

Week 4 Handout: Chi-Square Findings

The chi square test for independence is used to determine whether there is a relationship between the two variables that are categorical in the level of measurement. In this case, the variables are: employment level and treatment condition. It tests whether there is a difference between groups.

The research question for the study is: Is there a relationship between the independent variable, treatment, and the dependent variable, employment level? In other words, is there a difference in the number of participants who are not employed, employed part-time and employed full-time in the program and the control group (i.e., waitlist group)?

The hypotheses are:

H0 (The null hypothesis): There is no difference in the proportions of individuals in the three employment categories between the treatment group and the waitlist group. In other words, the frequency distribution for variable 2 (employment) has the same proportions for both categories of variable 1 (program participation).

*** It is the null hypothesis that is actually tested by the statistic. A chi square statistic that is found to be statistically significant, (e.g. $p < .05$) indicates that we can reject the null hypothesis (understanding that there is less than a 5% chance that the relationship between the variables is due to chance).*

H1 (The alternative hypothesis): There is a difference in the proportions of individuals in the three employment categories between the treatment group and the waitlist group.

*** The alternative hypothesis states that there is a difference. It would allow us to say that it appears that the treatment (voc rehab program) is effective in increasing the employment status of participants.*

Assume that the data has been collected to answer the above research question. Someone has entered the data into SPSS. A chi-square test was conducted, and you were given the following SPSS output data:

Case Processing Summary

	Cases					
	Valid		Missing		Total	
	N	Percent	N	Percent	N	Percent
program participation * employment level	59	98.3%	1	1.7%	60	100.0%

Program Participation * Employment-Level Cross Tabulation

			employment level			Total
			none	part-time	full time	
program participation	intervention group	Count	5	7	18	30
		% within program participation	16.7%	23.3%	60.0%	100.0%
	comparison group	Count	16	7	6	29
		% within program participation	55.2%	24.1%	20.7%	100.0%
Total		Count	21	14	24	59
		% within program participation	35.6%	23.7%	40.7%	100.0%

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	11.748 ^a	2	.003
Likelihood Ratio	12.321	2	.002
Linear-by-Linear Association	11.548	1	.001
N of Valid Cases	59		