	Processor Time	00:00:00.02
	Elapsed Time	00:00:00.02
	Dimensions Requested	3
	Cells Available	449353

[CochranMantelHaenszelTestData]

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Warnings

The Tests for Homogeneity of the Odds Ratio table and the Mantel-Haenszel Common Odds Ratio Estimate table are not computed for Sex: 0 female, 1 male * G3 ordinal grade band * school_n, because either (1) the group variable does not have exactly two distinct non-missing values or/and (2) the response variable does not have exactly two distinct non-missing values.

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Sex: 0 female, 1 male * G3 ordinal grade band * school_n	649	100.0%	0	0.0%	649	100.0%

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

				G3 ordinal grade band	
school_n				Low below 10	Medium 10-13
GP	Sex: 0 female, 1 male	Female	Count	9	137
			Expected Count	17.9	137.3
			% within Sex: 0 female, 1 male	3.8%	57.8%
			% within G3 ordinal grade band	28.1%	55.9%
		Male	Count	23	108
			Expected Count	14.1	107.7
			% within Sex: 0 female, 1 male	12.4%	58.1%
			% within G3 ordinal grade band	71.9%	44.1%
	Total		Count	32	245
			Expected Count	32.0	245.0
			% within Sex: 0 female, 1 male	7.6%	57.9%
			% within G3 ordinal grade band	100.0%	100.0%

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n				G3 ordinal grade band: High 14-16	G3 ordinal grade band: Very high 17+
GP	Sex: 0 female, 1 male	Female	Count	68	23
			Expected Count	62.8	19.0
			% within Sex: 0 female, 1 male	28.7%	9.7%
			% within G3 ordinal grade band	60.7%	67.6%
		Male	Count	44	11
			Expected Count	49.2	15.0
			% within Sex: 0 female, 1 male	23.7%	5.9%
			% within G3 ordinal grade band	39.3%	32.4%
	Total		Count	112	34
			Expected Count	112.0	34.0
			% within Sex: 0 female, 1 male	26.5%	8.0%
			% within G3 ordinal grade band	100.0%	100.0%

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n				Total
GP	Sex: 0 female, 1 male	Female	Count	237
			Expected Count	237.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	56.0%
		Male	Count	186
			Expected Count	186.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	44.0%
	Total		Count	423
			Expected Count	423.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	100.0%

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n				G3 ordinal grade band: Low below 10	G3 ordinal grade band: Medium 10-13
MS	Sex: 0 female, 1 male	Female	Count	41	67
			Expected Count	43.9	71.1
			% within Sex: 0 female, 1 male	28.1%	45.9%
			% within G3 ordinal grade band	60.3%	60.9%
		Male	Count	27	43
			Expected Count	24.1	38.9
			% within Sex: 0 female, 1 male	33.8%	53.8%
			% within G3 ordinal grade band	39.7%	39.1%
	Total		Count	68	110
			Expected Count	68.0	110.0
			% within Sex: 0 female, 1 male	30.1%	48.7%
			% within G3 ordinal grade band	100.0%	100.0%
Total	Sex: 0 female, 1 male	Female	Count	50	204
			Expected Count	59.0	209.5
			% within Sex: 0 female, 1 male	13.1%	53.3%
			% within G3 ordinal grade band	50.0%	57.5%
		Male	Count	50	151
			Expected Count	41.0	145.5

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n				G3 ordinal grade band	
				High 14-16	Very high 17+
MS	Sex: 0 female, 1 male	Female	Count	28	10
			Expected Count	23.3	7.8
			% within Sex: 0 female, 1 male	19.2%	6.8%
			% within G3 ordinal grade band	77.8%	83.3%
		Male	Count	8	2
			Expected Count	12.7	4.2
			% within Sex: 0 female, 1 male	10.0%	2.5%
			% within G3 ordinal grade band	22.2%	16.7%
	Total		Count	36	12
			Expected Count	36.0	12.0
			% within Sex: 0 female, 1 male	15.9%	5.3%
			% within G3 ordinal grade band	100.0%	100.0%
Total	Sex: 0 female, 1 male	Female	Count	96	33
			Expected Count	87.3	27.1
			% within Sex: 0 female, 1 male	25.1%	8.6%
			% within G3 ordinal grade band	64.9%	71.7%
		Male	Count	52	13
			Expected Count	60.7	18.9

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n				Total
MS	Sex: 0 female, 1 male	Female	Count	146
			Expected Count	146.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	64.6%
		Male	Count	80
			Expected Count	80.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	35.4%
	Total		Count	226
			Expected Count	226.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	100.0%
Total	Sex: 0 female, 1 male	Female	Count	383
			Expected Count	383.0
			% within Sex: 0 female, 1 male	100.0%
			% within G3 ordinal grade band	59.0%
		Male	Count	266
			Expected Count	266.0

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n			G3 ordinal grade band	
			Low below 10	Medium 10-13
		% within Sex: 0 female, 1 male	18.8%	56.8%
		% within G3 ordinal grade band	50.0%	42.5%
	Total	Count	100	355
		Expected Count	100.0	355.0
		% within Sex: 0 female, 1 male	15.4%	54.7%
		% within G3 ordinal grade band	100.0%	100.0%

