

Friedman's test: critical values when the number of participants per condition is small.

Compare your obtained value of Chi-r-squared to the appropriate value in the table. If the obtained value is equal to or larger than the value in the table, then the obtained value is significant at that probability level.

Example: suppose you run an experiment with 3 conditions, and 5 participants in each condition. (Groups = 3, and N =5). Suppose our obtained value was 7.8. For 3 groups and 5 participants, the critical value is 7.6. Our value is *larger* than 7.6, and so we would conclude that our results are likely to occur by chance with a probability of less than 0.024 (and more than 0.0085, the next figure in the table). 0.024 is less than 0.05, and so we would conclude that we had a statistically significant result - the differences between the conditions in our experiment are unlikely to have arisen by chance.

3 groups:											
N=4		N=5		N=6		N=7		N=8		N=9	
Xr^2	p	Xr^2	p	Xr^2	p	Xr^2	p	Xr^2	p	Xr^2	p
6.5	0.042	6.4	0.039	6.33	0.052	6	0.052	6.25	0.047	6.22	0.048
8	0.0046	7.6	0.024	7	0.029	7.14	0.027	6.75	0.038	6.89	0.031
		8.4	0.0085	8.33	0.012	7.71	0.021	7	0.03	8	0.019
		10	0.00077	9	0.0081	8	0.016	7.75	0.018	8.22	0.016
				9.33	0.0055	8.86	0.0084	9	0.0099	8.67	0.01
				10.33	0.0017	10.29	0.0036	9.25	0.008	9.56	0.006
				12	0.00013	10.57	0.0027	9.75	0.0048	10.67	0.0035
						11.14	0.0012	10.75	0.0024	10.89	0.0029
						12.29	0.00032	12	0.0011	11.56	0.0013
						14	0.000021	12.25	0.00086	12.67	0.00066
								13	0.00026	13.56	0.00035

4 groups:

N=3		N=4	
Xr^2	p	Xr^2	p
7	0.054	7.2	0.054
7.4	0.033	7.5	0.052
8.2	0.017	7.8	0.036
9	0.0017	8.1	0.033
		8.4	0.019
		8.7	0.014
		9.3	0.012
		9.6	0.0069
		9.9	0.0062
		10.2	0.0027
		10.8	0.0016
		11.1	0.00094