

*Exploration 2:  
Comparing Suicide Rates for Men and Women*

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1. The following table gives the suicide rates in 15 countries for men and women per 100,000 population.

(a) Suicide rates are an example of a ..... variable.

(b) Construct a back-to-back stem-and-leaf plot of these data. Be sure to include a key.

Country	Men	Women
Australia	16	6
Austria	40	15
Canada	22	7
Denmark	39	21
France	25	10
Ireland	6	4
Israel	8	4
Japan	22	13
Netherlands	12	8
Norway	19	7
Poland	22	4
Sweden	28	11
Switzerland	37	15
United Kingdom	11	7
United States	19	6

(c) The distribution of suicide rates for men from these 15 countries is

- skewed right
- skewed left
- symmetric-unimodal
- uniform
- bimodal
- none of these

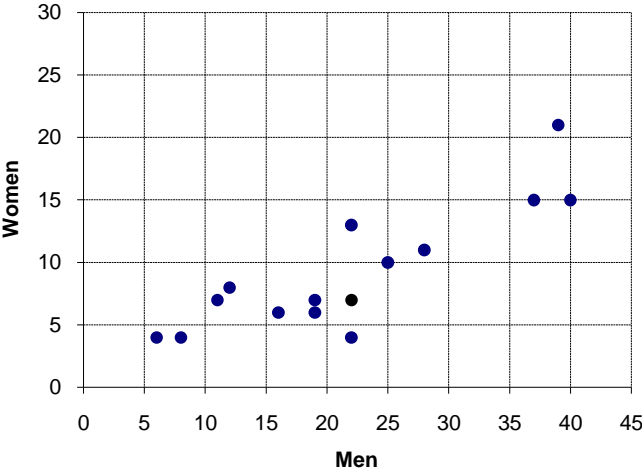
(d) The distribution of suicide rates for women from these 15 countries is

- skewed right
- skewed left
- symmetric-unimodal
- uniform
- bimodal
- none of these

(e) In what percent of the countries did the suicide rate for men exceed the highest suicide rate for women in the entire sample of 15 countries?

2. Consider the scatterplot of the data given above on the suicide rates of men and women in different countries.

(a) What does one point on the scatterplot represent?



(b) Does there appear to be a positive or a negative association? Explain what this means in terms of the suicide rates for men and women in these countries.

(c) On the graph draw in a line that would represent where the suicide rates for men and women are the same.

(d) What is the relationship between the actual data points and the line you drew. Explain what this means in terms of male and female suicide rates.

(e) Did the country with the highest male suicide rate have the highest female suicide rate? Explain. Show this on the graph.

(f) Did the country with the lowest women suicide rate have the lowest male suicide rate? Explain. Show this on the graph.

3. Enter the data on the suicide rates of men and women in different countries into two lists on your graphing calculator.

(a) Recreate the scatter plot shown in # 2 on your graphing calculator. What window setting did you use?

XMIN ..... XMAX ..... XSCL .....  
YMIN ..... YMAX ..... YSCL .....

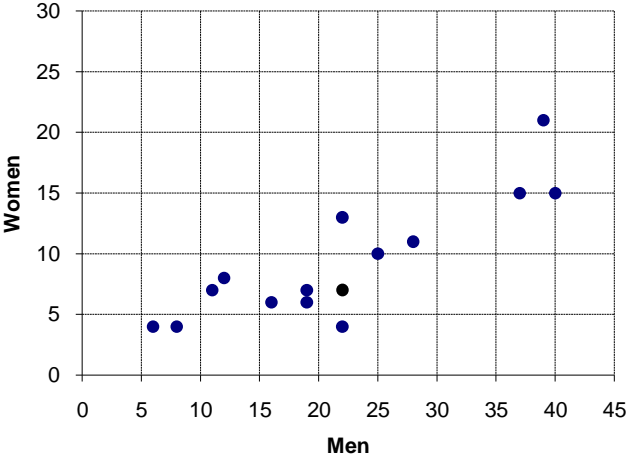
Real data is often not perfectly linear. But if the data is roughly linear, a linear model may be a desirable choice. Graphing calculators can be used to find the linear model that best fits the data. Finding the line of best fit is called linear regression. All calculators will give the same regression line for a set of data. The regression line is the line that best fits the data. It passes as close as possible to all of the data points. No other line will have the data as closely grouped about it as the regression line. So the regression line gives the best predictions possible based on the data.

(b) Follow the instructions on the *TI Calculator Instructions* sheet to find the linear regression equation for this data. Write down the information the calculator is giving you.

(c) Use this information to write the equation of the regression line. Clearly define your variables. (Round *a* and *b* to two decimal places.)

(d) Graph your regression line on the scatterplot of the data shown again here.

*Tip: Make a table using your regression equation with at least three points. Plot the points on the scatterplot and draw the regression line through them.*



4. (a) What data point is farthest above the regression line? How far above the line is it? (*This is called a residual.*)  
  
(b) What data point is farthest below the regression line? How far below the line is it? (*This is also a residual.*)  
  
(c) What country has the largest residual? Explain.
  
5. (a) What is the slope of your regression line and what does it mean in terms of suicide rates of men and women?  
  
(b) Suppose the suicide rate for men in a particular country was 50 per 100,000. What would you expect the suicide rate for women to be of that same country? Explain what you did to get your answer.  
  
(c) If a particular country had a suicide rate for women to be about 18 per 100,000, what suicide rate would you predict for men? Explain how you got your answer.
  
6. What have you learned in doing this exploration?