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n			G3 ordinal grade band	
			High 14-16	Very high 17+
		% within Sex: 0 female, 1 male	19.5%	4.9%
		% within G3 ordinal grade band	35.1%	28.3%
	Total	Count	148	46
		Expected Count	148.0	46.0
		% within Sex: 0 female, 1 male	22.8%	7.1%
		% within G3 ordinal grade band	100.0%	100.0%

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school

Sex: 0 female, 1 male * G3 ordinal grade band * school_n Crosstabulation

school_n			Total
		% within Sex: 0 female, 1 male	100.0%
		% within G3 ordinal grade band	41.0%
	Total	Count	649
		Expected Count	649.0
		% within Sex: 0 female, 1 male	100.0%
		% within G3 ordinal grade band	100.0%

Chi-Square Tests

school_n		Value	df	Asymptotic Significance (2-sided)
GP	Pearson Chi-Square	12.975[b]	3	.005
	Likelihood Ratio	13.125	3	.004
	Linear-by-Linear Association	8.649	1	.003
	N of Valid Cases	423		
MS	Pearson Chi-Square	5.782[c]	3	.123
	Likelihood Ratio	6.214	3	.102
	Linear-by-Linear Association	4.249	1	.039
	N of Valid Cases	226		
Total	Pearson Chi-Square	8.886[a]	3	.031
	Likelihood Ratio	9.008	3	.029
	Linear-by-Linear Association	8.869	1	.003
	N of Valid Cases	649		

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 18.85.

b.

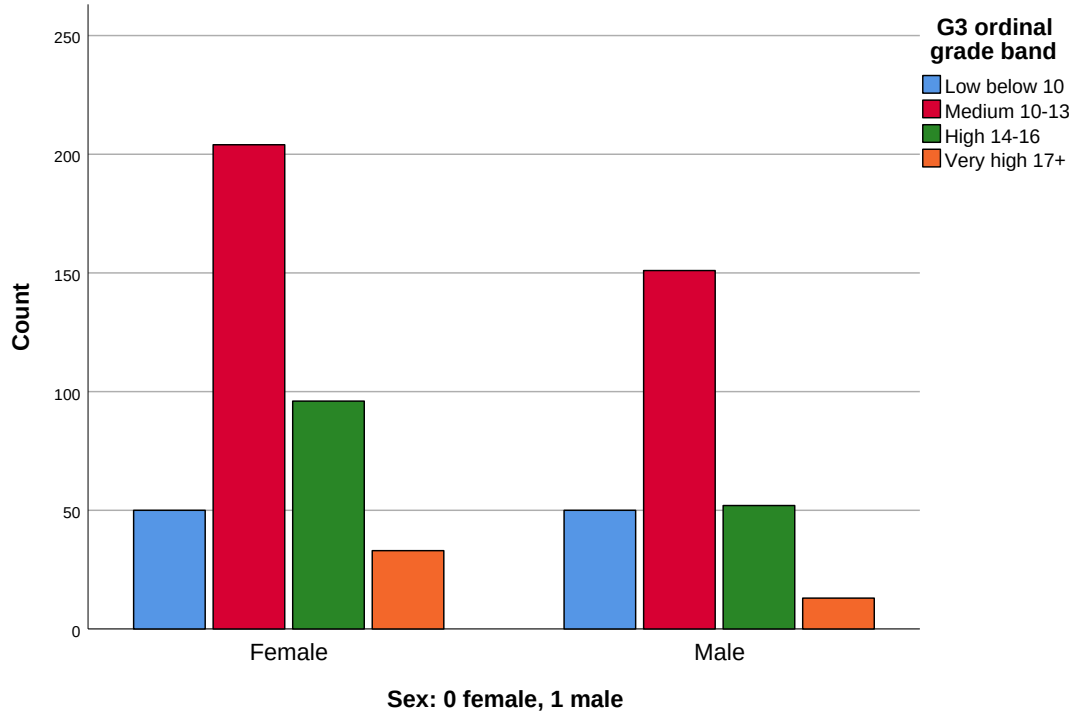
c. 1 cells (12.5%) have expected count less than 5. The minimum expected count is 4.25.

Graph

Notes

Output Created		16-JUL-2026 14:41:13
Comments		
Input	Data	D:\DATA ANALYSIS\I Chi Square and Categorical Data Tests\Cochran Mantel Haenszel Test\dataset.csv
	Active Dataset	CochranMantelHaenszelTestData
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	649
Syntax		GRAPH /BAR(GROUPED) =COUNT BY sex_bin BY grade3.
Resources	Processor Time	00:00:00.41
	Elapsed Time	00:00:00.42

Ordinal Cochran-Mantel-Haenszel analysis
Sex by ordinal final-grade band, controlled for school




```
================================================================================
======
COCHRAN-MANTEL-HAENSZEL ROW-MEAN-SCORES TEST
================================================================================
======
Formula: CMH = [sum_h(T_h-E_h)]^2 / sum_h Var(T_h), df = 1
Variables: sex, G3 grade band scores 1-4, school strata
cmh_row_mean_score_statistic = 12.858673126586426
degrees_of_freedom = 1
p_value = 0.0003359186940831262
signed_z = -3.5858992075330876
Cross-check status: pass
================================================================================
======
```