

According to the National Institute of Mental Health, suicide is the 2nd leading cause of death for persons of age 15 – 34. The following data is from the Minnesota Department of Health. This data was published in a Suicide in Minnesota Data Brief in September 2013.



Source: http://www.health.state.mn.us/injury/docs/suicide/suicide_data_brief_2011.pdf

**Injury and Violence Prevention Unit
 Minnesota Department of Health**

September, 2013
www.health.state.mn.us/injury

Region	5 year totals, 2007-2011					Single year totals				
	Number	Age-adjusted rate	Age group - number			2007 (n)	2008 (n)	2009 (n)	2010 (n)	2011 (n)
			<25 years	25-64 years	65 years plus					
7 County Metro	1475	10.0	230	1077	168	262	299	283	304	327
Greater Minnesota	1557	12.7	230	1103	224	306	294	306	294	357

Your analysis for this quiz will be broken out into two parts.

Part 1: Research Questions

- RQ #1A: For the 7 County Metro Region, are the suicide rates over the 5 years inconsistent? That is, can we statistically say, that the suicide rates in this region vary more than what would be expected under the assumption that rates are staying constant over time?
- RQ #1B: For the Greater Minnesota Region, are the suicide rates over the 5 years inconsistent? That is, can we statistically say, that the suicide rates in this region vary more than what would be expected under the assumption that rates are staying constant over time?

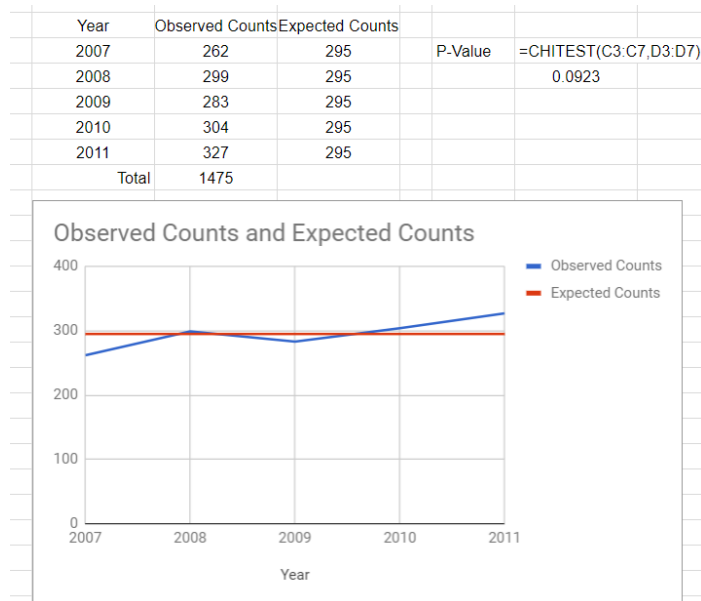
1. Write a conclusion for RQ #1A: (3 pts)

There is not enough statistical evidence to say that the suicide rates over the 5 years are inconsistent for the 7 County Metro Region (p-value = 0.0923).

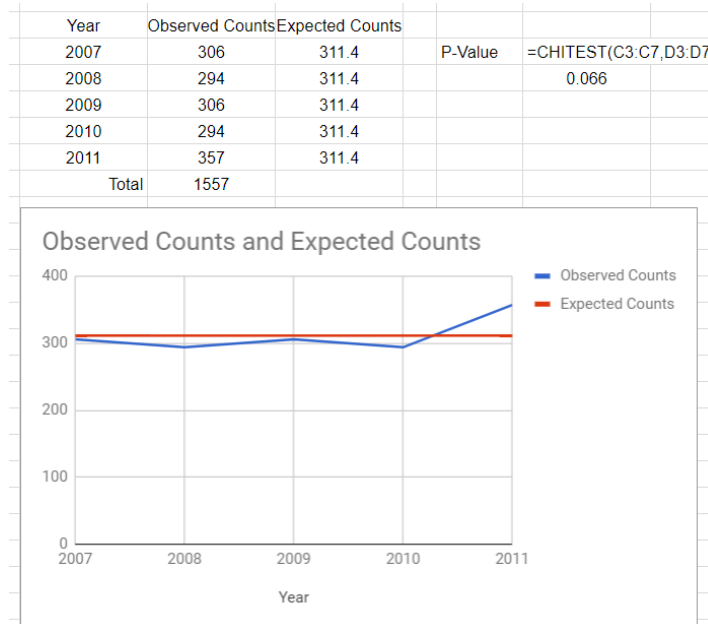
2. Write a conclusion for RQ #1B: (3 pts)

There is not enough statistical evidence to say that the suicide rates over the 5 years are inconsistent for the Greater Minnesota Region (p-value = 0.0923).

3. Provide a screen-shot of your Google Sheet output of your analysis for RQ #1A. (4 pts)



4. Provide a screen-shot of your Google Sheet output of your analysis for RQ #1B. (4 pts)



Suicide tends to effect young people more than other older people. The Suicide in Minnesota Data Brief published suicide deaths across three age groups. The data from the table above is provided here.

Region	# of Suicides in each Age Group by Region		
	< 25 years	25 – 64 years	65 years plus
7 County Metro	230	1077	168
Greater MN	230	1103	224

In addition to the suicide information, I have gathered data on the age distribution of those living in these two regions of Minnesota from the U.S. Census Bureau.

Region	% of People in each Age Group by Region		
	< 25 years	25 – 64 years	65 years plus
7 County Metro	38.20%	51.58%	10.22%
Greater MN	37.16%	48.17%	14.67%

Part 2: Research Question

- RQ #2A: For the 7 County Metro Region, do the suicide rates across these age groups differ from the population rates across these age groups?
- RQ #2B: For the Greater Minnesota Region, do the suicide rates across these age groups differ from the population rates across these age groups?

I ran a CHITEST() for RQ #2A and for RQ #2B and found that the p-value was very-very small; thus, we can say that we have enough evidence to say that the suicide rates across these age groups differ from the population rates for the percentage of people in each age group.

~~5. Your task here is to convince me that the reason the p-value was very-very small for these CHITESTs was because of the “<25 years” age group and not some other age group. That is, convince me that this data does indeed support the notation that suicide tends to effect young people more than older people — and that this is true in both regions.~~

~~Note: To receive full credit here, you must use the methods we’ve discussed in class. For example, calculating $((\text{observed} - \text{expected})^2) / \text{expected}$ would suffice or using graphs to justify your answer would work as well. (6 points)~~

~~This problem will not be graded as what I have written is not correct! I hastily wrote this problem.~~

~~From the output below we see that 65 Years plus contributes the most to the calculation of the test statistic (560.7) for the 7 County Metro Region and 25-64 contributes the most to the calculation of the test statistic (1114.3) for the Greater Minnesota Region.~~

7 County Metro Region Analysis:

Age Group	Observed Counts	Expected		(O-E) ²	(O-E) ² / E
		%	Counts		
< 25 years	306	0.382	346.092	1607.368464	4.644338685
25-64 years	294	0.5158	467.3148	30038.0199	64.27791266
65 years plus	306	0.1022	92.5932	45542.46229	491.8553661
Total	906			Total	560.7776175

Greater Minnesota Region Analysis:

Age Group	Observed Counts	Expected		(O-E) ²	(O-E) ² / E
		%	Counts		
< 25 years	230	0.3716	336.6696	11378.40356	33.79694384
25-64 years	1103	0.4817	436.4202	444328.6298	1018.121136
65 years plus	224	0.1467	132.9102	8297.351664	62.42825354
Total	1557			Total	1114.346333