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| --- | --- | --- | --- | --- | --- | --- | --- |
| Test | Assumptions | Sample / Population | Numbers? | Cut off scores | Found score  Test statistic | Reject? | d (MOTE) |
| z-test  distribution of means | DV is scale?  Random selection?  Normal | Greater:  R: Sam > Pop  N: Sam <= Pop | M (sample)  Um (pop)  o (pop SD)  om (pop SE)  N | Positive  One tail  One cut off  Z table | Z = (M – u)/om | If found > cut off, reject | D = (M – u) / o |
| Less:  R: Sam < Pop  N: Sam >= Pop | Negative  One tail  One cut off  Z table | If found < cut off, reject |
| Different  R: Sam =/ Pop  N: Sam = Pop | Both  Two tail  Two scores  Z table | If found is further out |
| Single sample t  Distribution of means | DV is scale?  Random selection?  Normal | Greater:  R: Sam > Pop  N: Sam <= Pop | M (sample)  S (sample SD)  Sm (sample SE)  Um (pop)  N | Positive  One tail  One cut off  t table  df = N – 1  Left side | t = (M – u)/Sm | If found > cut off, reject | d = (M – u)/S |
| Less:  R: Sam < Pop  N: Sam >= Pop | Negative  One tail  One cut off  t table  df = N – 1  Left side | If found < cut off, reject |
| Different  R: Sam =/ Pop  N: Sam = Pop | Both  Two tail  Two scores  t table  df = N – 1  Right side | If found is further out |
| Dependent t  Mean differences | DV is scale?  Random selection?  Normal | Greater:  R: Level 1> Level 2  N: Level 1 <= Level 2 | Mdiff (sample)  Sdiff (sample SD)  Smdiff (sample SE)  N  Um = 0 | Positive  One tail  One cut off  t table  df = N – 1  Left side | t = Mdiff / Sm | If found > cut off, reject | d = Mdiff / S |
| Less:  R: Level 1 < Level 2  N: Level 1 >= Level 2 | Negative  One tail  One cut off  t table  df = N – 1  Left side | If found < cut off, reject |
| Different  R: Level 1 =/ Level 2  N: Level 1 = Level 2 | Both  Two tail  Two scores  t table  df = N – 1  Right side | If found is further out |
| Independent t  Differences between means | DV is scale?  Random selection?  Normal | Greater:  R: Level 1> Level 2  N: Level 1 <= Level 2 | Group 1:  Mean  Df  Group 2  Mean  Df  Overall:  Spooled (MOTE)  Smdiff (SPSS) | Positive  One tail  One cut off  t table  df = N – 1  Left side | t = (M – M) / Smdiff | If found > cut off, reject | d = (M – M)/Spooled |
| Less:  R: Level 1 < Level 2  N: Level 1 >= Level 2 | Negative  One tail  One cut off  t table  df = N – 1  Left side | If found < cut off, reject |
| Different  R: Level 1 =/ Level 2  N: Level 1 = Level 2 | Both  Two tail  Two scores  t table  df = N – 1  Right side | If found is further out |
| ANOVA | DV is scale?  Random selection?  Normal  Homoscedasticity/Homogeneity | R: list all groups =/ not equal  N: list all groups = equal | Source table  Descriptives | Dfbn = Groups – 1 (top of table)  Dfwn = n-1+n-1+n-1…  (side of table) | F = MSbetween/  MSwithin | If found > cut off, reject | R2 =  SSbetween/  SStotal |
| Correlation | DV is scale?  Random selection?  Normal  Homoscedasticity/Homogeneity | R: *r* /= 0  N: *r* = 0 | *r*  *df* | Two tail  t table  df = N – 2  Right side | t = r /√((1-r2)/df) | If found is further out | r is an effect size |
| Regression | DV is scale?  Random selection?  Normal  Homoscedasticity/Homogeneity | R: *b* /= 0  N: *b* = 0 | *b*  *df* | Two tail  t table  df = N – 2  Right side | t = b /√((1-b2)/df) | If found is further out | R2 =  SSbetween/  SStotal |
| Chi-square  Goodness of fit | Most data is 5 per cell  Each person is only in one cell  Data is nominal | R: O /= E  N: O = E | χ2  *df* | χ2 table  df = Categories – 1 | χ2 = Σ(O – E)2 / E | If found > cut off, reject | n/a |
| Chi-square  Independence | Most data is 5 per cell  Each person is only in one cell  Data is nominal | R: O /= E  N: O = E | χ2  *df* | χ2 table  df = (R-1)\*(C-1) | χ2 = Σ(O – E)2 / E | If found > cut off, reject | Φ = χ2 / √(dfsmaller\*N) |