

Exercise 8.1

Open the Excel workbook in **Exe 8.1B.xlsx** from the Exercises folder. Obtain the sample size, sample mean weight loss and the sample standard deviation of the weight loss for Diet B. Place these results in the block of cells F23 to F25, using the same format as that employed for the Diet A results in the above example.

Briefly interpret your findings. What do these results tell you about the relative effectiveness of the two weight-reducing diets?

Answer

The sample mean weight loss for Diet B is $\bar{x} = 3.710$. The average weight loss for those individuals who undertook Diet B is 3.710 kg, so the diet appears to have been effective but less effective than Diet A.

The sample standard deviation of the weight loss for Diet B is $s = 2.769$ kg - similar to this of Diet A. Since the mean weight loss is a little larger than 1s, then some proportion of those individuals on Diet B had a positive weight loss, again emphasising the effectiveness of the diet.

Diet B appears to be less effective than Diet A, not only because of the mean weight loss but also because of the difference between standard deviation and mean of the samples.

Exercise 8.2

Open the Excel workbook in **Exe 8.2B.xlsx** from the Exercises folder. Obtain the sample median, first and third quartiles and the sample interquartile range of the weight loss for Diet B. Place these results in the block of cells F26 to F29, using the same format as that employed for the Diet A results in the above example.

Briefly interpret your findings. What do these results tell you about the relative effectiveness of the two weight-reducing diets?

Answer

The sample median weight loss for Diet B is $M = 3.745$ kg, so the diet appears to have been effective, however less so than the Diet A.

The sample interquartile range of the weight loss for Diet B is $IQR = 3.451$ kg - similar to this of Diet A. A high proportion of those individuals on Diet A & Diet B had a positive weight loss, again emphasising the effectiveness of the diet.

The median between two samples differs similarly to the mean between the two samples. It can be concluded again that both diets appear to be effective, but Diet A has a greater positive impact on weight loss.

Exercise 8.3

Open the Excel workbook in **Exe 8.3D.xlsx** from the Exercises folder. Obtain the frequencies and percentage frequencies of the variable Brand, but this time for the Area 2 respondents, using the same format as that employed for the Area1 results in the above example.

Briefly interpret your findings. What do these results tell you about the patterns of brand preferences for each of the two demographic areas?

Answer

Of the 90 respondents in Area 2, 21.1% preferred Brand A, 33.3% preferred Brand B, and the remaining 45.6% preferred some other brand of breakfast cereal.

The first conclusion from comparing Area 1 with Area 2 is that the two surveyed brands (A & B) are more popular than other brands in Area 2 compared to Area 1. Because of that, the relative difference between the share of respondents is greater in Area 2 for both brand A & B than in Area 1.