Confidence intervals

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1. Confidence interval for mean cholesterol

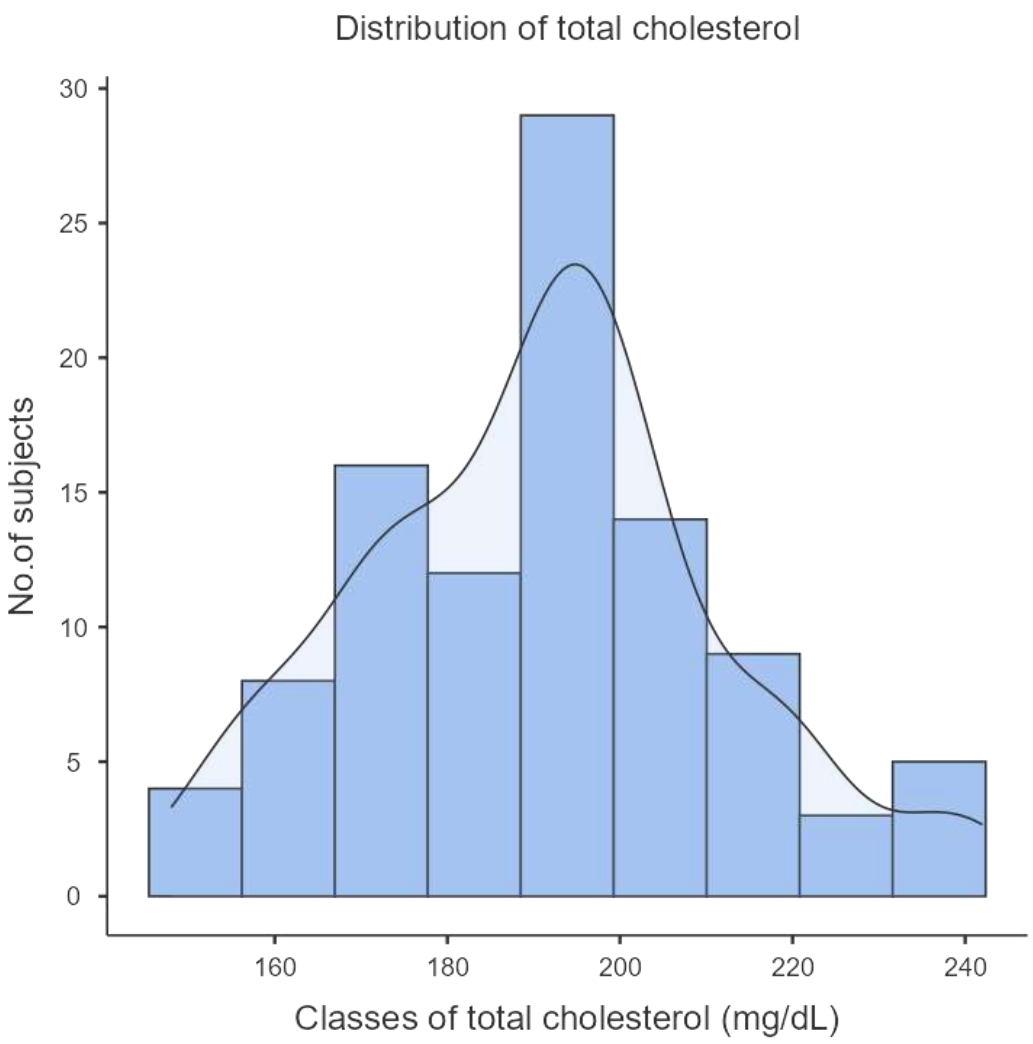


Table 1. Descriptive statistics for total cholesterol in the study group.

	Total cholesterol (mg/dL)
N	100
Mean	191
Median	192
Mode	191
Skewness	0.230
Std. error skewness	0.241
Kurtosis	-0.0598
Std. error kurtosis	0.478

Table 2. Normality of the total cholesterol distribution

Questions	Answers
Histogram:	
Is there one frequency class with a higher frequency than the other classes?	Yes/No
Is the class with the highest frequency located in the centre of the graph?	Yes/No
Is the distribution roughly symmetrical (approximately bell-shaped)?	Yes/No
Descriptive statistics:	
mean ≈ median ≈ mode?	Yes/No
skewness between -1 and 1?	Yes/No
excess kurtosis between -1 and 1?	Yes/No
How is total cholesterol distributed?	normal / not normal

1.1. The 95% confidence interval for the arithmetic mean of **total cholesterol** in the population of adults with iron deficiency.

