**HANDLING STATISTICAL HYPOTHESIS TESTS**

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|  |  |  |  |  |
| Test for | **Null Hypothesis** | **Test Statistic** | **Distribution** | **When to Use** |
| Population mean |  |  | Z | Normal distribution or n > 30; known |
| Population mean |  |  |  | N < 30; and / or unknown |
| Population proportion (p) |  |  | Z |  |
| Difference between two means |  |  | Z | Both normal distribution or > 30; unknown |
| Difference between two means |  |  | t distribution with df = the smaller of and | < 30; and / or unknown |
| Mean difference (paired data) |  |  |  | n < 30 pairs of data and / or unknown |
| Difference between two proportions |  |  | Z | for each group |

**UNDERSTANDING FORMULAE FOR COMMOM STATISTICS**

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| --- | --- | --- |
| Statistic | Formula | When to Use |
| Sample Mean (average) |  | Measure of centre; affected by the outliners. |
| Median | n = odd; middle value of the ordered data.  n = even; average of the two middle values. | Measure of centre; not affected by the outliners. |
| Sample Standard Deviation |  | Measure of variation; “average” distance from the mean. |
| Correlation Coefficient |  | Strength and direction of liner relationship between X and Y. |

**SURVEYING STATISTICAL CONFIDENCE INTERVALS**

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| --- | --- | --- | --- |
| CI For | Sample Statistic | Margin of Error | Use When |
| Population Mean ( |  |  | X is normal, or n>=30; is known |
| Population Mean ( |  |  | n < 30, and/or  is unknown |
| Population Proportion ( |  |  |  |
| Difference of two population means ( |  |  | Both normal distributions or ; known |
| Difference of two population means ( |  |  | ; and/ or unknown |
| Difference of two proportions () |  |  | For each group |