

Article "Is there a Season for Homicide?"

$n = 1361$ random murders, by season:

Season	O = Observed Murders		
Winter	328	} random	$K = 4$ categories
Spring	334		
Summer	372		
Fall	327		
		← not	$df = K - 1 = 3.$

Claim: equal rates for all 4 seasons ($\alpha = .05$)
 winter spring summer fall

Hypothesis

$H_0: p_1 = .25, p_2 = .25, p_3 = .25, p_4 = .25$
 $H_1: \text{at least one is wrong}$

Data

See above

Require

Each expected freq. ($E = np_i$) is at least 5.

Test Stat

$$\chi^2 = \sum \frac{(O - E)^2}{E}$$

$$= 4.0345$$

O	E	$\frac{(O - E)^2}{E}$
328	$1361(.25) = 340.25$	.4410
334	$1361(.25) = 340.25$	.1148
372	$1361(.25) = 340.25$	2.9627
327	$1361(.25) = 340.25$	.5160
all	at least 5 ✓	4.0345

Critical Value

Right Tail Test Always

(No prob) not required

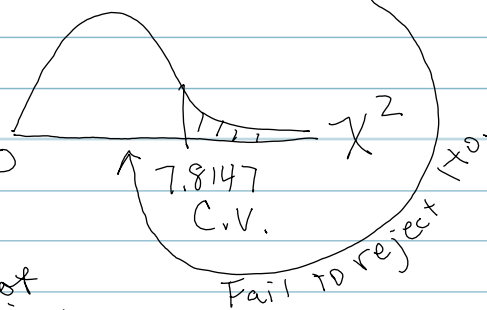


Table A4

df

$\alpha = .05$

$K - 1$
 $= 3$

$\rightarrow 7.8147$

Conclusion: If T.S. > C.V. Then reject H_0 & support H_1 .

Fail to reject H_0 : We cannot reject the claim that the murder rates are the same for each season of the year.