Descriptives

	Total cholesterol (mg/dL)
N	100
Mean	191
95% CI mean lower bound	187
95% CI mean upper bound	195
Median	192

Descriptives

	Total cholesterol (mg/dL)
Mode	191
Skewness	0.230
Std. error skewness	0.241
Kurtosis	-0.0598
Std. error kurtosis	0.478

Note. The CI of the mean assumes sample means follow a t-distribution with N - 1 degrees of freedom

1.2. Interpretation of the 95% CI for the arithmetic mean of total cholesterol:

- We are 95% confident that the true mean total cholesterol (the population mean) in adults with iron deficiency lies in the interval [187; 195] mg/dL.
- The interval [187; 195] mg/dL contains the true mean total cholesterol (the population mean) in adults with iron deficiency, with a margin of error (or risk of error) of 5%.

1.3. The 95% confidence interval for the arithmetic mean of total cholesterol in the population of women with iron deficiency.

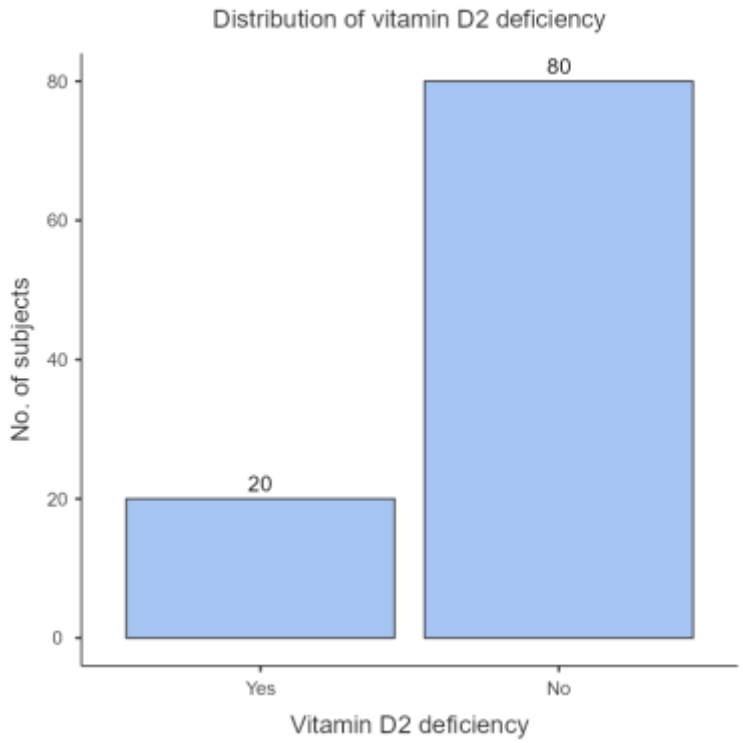
Descriptives

	Total cholesterol (mg/dL)
N	57
Missing	0
Mean	188
Std. error mean	2.64
95% CI mean lower bound	183
95% CI mean upper bound	194
Median	192
Standard deviation	19.9
Minimum	148
Maximum	223

Note. The CI of the mean assumes sample means follow a t-distribution with N - 1 degrees of freedom

1.4. Interpretation of the 95% CI for the arithmetic mean of total cholesterol in women: (write it following the model in 1.2) …

2. Confidence interval for the frequency of vitamin D deficiency



Binomial Test

						95% Confidence Interval	
	Level	Count	Total	Proportion	p	Lower	Upper
Vitamin D2 deficiency	Yes	20	100	0.200	<.001	0.127	0.292
	No	80	100	0.800	<.001	0.708	0.873

2.1. Interpretation of the 95% CI for the relative frequency of vitamin D deficiency in the population of adults with iron deficiency:

- The true relative frequency of vitamin D2 deficiency (the population frequency) in adults with iron deficiency lies between 12.7% and 29.2%, with a margin of error of 5%.

2.2. The 95% confidence interval for the relative frequency of vitamin D deficiency in the population of urban adults with iron deficiency

Binomial Test

						95% Confidence Interval	
	Level	Count	Total	Proportion	p	Lower	Upper
Vitamin D2 deficiency	Yes	14	52	0.269	.001	0.156	0.410
	No	38	52	0.731	.001	0.590	0.844

2.3. Interpretation of the 95% CI for the relative frequency of vitamin D deficiency in the population of urban adults with iron deficiency: (write it following the model in 2.1)

2.4 Comparison of the 95% confidence intervals for the relative frequency of vitamin D deficiency:

a) all adults with iron deficiency

b) adults with iron deficiency living in urban areas only

Estimate (sample)	95% CI obtained	Is this the most wider interval?	Is this the most precise interval?
relative frequency of vitamin D deficiency (adults with iron deficiency)	[12.7%; 29.2%]	Yes/No	Yes/No
relative frequency of vitamin D deficiency (urban adults with iron deficiency)	[15.6%; 41%]	Yes/No	Yes/No