

Unit 6: Summary Measures

Exercise 6.1

Diet A	n	50	Diet A	n	=COUNT(B2:B51)
	Mean	5.341		Mean	=AVERAGE(B2:B51)
	SD	2.536		SD	=STDEV(B2:B51)
Diet B	n	50	Diet B	n	=COUNT(B52:B101)
	Mean	3.710		Mean	=AVERAGE(B52:B101)
	SD	2.769		SD	=STDEV(B52:B101)

Interpretation:

Diet A has a higher mean weight loss (5.341 kg) than Diet B (3.710 kg), so it produced a greater average weight loss. The standard deviations are similar (2.536 vs 2.769), meaning variation between individuals was roughly the same for both diets. Because Diet A has both a higher mean and similar consistency, it can be considered the more effective of the two diets.

Summary:

Diet A resulted in greater average weight loss than Diet B, with a similar level of variation, indicating that Diet A was more effective overall.

Exercise 6.2

Diet A	n	50	Diet A	n	=COUNT(B2:B51)
	Mean	5.341		Mean	=AVERAGE(B2:B51)
	SD	2.536		SD	=STDEV(B2:B51)
	Median	5.642		Median	=MEDIAN(B2:B51)
	Q1	3.748		Q1	=QUARTILE(B2:B51,1)
	Q3	7.033		Q3	=QUARTILE(B2:B51,3)
	IQR	3.285		IQR	=F8-F7
Diet B	n	50	Diet B	n	=COUNT(B52:B101)
	Mean	3.710		Mean	=AVERAGE(B52:B101)
	SD	2.769		SD	=STDEV(B52:B101)
	Median	3.745		Median	=MEDIAN(B52:B101)
	Q1	1.953		Q1	=QUARTILE(B52:B101,1)
	Q3	5.404		Q3	=QUARTILE(B52:B101,3)
	IQR	3.451		IQR	=F28-F27

Interpretation:

Diet A shows a higher mean and median weight loss than Diet B, meaning on average, participants lost more weight with Diet A. The IQRs are similar (3.285 vs 3.451), so the spread of the middle 50% of results is roughly the same. For Diet A, Q1 = 3.748, which means at least 75% of participants lost more than about 3.7 kg. For Diet B, Q1 = 1.953, so many people lost less than 2 kg, showing lower effectiveness overall.

Summary:

Diet A produced a greater and more consistent weight loss than Diet B, with most participants losing at least 3.7 kg compared with only about 2 kg for Diet B, indicating that Diet A was the more effective diet.

Exercise 6.3

Frequencies		
	Area 1	Area 2
A	11	19
B	17	30
Other	42	41
Total	70	90

Percentages		
	Area 1	Area 2
A	15.7	21.1
B	24.3	33.3
Other	60.0	45.6
Total	100	100.0

Frequencies		
	Area 1	Area 2
A	=COUNTIF(B2:B71,"A")	=COUNTIF(B72:B161,"A")
B	=COUNTIF(B2:B71,"B")	=COUNTIF(B72:B161,"B")
Other	=COUNTIF(B2:B71,"Other")	=COUNTIF(B72:B161,"Other")
Total	=SUM(E6:E8)	=SUM(F6:F8)

Percentages		
	Area 1	Area 2
A	=100*E6/E\$9	=100*F6/F\$9
B	=100*E7/E\$9	=100*F7/F\$9
Other	=100*E8/E\$9	=100*F8/F\$9
Total	=SUM(E15:E17)	=SUM(F15:F17)

Interpretation:

In both areas, Brand B is preferred over Brand A. Area 2 shows stronger preferences for both Brand A and Brand B, with fewer people choosing Other brands. Area 1 has a larger share of Other preferences (60%), suggesting less brand loyalty or greater variety in choices. Overall, Area 2 respondents appear more focused on the main brands, while Area 1 consumers are more dispersed across alternatives.

Summary:

Brand preferences differ between the two areas, with Area 2 showing stronger preference for the main brands (A and B) and Area 1 showing more varied choices dominated by other brands.