Use the attached pain medication data set to answer the following questions:

- How many patients are in the data set?

  200 patients are in the data set

  This was found by going to Analys → Descriptive Statistics → Frequencies

Statistics

Gender

N	Valid	0
	Missing	200

Gender

		Frequency	Percent
Missing	Male	99	49.5
	Female	101	50.5
	Total	200	100.0

- How many patients are male, and how many are female. What percentage of the sample does each account for?

  99 Male or 49.5% of the sample
  101 Female or 50.5% of the sample

  This was figured out from the above Frequency calculation from above.

- What proportion of the patients in the sample are in "Good", "Poor" and "Fair" general health?

  Good = 45.5%, Poor = 14%, Fair = 40.5%

Statistics

General health

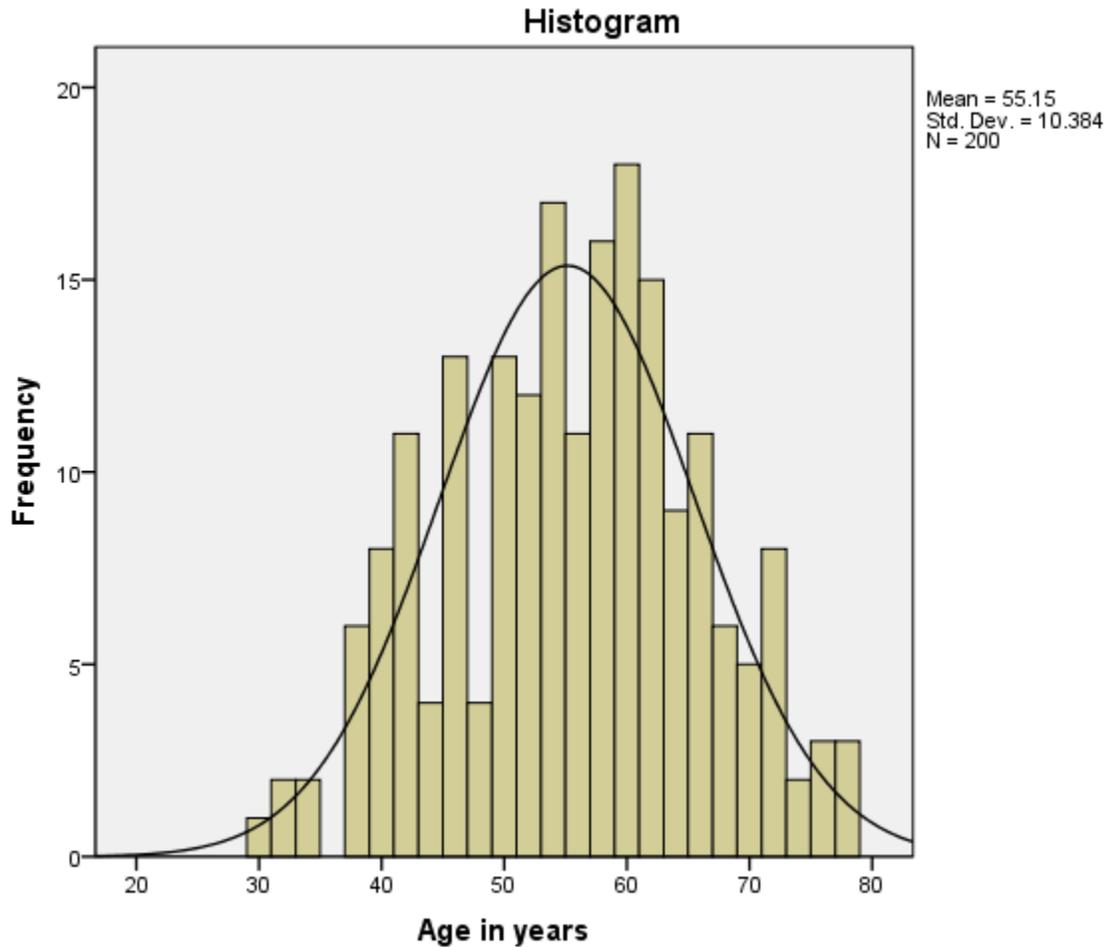| N	Valid	200
	Missing	0

General health

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	28	14.0	14.0	14.0
	Fair	81	40.5	40.5	54.5
	Good	91	45.5	45.5	100.0
	Total	200	100.0	100.0	

- What can we say about the age distribution of our sample? Does age appear to follow a normal distribution?

  By continuing with frequency description we can calculate the mean and media and see that they are closely matched and also run a histogram and see that it has a normal bell curve to it. From this we can determine that the age distribution is normal.

