

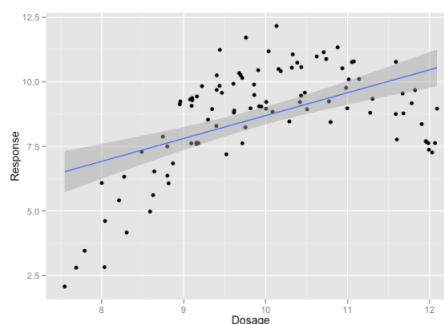


1 point

1. A goal of exploratory data analysis is to
- ☒ Determine if the data you have are appropriate for answering your question.
  - ☐ Develop a final answer to your question
  - ☐ Develop formal statistical models
  - ☐ Prepare final visualizations for presenting to people outside your group

1 point

2. A data analyst who works for you is looking at data from 100 individuals on exposure to a potentially harmful substance and the levels of a blood biomarker measured on each individual. In this case higher levels of the biomarker indicate greater harm from the substance. The analyst shows you the following scatterplot of the individual's biomarker vs. the dosage of the substance experienced by the individual.



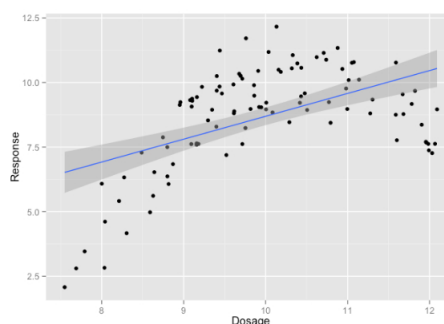
The analyst concludes the relationship between the dosage received of the substance and the response is likely linear. Similarly, your expectation prior to seeing the data was that the relationship would be linear.

What is a conclusion you could make from this plot?

- ☐ The association between the response and the dosage is decreasing.
- ☐ The association between the response and the dosage is linear.
- ☐ There is no association between the dosage and the response.
- ☒ The association between the response and the dosage appears to demonstrate some nonlinearity.

1 point

3. Consider the following plot from the previous question.



The analyst who created this plot concludes that the relationship between the dosage received and the response is linear. Furthermore, a statistical test indicates that the relationship between the response and the dosage is statistically significant.

What would might be a reasonable next step in this analysis?

- ☐ Continue on to more formal modeling of the association to more accurately quantify the relationship between the two variables.
- ☐ Do nothing further in this phase of analysis.
- ☒ Collect information to challenge the expectation that the relationship is linear between the response and the dosage.

1 point

4. Using plots in exploratory data analysis can be useful because
- ☐ the plots can be saved and used later for communication.
  - ☒ plots allow one to see summaries of the data as well as deviations that may be unexpected.
  - ☐ they can take less time to make than extensive tables.

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5. Suppose you are interested in looking at the relationship between exercise and state of a

1  
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Suppose you are interested in looking at the relationship between season and sales of a product that your company sells. You expect that sales are highest in the winter season. An analyst on your team lets you know that at the moment, only data from the most recent winter season are available to be analyzed.

Do you have the right data to address your question?

- ☒ No, in order to look at the relationship between season and sales we need data from multiple seasons.
- ☐ Yes, the expectation was that winter was the best sales season and the data available for analysis is for winter.

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