Answer to Question #84310 – Math – Statistics and Probability

Question

The following table gives for a sample of married women, the level of education and marriage adjustment score:

	Marriage adjustment score		
Level of Education	low	high	very high
Middle school	25	5	10
High school	50	30	40
College	120	60	60

Can we conclude from the above, the higher the level of education, the greater is the degree of adjustment in marriage?

Solution

Level of Education	Marriage Adjustment Score			
	Low	High	Very High	Total
Middle School	25	5	10	40
High School	50	30	40	120
College	120	60	60	240
Total	195	95	110	400

H_0There is no relation between the level of education and adjustment in marriage.

H_αThe level of education and adjustment in marriage are associated.

$$\nu = (3-1)\cdot(3-1) = 4$$

$$\chi^2_{0.05}(\nu = 4) = 9.5$$

O	$E = \frac{\sum_i O_{ij} \cdot \sum_j O_{ij}}{\sum_i \sum_j O_{ij}}$	$(O-E)^2/E$
25	19.5	1.55
50	58.5	1.24
120	117	0.08
5	9.5	2.13
30	28.5	0.08
60	57	0.16

10	11	0.09
40	33	1.48
60	66	0.55
$\chi^2_{0.05}(\nu = 4) = 9.5$		$\chi^2 = 7.35$

Since $\chi^2 > \chi^2_{0.05}$, H_0 is rejected.

That is, the level of education and adjustment in marriage are associated.
Thus, we may conclude that the higher the level of education, the greater is the degree of adjustment in marriage.