Age in years

N	Valid	200
	Missing	0
Mean		55.15
Median		56.00
Std. Deviation		10.384
Minimum		30
Maximum		78

Histogram

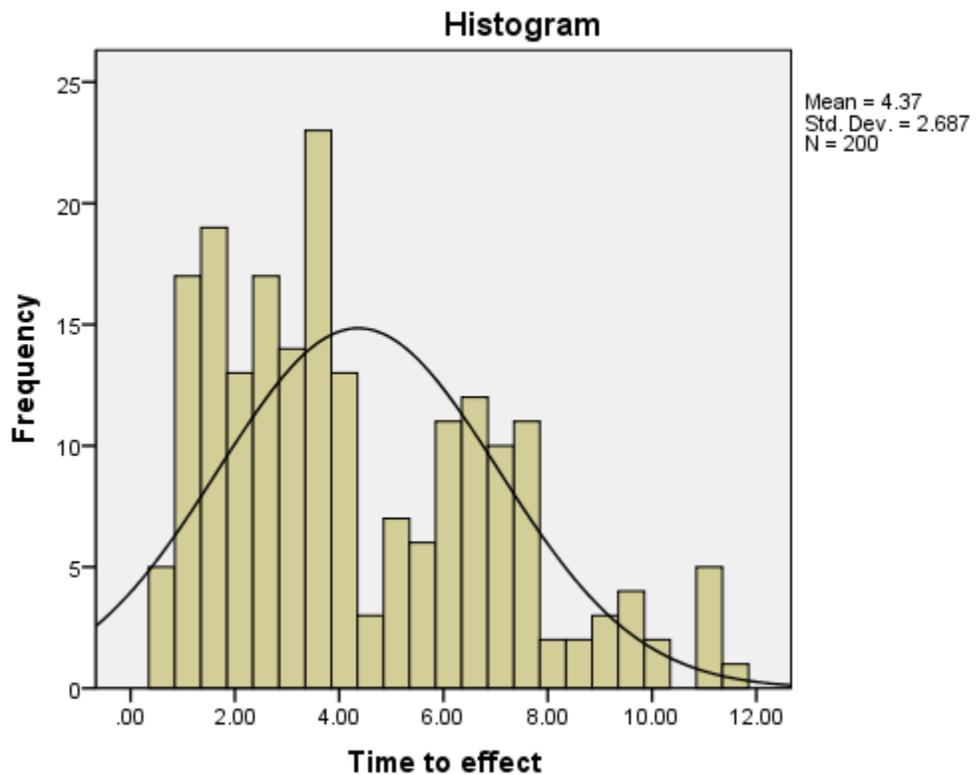Mean = 55.15
Std. Dev. = 10.384
N = 200

- Does the distribution of "Time to Effect" appear to follow a normal distribution?

  "Time to Effect" does not seem to follow a normal distribution from the analysis below. It is Positively skewed.

Time to effect

N	Valid	200
	Missing	0
Mean		4.3660
Median		3.6000
Std. Deviation		2.68660
Minimum		.60
Maximum		11.60

Histogram

Mean = 4.37
Std. Dev. = 2.687
N = 200

- What is the average time to effect? How variable is the distribution (standard deviation)?

   The average time to effect is 4.37
   The variability in distribution or Standard Deviation is 2.687

- What are the minimum and maximum times observed?

   Minimum = .60
   Maximum = 11.60

- What is the standard error of the mean time to effect? How is this different from the standard deviation?

   The Std Error of Mean is .18997. Standard deviation describes the spread of values in a sample such as our sample of 200. You could is a random number and varies from sample to sample, but stays the same on average when sample sizes increase. The Standard Error Mean (SEM) is the standard deviation of the sample mean. It describes the Standard Deviations accuracy as an estimation of the population mean. When a sample size increases, it is based on more information and becomes more accurate as the population grows and the standard error decreases.

Statistics

Time to effect

N	Valid	200
	Missing	0
Mean		4.3660
Std. Error of Mean		.18997
Median		3.6000
Std. Deviation		2.68660
Minimum		.60
Maximum		11.60

What is the 95% confidence interval for mean time to effect? What does this tell us?

Statistics

Time to effect

		Bootstrap[a]		
	Statistic	Bias	Std. Error	95% Confidence Interval

					Lower	Upper
N	Valid	200	0	0	200	200
	Missing	0	0	0	0	0
Mean		4.3660	.0088	.1899	4.0005	4.7598
Std. Error of Mean		.18997				
Median		3.6000	.0452	.1895	3.4000	4.1987
Mode		1.50[b]				
Std. Deviation		2.68660	-.00914	.12461	2.42341	2.92873
Minimum		.60				

a. Unless otherwise noted, bootstrap results are based on 200 bootstrap samples

b. Multiple modes exist. The smallest value is shown

- ▪ Formulate a hypothesis to answer the question "Is the time to effect different for the new drug compared to the existing drug?"

- ▪ How would you go about testing the hypothesis?