

Foundations for Statistical Inference on your research data

1. What variable are you going to use? Write the variable name and the English label.

Binary Categorical	Continuous
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State which of the two groups you are interested in analyzing.
What is your “event”?
(typically categorized as 0= non event, 1=event)

2. What is your effective sample size? (Number of non-missing values for that variable in your data set)

n=	n=
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3. Calculate the point estimate.

Sample Proportion (only for the ‘event’) $\hat{p} = \frac{\sum x}{n}$	Sample mean $\bar{x} = \text{mean}(\text{data}\$var, \text{na.rm=TRUE})$
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4. Calculate the standard deviation for each variable.

$s_{\hat{p}} = \sqrt{\hat{p} (1 - \hat{p})}$	$s_x = \text{sd}(\text{data}\$var, \text{na.rm=TRUE})$
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5. Calculate the standard error (SE) for each variable.

$s_{\hat{p}} / \sqrt{n}$	$s_{\bar{x}} = s_x / \sqrt{n}$
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6. Calculate an approximate 95% Margin of Error (MOE) for your estimate as $2 \cdot SE$

$MOE =$	$MOE =$
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7. Construct an approximate 95% confidence interval for your estimate.

$(\hat{p} - MOE, \hat{p} + MOE)$	$(\bar{x} - MOE, \bar{x} + MOE)$
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8. Interpret this confidence interval in context of your problem.

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