Rose Laure   Rousseau

Alliance University

EDG500: Educational Research and Statistics

April 18, 2023

Spss 16 & 17

Chapter 16 exercise.

Chi-Square Test

Frequencies

Candidate

	Observed N	Expected N	Residual
Jane Smith	11	10.0	1.0
John Doe	9	10.0	−1.0
Total	20		

Test Statistics

	Candidate
Chi-Square	.200[a]
df	1
Asymp. Sig.	.655

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.0.

interpreting the SPSS Statistics Output

the probability that the null hypothesis is correct determines whether it should be rejected and statistical significance declared. In the SPSS Statistics output, the probability is indicated by the term "Asymp. Sig." As you can see in Figure 16.8 on the previous page, the probability is .655. According to the guidelines in Appendix A near the end of this book, the value of chi-square is not significant because .655 is greater than .05.

Chi-Square Test

Frequencies

Colors	Observed N	Expected N	Residual
Tan	5	6.7	−1.7
Blue	12	6.7	5.3
Brown	3	6.7	−3.7
Total	20		

Test Statistics	Colors
Chi-Square	6.700[a]
df	2
Asymp. Sig.	.035

a. 0 cells (0.0%) have expected frequencies less than 5. The minimum expected cell frequency is 6.7.

a. What is the observed value n for Tan? 5

b. What is the observed value n for Blue? 12

c. What is the observed value n for Brown? 3

d. What is the value of chi-square? 6.700

e. What is the associated probability? .035

f. Are the observed values significantly different at the.US level from the expected values of

6.7 for each color?

No, the observed values weren't significantly different at the US level from the expected values of 6.7 for each color because 6.7 is greater than .05.

g. Write a statement of the results of the significance test.

Based on the results of the chi-square test with a p-value of .035 prove there is no difference between the observed and expected distributions of colors. However, since only one of the three colors (Blue) had a significantly different observed frequency from the expected frequency, we can conclude that the overall observed values were not significantly different from the expected values at the US level for each color, except for the color Blue.

Chapter 17

Crosstabs

[DataSet1]

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Gender * Vote	24	100.0%	0	0.0%	24	100.0%

Gender * Vote Crosstabulation

			Vote		Total
			Yes	No	
Gender	Male	Count	8	4	12
		% within Gender	66.7%	33.3%	100.0%
	Female	Count	5	7	12
		% within Gender	41.7%	58.3%	100.0%
Total		Count	13	11	24
		% within Gender	54.2%	45.8%	100.0%

Chi-Square Tests

	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	1.510[a]	1	.219		
Continuity Correction[b]	.671	1	.413		
Likelihood Ratio	1.527	1	.217		
Fisher's Exact Test				.414	.207
Linear-by-Linear Association	1.448	1	.229		
N of Valid Cases	24				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.50.
b. Computed only for a 2x2 table

The probability that the null hypothesis is correct determines whether it should be rejected and statistical significance declared. In the SPSS Statistics output, the probability is indicated by the term "Asymp. Sig." As you can see in Figure 17.11, the probability is 219. According to the guidelines in Appendix A near the end of this book, the value of chi-square is not significant because 219 is greater than 05. Thus, the two variables (Gender and Vote) are independent of each other.

Exercise for Chapter 17

Crosstabs

[DataSet1]

Case Processing Summary						
	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
Experience * Approval	20	100.0%	0	0.0%	20	100.0%

Experience * Approval Crosstabulation

			Approval		Total
			Approve	Disapprove	
Experience	Experience	Count	7	3	10
		% within Experience	70.0%	30.0%	100.0%
	Inexperienced	Count	3	7	10
		% within Experience	30.0%	70.0%	100.0%
Total		Count	10	10	20
		% within Experience	50.0%	50.0%	100.0%

Chi-Square Tests					
	Value	df	Asymptotic Significance (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
Pearson Chi-Square	3.200[a]	1	.074		
Continuity Correction[b]	1.800	1	.180		
Likelihood Ratio	3.291	1	.070		
Fisher's Exact Test				.179	.089
Linear-by-Linear Association	3.040	1	.081		
N of Valid Cases	20				

a. 0 cells (0.0%) have expected count less than 5. The minimum expected count is 5.00.
b. Computed only for a 2x2 table

a. 7 experienced teachers approved.

b. 3 inexperienced teachers approved.

c. The value of chi-square is 3.200.

d. The associated probability (p-value) is .074.

e. The p-value of .074 is greater than the significance level of 0.05, which means that we do not have sufficient evidence to reject the null hypothesis of independence between experience and approval.

f. The results of the significance test indicate that there is no significant association between experience and approval among the teachers in this study. The output shows the number of teachers who approved or disapproved of each level of experience (inexperienced and experienced). The table indicates that 7 out of 10 experienced teachers approved, while only 3

out of 10 inexperienced teachers approved. The chi-square statistic is 3.200 which is associated

with a p-value of .074. Since the p-value is greater than the 0.05 significance level, I fail to reject

the null hypothesis, which states that there is no significant association between teacher

experience and approval.